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MEMORANDUM

SUBJECT: Guidelines for Evaluating the Post-Closure Care Period for Hazardous Waste Disposal Facilities under Subtitle C of RCRA

FROM: Barnes Johnson, Director
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TO: RCRA Division Directors, Regions 1-10
RCRA Enforcement Managers, Regions 1-10
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Purpose

The purpose of this memorandum is to provide guidance to assist regulators in evaluating conditions at hazardous waste disposal facilities subject to Subtitle C of the Resource Conservation and Recovery Act (RCRA) that are approaching the end of the original 30-year post-closure care period, and in determining whether the post-closure care period should be adjusted or allowed to end. Any such determinations must ensure ongoing protection of human health and the environment. This guidance also provides information to assist facility owners and operators in preparing documentation to inform the regulators' evaluations.

This guidance has the additional benefit of helping regulated entities understand what may be necessary to ensure protection of human health and the environment at units subject to post-closure care requirements. This enables waste generators and handlers to have a better understanding of the costs associated with land disposal so they can better evaluate long-term waste management strategies, including waste minimization.

Introduction and Need for Guidance

The RCRA Subtitle C hazardous waste management regulations establish a post-closure care[1] period for certain hazardous waste treatment, storage and disposal facilities, and specify post-closure care activities. The post-closure care requirements apply to land disposal units (landfills, land treatment units,

[1] Post-closure care can be generally described as the period of time after closure during which owners and operators conduct specified monitoring and maintenance activities to preserve the integrity of the containment system and to continue to prevent or control releases of contaminants.

and surface impoundments) that leave hazardous waste in place after closure. Post-closure care also applies to some non-land-based units (*e.g.,* certain tanks or containment buildings) that cannot fully decontaminate or "clean close" [1] all equipment, structures, and soils. Post-closure care activities consist of two primary responsibilities: monitoring and reporting, and maintaining the integrity of the waste containment systems (see 40 CFR 264/265.117). Post-closure care for each hazardous waste management unit must begin after completion of closure of the unit and normally continue for 30 years after that date; the regulations also provide discretion to the permitting authority to adjust the length of the post-closure care period.

Many facilities around the country are approaching the end of the initial post-closure care period established in their RCRA permits or post-closure plans. Accordingly, questions have arisen about how to evaluate conditions at these facilities to determine whether the post-closure care period needs to be adjusted – that is, extended, or whether a 30-year post-closure care period is protective for a specific unit. In response, the Office of Resource Conservation and Recovery has developed this guidance recommending criteria to consider when evaluating facilities nearing the end of the post-closure care period [2] and thus ensure that human health and the environment will continue to be protected by the resulting determination. It also sets forth a recommended process for evaluating the post-closure care period in a timely fashion. Finally, this guidance discusses additional considerations that may be important for decision-makers when evaluating the adequacy of the post-closure care period.

This guidance supplements existing guidance on the post-closure care period, including the Technical Evaluation Criteria and Site-Specific Factors to Consider in Determining the Length of the Post-Closure Care Period, presented in the Appendix B of the *RCRA Guidance Manual for Subpart G Closure and Post-Closure Care Standards and Subpart H Cost Estimating Requirements* of January 1987.[3]

Regulatory Overview of the Post-Closure Care Period

[1] The RCRA Subtitle C regulations generally provide for two types of closure: closure by removal or decontamination (referred to as "clean closure") and closure with waste in place. The premise of clean closure is that all hazardous wastes have been removed from a given RCRA unit and any releases at or from the unit have been remediated. More information on clean closure is available in *Memorandum: Risk-Based Clean Closure* from Elizabeth Cotsworth, Acting Director Office of Solid Waste, March 16, 1998.

[2] This document is solely intended to provide guidance to federal and state regulators on implementing the RCRA Subtitle C regulations and to provide policy advice and recommendations. As such, this document does not impose any legally binding requirements, and the use of such phrases as "guidance," "recommend," "may," "should," and "can," are not intended to impose or connote any legal obligations. Accordingly, this document does not change or substitute for any law, regulation, or any other legally binding requirement and is not legally enforceable. The policies described in this document may not apply to a particular situation based upon the circumstances, and EPA may deviate from or revise any of the policies described in this document without prior notice to the public. While EPA has made every effort to ensure the accuracy of the discussion in this document, the obligations of the regulated community are determined by statutes, regulations or other legally binding requirements. In the event of a conflict between the discussion in this document and any statute or regulation, this document would not be controlling.

[3] OSWER Policy Directive #9476.00-5, EPA/530-SW-87-10.

EPA regulations[4] require that the post-closure care period for each hazardous waste management unit subject to the requirements of 40 CFR 264/265.117 through 264/265.120 must begin after completion of closure of the unit and continue for 30 years after that date. Still, the regulations' identification of a default 30-year post-closure care period does **not** reflect a determination by EPA that 30 years of post-closure care is necessarily sufficient to eliminate potential threats to human health and the environment in all cases. Nor is the full 30-year period always necessary. In fact, the regulations provide for a permit authority to conduct a case-by-case review of the post-closure care period and establish arrangements to adjust the length of the post-closure care period on a facility or unit-specific basis, where the record supports a determination that the revised post-closure care period will remain protective of human health and the environment.[5]

The regulations provide that the decision to alter the length of the post-closure care period can be made at any time preceding *partial closure*[6] of a hazardous waste management unit subject to post-closure care; at any time preceding *final closure*[7] of a facility; or at any time during the post-closure care period for a particular unit. For permitted facilities, such a decision must be made through the permit renewal or modification procedures in parts 124 and 270 of the regulations. For interim status facilities, adjustment to the post-closure care period must be made in accordance with § 265.118(g).

According to § 264.117 the post-closure care period may be modified under certain circumstances provided the modifications are protective of human health and the environment:

- The post-closure care period may be shortened where "the reduced period is sufficient to protect human health and the environment (*e.g.*, leachate or ground-water monitoring results, characteristics of the hazardous wastes, application of advanced technology, or alternative disposal, treatment, or re-use techniques indicate that the hazardous waste management unit or facility is secure)."

- The post-closure care period may be extended where "the extended period is necessary to protect human health and the environment (*e.g.*, leachate or ground-water monitoring results indicate a potential for migration of hazardous wastes at levels which may be harmful to human health or the environment)."

The provisions for interim status facilities are similar [§§ 265.117 and 265.118(g)].

For more details on particularly relevant portions of the federal RCRA hazardous waste regulations, see Appendix A.

Criteria to Consider for Evaluating the Post-Closure Care Period

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[4] 40 CFR 264.117 (for permitted facilities) and 265.117 (for interim status facilities)

[5] EPA explained this approach early in the RCRA program. *See* 45 Fed. Reg. 33197 (May 19, 1980); *see also* 47 Fed. Reg. 32287-88 (July 26, 1982); 46 Fed. Reg. 2819 (Jan. 12, 1981).

[6] *Partial closure* is defined in 40 CFR 260.10 as "the closure of a hazardous waste management unit in accordance with the applicable closure requirements of parts 264 and 265 of this chapter at a facility that contains other active hazardous waste management units. For example, partial closure may include the closure of a tank (including its associated piping and underlying containment systems), landfill cell, surface impoundment, waste pile or other hazardous waste management unit, while other units of the same facility continue to operate."

[7] *Final closure* is defined in 40 CFR 260.10 as "the closure of all hazardous waste management units at the facility in accordance with all applicable closure requirements so that hazardous waste management activities under parts 264 and 265 of this chapter are no longer conducted at the facility unless subject to the provisions in § 262.34."

An overarching consideration in determining whether to extend the post-closure care period, or allow it to end, is the inherent uncertainty associated with the long-term presence of hazardous waste in the unit. Because many hazardous wastes degrade slowly or do not degrade under containment in these units, the continued presence of hazardous waste in the unit (*i.e.*, any case other than clean closure) indicates the potential for unacceptable impacts on human health and the environment in the future if post-closure care is not maintained. For instance, there are often uncertainties in whether controls will continue to function as planned and whether future activities will lead to unplanned exposures to human and environmental receptors. Even if there is no current evidence of actual releases from the facility, significant factors can change over time. For example, groundwater flow can change direction due to the sequencing of dry and wet years, pumping at municipal water supply or other well fields, or shifting gradients resulting from seasonal variations or tidal influences. Landfill components, such as caps and liners (which have a finite design life), can degrade over time, especially if maintenance is discontinued. Exposure pathways that have been eliminated by means of an engineered control may be reopened (*e.g.*, if animals burrow through the cap). Thus, continued monitoring and maintenance activities may be appropriate unless or until it can be demonstrated that site-specific conditions adequately minimize the risk that contaminants will migrate from the unit (*e.g.*, site geology/hydrogeology) or that, in the event the engineering controls fail, a release would not pose an unacceptable risk to human health and the environment. This section provides recommended criteria that can be used to evaluate site-specific conditions and associated risks or remaining uncertainties in determining whether to adjust the post-closure care period.

These criteria can also be periodically used to evaluate whether activities in the post-closure plan should be amended. For instance, if the regulator determines it is necessary to extend the post-closure care period, these criteria can be used to determine if the frequency of one or more post-closure care monitoring requirements could be reduced during that extended timeframe. Each criterion is not necessarily applicable for every unit in post-closure care, for example, the "Gas Collection System Integrity" criterion would not apply to units without a gas collection system. The questions provided under each criterion are intended to help identify potential threats to human health and the environment. However, they do not all need to be answered in order to make a decision concerning the appropriate post-closure care period and the monitoring/maintenance activities.

Waste Treatment: Knowing whether the hazardous waste was disposed prior to the effective date of the Land Disposal Restrictions (LDR) program is an important piece of information when evaluating site-specific conditions. Hazardous waste treatment that destroys harmful contaminants or reduces toxicity of the waste before placement in a land disposal unit provides a more lasting form of groundwater protection than waste containment alone. Similarly, through a process called stabilization or immobilization, metal contaminants – that cannot be treated – can be chemically and physically solidified or bound into the wastes that contain them (*e.g.,* through chemical fixation). Thus, reducing the mobility or leachability of hazardous constituents in a waste is another means of achieving LDR's groundwater protection goal. Relevant questions for this criterion include:

- Were all the wastes pre-treated in accordance with the treatment standards of the LDR program or does the unit contain wastes that were placed on the land prior to the effective dates of the LDR rules?

EPA recommends reviewing the waste analysis data for treated wastes in the land disposal unit.

Nature of Hazardous Wastes Remaining in the Unit: The current properties of the hazardous waste (*e.g.,* degradation, solubility, liquid-to-solid ratio) provide an important indication of the waste's ability to migrate or disperse in the environment.

- What is the degree of risk (*e.g.*, exposure pathways, probability of exposure) presently associated with the wastes in the unit?
  - Are the wastes highly toxic?
  - Do they degrade into substances that are more or less toxic, or non-toxic?
  - Are there indications that the waste might become incompatible with the liner?
- What is the potential for adverse impacts from releases based on the current understanding of contaminant fate and transport considerations (*e.g.,* presence of persistent, bioaccumulative contaminants, as compared to biodegradable contaminants; constituent speciation(s); and leaching profiles)?
- Is the waste in a stable state? Are there indications that the waste may become unstable?

EPA recommends that current data from regulatory standards be used for comparison to facility-specific performance goals articulated in the post-closure plan, and that, as necessary, the plan be updated to account for any new information on toxicity and carcinogenicity. EPA also recommends reviewing and possibly updating the list of constituents to analyze, since scientific understanding of constituents of concern may change over time. In addition, the data gathered should include an analysis of potential degradation products as well as of the types of wastes known to have been placed in the unit(s).

Unit Type/Design: The main objective of the disposal units is the containment of the hazardous waste. Thus, emphasis should be placed on the unit's ability to contain hazardous wastes over the long term.

- Is the unit, for example, a landfill, a surface impoundment, or a closed tank with residual contamination?
- Does the unit meet the minimum technology requirements (*e.g.,* double liners, leachate collection system)? Or was the unit already in existence at the time these requirements were promulgated and closed before retrofitting?
- To what extent does the overall design and construction of the unit minimize the need for long-term maintenance, resist the generation of leachate and emissions, and contain any remaining waste in perpetuity?

It is recommended that the permitting authority consider any unit-specific design, in concert with applicable closure and post-closure care requirements, when evaluating whether adjustment of the post-closure care period is warranted to protect against any potential impact on human health and the environment. There can be circumstances in which continuing to maintain unit-specific controls may be necessary to protect human health and the environment, particularly if the unit pre-dated the minimum technology requirements; this could support a decision to extend the post-closure care period. Conversely, there might be circumstances where the overall design and construction of the unit minimize the need for long-term maintenance and could support a decision to shorten or end the post-closure care period.

Leachate: The leachate collection and removal system controls leachate build-up on the liner, working in conjunction with the liner's barrier system to minimize the potential for groundwater contamination.

Monitoring for leachate generation serves as the most effective way of examining the integrity of the waste management unit (*e.g.,* it can suggest a cover or liner failure when leachate is detected late in the post-closure care period). [8]

- Will the integrity and functionality of the leachate collection system, leachate generation rate, and leachate quality remain adequate to prevent harm to human health or the environment in the absence of post-closure care?
- Can the facility owner or operator show through monitoring/modeling and/or statistical analysis that the leachate would not pose a threat to human health and the environment because it would not exceed applicable standards at compliance or exposure points?
- Is it likely those standards will be exceeded in the future, for example, through formation and release of degradation products? Do the data demonstrate that there are no increasing trends in the concentration of leachate constituents?
- Can the facility owner or operator demonstrate that maintenance and operation of the leachate collection system can be ceased without posing a threat to human health and the environment?

EPA recommends that potential impacts from changes in leachate characteristics and generation rate that could result from discontinued maintenance be considered.

Groundwater: Groundwater monitoring serves as the primary means of detecting leachate releases and groundwater contamination. It is important that groundwater analytical results, adequacy and reliability of the groundwater-monitoring network, and groundwater-monitoring well integrity be evaluated before the post-closure care period nears its end.

Groundwater should not exceed risk-based concentrations for a reasonable exposure scenario (or point of exposure) using currently acceptable risk assessment methods and up-to-date risk-based levels and scenarios. If the evaluation determines that unacceptable risk exists, these risks should be addressed. The risk evaluation should consider reasonable current or future groundwater use in the general area of the site (*e.g.*, if a drinking water source is located nearby).

Review of the groundwater monitoring system should have been done as part of operation and maintenance inspections over time. Evaluation of the groundwater monitoring network should refer to the most recent operation and maintenance inspection. The well network evaluation should look at groundwater flow direction, well construction, and placement relative to groundwater flow direction.

[8] "If leachate is generated late in the post-closure care period, this could suggest a cover or liner failure warranting an extension of the post-closure care period." See page B-13 of the RCRA Guidance Manual for Subpart G Closure & Post-Closure Care Standards and Subpart H Cost Estimating Requirements, EPA/530-SW-87-010 (January, 1987).

- Is groundwater quality in compliance with current standards?
- Have there been changes or are changes anticipated in land use/groundwater use that could change the applicable standards (*e.g.,* introduction of agricultural irrigation to an area) or the directional flow (*e.g.,* sequencing of dry and wet years, pumping at municipal water supply or other well fields, or shifting gradients resulting from seasonal variations or tidal influences)?
- Do the data indicate any trend in the concentration of analytes in groundwater?
- Has an expanded list of analytes (*e.g.,* selected from Appendix VIII of 40 CFR part 261) been considered for analysis within a reasonable time frame?
- Have the monitoring wells been maintained to provide valid data, for example, no well screen occlusion?

Siting and Site Geology/Hydrogeology: Relevant facility location characteristics (which might have changed since the post-closure plan was approved) may include proximity to vulnerable areas such as residential areas and surface and drinking water sources. The current and reasonably anticipated future land use of the facility and surrounding properties may also be relevant. Location in potentially vulnerable areas increases the likelihood and potential severity of releases. For example, if units are located in areas prone to flooding or with a high water table, it may be appropriate for reviewers to consider the potential for continuing risks to surface water in evaluating whether to modify the post-closure care period. Conversely, units located in areas not prone to flooding, or at great distance from the water table, might have less need for long-term maintenance. Additional hydrologic and geologic conditions such as wetlands and earthquake zones, unstable soils, and areas at risk for subsurface movement could have changed since a unit first entered post-closure care and might also need to be taken into account. Proximity to residential areas can also present unique considerations. It is also appropriate to consider whether facility conditions minimize the potential for adverse impacts on local populations if there is a release from the unit. [9]

[9] If a unit managing vapor-forming chemicals has releases to the environment, it creates the potential for vapor intrusion issues to neighboring communities due to migrating plumes of contaminated groundwater or migrating soil gases, even when the community is some distance away. Consider evaluating risks from subsurface intrusion of toxic constituents (*e.g.,* vinyl chloride from aerobic degradation of perchloroethylene/trichloroethylene), or landfill gases such as methane and hydrogen sulfide, into buildings or structures located near the unit in post-closure care. See the *Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air*, June 2015.

- Does the site geology include subsurface strata that might contain or retard migration?
- What is the distance to the groundwater table, bearing in mind seasonal fluctuations, and the proximity of any useable aquifers?
- Is the unit located in a dry climate that provides minimal precipitation?
- Is the pattern of land use changing or likely to change in the future in a way that would bring people closer to or farther away from the facility?
- Have zoning laws changed?
- Is there a sizable buffer zone around the facility that could limit human activity near the site into the future?
- What is the distance to sensitive receptors for groundwater flow and emissions?
- Could the distance to sensitive receptors change under reasonably foreseeable future conditions, as reflected, for example, in land use development plans for the area?
- Is there the potential for impact on surface water quality?
- Have new potential exposure pathways been identified and evaluated? For example, vapor intrusion had not been identified as a potential exposure pathway at the time many permits were issued.[11]

In addition, EPA recommends that the potential effects of climate change be taken into account in making these assessments.[10] For example, flooding from more intense and frequent storms and sea-level rise may lead to contaminant releases from units subject to post-closure care requirements by transport of contaminants through surface soils, groundwater, surface waters and/or coastal waters. Saltwater intrusion and increased groundwater salinity in coastal aquifers may increase the permeability of clay liners installed at waste sites, such as landfills. Changes in precipitation patterns and temperature may also adversely affect the performance and efficacy of engineering controls.

Facility History: All waste management units (during active life or in post-closure care) must be adequately managed to prevent releases of contaminants to the environment. A well-managed facility is more likely to maintain its structural integrity. Good compliance records, routine maintenance and inspections, emergency procedures to handle natural disasters, and prompt and efficient response to spills and other incidents, are some of the management practices that help demonstrate whether the unit has been adequately managed.

[10] For more information on climate change adaptation consult the "Climate Change Adaptation Technical Fact Sheet: Landfills and Containment as an Element of Site Remediation," EPA 542-F-14-001 (May 2014).

- From the facility records (including frequency of all maintenance activities), to what extent did the unit closure design and activities described in the closure plan and closure certification minimize the need for ongoing monitoring and maintenance?
- Has past noncompliance with regulatory requirements contributed to present environmental conditions that warrant an extension of the post-closure care period (*e.g.*, non-compliance with current LDR standards)?
- Is there a history of any releases and what are current contaminant levels?
- If a release did occur, have corrective measures been successfully implemented and has subsequent monitoring shown no evidence of a recurrence?
- Are analyses being conducted for the correct parameters?
- How complete and accurate is the facility operating record?
- Is there confidence that the record accurately reflects spills, releases, lapses in maintenance or other events that may have a bearing on potential facility impacts?
- To what extent have closure activities minimized or eliminated escape of hazardous waste, hazardous constituents, leachate, contaminated runoff, or hazardous waste decomposition products to the ground, surface waters or the atmosphere during the post-closure care period?

In order to fully understand the facility history, EPA recommends that the permit authority also review the closure plan and certification of closure. [11]

Gas Collection System Integrity: For units that have a landfill gas collection system, it is important to analyze the extent to which it is capable of being modified or shut down at the end of the post-closure care period without exceeding emission levels that are consistent with applicable regulatory standards and with public safety at the facility. In addition, because gas emissions can increase or decrease over time, it is recommended that statistical or graphical analysis of the data be used to identify any significant changes in gas emissions.

- To what extent is the gas collection system capable of being modified or shut down at the end of the post-closure care period without exceeding emission levels that are consistent with applicable regulatory standards and with public safety at the facility?

Integrity of Cover System: A viable cover is the most important mechanism in preventing leachate generation and, ultimately, releases of contaminants. Cracks, burrows from animals, and other problems are likely to occur after termination of post-closure care. If testing and inspection end, problems can go undetected and releases could occur. Thus, it is vital to evaluate the performance of the cover system during the post-closure care period.

[11] For further information on closure performance standards, see 40 CFR 264.111 and 265.111.

- Has the cover system been designed and maintained to minimize migration of water into the management unit and to prevent contaminants from escaping into the environment?
- Has periodic testing or inspection been conducted to identify and assure any necessary repairs? Potential concerns include differential settlement, problems with cover integrity (cracks, burrows, etc.), cover drainage, and the adequacy of the diversion or drainage system. Even where such problems have not occurred, are they likely to arise without long-term care, *e.g.*, will the cover system remain intact without mowing to prevent growth of trees?
- Is the remaining waste likely to be so benign that even with a compromised cover system release of hazardous constituents is unlikely?
- To what extent will the integrity of the cover system be preserved in the absence of long-term care or with reduced maintenance requirements?

For alternative covers, it is recommended that the potential effects of climate change (*e.g.,* increasing frequency and intensity of weather events) be taken into account to the extent practical. For example, will the vegetation remain viable under altered precipitation patterns?

Long-Term Care: The concept of long-term care (also known as long-term stewardship) generally includes the establishment and maintenance of physical and legal controls that are necessary to prevent unacceptable exposure to hazardous waste or contaminated environmental media left in place at a site or closed facility. As a general matter, the RCRA post-closure care requirements (for example, monitoring and cap maintenance) fall under the umbrella of long-term care. When considering whether to adjust the post-closure care period, permitting authorities should evaluate any continuing need to maintain engineering controls (ECs),[12] particularly those specified in the RCRA post-closure care regulations.

- How will the potential for human exposure to contamination be minimized in the absence of RCRA post-closure care?
- How is the integrity of the entire containment system going to be preserved over time?
- Can maintenance and monitoring activities cease or be reduced without causing an adverse impact to human health and the environment?

A further need to maintain ECs could justify an extension of the post-closure care period. This may be the case even if the frequency of some activities could be adjusted (*e.g.,* some activities may be needed more frequently in the early years of the post-closure care period and less frequently later).

The RCRA post-closure care regulations provide for the imposition of institutional controls (ICs)[13] as well. For example, §§ 264/265.117(c) provides that post-closure uses of a property where hazardous wastes remain after final or partial closure must never be allowed to disturb the integrity of the containment system or the functioning of the monitoring system, with limited exceptions. In addition, §§ 264/265.119(b)(1)(ii) provide that the owner or operator must record a notation, in accordance with state law, on the deed to the facility property – or on some other instrument which is normally examined during title search – that will in perpetuity notify any potential purchaser of the property that, among other things, the property's use is restricted under the RCRA closure/post-closure regulations. States can

[12] Engineering controls are the engineered physical barriers or structures (*e.g.*, caps, impermeable liners, mitigation barriers, or fencing) designed to monitor and prevent exposure to the contamination.
[13] Institutional controls are administrative or legal instruments (*e.g.*, deed restrictions/notices, easements, restrictive covenants, zoning) intended to minimize the potential for human exposure to contamination by limiting land or resource use.

choose to supplement or support such deed restrictions under state law, *e.g.*, by setting up a deed restriction tracking system, ensuring that deed restrictions remain in place, or ensuring that information on existing ICs is available to interested parties.

Even in cases where the post-closure care period need not be extended to protect human health and the environment, the permitting authority may want to ensure that some long-term ICs, such as an easement that provides access to the property, are continued. EPA recommends that any ICs (under state or local authority) needed beyond the post-closure care period be in place before the post-closure care period ends. EPA expects that the permit authority would typically need to assess the availability and adequacy of other potential mechanisms for overseeing ICs as part of evaluating whether any modification to the post-closure care period was warranted.

EPA also recommends that consideration be given as to whether a funding source is available to support any necessary ECs and ICs in the future (see Appendix B for a list of ICs resources.) This could be done, for example, as part of an anticipated future use (or end-use strategy) that generates revenue, so that protective controls at the unit can be continued while supporting beneficial reuse of the land into the future.

Recommended Approach for Reviewing Hazardous Waste Management Units Approaching the End of the Post-Closure Care Period

EPA believes that, at a minimum, it is important to make a decision about the length of the post-closure care period, and to document such decision, well before that period nears its end. Therefore, EPA recommends that regulators assess the overall status of all the units under post-closure care, and plan to evaluate the adequacy of their post-closure care periods well in advance of their anticipated conclusions. EPA also recommends that the results from the evaluation of the post-closure care period be included in the regulator's administrative record for the facility.

As stated before, the federal RCRA hazardous waste regulations provide discretionary authority to the permitting authority to extend or shorten the length of the post-closure care period. However, the facility owner or operator is responsible for providing the information necessary to support this decision (see, for example, 40 CFR 270.30(h), Duty to provide information). A lack of relevant and complete information may justify a conclusion by the regulatory authority that extension of the post-closure care period is necessary to protect human health and the environment until such information is provided.

EPA's recommendations for evaluating units approaching the end of the post-closure care period are discussed in more detail below.

Timing: Regulators should track permit terms and dates of all post-closure permits and have a strategy for when they will begin looking at whether to adjust the post-closure care period, allowing enough time for the necessary steps to take place prior to the 30-year expiration:

- Identify and gather necessary information
- Evaluate information
- Decide whether to adjust the post-closure care period
- Incorporate tentative decision into permit renewal (or modification) process.

For units with operating permits, EPA recommends starting the process at least 18 months before the expiration of the post-closure permit or post-closure care period, whichever comes first. It is important to keep in mind that in accordance with § 270.1(c) units subject to post-closure care must have post-closure permits or an enforceable document in lieu of a post-closure permit and, under § 270.50, permits can be issued for no longer than ten years. Consequently, over the course of a 30-year post-closure care period, the permit would normally need to be renewed at least twice (unless the post-closure care period has been modified). In addition, for a permitted land disposal facility, the length of the post-closure care period is an important component of the five-year review required under § 270.50(d). The facility owner or operator may also initiate the post-closure care evaluation and/or modification process by submitting a permit modification. Similarly, regulators should evaluate petitions to end or shorten the post-closure care period in a timely manner.

For facilities conducting post-closure care under interim status, regulators might want to adopt time frames for review similar to those of permits (*e.g.*, every ten years) to initiate the process of identifying and gathering relevant information. At a minimum, they should evaluate the adequacy of the post-closure care period well in advance of its end date. The facility owner or operator may also initiate the process by submitting a revision to their post-closure plan, including a petition in accordance with § 265.118(g)(1).

Post-Closure Plan: When considering adjusting or ending the post-closure care period, regulators should request a copy of the most current version of the approved post-closure plan, along with any proposed revisions provided by the owner or operator. Under §§ 264.118(b) and 265.118(c), the post-closure plan identifies certain activities (and their frequency) that must be conducted during the post-closure care period (*e.g.*, monitoring and maintenance). The post-closure plan may also identify performance standards or performance goals, which should be updated to account for any new information on toxicity and carcinogenicity. The post-closure plan thus provides an important starting point for the review. The project file should have a history of permit modifications including those made to the post-closure plan. It is also important that the results of the post-closure period assessment be incorporated into a revised post-closure plan (and the permit), as appropriate.

Relevant Information: As part of the review of the post-closure plan and any relevant historical information, regulators should determine whether they possess the information necessary to adequately evaluate the conditions at the unit so that a decision about the post-closure care period can be made. Relevant information may include monitoring reports, results from testing or inspections of the cover system, information concerning land use and institutional controls, and any other information that would be helpful in determining whether post-closure care continues to be needed for the unit. The absence of adequate information (*e.g.*, to address unresolved risk issues), including failure of the permittee to provide necessary information, will make it difficult for the permitting authority to conclude that allowing the post-closure period to end or shortening the post-closure care period meets the regulatory standard. The permitting authority can conclude that an extension of the post-closure care period is necessary to protect human health and the environment until the information necessary to make a final determination is available. Any proposal to adjust the post-closure care period should be supported by adequate data and analysis to demonstrate the anticipated long-term performance of the unit. To account for cyclical fluctuations in weather and hydrology, EPA recommends that multiple-year performance data be considered (*e.g.,* ten years).

The recommended criteria outlined in the previous section are also relevant to inform deliberations on whether and what additional information about the facility is necessary.

If information becomes available indicating changing circumstances that might necessitate the need to revisit the post-closure care (*e.g.,* monitoring results show leaching) it is recommended that the regulator immediately request any additional information needed from the facility owner or operator to inform a decision about adjusting the post-closure care period. This can be accomplished through various means, including under the facility's permit terms (*e.g.,* under § 270.30(h), the permit holder has a duty to provide relevant information and records; under § 270.30(k)(4), monitoring results must be reported at intervals specified in the permit); through enforcement of the relevant interim status regulations; or through inspections or studies required pursuant to RCRA sections 3007 or 3013.

Expiration/Renewal of Post-Closure Permits: Permits are issued for a fixed term not to exceed ten years, which means post-closure permits will need to be renewed periodically throughout the post-closure care period (*e.g.,* a 30 year period could span three permit terms). Renewal applications must be submitted 180 days before the expiration date of an effective permit (see § 270.10(h)). Frequently, facility owners or operators do not submit a renewal application as they approach the permit's expiration date because they believe they will submit an acceptable certification that they have completed post-closure care for the unit(s). If, towards the end of the permit term, the permitting authority has not received a permit renewal application from the facility or if the permitting authority anticipates that there may be any issues regarding the acceptability of the certification of completion of post-closure care, EPA recommends that the regulatory authority remind the owner or operator that the regulations require the facility to provide the required certification or reapply for a permit, and request submission of the permit renewal application (see §§ 270.10(h) and 270.30(b)). Timely submission of an application for permit renewal will ensure that a valid permit is in effect (pursuant to § 270.51) pending a resolution. If a facility owner or operator does not submit a timely renewal application, and the permit is not administratively continued, the regulator may consider initiating an enforcement action or issuing a new permit (see § 270.51(c)).

Public Participation: Any potential adjustments to the length of the post-closure care period are subject to requirements for involving the public. For permitted facilities, extensions to the post-closure care period would be processed as a Class 2 modification, and reductions would be Class 3. In both cases, the regulator must provide public notice, hold a public meeting, and allow an opportunity for written comments to be submitted. Similarly, for adjustments in the length of the post-closure care period at interim status facilities, the regulator must provide public notice and an opportunity for written comments. Although there is no specific provision in the regulations to notify the public when a post-closure care period ends, we recommend that the regulatory authority consider providing notice to the local community when they release a facility owner or operatory from their post-closure care obligation.

Financial Assurance Requirements: Finally, permitting authorities should keep in mind that an adjusted post-closure care period may also necessitate revisions to the associated post-closure cost estimate and financial assurance.

Additional Considerations

Benefits of Post-Closure Permits: Permits are site-specific legal documents that establish the technical and administrative conditions to which a facility must adhere, in order to ensure that monitoring and maintenance activities are performed to prevent and address releases that could potentially threaten

public health and the environment and lead to cleanup obligations.[14] Thus, it is critical that any modifications to the permit are made, as necessary, to ensure they are complete and current. Permits are issued in, at most, ten-year increments to ensure they are periodically reviewed and requirements are updated as necessary. Additionally, facility owners and operators may request modifications to a permit. Although there are resources associated with permit maintenance, permits provide numerous benefits and protections such as:

- Basic Permitting Requirements – Permits are subject to the regulations governing facility permitting as set forth in 40 CFR part 270, which covers basic EPA permitting requirements, such as application requirements, standard permit conditions (*e.g.,* duty to comply, duty to reapply, duty to provide information), and monitoring and reporting requirements (*e.g.,* annual monitoring reports, compliance schedules).

- Unit-Specific Informational Requirements – Where applicable, owners or operators of a permit must submit information including detailed plans and engineering reports under § 270.14(b)(13).

- Financial Assurance – The owner or operator of a permitted unit must establish and maintain financial assurance. At facilities with units in post-closure, requirements include financial assurance for post-closure care in accordance with the approved post-closure plan for the facility, for as long as the unit remains subject to RCRA post-closure care requirements, including the post-closure permit requirement (§ 264.145).

- Corrective Action – Section 264.101 requires that all permits include requirements for facility-wide corrective action as necessary to protect human health and the environment.

- Enforceability – The permitting authority can enforce RCRA permit requirements including through facility inspections, record reviews, and other means. Section 270.28 provides that the permittee shall allow the regulatory authority to perform inspections at the facility.

- Public Participation – The permitting process of 40 CFR parts 270 and 124, and the permit modifications procedures in § 270.42 provide for public involvement. The public has the opportunity to comment on a facility's closure and post-closure plans as part of the initial permitting process and any amendments made to the plans as part of the permit modification procedures.

- Additional Conditions – Section 3005(c)(3) of RCRA (codified at 40 CFR 270.32(b)(2) and commonly referred to as the "omnibus authority"), allows for additional site-specific permit conditions to be incorporated into RCRA permits, should such conditions be necessary to protect human health and the environment.

- When permits incorporate the technical requirements contained in parts 264, 266, and 267 of the regulations, those permit conditions are not subject to challenge (*i.e.,* a number of permit conditions are required by the regulations themselves).

- Permit requirements cannot be terminated merely by sale of the property or bankruptcy of the owner or operator.

Relationship of Subpart F Corrective Action and Post-Closure Care: Corrective action and post-closure care requirements for a regulated unit may be linked, for example, in the case of groundwater

[14] Owners and operators of units subject to post-closure care, must have post-closure permits, "unless they demonstrate closure by removal or decontamination as provided under § 270.1(c)(5) and (6), or obtain an enforceable document in lieu of a post-closure permit, as provided under paragraph (c)(7) of this section" (see §270.1(c)).

monitoring and/or corrective action for releases from closed regulated units being handled pursuant to 40 CFR 264.90–264.100. In many cases, it may be desirable (either by the facility owner/operator, the regulatory agency, or both) to coordinate the post-closure care and monitoring/corrective action requirements. EPA recommends that the regulatory agency consider extending the post-closure care period (and associated permits or other enforceable documents) when corrective action continues beyond the original post-closure care period (see §§ 264.90(c)(3) and 264.96(c)).

Post-Closure Rule:[15] This rule amended the regulations applicable to facilities with land disposal units in two areas. First, it modified the requirement for a post-closure permit to provide EPA and the authorized states discretion to use a variety of authorities to address the post-closure period at non-permitted facilities. In addition, it amended the regulations governing closure of land-based units to allow EPA and the authorized states to address those units through the corrective action program in certain situations where regulated units and other solid waste management units have contributed to a release.

Scope of Guidance and Relationship to Existing Guidance: This document is not intended to provide guidance on decisions to extend or shorten the post-closure care period for *non-hazardous* waste units (*i.e.,* units regulated under RCRA Subtitle D), nor is it intended to replace existing guidance concerning establishment and attainment of remedial goals at contaminated facilities addressed under RCRA Subtitle C authority. This guidance is meant to supplement any existing guidance on the post-closure care period, and should be used in concert with the Technical Evaluation Criteria and Site-Specific Factors to Consider in Determining the Length of the Post-Closure Care Period, presented in the Appendix B of the *RCRA Guidance Manual for Subpart G Closure and Post-Closure Care Standards and Subpart H Cost Estimating Requirements* of January 1987.[16] This document provides additional considerations and factors that are not included in the 1987 guidance, such as vapor intrusion, updated toxicity values, and climate change considerations – although the updates presented in this guidance are not intended to be comprehensive.

Relationship to State Authorities: Under RCRA, states may apply to, and receive from EPA, authorization of a state program to operate in lieu of the federal RCRA hazardous waste program. *These state programs may be broader in scope or more stringent than EPA's RCRA hazardous waste regulations, and requirements can vary from state to state*. Members of the regulated community are encouraged to contact their state agencies for the particular post-closure care requirements that apply to them in any particular state.

For additional information, feel free to contact me, or your staff may contact Lilybeth Colon (colon.lilybeth@epa.gov, 703-308-2392) or Tricia Buzzell (buzzell.tricia@epa.gov, 703-308-8622).

[15] See *Standards Applicable to Owners and Operators of Closed and Closing Hazardous Waste Management Facilities: Post-Closure Permit Requirement and Closure Process*; Final Rule, October 22, 1998 (63 FR 56710).
[16] OSWER Policy Directive #9476.00-5, EPA/530-SW-87-10. Appendix B of this guidance presents technical factors to consider in determining the length of the post-closure care period as well as a number of hypothetical scenarios illustrating how site-specific information might be used to support an extension or reduction in the length of the period.

Appendix A: Overview of Federal Regulatory Provisions

Regulations governing RCRA post-closure care are set forth in 40 CFR part 264 subpart G for permitted facilities and part 265 subpart G for interim status facilities. Additional requirements for post-closure care of specific types of units are included in the regulations for those units. See §§ 264/265.197 (Tank Systems); §§ 264/265.228 (Surface Impoundments); §§ 264/265.258 (Waste Piles); §§ 264/265.280 (Land Treatment Units); §§ 264/265.310 (Landfills); § 264.603 (Miscellaneous Units); §§ 264/265.1102 (Containment Buildings); and §§ 264/265.1202 (Hazardous Waste Munitions and Explosives Storage).

Regulations governing financial assurance for post-closure care are set forth in 40 CFR part 264 subpart H for permitted facilities and part 265 subpart H for interim status facilities.

Regulations governing facility permitting are set forth in 40 CFR part 270.

> *Post-Closure Care* – Sections 264.117(a) and 265.117(a) establish general requirements for post-closure care and a 30-year post-closure care period. However, the regulations also allow the permitting authority to shorten the 30-year post-closure care period if the reduced period is sufficient to protect human health and the environment, or to extend it, if necessary (see the *Post-Closure Plan Amendment* section for more details). Sections 264.117(a)(2)(i) and 265.117(a)(2)(i) provide the following examples for shortening the post-closure care period: "...(*e.g.*, leachate or groundwater monitoring results, characteristics of the hazardous wastes, application of advanced technology, or alternative disposal, treatment, or re-use techniques indicate that the hazardous waste management unit or facility is secure)."
>
> Sections 264.117(a)(2)(ii) and 265.117(a)(2)(ii) provide the following example for extending the post-closure care period: "...(*e.g.,* leachate or groundwater monitoring results indicate a potential for migration of hazardous wastes at levels which may be harmful to human health and the environment)."
>
> *Post-Closure Plan* – Under §§ 264.118 and 265.118, the owner or operator of specified units must have a written post-closure plan. The plan must identify monitoring and maintenance activities that will be carried out after closure, and their frequency, to assure compliance with the requirements of specific subparts, including subparts F, K, L, M, N and X, where applicable. For permitted facilities (§ 264.118(a)), the post-closure plan must be submitted with the permit application and approved by the permitting authority as part of permit issuance procedures. The approved post-closure plan becomes a condition of any RCRA permit issued (see the *Post-Closure Plan Amendment* section for more details). For interim status facilities (§ 265.118), the owner or operator must submit the post-closure plan to the permitting authority within specified time frames, and the regulations provide for making the post-closure plan available to the regulatory authority.
>
> *Procedures for Post-Closure Plan Amendment* – For permitted facilities*,* the process for making changes to the post-closure plan is through permit modification (permit modification procedures are set forth in § 270.42). Under § 264.118(d)(1), the owner or operator may submit a written notification or request for a permit modification to amend the post-closure plan. Under § 264.118(d)(2), the owner or operator must submit a written notification of the permit modification or request for a permit modification to authorize a change in the approved post-closure plan under certain circumstances. Specific reasons set forth in the regulations include changes in operating plans or facility design that affect the approved post-closure plan, and

events occurring during the active life of the facility that affect the approved post-closure plan. For interim status facilities, § 265.118(d) prescribes procedures for amending the post-closure plan. The permitting authority may also request modifications to the post-closure plan under §§ 264.118(d)(4) and 265.118(d)(4).

Procedures for Post-Closure Care Period Adjustment – Adjustments to the post-closure care period may be initiated at any time preceding partial or final closure or at any time during the post-closure care period of a particular unit. For interim status facilities, § 265.118(g) prescribes a process for extending or shortening the post-closure care period that includes provisions for public involvement. For permitted facilities, § 264.117(a)(2) provides for shortening or extending the post-closure care period in accordance with the permit modification provisions in parts 124 and 270.

Section 270.41 provides for Agency-initiated permit modifications. EPA may modify a permit for the following reasons: if there have been material and substantial alterations or additions to the facility; there is new information that was not available at the time of permit issuance; new statutory or regulatory requirements were promulgated; EPA has cause to initiate a compliance schedule under § 270.33; or as necessary to assure that the facility continues to comply with the currently applicable requirements in parts 124, 260 through 266, and 270, when a permit for a land disposal facility is reviewed by the Director under § 270.50(d).

Section 270.42 contains the regulations that apply to the modification of a permit at the request of the permittee. For all modifications, the permittee submits information to EPA that describes the exact change to be made to the permit conditions, identifies whether the modification is Class 1, 2, or 3, and provides the applicable permit application information.

The process for extending the post-closure care period is a Class 2 modification, while the process for shortening the post-closure care period is a Class 3 modification (§ 270.42, Appendix I, E2 and E3). These procedures include provisions for public involvement. The post-closure care period can also be modified through permit renewal under § 270.32(d).

Financial Assurance for Post-Closure Care – EPA's regulations under parts 264/265 subpart H establish requirements for financial assurance, including financial assurance requirements for post-closure care (see §§ 264.140 and 265.140). Under §§ 264.144 and 265.144, the owner or operator is required to have detailed written cost estimates for post-closure monitoring and maintenance in accordance with the applicable post-closure care requirements. Under §§ 264.145 and 265.145 generally, the owner or operator is required to establish financial assurance for post-closure care in an amount equal to the current post-closure cost estimate.

Certification of Completion of Post-Closure Care and Release of Owner and Operator from Financial Assurance Requirements – Under §§ 264.120 and 265.120, the owner or operator must submit certification that the post-closure care for the unit(s) was performed in accordance with the approved post-closure plan; the certification must be sent by registered mail to the permitting authority. This certification must be submitted no later than 60 days after the completion of the post-closure care period for each hazardous waste disposal unit. The certification must be signed by the owner or operator and a qualified professional engineer. Documentation supporting the professional engineer's certification must be furnished to the permitting authority upon request until the permitting authority releases the owner or operator from the financial assurance requirements for post-closure care under §§ 264.145(i) and 265.145(h).

Under §§ 264.145(i) and 265.145(h), within 60 days of receipt of certification from the owner or operator and a qualified professional engineer that the post-closure care has been completed for a hazardous waste disposal unit in accordance with the approved plan, the permitting authority will notify the owner or operator that it is no longer required to maintain financial assurance for post-closure care for that unit. If the permitting authority has reason to believe that post-closure care has not been in accordance with the approved post-closure plan, the permitting authority must provide the owner or operator a detailed written statement of any such reason.

Scope of the Post-Closure Permit Requirements – Under § 270.1(c), owners and operators of surface impoundments, landfills, land treatment units, and waste pile units that received waste after July 26, 1982, or that certified closure (according to § 265.115) must have post-closure permits, unless they demonstrate closure by removal or decontamination, or obtain an enforceable document in lieu of a post-closure permit as provided under § 270.1(c)(7). Under § 270.10(h), if a permittee has an effective permit and they want to renew it, they must submit a new application at least 180 days before the expiration date of the effective permit.

Monitoring and Records – Under § 270.30(j)(2), the permittee must retain records of all monitoring information for a period of at least three years from the date of sample, measurement, report, or certification, unless extended by request of the permitting authority at any time. Records from all groundwater monitoring wells and associated groundwater surface elevations must be maintained for the active life of the facility, and for disposal facilities for the entire post-closure care period.

Compliance with an Expiring Permit – Under § 270.51(c), if the permittee is not in compliance with the conditions of the expiring or expired permit, the permitting authority may issue a new permit under part 124, initiate enforcement action, or take other actions authorized by the RCRA regulations.

Appendix B: Institutional Controls (ICs) Resources

The following resources may be helpful in implementing and maintaining ICs throughout the post-closure care period and beyond.

- EPA guidance on *Ensuring Effective and Reliable Institutional Controls at RCRA Facilities* (Matt Hale, Director, Office of Solid Waste, and Susan Bromm, Director Office of Site Remediation and Enforcement, June 14, 2007) sets forth guiding principles and recommendations that can help EPA and state decision makers on the use of ICs at RCRA facilities, and EPA resources for additional information and assistance.

- *Institutional Controls: A Site Manager's Guide to Identifying, Evaluating, and Selecting Institutional Controls at Superfund and RCRA Corrective Action Cleanups* guidance provides some discussion about how ICs can be used at post-closure care facilities. (p.3 text box) EPA 540-F-00-005, OSWER 9355.0-74FS-P, September 2000, https://www.epa.gov/fedfac/institutional-controls-site-managers-guide-identifying-evaluating-and-selecting-institutional

- *Institutional Controls: A Guide to Preparing Institutional Control Implementation and Assurance Plans at Contaminated Sites* provides information and recommendations that should be useful for planning, implementing, maintaining and enforcing ICs, and offers an overview of EPA's policy regarding the roles and responsibilities of the parties involved in the various life-cycle stages of ICs. Final, December 2012. OSWER 9200.0-77, EPA-540-R-09-002, https://www.epa.gov/fedfac/institutional-controls-guide-preparing-institutional-control-implementation-and-assurance

- *Institutional Controls: A Guide to Planning, Implementing, Maintaining, and Enforcing Institutional Controls at Contaminated Sites* guidance also discusses how ICs could be used at RCRA post-closure care facilities. (Section 2.3) Final, December 2012. OSWER 9355.0-89, EPA-540-R-09-001, https://www.epa.gov/fedfac/institutional-controls-guide-planning-implementing-maintaining-and-enforcing-institutional

- *Long-Term Stewardship: Ensuring Environmental Site Cleanups Remain Protective over Time* report identifies long-term stewardship challenges and opportunities for improvement, and makes recommendations for how EPA and its state, tribal, and local partners should proceed in addressing them. This report also includes a definition of long-term stewardship, why long-term stewardship is important, and what EPA and others are currently doing to address long-term stewardship issues. Final, September 2005, EPA 500-R-05-001, https://nepis.epa.gov/Exe/ZyNET.exe/P100119V.TXT?ZyActionD=ZyDocument&Client=EPA&Index=2000+Thru+2005&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5Czyfiles%5CIndex%20Data%5C00thru05%5CTxt%5C00000015%5CP100119V.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=hpfr&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 · (217) 782-3397
JB PRITZKER, GOVERNOR JOHN J. KIM, DIRECTOR

217/524-3301

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
7018 1830 0000 5290 6235

JUN 23 2020

Modern Plating Corporation
Attn: James R. Stenberg, President
701 S. Hancock Ave.
Freeport, Illinois 61032

Re: 1770200010 -- Stephenson County
Modern Plating Corporation
Log No. B-167R2
RCRA Permit Administrative Record (24D)
Permit Correspondence

Dear Mr. Stenberg:

This letter is to remind you of the upcoming expiration of the RCRA permit for the above-referenced facility located at 701 S. Hancock Ave. Freeport, Illinois 61032. The current permit expires on July 7, 2021. In accordance with 35 Ill. Adm. Code 702.142 and 703.125, a new application for a renewed permit should be submitted to Illinois EPA at least 180 days before the expiration date of the current permit, unless an alternate date is approved by Illinois EPA. This means that the renewal application for the Modern Plating Corporation permit is due on or before January 8, 2021.

To facilitate a timely renewal, please do not hesitate to contact the Illinois EPA Permit Section staff during the preparation of your renewal application if you need any guidance or have any questions regarding the renewal process.

Once Illinois EPA receives your renewal application, it will have sixty days to conduct a completeness review of the application in accordance with 35 Ill. Adm. Code 702.125. Illinois EPA will then notify Modern Plating Corporation that: (1) the application is complete; (2) the application is not complete (this notification will also identify the information that must be provided to make the application complete). Illinois EPA will have sixty days to review any subsequent submittals and make a notification like the one just mentioned.

It is important that Modern Plating Corporation provide a complete application for renewal of the subject RCRA permit in a timely manner. The date that Illinois EPA issues a renewed permit may extend past the expiration date of the current RCRA permit. 35 Ill. Adm. Code 702.125 allows for the conditions of an expired permit to continue in force, until the effective date of a renewed permit, so long as a complete application to renew the permit is submitted to Illinois EPA prior to the expiration date of the current RCRA permit. If a complete application to renew the subject RCRA permit is not submitted in this time frame, the subject RCRA permit will no longer be valid after its expiration date.

Attached are two documents to assist you in preparing your permit application: "*Information Which Must be Provided in an Application for a RCRA Post-Closure Permit, November 2019*", and a checklist titled "*RCRA Post-Closure Permit Application Completeness and Technical Review Checklist, November 2019.*" The information in the application needs to follow the same order and format of these documents.

Your renewal application must include an LPC-PA23 form signed by the owner, operator and a qualified professional engineer. A 39(i) certification and all supporting documentation is now required for all permit applications, including the application to renew the RCRA permit. Any forms you may need can be found on Illinois EPA's website at:

https://www2.illinois.gov/epa/topics/forms/land-forms/permit-forms/Pages/default.aspx

Please submit an "original" and three copies of the renewal application to Illinois EPA, Bureau of Land, Division of Land Pollution Control, Permit Section, 1021 North Grand Ave. East, Springfield, IL. 62794-9276, Attn: Permit Section Manager and send one copy directly to the following people:

U.S. EPA
Attn: James Blough
M/C LR-8J
77 West Jackson Blvd
Chicago, IL. 60604-3590

David Retzlaff
Bureau of Land, Illinois EPA
4302 North Main Street
Rockford, Illinois 61103

If you have any questions about financial assurance, please contact Bob Mathis at 217/785-7403. For all other questions regarding the permit renewal, please feel free to contact Mark L. Crites at 217/524-3269.

Sincerely,

Kenneth E. Smith by WRW

Kenneth E. Smith, P.E., Manager
Permit Section
Division of Land Pollution Control
Bureau of Land

KES:MLC:1770200010-RCRA-B167R2-Corr.doc

Attachments: *Information Which Must be Provided in an Application for RCRA Post-Closure Permit, November 2019.*
RCRA Post-Closure Permit Application Completeness and Technical Review Checklist, November 2019

Bcc: BOL File
Rockford Region
Rob Watson
Mark L. Crites
Kim Rawe

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 · (217) 782-3397
JB PRITZKER, GOVERNOR JOHN J. KIM, DIRECTOR

Information Which Must be Provided in an Application for a RCRA Post-Closure Permit
November 2019

Introduction/Purpose

35 Ill. Admin. Code 702.121 requires facilities that have closed a hazardous waste management unit as a landfill to obtain a RCRA post-closure permit. This permit will set forth the requirements which must be met in providing the closed unit at least thirty years of post-closure care: it will also contain requirements regarding corrective action efforts for the solid waste management units of concern at the facility. This document sets forth in an organized and logical form, the information which must be provided in an application for a RCRA post-closure permit; it was developed in general accordance with 35 Ill. Admin. Code 703.214

Hazardous waste management units closed as landfills (and thus must be covered by a RCRA post-closure permit) typically fall into one of four categories:

- Hazardous waste surface impoundments that could not achieve "clean closure" and thus were closed as landfills;
- Hazardous waste surface impoundments that were operated as disposal units and closed as a landfill;
- Landfills which co-disposed of hazardous waste with municipal and non-hazardous special waste; and
- Landfills which received hazardous waste as well as non-hazardous special waste.

The key components of post-closure care of a unit closed as a landfill includes: maintenance of the final cover; operation of any leachate/gas collection system(s); and implementation of a groundwater monitoring and, as necessary, remediation system. In addition, as noted above, another other key item that must be addressed under a RCRA post-closure permit is the implementation of an appropriate corrective action program on the solid waste manage units of concern at the facility.

This document is comprised of the following six sections which identify in outline form the information which should be contained in an application for a RCRA post-closure permit:

A. Forms, Certifications, Confidentiality, and Public Involvement
B. Facility Description
C. Groundwater Monitoring
D. Procedures to Prevent Hazards
E. Post-Closure Requirements
F. Corrective Action

The forms mentioned in this document can be found on Illinois EPA's internet site (https://www2.illinois.gov/epa/Pages/default.aspx). Illinois EPA will follow the procedures set forth in 35 Ill. Admin. Code 702, 703, and 705, as well as the Illinois Environmental Protection Act, in reviewing and processing this application.

The Illinois EPA's Bureau of Land Permit Section is responsible for reviewing RCRA post-closure permit applications; these applications should be submitted to Illinois EPA at the address above. Questions regarding the development of the groundwater-related aspects of an application should be directed to the Groundwater Unit of the Permit Section while questions related to other aspects of the application should be directed to the RCRA Unit of the Permit Section. The general telephone number for both the Groundwater Unit and the RCRA Unit is 217/524-3300.

Table of Contents

In addition to identifying the sections, tables, figures and attachments, the Table of Contents for the application should include a list of acronyms used in the application. This information will aid both the Illinois EPA and anyone from the general public who reads the permit application.

SECTION A--FORMS, CERTIFICATIONS, CONFIDENTIALITY, and PUBLIC INVOLVEMENT

A.1 RCRA Part A Application Form: 702.121, 702.123, 702.126(a) and (d),703.181

The Part A application must be complete and consistent with the Part B application. 703.181 specifies the contents of a Part A application. Signatures must be provided for both the owner and operator of the facility as described in Item A.2.1 below (of special concern is when the landowner(s) of a site are different from the company operating the hazardous waste facility).

A.2 Certification Using the LPC-PA23 Form: (703.182)

A completed LPC-PA23 form must be included in the application (this form is available on Illinois EPA's internet site). Completion of this form should ensure the requirements of A.2.1 and A.2.2 below are met.

A.2.1. Facility Certification: 702.121, 703.182, 702.126

Applications must be accompanied by a certification as specified in 702.126(d) signed by authorized representatives of both the owner and operator of the facility (of special concern is when the landowner(s) of a site are different from the company operating the hazardous waste facility). Authorized representatives of an owner or operator which must complete and sign this certification are as follows: (1) for a corporation, a principal executive officer (at least at the level of vice-president); (2) for a partnership or sole proprietorship, a general partner or the proprietor, respectively; (3) for a municipal, state, Federal, or other public Agency, either a principal executive officer or ranking elected official. If the application is not signed by representatives other than those just described, information must be provided indicating that the person is authorized to sign RCRA permit applications for the owner or operator.

A.2.2. Technical Information Certification: 703.182, Illinois Professional Engineering Act

Technical data, such as design drawings, specifications and engineering studies, must be certified (sealed) by a qualified Professional Engineer licensed to practice in the State of Illinois in accordance with Ill. Rev. Stat., par. 5101, Sec. 1 and par. 5119, Sec. 13.1. Work required to be conducted in developing an application or work required to be conducted for compliance with the RCRA regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

A.2.3. 39i Certification: Section 39 (i) of Environmental Protection Act

Section 39, Paragraph (i) of the Illinois Environmental Protection Act requires that Illinois EPA conduct an evaluation of prospective owner's or operator's prior experience in waste management operations

before it issues a RCRA permit. This paragraph goes on to state that the Illinois EPA may deny such a permit if the prospective owner or operator or any employee or officer of the prospective owner or operator has a history of:

1. Repeated violations of federal, State, local laws, regulations, standards, or ordinances in the operation of waste management facilities; or
2. Conviction in this or another State of any crime which is a felony under the laws of this State, or conviction of a felony in a federal court, or conviction in this or another state or federal court of any of the following crimes: forgery, official misconduct, bribery, perjury, or knowingly submitting false information under any environmental law, regulation, or permit term or condition; or
3. Proof of gross carelessness or incompetence in handling, storing, processing, transporting, or disposing of waste.

Illinois EPA has created a form (available on its internet site) which applicants (the owner and the operator) must use to provide it with the information necessary to make the evaluation described above.

A.3 Public Disclosure Exemption Claims and Trade Secret Claims:
Section 7 of the Act; 2 Ill. Adm. Code Part 1828; 35 Ill. Adm. Code Part 130

Note: A.3.2 thru A.3.5 below are only applicable if an applicant desires to request a public disclosure exemption claim or trade secret claim. Any documents submitted that are not properly marked and justified will not be regarded as exempt and will be released to the public upon request.

A.3.1. No Information Claimed Exempt from Public Disclosure

If no information in the application is claimed exempt from public disclosure, the applicant should clearly state this in the cover letter and this subsection of the application. This will release any disclaimers on drawings, plans etc. that are included in the application.

A.3.2. Trade Secrets Claims

This claim should be asserted if any portion of the application is regarded as trade secret pursuant to 35 Ill. Adm. Code 130. To assert this claim

1. Provide a claim and justification letter;
2. Stamp each page in red ink "TRADE SECRET" that is to be exempt.
3. Provide a version for public review which does not include the trade secret information.

A.3.3. Exempt or Exempt In-Part Data Claims: 2 Ill. Adm. Code 1828.401

This claim should be asserted if any portion of the application is regarded as exempt or exempt in part pursuant to 2 Ill. Adm. Code 1828.401. To assert this claim:

1. Provide a claim and justification letter;
2. Appropriately mark those portions of the application for which the exemption is requested.
3. Provide a version of the application for public review which does not contain the information for which the exemption is requested.

A.3.4. Privileged Information: 2 Ill. Adm. Code 1828.401

This claim should be asserted if any portion of the submittal is regarded as privileged and meets the definition of privileged information pursuant to 1828.401. To assert this claim:

1. Provide a claim and justification letter;
2. Appropriately mark those portions of the application for which the claim is requested.
3. Provide a version of the application for public review which does not contain the information for which the exemption is requested.

A.4 Public Participation: Facility Mailing List & Information Repositories:
Environmental Protection Act, Section 39(d), 35 Ill.Amin. Code 703.193, 703.248, 705.163

A.4.1. Facility Mailing List:

The Facility Mailing List required to be established and maintained in 35 Ill. Adm. Code 705.163(a) is a list of all entities who must be notified of any permit-related activities at a RCRA permitted facility. The application must include the most-recent list the facility has; this list must identify its last revision date and be provided as an attachment to the application. A printed copy and an electronic copy in MS Word format must be provided.

The list must be updated and resubmitted to the IEPA as needed to include individuals who have interacted with the facility such as: those attending the pre-application meeting, respondents to mailings, and those attending the public meeting when a permit modification is requested. IEPA will review and approve all updates prior to using the mailing list. Mailing lists originally developed by IEPA are available from IEPA's RCRA community involvement coordinator.

A.4.2. Identification of Repositories:

It is important that information regarding a RCRA permitted hazardous waste management facility be available to the local citizens for review. Thus, all information submitted to IEPA in furtherance of a RCRA permit application, (with the exception of trade secrets), must be made available to the public at the office of the County Board or governing body of the municipality and also in another location in the host community (or nearest community to the facility) no later than the date the permit application is submitted to IEPA. Provide the name, address, contact person, phone number, and business hours for each repository.

Note: The community repository may not be located at the facility and must be available to the community for review and copying of application documents after regular office hours. Public libraries are recommended repository locations.

A.4.3. Contents of Repository:

The repository contents must include all information submitted to IEPA in furtherance of a RCRA permit application (with the exception of trade secrets). The applicant is required to maintain, verify and update the contents of the repositories throughout the application process. Each time information is submitted to Illinois EPA, a copy must also be placed in the repository. Placement of a given submittal in the repository should be documented in the cover letter transmitting the submittal to Illinois EPA.

Repositories must be well-organized and kept up to date. A comprehensive inventory of all documents in the repository should be maintained, as well as a brief description of each document listed in the inventory. The applicant should visit each repository on a regular basis to ensure its organization is maintained.

A.4.4. Public Notice of Repository Availability:

The applicant must provide written notice of the repositories' availability for public review to everyone on the facility mailing list; this notice must include all of the following information:

1. Identification and address or map of the facility and the hazardous waste management operations that the permit application addresses;
2. A statement that permit application materials have been prepared and are available for community members to review and copy at the repository.
3. The location and business hours of the repository.
4. A statement that the applicant will update the repository materials periodically during the Illinois EPA's review of the permit application.
5. The name, address and telephone number of the applicant's contact person to address questions regarding the application or to be added to the facility's mailing list for future permit activities.
6. The following statement "For general information on the hazardous waste management permit program in Illinois, please contact" then provide the address of the Illinois EPA RCRA Community Involvement Coordinator.

This notice must be made no later than the date the permit application is submitted to the Illinois EPA. Documentation that the public notices were made must be included in the application. Specifically provide a copy of the letter sent to individuals on the approved facility mailing list. Indicate the date the letter was sent, and the revision date of the mailing list used for the mailings.

SECTION B--FACILITY DESCRIPTION

B.1 General Facility Description: 702.123, 703.183(a), 703.183(n), 703.183(s)

B.1.1. Operation of Facility:

Provide the following information about the facility:

1. Identify the owner and operator of the facility as well as the address and size of the facility;
2. Describe the facility in general, its operations, and the specific activities conducted by the applicant that require a permit under RCRA, including the nature of the business.
   a. Commercial facilities should identify the types of industry served;
   b. On-site facilities should briefly describe the process(es) involved in the generation of hazardous waste.
3. A legal description of the facility developed and certified by a professional land surveyor licensed to practice in Illinois.
4. The Tax Property Identification Number(s) of the land which comprises the facility. If more than one Property Identification Numbers are associated with the facility, a scaled drawing showing the boundaries of each parcel within the facility must be provided.

B.1.2. Hazardous Waste Management Units at the Facility

Identify and briefly describe the hazardous waste management units at the facility.
Note: More information about these units will be provided in Section E of the application.

B.1.3. Solid Waste Management Units at the Facility

Identify and briefly describe the solid waste management units at the facility which are the focus of the RCRA corrective action program at the facility.
Note: More information about these units will be provided in Section F of the application.

B.2 Topographic Map: 702.123(g), 703.183(s), 703.184, 703.185(c), 703.185(d), 724.195, 724.197

B.2.1. Facility + 1 mile:

Provide a topographic map (or Quadrangle map) that extends at least 1 mile beyond the property boundaries. This map must depict the legal boundaries of the facility and surrounding land uses.

B.2.2. Facility + 1000 feet:

Provide a topographic map that shows the layout of the facility and the surrounding area a distance of 1,000 feet outside the facility's property line. This map must be at a scale of 1 inch equal to not more than 200 feet. Ground surface contours must be shown on the map; the contour interval must be sufficient to clearly show the pattern of surface water flow in the vicinity of and from each hazardous waste management unit at the facility (a two foot interval should be used if the ground surface relief at the facility is less than 20' and a five foot interval should be used if the relief is greater than 20').

Multiple maps may be submitted to meet this requirement if necessary. The map(s) should contain/identify the following:

Map Requirements: Facility + 1,000 ft	
Map Orientation (north arrow)	Areas in the 100-year flood plain
Map Date	Flood control or drainage barriers
Scale	Run-on/run-off control systems
Legal boundaries of the facility	Fire control facilities
Surrounding land uses	A wind rose
Access controls	Hazardous waste management units
Buildings and Structures	Solid waste management units
Storm drains	Equipment required by Item D.2 below
Sewers: storm, sanitary and process	Surface waters including intermittent streams
Any waste injection or groundwater withdrawal wells (both on-site and off-site)	

If multiple maps are used, a discussion of how the various maps meet the above requirements must be provided. In addition, if an applicant feels that some of these requirements cannot be met for some reason or are not applicable, then sufficient information must be provided in the application to support this position. Finally, with appropriate supporting justification/discussion in the application, the applicant may vary from the above requirements if what is provided meets the general intent of these requirements.

B.3 Location Standards: 703.184, 724.118

B.3.1 Seismic Standard:

Identify any hazardous waste management units within 200 feet (61 meters) of a fault which has had displacement during Holocene time.

B.3.2. Floodplain Standard:

Document whether or not the facility is located within a 100-year floodplain. Provide the source of this data as well as a copy of the relevant flood map produced by the National Flood Insurance Program (NFIP). Appropriate calculations/maps must be provided when NFIP maps are not available.

B.3.3. Facilities in the 100-year Floodplain

Facilities within the 100-year floodplain must provide the following information regarding procedures in place to prevent its flooding:

B.3.3.1. Engineering Analysis and Structural/Engineering Study.

Provide the following regarding information to demonstrate that flooding of the hazardous waste management units will not occur:

1. An engineering analysis that identifies and evaluates the various hydrodynamic and hydrostatic forces expected to result at the site as a consequence of a 100-year flood;
2. A structural or other engineering study that shows how the design of the hazardous waste management units and flood protection devices at the facility will prevent flooding of the units.

B.3.3.2. Procedures to Remove Waste

In lieu of B.3.3.1, provide a detailed description of the procedures to be followed to remove hazardous waste to safety before the facility is flooded. This information must include:

1. Timing of movement relative to flood levels, including estimated time to move the waste, to show that such movement can be completed before floodwaters reach the facility.
2. The location(s) to which the waste will be moved, and a demonstration that those facilities are eligible to receive hazardous waste in accordance with 35 Ill. Admin. Code 702, 703, 724 and 725;
3. The planned procedures, equipment, and personnel to be used, and the means to ensure that such resources will be available in time for such use;
4. The potential for accidental discharge of waste during movement.

B.3.4. Existing Facilities Not in Compliance with 35 Ill. Admin. Code 724.118(b)

Provide a plan showing how the facility will be brought in compliance and a schedule for compliance with 35 Ill. Admin. Code 724.118(b). A variance petition regarding this plan/schedule to come into compliance with 35 Ill. Admin. Code 724.118(b) must be filed concurrently with the Illinois Pollution Control Board.

B.4 Operating Record: 724.173

The Permittee must keep and maintain a written operating record that includes all the records, reports, notifications, and data required by 35 Ill. Admin. Code 724.173 and the conditions in this permit for the entirety of the post-closure care period. Identify the location where the Operating Record is maintained at the facility. Describe the procedures used to record the following information described in 724.173 in the facility's operating record (as such information becomes available) during the post-closure period:

1. Records of inspections, and repairs
2. Monitoring, testing, analytical data, and corrective action data when required,
3. All closure and post-closure cost estimates.
4. Annual certification that a program is in place to reduce the volume/toxicity of hazardous waste generated at the facility.

Separate documents may be used to compile this information, provided the requirements of 724.173 are met. A description of where the operating record will be maintained must also be provided.

SECTION C—GROUNDWATER MONITORING

C.1 Exemption from Groundwater Protection Requirements: 703.185, 724.190(b)

If a waiver from the 35 Ill. Admin. Code 724, Subpart F groundwater monitoring requirements is requested, the applicant must demonstrate one of the following conditions applies to the facility or exempted under 724.101.

C.1.1. Waste Piles: 724.190(b)(2) and (5)

The waste pile has been designed and operated to meet conditions specified in 724.350(c).

C.1.2. Landfill: 724.190(b)(2)

The landfill has been designed and operated to meet conditions specified herein.

C.1.3. No Migration: 724.190(b)(4)

No potential for migration of liquid from a regulated unit to the uppermost aquifer exists during the active life of the regulated unit (including the closure period) and the post closure period. Predictions must be based on assumptions maximizing the rate of liquid migration.

C.2 Interim Status Groundwater Monitoring Data: 703.185(a)

The applicant must provide, by reference, the location of a summary of the groundwater monitoring data obtained during the interim status period.

C.3 Historical Hydrogeological Summary: 703.185(b), 620.210

The applicant must provide an identification of the uppermost aquifer and aquifers hydraulically interconnected beneath the facility property. Include groundwater classification, flow direction and rate, and the basis for such identification (i.e., the information obtained from hydrogeologic investigations of the facility area). A table of hydraulic properties must be submitted which includes at a minimum permeability, sieve analysis, porosity, hydraulic conductivities, etc.

C.4 Topographic Map Requirements: 703.183(s), 703.185(c)

The applicant must provide on the map required in 703.183(s) a complete legal description of the property boundary along with the following additional information:

The waste management area, the property boundary, the proposed point of compliance, the proposed groundwater monitoring zone (if applicable), the proposed location of groundwater monitoring wells and the information required in 703.185(b)

C.5 Contaminant Plume Description: 703.185(d), 721-Appendix I

The applicant must provide a description of any plume of contamination detected in the groundwater originating from a regulated unit. Identify the concentrations of Part 721, Appendix I constituents (throughout the plume or the maximum concentration of each Appendix I constituent) for the plume of contamination delineated on the topographic map.

Note: The monitoring program for a given unit must be established based on the monitoring data from the facility and be appropriate for the groundwater conditions beneath the regulated unit.

Only complete the monitoring program section which is currently appropriate for the facility.
C.6: Detection, C.7: Compliance, C.8: Corrective action

C.6 Detection Monitoring Program: 703.185(f), 724.198

If the presence of hazardous constituents has not been detected in the groundwater at the time of permit application, the applicant must provide sufficient information, supporting data and analyses to establish a detection monitoring program which meets the requirements of 724.198.

A detection monitoring program must include at a minimum the ability to monitor for specific indicator parameters based upon the type and characteristics of waste(s) managed at the facility and to maintain a complete and accurate record and statistical evaluation of all groundwater monitoring data.

C.6.1. Indicator Parameters, Waste Constituents, Reaction Products to be Monitored: 703.185(f)(1), 724.198(a)

The applicant must provide a list of indicator parameters, waste constituents or reaction products to be used in providing a reliable indication of the presence of hazardous constituents in the groundwater.

C.6.2. General Monitoring Program Requirements: 703.185(e), 724.197

The applicant must provide detailed plans and an engineering report describing the proposed groundwater monitoring program to be implemented to meet the requirements of 724.197.

Groundwater monitoring systems must be developed to provide a sufficient number of wells for the regulated unit(s), constructed in a manner to provide representative samples from the uppermost aquifer. The program must include appropriate procedures for sampling, analyzing and evaluating groundwater quality.

C.6.3. Groundwater Monitoring System: 703.185(f)(2), 724.197(a) & (b), 724.198(b)

The detection monitoring system must be installed at the established compliance point and comply with 724.197(a) & (b). All groundwater monitoring wells must be installed at appropriate locations and depths to yield representative groundwater samples and be cased in a manner capable of maintaining the integrity of the monitoring well bore hole.

The applicant must reference, by location, boring logs and well completion reports (including a cross reference if necessary). A table of wells must be submitted identifying the well ID# and measurements for the following in both mean sea level (MSL) and feet below ground surface (ft. bgs): well depth, screen interval, ground surface, and stick-up.

C.6.4. Description of Sampling and Analysis Procedures: 703.185(f)(4), 724.197(d) & (e)

The applicant must provide a description of sampling and analysis procedures including at a minimum procedures and techniques for sample collection, sample preservation and shipment, and analytical procedures and chain of custody control. The sampling and analytical methods must be appropriate for groundwater sampling and accurately measure hazardous constituents in groundwater samples. Alternative methods must be included for contingency basis.

C.6.5. Evaluation of Groundwater Surface: 724.197(f), 724.198(e)

The applicant must provide procedures for the evaluation of the groundwater surface at the facility. A determination of the groundwater surface elevation each time the groundwater is sampled. The applicant must determine the groundwater flow rate and direction in the uppermost aquifer at least annually.

C.6.6. Background Quality: 703.185(f)(3). 724.197(g), 724.198(c)

The applicant must provide an evaluation of background groundwater quality and if necessary, reestablish background based on the historical data gathered over the active life of the permit using a trend analysis.

C.6.7. Statistical Evaluations: 703.185(f)(4), 724.197(h), 724.198(d)

The applicant must provide a demonstration that the current statistical method remains appropriate or justify a new method to be used for statistical evaluation of data..

C.6.8. Statistically Significant Increases: 724.198(f) & (g)

Using methods required in item C.6.7, the applicant must evaluate the existence of statistically significant evidence of contamination in the groundwater. If such evidence exists, specific measures of retesting and Illinois EPA notification must be provided.

C.7 Compliance Monitoring Program: 703.185(g), 724.199

If the presence of hazardous constituents has been detected in the groundwater at the point of compliance at the time of permit application, The applicant must submit sufficient information, supporting data and analyses to establish a compliance monitoring program which meets the requirements of 724.199.

C.7.1. Description of the Monitoring Program: 724.199(a)

The program will be used to determine if compliance standards have been achieved by a regulated unit.

C.7.1.1. Waste Description: 703.185(g)(1). 724.193(a), 724.199(a)(1)

The applicant must provide a list of hazardous constituents for groundwater that are reasonably expected to be in or derived from waste(s) in the regulated unit.

C.7.1.2. Concentration Limits: 703.185(g)(4), 724.194(a), 724.199(a)(2)

The applicant must provide a discussion addressing the appropriate concentration limits for the hazardous constituents in groundwater.

C.7.1.3. Compliance Point: 724.195, 724.199(a)(3)

The applicant must provide a discussion addressing the compliance point including rationale for location of groundwater monitoring wells utilized to delineate the compliance point.

C.7.1.4. Compliance Period: 724.196, 724.199(a)(4)

The applicant must provide a discussion addressing the compliance period.

C.7.2. Alternate Concentration Limits: 703.185(g)(4), 724.194(b)

In situations where the Illinois EPA determines, based on information and supporting data provided by the applicant, a constituent will not pose a substantial hazard an alternate concentration limit can be established.

C.7.2.1. Adverse Effects on Groundwater Quality: 724.193(b)(1), 724.194(b)(1)

The applicant must provide information and supporting data addressing any proposed alternate concentration limit and adverse effects on groundwater quality.

C.7.2.2. Potential Adverse Effects on Hydraulically Connected Surface Water Quality: 724.193(b)(2), 724.194(b)(2)

The applicant must provide information and supporting data addressing any proposed alternate concentration limit and potential adverse effects on hydraulically connected surface water quality.

C.7.3. General Monitoring Program Requirements: 703.185(g)(5), 724.197

The applicant must provide detailed plans and an engineering report describing the proposed groundwater monitoring program to be implemented to meet the requirements of 724.197. Groundwater monitoring systems must be developed to provide a sufficient number of wells for the regulated unit(s), constructed in a manner to provide representative samples from the uppermost aquifer: he program must include appropriate procedures for sampling, analyzing and evaluating groundwater quality.

C.7.4. Groundwater Monitoring System: 724.197(a), (b) & (c), 724.199(b)

The compliance monitoring system must be installed at the established compliance point as specified by 724.197(a)(2), 724.197(b) and 724.197(c). All groundwater monitoring wells must be installed at appropriate locations and depths to yield representative groundwater samples and be cased in a manner capable of maintaining the integrity of the monitoring well bore hole.

The applicant must reference, by location, boring logs and well completion reports (including a cross reference if necessary). A table of wells must be submitted identifying the well ID# and measurements for the following in both mean sea level (MSL) and feet below ground surface (ft bgs): well depth, screen interval, ground surface, and stick-up.

C.7.5. Description of Sampling and Analysis Procedures: 703.185(g)(6), 724.197(d) & (e), 724.199(c)

The applicant must provide a description of sampling and analysis procedures including at a minimum procedures and techniques for sample collection, sample preservation and shipment, and analytical procedures and chain of custody control. The sampling and analytical methods must be appropriate for groundwater sampling and accurately measure hazardous constituents in groundwater samples. Alternative methods must be included for contingency basis.

C.7.6. Background Quality: 724.197(g)

The applicant must provide an evaluation of background groundwater quality and if necessary, re-establish background based on the historical data gathered over the active life of the permit using a trend analysis.

C.7.7. Statistical Evaluations: 703.185(g)(6), 724.197(h), 724.199(d)

The applicant must provide a demonstration that the current statistical method remains appropriate or justify a new method to be used for statistical evaluation of data.

C.7.8 Evaluation of Groundwater Surface: 724.197(f), 724.199(e)

The applicant must provide procedures for the evaluation of the groundwater surface at the facility. A determination of the groundwater surface elevation must take place each time the groundwater is sampled. The owner or operator shall determine the groundwater flow rate and direction in the uppermost aquifer at least annually.

C.7.9. Annual Appendix I: 724.199(g)

The applicant must provide procedures for the Annual Appendix I sampling event. Samples from all monitoring wells at the compliance point must be analyzed for all constituents listed in Appendix I at least annually to determine whether additional hazardous constituents are present in the uppermost aqulfer.

C.7.10. Statistically Significant Increases: 724.199(h) & (i)

Using methods required in C.7.7, The applicant must evaluate the existence of statistically significant evidence of contamination in the groundwater of the point of compliance. If such evidence exists, specific measures of retesting and IEPA notification must be met.

C.8 Corrective Action Program: 703.185(h), 724.191(a)(2) & (3), 724.200

If hazardous constituents have been measured in the groundwater which exceed the concentration limits established under 724.194, Table 1, or if groundwater monitoring conducted at the waste boundary indicates the presence of hazardous constituents from the facility in groundwater over background concentrations, The applicant must submit sufficient information supporting data and analyses to establish a corrective action program which meets the requirements of 724.200.

C.8.1. Description of Corrective Action Program: 703.185(h), 724.200

The program will be used to demonstrate the effectiveness of a corrective action measure.

C.8.1.1. Characterization of Contaminated Groundwater: 703.185(h)(1), 724.200(a)(1)

The applicant must include a characterization of the contaminated groundwater, including concentrations.

C.8.1.2. Concentration Limits: 703.185(h)(2), 724.194(a), 724.200(a)(2)

The applicant must provide a discussion addressing the appropriate concentration limits for groundwater for each of the hazardous constituents.

C.8.1.3. Compliance Point: 724.195, 724.200(a)(3)

The applicant must provide a discussion addressing the compliance point.

C.8.1.4. Compliance Period: 724.196, 724.200(a)(4)

The applicant must provide a discussion addressing the compliance period.

C.8.1.5. Construction Detail: 703.185(h)(3)

The applicant must provide detailed plans and an engineering report describing the corrective action to be taken, including all aspects of any groundwater and/or product removal/treatment system.

C.8.1.6 Effectiveness of Corrective Action: 703.185(h)(4), 724.200(d) & (g)

The applicant must describe how the groundwater monitoring program will assess the adequacy of the corrective action.

C.8.2. Alternate Concentration Limits: 724.194(b)

In situations where the Illinois EPA determines, based on information and supporting data provided by the applicant, a constituent will not pose a substantial hazard an alternate concentration limit can be established.

C.8.2.1. Adverse Effects on Groundwater Quality: 724.193(b)(1), 724.194(b)(1)

The applicant must provide information and supporting data addressing any proposed alternate concentration limit and adverse effects on groundwater.

C.8.2.2. Potential Adverse Effects on Hydraulically-Connected Surface Water Quality: 724.193(b)(2), 724.194(b)(2)

The applicant must provide information and supporting data addressing any proposed alternate concentration limit and adverse effects on hydraulically connected surface water quality.

C.8.3. Corrective Action Plan: 703.185(h), 724.200(b), 724.200(c), 724.200(e)

In addition to the other requirements of 724.200, The applicant must provide and describe a corrective action program to remove or treat in place hazardous waste constituents in groundwater between the point of compliance and the downgradient facility boundary, or beyond the facility boundary where necessary to protect human health and the environment.
The corrective action program must begin corrective action within a reasonable time period after the groundwater protection standard is exceeded considering the extent of contamination.

C.8.4. Groundwater Monitoring Program: 703.185(h)(4), 724.192, 724.200(d)

The groundwater monitoring program must be as effective as the program required under C.7 above in determining compliance with groundwater protection standards and in determining the success of a corrective action program.

C.8.4.1. General Monitoring Program Requirements: 703.185(e), 724.197

The applicant must provide detailed plans and an engineering report describing the proposed groundwater monitoring program to be implemented to meet the requirements of 724.197.

Groundwater monitoring systems must be developed to provide a sufficient number of wells for the regulated unit(s), constructed in a manner to provide representative samples from the uppermost aquifer. The program must include appropriate procedures for sampling, analyzing and evaluating groundwater quality.

C.8.4.2. Groundwater Monitoring System: 724.197(a) & (b), 724.200(d)

The corrective action monitoring system must be installed at the established compliance point as specified by 724.197(a)(2), 724.197(b), and 724.197(c). All groundwater monitoring wells must be installed at appropriate locations and depths to yield representative groundwater samples and be cased in a manner capable of maintaining the integrity of the monitoring well bore hole.

The applicant must reference, by location, boring logs and well completion reports (including a cross reference if necessary). A table of wells must be submitted identifying the well ID# and measurements for the following in both mean sea level (MSL) and feet below ground surface (ft. bgs): well depth, screen interval, ground surface, and stick-up.

C.8.4.3. Description of Sampling and Analysis Procedures: 724.197(d) & (e)

The applicant must provide a description of sampling and analysis procedures including at a minimum procedures and techniques for sample collection, sample preservation and shipment, and analytical procedures and chain of custody control. The sampling and analytical methods must be appropriate for groundwater sampling and accurately measure hazardous constituents in groundwater samples. Alternative methods must be included for contingency basis.

C8.4.4. Background Quality: 724.197(g), 724.199(c)

The applicant must provide an evaluation of background groundwater quality and if necessary, re-establish background based on the historical data gathered over the active life of the permit using a trend analysis.

C.8.4.5. Statistical Evaluations: 703.185(f), 724.197(h), 724.199(d)

The applicant must provide a demonstration that the current statistical method remains appropriate or justify a new method to be used for statistical evaluation of data.

C.8.4.6. Evaluation of Groundwater Surface: 724.197(f), 724.199(e)

The applicant must provide procedures for the evaluation of the groundwater surface at the facility. A determination of the groundwater surface elevation each time the groundwater is sampled. The owner or operator shall determine the groundwater flow rate and direction in the uppermost aquifer at least annually.

C.8.4.7. Extension of Compliance Period: 724.200(f)

The applicant must provide a discussion addressing the extension of the compliance period. The compliance period during which the groundwater protection standard applies shall be extended until the applicant demonstrates that the groundwater protection standard of 724.192 has not been exceeded for three consecutive years.

C.8.4.8. Effectiveness of Corrective Action: 724.200(g)

The applicant must provide a discussion addressing the evaluation and reporting of the effectiveness of the corrective action program to the Illinois EPA. The written reports must be submitted semi-annually.

C.8.4.9. Evaluation of the Corrective Action Program: 724.200(h)

The applicant must provide a discussion addressing any determination that the corrective action program no longer satisfies the requirements of 724.200.

C.9. Reporting Requirements: 724.197(j)

The applicant must provide a discussion addressing groundwater monitoring data collected and the maintenance of the data in the facility operating record.

SECTION D--PROCEDURES TO PREVENT HAZARDS

D.1 Security: 703.183(d), 724.114

The owner or operator must prevent the unknowing entry, and minimize the possibility for the unauthorized entry, of persons or livestock onto the unit(s) closed as landfills. Unless a waiver is granted, the facility must have either a 24-hour surveillance systems, or a barrier and a means to control entry as set forth in Item D.1.2 below.

D.1.1. Waiver from the Security Requirements:

Facilities seeking a waiver from the security requirements must provide information demonstrating that:

1. Physical contact with the waste, structures or equipment within the active portion of the facility will not injure unknowing or unauthorized persons or livestock which may enter the active portion of a facility; and

2. Disturbance of the waste or equipment, by the unknowing or unauthorized entry of persons or livestock onto the active portion of a facility, will not cause a violation of the requirements of 724.

D.1.2. Restricting Entry to the Facility

Describe the means used to restrict entry the facility

1. 24-Hour Surveillance System. Describe the 24-hour surveillance system (e.g., television monitoring or surveillance by guards or facility personnel) at the facility that continuously monitors and controls entry onto the active portion of the facility; or

2. Barrier and Controlled Entry: Describe the artificial or natural barrier system (e.g., a fence in good repair or a fence combined with a cliff), which completely surrounds the active portion of the facility; and the means to control entry, at all times, through the gates or other entrances to the active portion of the facility (e.g., an attendant, television monitors, locked entrance or controlled roadway access to the facility).

D.1.3. Warning Signs

Identify the locations of all warning signs on a scale drawing of the facility. A sign with the legend, "Danger - Unauthorized Personnel Keep Out", must be posted at each entrance to the active portion of a facility, and at other locations, in sufficient numbers to be seen from any approach to this active portion. The sign must be legible from a distance of at least 25 feet. Existing signs with a legend other than "Danger - Unauthorized Personnel Keep Out" may be used if the legend on the sign indicates that only authorized personnel are allowed to enter the active portion, and that entry onto the active portion can be dangerous.

D.2. Equipment Requirements: 703.183, 724.132, 724.133, 724.134, 724.135

All facilities must have the equipment and procedures listed in D.2.2 thru D.2.8 below in place unless the applicant submits a waiver request as identified in D.2.1 below. The location within the facility of the equipment described in this section must be shown on the drawings required in Section B.2.2 above.

D.2.1. Waiver

Facilities may seek a waiver from any or all of the equipment/procedure requirements below. To obtain a waiver, the applicant must demonstrate that none of the hazards posed at the facility would require the particular type of equipment/procedure at issue.

D.2.2. Internal Communications

Describe the internal communications or alarm system for providing immediate emergency instruction (voice or signal) to facility personnel.

D.2.3. External Communications

Describe the device, such as a telephone (immediately available at the scene of operations) or a hand-held two-way radio, capable of summoning emergency assistance from local police departments, fire departments, state or local emergency response teams.

D.2.4. Emergency Response Equipment

Describe the following emergency response equipment present at the facility: portable fire extinguishers; fire control equipment, spill control equipment; and decontamination equipment.

D.2.5. Water for Fire Control

Provide a statement signed by an independent fire control professional, or the responsible fire department, certifying that the facility has water at adequate volume and pressure to supply water hose streams, foam producing equipment, automatic sprinklers, or water spray systems. The document must include an original signature from the fire control professional or responsible fire department.

D.2.6. Personnel Protection Equipment

Describe the procedures, structures, and clothing equipment used to protect personnel from undue exposure to hazardous waste.

D.2.7. Testing & Maintenance of Emergency Equipment

Demonstrate that all facility communications or alarm systems, fire protection equipment, spill control equipment and decontamination equipment, where required, is tested, maintained, and calibrated, as necessary to assure its proper operation in time of emergency.

D.2.7.1. Equipment Testing:

Identify all emergency equipment and describe how the equipment is tested, maintained, and calibrated.

D.2.7.2. Schedule

Provide a testing and maintenance/calibration schedule for all communications, monitoring, safety, spill control, decontamination, and emergency equipment.

D.2.8. Equipment and Power Failure

Describe the procedures, structures, and equipment used to mitigate the effects of equipment failure and power outage.

D.3 Inspection Requirements: 703.183(e), 724.115

Describe the procedures followed to inspect/ensure the functionality of everything needed to provide adequate post-closure care of the unit closed as a landfill at the facility in accordance with the RCRA requirements.

Copies of the inspection log and repair log that are used to document inspections and repairs at the facility in accordance with the RCRA requirements must be provided as part of the permit application.

Indicate that copies of the inspection log and repair log are maintained at the facility as part of the operating record.

D.3.1. Inspection Log

An inspection log must be maintained which includes all of the items listed below. The log must also include the date and time of each inspection, the name of the inspector, notation of the observations made, and the date of any repairs or remedial actions.

D.3.1.1. Items Inspected

Identify each item to be inspected at the facility in order to comply with the RCRA requirements. these items include, all RCRA regulated units, monitoring equipment, safety and emergency equipment, security and communication devices, and operating and structural equipment that are vital to prevent, detect, or respond to environmental or human health hazards.

D.3.1.2. Types of Problems

Identify the types of problems (e.g. malfunctions or deterioration) the inspector must look for during an inspection (e.g. inoperable sump pump, leaking fitting, eroding dike).

D.3.1.3. Inspection Frequency:

Identify the inspection frequency for each item in the log. In addition, provide justification for the inspection frequency proposed for each item. (This justification should be separate from the actual inspection log.). The frequency of inspection needs to be based on the rate of possible deterioration of equipment and the probability of an environmental or human health incident if the deterioration, malfunction, or operator error goes undetected between inspections.

D.3.2. Repair Log

The repair log must be used to schedule and record repairs (deterioration, or malfunction of equipment or structures) revealed by an inspection of the items listed in the inspection log. The repair log must include the following items:

1. The item needing repair;
2. The problem identified during the inspection that needs repair;
3. The date the inspection took place;
4. The name of the person who conducted the inspection;
5. The name of the person who makes the corrected repair;
6. The date the repair was made;
7. The efforts carried out in making the repair;
8. Any other appropriate comments.

Most repairs should be made at the time it is determined to be necessary and all repairs should be made within 24 hours. The timeliness of the repair is dependent on the potential impact the problem needing repair may have on protecting human health, the environment, and the safe operation of the facility.

D.3.3. 24 Hour Reporting (702.152(f), 703.245(b))

Describe the procedures to be followed if an inspection reveals any noncompliance with the permit which may endanger health or the environment: 1) report the required information about the incident orally within 24 hours from the time the Permittee becomes aware of the circumstances, and 2) provide a written description of the incident within 5 days of the time the Permittee becomes aware of the circumstances.

SECTION E--POST-CLOSURE REQUIREMENTS

See 703.183(m), 703.203(f), 703.204(h), 703.207(e), 724.218, 724.297(b) and (c), 724.328(b), 724.328(c)(1)(B), 724.380(c), 724.410(b)

E.1 Information Regarding the Unit(s) Closed as a Landfill

The foundation for developing an appropriate post-closure care program for a unit closed as a landfill is a thorough understanding of the unit, focusing on its surroundings, construction, operation and closure.

E.1.1. General Information Regarding of the Unit to Receive Post-Closure Care

Identify the unit(s) at the facility which were closed as landfills to which the post-closure requirements of 35 Ill. Admin. 724, Subpart G apply. Among other things, provide:

1. A scaled drawing showing the location and boundaries of the unit within the facility;
2. A copy of Illinois EPA's letter accepting certification of closure of the unit as a landfill;
3. The date that the post-closure care period for the unit began; and
4. A certified copy of the survey plat and post-closure notices filed in accordance with 35 Ill. Admin. Code 724, Subpart G or 725, Subpart G with the county in which the facility is located.

E.1.2. Geology and Hydrogeology Around/Beneath the Unit

Provide a detailed description of the geology and hydrogeology around/beneath the unit. Of special concern is the presence of silt, sand or other permeable zones around and beneath the unit which, if not properly addressed, could be a conduit for the migration of leachate or landfill gas away from the landfill. This description should be supplemented with boring logs, drawings and cross-sections.

E.1.3. Characterization of Waste/Contaminated Soil Present in the Landfill Unit

Provide a description of the type, quantity and characteristics of the waste and/or contaminated soil remaining in the unit.

E.1.4. Initial Closure Activities

Provide a detailed description, as appropriate, of the following initial activities carried out in closing the unit as a landfill:

1. Removal of waste and contaminated soil;
2. Stabilization of material remaining in the unit; and
3. Use of structural fill material to establish final contours.

E.1.5. Details Associated with the Closed Unit

Provide a detailed description, as-built drawings, cross-sections, and scaled drawings of the overall unit that includes/shows the following. Of special concern is the vertical elevations associated with each component of the unit. Note: the specific information regarding any leachate collection system, leak detection system and/or gas management system present in the landfill that must be described/shown is identified in Sections E.3 thru E.5 below.

1. The soils underlying the unit;

2. The bottom liner system of the unit (if any is present);
3. A description of the base of the unit if it has no constructed liner system;
4. Any permeable zones around or beneath the landfill and a description of the procedures used to seal off these zones;
5. Any cut-off walls or slurry walls constructed outside the landfill boundaries to address migration of leachate or landfill gas from the landfill;
6. The final cover system over the unit;
7. The final contours established for the unit; and
8. The run-on and run-off control systems of the unit.

E.2 Contact Person

Provide the name, address and phone number of the person or office to contact about the unit during the post-closure care period. A copy of the post-closure permit and associated approved permit modifications must be maintained by this person/office; a copy of these documents must also be maintained at the facility subject to the permit.

E.3 Operation of the Leachate Collection System

Note: This section need only be addressed if a leachate collection system is present in the landfill unit.

E.3.1. Quality of Leachate in the Leachate Collection System

1. The leachate needs to be analyzed for the parameters listed below, and the results of annual analyses conducted on representative samples of leachate must be provided in the permit application. This will give an indication of the potential contaminants in a subsurface release from the unit to the groundwater. The leachates need to be analyzed for:
   a. Those constituents for which a public or food processing water supply standard has been established in 35 Ill. Admin. Code 302;
   b. Those constituents for which a groundwater quality standard has been established in 35 IAC 620;
   c. The 51 organic chemicals in drinking water described in 40 CFR 141.40.
   d. Any other contaminants expected to be present in the leachate, based on the characteristics of the waste and materials present in the unit.

   A list of all the above contaminants is provided as Attachment 1 to this document. This list may be reduced if information is provided indicating that certain listed contaminants are not expected to be present in the leachate.

2. If the list of analytes has been reduced, provide an analysis for all constituents listed in E.3.1.1 each time the post-closure permit is renewed. Compare the reduced list, to the full list. If no new parameters are detected, the application can propose to resume analyzing leachate for the previously approved reduced list. If any new parameters are detected, they must be added to the reduced list and the list of groundwater monitoring parameters.

3. If there is more than one leachate sump but the application does not propose to analyze the leachate from each sump, provide justification for how the leachate sample(s) are considered "representative" for a given landfill.

4. Describe the procedures used to collect, handle, and analyze the leachate samples discussed above. All such efforts must be carried out in accordance with procedures approved/established by Illinois EPA or USEPA.

E.3.2. Leachate Collection System Within the Landfill

1. Identify the general components of the leachate collection system within the landfill (includes the filter layer, leachate collection layer, leachate collection trenches, the leachate collection pipes, leachate level monitoring locations, leachate collection sumps, leachate collection wells, leachate removal pumps or other equipment used to remove leachate, manholes, clean-outs, etc.).

2. Provide a detailed description of the procedures used to construct the leachate collection system within the landfill. Provide specifications and as-built drawings (plan view, detail and cross-sectional) of the installed system. Identify the contours of the top of the liner system including any leachate collection trenches; the elevation of the lateral leachate collection pipes; the screened interval of any leachate collection wells or monitoring points; and the elevation of the bottom of the leachate collection sumps, wells, manholes and clean-outs.

3. Provide detailed information regarding all equipment (pumps, monitoring equipment, etc.) associated with the leachate collection system within the landfill. Specifically:
   a. Provide (as appropriate) the make, model and specifications for each piece of equipment;
   b. Identify each piece of equipment on a piping and instrumentation diagram; and
   c. Describe the operational function and capabilities of each piece of equipment.

4. If the landfill was designed to meet the requirements of 35 Ill. Admin. Code 724.401, then an engineering report must be provided demonstrating that the system was constructed and will be operated in such a manner to prevent the leachate depth over the top liner from exceeding one foot. Appropriate calculations must be provided as part of this demonstration along with justification of all assumed parameters and of the numerical techniques used in making the demonstration.

5. If it was not necessary for the landfill to meet the requirements of 35 Ill. Admin. Code 724.401, then information must be provided regarding the maximum leachate levels which will be present at the leachate removal points and throughout the landfill. An engineering report/analysis of the leachate levels which will be present in the landfill must be provided as well as information from past operations of the leachate collection system which will verify the projected levels.

E.3.3. Leachate Collection System Outside the Landfill

1. Identify the general components of the leachate collection system which allow for the removal and of the leachate and its storage on-site (includes the piping from each leachate pump to the top of each leachate sump/well, the piping and associated appurtenances which transfer the leachate to a final storage tank, any pump stations needed in this transfer, and the tank where the leachate is eventually stored). In addition:
   a. Provide a detailed description of the procedures used to install the components of leachate collection system mentioned above;
   b. Provide specifications, piping and instrumentation diagram, and as-built drawings (plan view, detail, elevations and cross-sectional) of these components.
   c. Identify the sample point(s) used to collect leachate samples on the piping and instrumentation diagram.

d. Indicate the locations of the leachate collection system sampling points on a scale drawing of each landfill. Identify the sample points by both the facility and Illinois EPA identification numbers for each sample point.

2. Provide detailed information regarding all equipment (pumps, monitoring equipment, etc.) associated with the leachate collection system outside the landfill. Specifically:

   a. Provide (as appropriate) the make, model and specifications for each piece of equipment;

   b. Identify each piece of equipment on a piping and instrumentation diagram; and

   c. Describe the operational function and capabilities of each piece of equipment.

E.3.4. Management of Leachate Collection System (LCS)

Describe how the LCS is managed. Discuss how all parts of the leachate collection system are operated.

1. Provide piping and instrumentation diagrams and other schematics which depicts the overall leachate collection system, from the pump within each leachate collection sump/well to the leachate accumulation tank. For each leachate collection sump/well, identify:

   a. The approximate elevation of the bottom of the sump or landfill at that location;

   b. The leachate elevation which activates the pump in each sump or extraction well,

   c. The leachate level which activates the pump within the sump/well,

   d. The leachate elevation when the pump shuts off, and

   e. A description of the instrumentation in place so that the amount of leachate removed from a given sump/well over a given time period can be determined.

2. Describe the procedures which will be followed to document/record all aspects of the management of the leachate collection system(s). At a minimum, the results of leachate quality analyses and the amount of leachate removed from a given sump/well each month must be documented in the operating record.

3. Describe how the collected leachate will ultimately be managed and provide copies of the permits in place to take the leachate to an off-site facility for treatment or disposal.

E.3.5. Summary of Leachate Management Program Conducted to Date

Provide information addressing the items in Section E.3.4 regarding the leachate management program implemented during the past ten years. This information should discuss the efficiency of the existing leachate management program or identify deficiencies which must be addressed to ensure leachate is adequately managed in the landfill.

E.4 Operation of the Leak Detection System: 724.402, 724.403 and 724.404

This subsection must be addressed if a Leak Detection System (LDS) is present in the landfill. The LDS must be capable of detecting, collecting and removing leaks through the upper liner system at the earliest practicable time throughout all areas of the landfill. The LDS must be constructed of a drainage layer along with sumps and pumps of sufficient size to collect and remove liquids from the sump and prevent liquids from backing up into the drainage layer.

1. Each landfill unit must have its own set of LDS sumps.

2. Each LDS sump and associated removal system must be designed so that volume of liquid in the LDS sump can be measured and as well as the volume of leachate removed from the sump.

E.4.1. Description of the Leak Detection System Within the Landfill.

Provide an engineering report describing how the leak detection system was constructed and will be operated to ensure the requirements of 35 Ill. Admin. Code 724.401 are met. Among other things, this report must:

1. Identify the general components of the leak detection system within the landfill (includes the drainage layer, the leachate collection trenches, the leachate collection pipes, leachate level monitoring locations, leachate collection sumps; manholes, clean-outs, etc.).

2. Provide a detailed description of the procedures used to construct the leak detection system. Provide specifications and as-built drawings (plan view, detail and cross-sectional) of the installed system. Information of special importance includes: the contours of the top of the liner system; the elevation of the leachate collection pipes; and the elevation of the bottom of the leachate collection sumps, manholes and clean-outs.

3. Provide detailed information regarding all equipment associated with the leak detection system (pumps, monitoring equipment, etc.) within the landfill. Specifically:
   a. Provide information regarding the make, model and specifications of each piece of equipment;
   b. Identify each piece of equipment on a piping and instrumentation diagram;
   c. Describe the operational functions and capabilities of each piece of equipment.

4. Provide the pump operating level for each LDS sump within each landfill unit. This is the maximum level of leachate which can accumulate in each LDS sump before the pump within the sump is activated and leachate is removed from the sump.
   a. This level can be no more than the depth of leachate that can accumulate within the LDS sump without allowing any leachate to back-up into the drainage layer.
   b. This level must also minimize the hydraulic head on the liner of the LDS sump.
   c. Development of the pump operating level for each LDS sump should also take into account the pump activation level and the sump dimensions.

5. Provide the action leakage rate (ALR) (in gallons per acre per day) for each LDS sump. The action leakage rate is the maximum design flow, modified by a factor of safety, that the LDS can remove without the fluid head on the bottom liner exceeding 1 foot. The action leakage rate must include an adequate factor of safety to allow for uncertainties in the:
   a. Design; construction; layout and operation of the system;
   b. Characteristics of the waste and leachate in the landfill;
   c. Likelihood and amounts of other sources of liquids in the LDS and
   d. Proposed response actions

Examples of uncertainties/concerns with the LDS include decreases in the flow capacity of the system over time resulting from siltation and clogging, rib layover and creep of synthetic components of the system, and overburden pressure.

E.4.2. Description of the Leak Detection System Outside the Landfill

1. Identify the general components of the leak detection system which allow for the removal of the leachate from the landfill and its storage on-site (includes the piping from each leachate pump to the top of each leachate sump/well, the piping and associated appurtenances which transfer the leachate to a final storage tank, any pump stations needed in this transfer, and the tank where the leachate is eventually stored). In addition:
   a. Provide a detailed description of the procedures used to install the components of leak detection system mentioned above.
   b. Provide specifications and as-built drawings (plan view, detail, elevations and cross-sectional) of these components.
2. Provide detailed information regarding all equipment (pumps, monitoring equipment, etc.) associated with the leachate collection system outside the landfill. Specifically:
   a. Provide (as appropriate) the make, model and specifications for each piece of equipment;
   b. Identify each piece of equipment on a piping and instrumentation diagram;
   c. Describe the operational function and capabilities of each piece of equipment.

E.4.3. Management of Leachate Accumulating in the Leak Detection System

Describe how the LDS is managed. Discuss how all parts of the leak detection system are operated.

1. Provide piping and instrumentation diagrams and other schematics which depict the overall leak detection system, from the pump within each leachate collection sump to the leachate accumulation tank. For each leak detection sump/well, identify:
   a. The approximate elevation of the bottom of the landfill at that location,
   b. The pump operating level,
   c. The leachate level which activates the pump within the sump/well, and
   d. The leachate elevation when the pump shuts off.
2. Describe the procedures which will be followed to document/record all aspects of the management of the LDS. At a minimum, the permittee needs to provide documentation of the amount of leachate removed from a given LDS sump over a set time period, and any exceedances of the action leakage rate in the operating record.
3. Describe how the leachate collected in the LDS will ultimately be managed and provide copies of the permits in place to take the leachate to an off-site facility for treatment or disposal.

E.4.4. Recent Operation of the Leak Detection System

Provide information addressing the items discussed in Section E.4.3 regarding the operation of the LDS during the past ten years. This information should discuss the efficiency of the existing LDS or identify deficiencies which must be addressed to ensure system is operating properly.

E.5 Operation of the Gas Monitoring/Collection System

This subsection must be addressed if the closed unit has a landfill gas monitoring/collection system.

E.5.1. Detailed Description of the Landfill Gas Collection System

The following information needs to be provided regarding any landfill gas collection system at the facility (in addition to drawings, it is also important to include text describing the various aspects of this system and the chronological history of the installation of this system).

1. A map and detailed drawings showing the location of the collection points and the layout and construction details of the collection system.

2. A description and specifications for all machinery, compressors, flares, piping and appurtenances in the system.

3. A piping and instrumentation diagram as well as other schematics to depict the system's operation.

4. A description of how the landfill gas collection system operates. Describe the information which will be monitored, evaluated and recorded regarding the operation of the system. Frequent evaluation of this information will be essential in ensuring the system is operating effectively and will also give insight into any adjustments that need to be made to the operations of the system.

5. Documentation or assurance that the gas collection system meets the following standards:

   a. The system is designed and will be operated such that the limits described in 35 IAC 811.311(a)(1), (a)(2) and (a)(3) will not be exceeded;

   b. The gas collection system will transport gas to a central point or points for processing for beneficial uses or disposal in accordance with the requirements of 35 IAC 811.312;

   c. The gas collection system has been designed to function for the entire design period;

   d. All materials and equipment used in construction of the system have been rated by the manufacturer as safe for use in hazardous or explosive environments and shall be resistant to corrosion by constituents of the landfill gas;

   e. The gas collection system has been designed to withstand all landfill operating conditions, including settlement;

   f. Provisions have been made for collecting and draining gas condensate to a management system meeting the requirements of 35 IAC 811.309;

   g. The gas collection system will not compromise the integrity of the liner, leachate collection or cover systems; and

   h. The gas collection system shall be equipped with a mechanical device, such as a compressor, capable of withdrawing gas, or has been designed so that a mechanical device can be easily installed.

6. A description of the criteria that will be used to determine when operation of the gas collection system may be discontinued.

7. A description of the testing procedures that will be used to assure that the lines from the collection points to the gas processing or disposal facility are air tight.

8. Identify where condensate in the system will be collected and then stored prior to shipment off-site for treatment or disposal. Include a description of all equipment associated with collection and storage of the condensate.

E.5.2. Landfill Gas Monitoring Plan

Provide the following information regarding the landfill gas monitoring system's ability to monitor the buildup and composition of landfill gas.

1. A narrative and plan sheets describing the most likely paths of migration for gas generated by the unit and demonstrating that the proposed gas monitoring program will detect any gas buildup and/or migration.

2. Detailed drawings and material specifications of the four types of gas monitoring devices required (i.e., devices within the waste unit, below ground devices around the unit, air ambient monitoring devices and continuous air monitoring devices within buildings) on site or near the facility if there is an indication of gas.

3. A map showing the locations of the below ground monitoring devices and the continuous air monitoring devices.

4. Documentation that the various types of below ground gas monitoring devices:

   a. Are placed at intervals and elevations within the waste to provide a representative sampling of the composition and buildup of gases within the unit.

   b. Are placed around the unit at locations and elevations capable of detecting migrating gas from the ground surface to the lowest elevation of the liner system or the top elevation of the groundwater, whichever is higher.

   c. Are constructed from materials that will not react with or be corroded by the landfill gas.

   d. Have been designed and constructed to measure pressure and allow collection of a representative sample of gas.

   e. Are constructed and maintained to minimize gas leakage.

   f. Do not interfere with the operation of the liner, leachate collection system or delay the construction of the final cover system.

5. A description of the procedures and prerequisite weather conditions for performing ambient air monitoring including the location standards for placement of the monitoring devices and maximum wind speed.

6. A description (narrative or graphic) of the location of the continuous air monitoring devices inside the buildings within the facility (and nearby buildings if applicable).

7. A schedule specifying the frequency and minimum duration of gas monitoring.

8. Identification of the parameters that samples from each type of monitoring device will be analyzed.

9. A description of the procedures which will be used to collect and analyze the various air samples to be obtained as part of the landfill gas monitoring program.

E.5.3. Landfill Gas Disposal/Processing System

The following information must be provided regarding the gas disposal system or gas processing system at this facility. These systems can be either an on-site or an off-site facility.

1. For on-site facilities (either flare systems or facilities which process the gas for beneficial use) the following information must be provided:

   a. A map showing the location of the facility;

b. Engineered drawings showing the layout and details of landfill gas processing and disposal system, including compressors, blowers, raw gas monitoring systems, devices used to control the flow of gas from the unit, flares, gas treatment devices, air pollution control devices and monitoring equipment;

c. A copy of the approved air discharge permit or, if the permit is pending, a copy of the air discharge permit application required by 35 Ill. Admin. Code 200 through 245; and

d. A list of the parameters and constituents for which the gas shall be monitored.

2. For off-site processing facilities the following information must be provided:

a. A list of the parameters and constituents for which the gas shall be monitored;

b. A description of the means by which the gas shall be conveyed from the landfill to the off-site processing facility; and

c. Documentation that the off-site processing facility meets the following requirements:

(1) The solid waste disposal facility will contribute less than 50 percent of the total volume of gas accepted by the gas processing facility. (Otherwise, the processing facility must be considered a part of the solid waste management facility); and

(2) The gas processing facility is sized to handle the expected volume of gas.

E.5.4. Summary of the Landfill Gas Collection / Monitoring / Processing Systems

1. Describe the procedures followed to document/record information associated with the operation of the landfill gas collection, monitoring, and processing systems in the operating record.

2. Summarize the operation of the landfill gas collection, monitoring, and processing systems during the past ten years. Describe any adjustments to the design or operation of the systems since the unit was closed.

E.6 Post-Closure Inspection Plan

Describe the procedures followed to inspect/ensure the functionality of everything needed to provide adequate post-closure care of the unit closed as a landfill at the facility in accordance with the RCRA requirements.

Copies of the inspection log and repair log that are used to document inspections and repairs at the facility in accordance with the RCRA requirements must be provided as part of the permit application.

Indicate that copies of the inspection log and repair log are maintained at the facility as part of the operating record and where they are located.

E.6.1. Inspection Log

An inspection log must be maintained which includes all of the items listed below. The log must include the date and time of each inspection, the name of the inspector, notation of the observations made, and the date of any repairs or remedial actions.

E.6.1.1. Items Inspected

The plan must identify each item to be inspected in order to comply with the RCRA requirements. These include, but not necessarily limited to:

1. All RCRA regulated units;

2. Monitoring equipment;

3. Safety and emergency equipment;
4. Security control devices;
5. Erosion damage;
6. Cover settlement, subsidence and displacement;
7. Vegetative cover condition;
8. Integrity of run-on and run-off control measures;
9. Cover drainage system functioning;
10. Leachate collection and removal system;
11. Leak detection system;
12. Gas monitoring/extraction system;
13. Condition of the groundwater monitoring wells;
14. Benchmark integrity; and
15. All operating and structural equipment that are vital to prevent, detect, or respond to environmental or human health hazards.

E.6.1.2. Types of Problems

For each item to be inspected as identified above, describe the types of problems (e.g. malfunctions or deterioration) the inspector must look for during an inspection (e.g. inoperable sump pump, leaking fitting, cracks, eroding berm, etc.).

E.6.1.3. Inspection Frequency

Identify the inspection frequency for each item in the log. In addition, provide justification for the inspection frequency proposed for each item. (This justification should be separate from the actual inspection log.). The frequency of inspection needs to be based on the rate of possible deterioration of equipment and the probability of an environmental or human health incident if the deterioration, malfunction, or operator error goes undetected between inspections.

Indicate the facility will be inspected within 24 hours of any rain fall event of 2 or more inches in 24 hours to detect evidence of any of deterioration, malfunctions, or improper operation of run-on and run off systems. Indicate that appropriate corrective action shall be taken if problems, including erosion, blockage of the channels, slope failure, etc. are observed.

E.6.2. Repair Log:

The repair log must be used to schedule and record repairs (deterioration, or malfunction of equipment or structures) revealed by an inspection of the items listed in the inspection log. The repair log must include the following items:

1. The item needing repair;
2. The problem identified during the inspection that needs repair;
3. The date the inspection took place;
4. The name of the person who conducted the inspection;
5. The name of the person who made the corrected repair;
6. The date the repair was made;

7. The efforts carried out in making the repair;
8. Any other appropriate comments.

Most repairs should be made at the time it is determined to be necessary and all repairs should be made within 24 hours. The timeliness of the repair is dependent on the potential impact the problem needing repair may have on protecting human health, the environment, and the safe operation of the facility.

E.6.3. 24 Hour Reporting (702.152(f), 703.245(b))

Describe the how the Permittee will take the following actions if an inspection reveals any noncompliance with the permit which may endanger health or the environment: 1) report the required information about the incident orally within 24 hours from the time the Permittee becomes aware of the circumstances, and 2) provide a written description of the incident within 5 days of the time the Permittee becomes aware of the circumstances.

E.7 Post-Closure Monitoring Plan

Describe the monitoring to be conducted during the post-closure care period, including, as applicable, the procedures for conducting and evaluating the data gathered in accordance with the RCRA requirements.

Indicate that copies of the monitoring reports and data are maintained at the facility as part of the operating record.

E.7.1. Facility Controls

Indicate that the benchmarks used to identify the location of disposal units, solid waste management units, and units/areas covered by an Environmental Land Use Controls (ELUCs) or the Uniform Environmental Covenants Act (UECA) are surveyed at least once every five (5) years.

E.7.2. Surveys and Corrective Action

Identify the units at the facility that will be surveyed every five years. The following units need to be surveyed at least once every five years:

- Units subject to post-closure requirements per 35 Ill. Admin. Code 724.210(b)
- Solid Waste Management Units (SWMUs) with cover systems and/or engineered barriers
- Units/Areas subject to an Environmental Land Use Controls (ELUCs) or the Uniform Environmental Covenants Act (UECA).

E.7.2.1. Provide the following for the units identified in Item E.7.2:

1. A copy of the survey provided to the Illinois EPA when the unit was certified closed.
2. A copy of the survey for each unit generated every five years since the unit was closed that shows the horizontal and vertical extent of the unit, drainage control structures, leachate collection wells, and groundwater monitoring wells.
3. Scale drawing(s) (1 inch = 200ft) and cross sections that identify those areas of the cover system or engineered barrier that have changed 1 foot or more in elevation since the unit was closed.
4. If corrective action was required in response to a release, damage to the cover system, settlement, erosion, stressed vegetation, or damage to a leachate well, groundwater monitoring well, or benchmark since post-closure care began, identify the date and location of the corrective action on the scale drawings required above. Also, provide copies of the inspection

and repair logs that includes the date each incident was discovered, a description of the incident & corrective action taken, and the date corrective action was completed.

5. If corrective action occurred in the same general area 2 or more times since post-closure began, discuss the actions the permittee has implemented to prevent this from happening again.

E.7.3. Leachate Collection System

Describe how the information about the leachate collection system for each unit identified in E.7.2 is monitored, evaluated, and recorded. Frequent evaluation of this information is essential in ensuring the system is operating effectively and will also give insight into any adjustments that need to be made to the operations of the system.

E.7.3.1. Leachate Quality

Describe the procedures which are followed to monitor the quality of the leachate in the unit on a regular basis during the post-closure care period (including sample collection, sample handling and sample analysis). Discuss if the concentrations of the constituents in the leachate have changed during the post closure period and any actions taken in response.

These samples should be collected quarterly for the first two years at which time the frequency can be decreased to semi-annually. The samples must be analyzed for the constituents described in Item E.3.1 above

1. Summary of Sample Results: Provide a summary table of the leachate sampling results for each unit since post closure began for that unit. Identify the concentration for each parameter detected in each sampling event.
2. Parameter Comparison: Indicate if any of the leachate analyses detected a parameter for which the groundwater is/was not being analyzed and the actions taken if this occurred.

E.7.3.2. Leachate Quantity

1. Provide a record of the amount of liquid removed from each leachate collection sump (in gallons) at least monthly after closure of the unit identified in E.7.2 above. The following information regarding leachate generation rates needs to be provided both in table form and graphically:
   a. Monthly for each year for each sump since the unit was closed
   b. Annually for each sump since the unit was closed
   c. Annually for each unit since the unit was closed
2. If the leachate generation rates are not trending downward during the post closure period, discuss why this is not happening. Provide information regarding precipitation rates during the post-closure period, as well as groundwater elevations relative to the invert of the LCS sumps.

E.7.3.3. Leachate Reporting

Describe the procedures followed to electronically report the quality and quantity of leachate generated at the facility to the Illinois EPA.

E.7.4. Leak Detection System (LDS) 724.402, 724.403, 724.404

Describe how the information from the leak detection system for each unit identified in E.7.2 will be monitored, evaluated, and recorded. Frequent evaluation of this information will be essential in ensuring

the system is operating effectively and will also give insight into any adjustments that need to be made to the operations of the system.

E.7.4.1. LDS Leachate Quantity

1. Describe the procedures used to determine the volume of leachate removed from each LDS sump over a given time period. This determination must initially be made monthly. If the liquid level in a LDS sump stays below the pump operating level (and thus no leachate is removed during that time period) for two consecutive months, then the amount of liquids in the LDS sump need only be recorded quarterly. Similarly, if the liquid level in a LDS sump stays below the pump operating level for two consecutive quarters, the amount of liquids in the sumps need only be recorded semi-annually. Finally, if the pump operating level for an LDS sump is exceeded during the quarterly or semi-annual monitoring, then monitoring of the amount of leachate removed from that LDS sump must revert back to monthly.

2. Provide a record of the amount of liquid removed from each LDS sump (in gallons) at least monthly after closure of the unit identified in E.7.2 above. The following information regarding leachate generation rates needs to be provided both in table form and graphically:

   a. Monthly for each year for each sump since the unit was closed

   b. Annually for each sump since the unit was closed

   c. Annually for each unit since the unit was closed

3. If the leachate generation rates are not trending downward during the post closure period, discuss why this is not happening. Provide information regarding precipitation rates during the post-closure period, as well as groundwater elevations relative to the invert of the LDS sumps.

E.7.4.2. Action Leakage Rate (ALR)

1. Identify the Action Leakage Rate (ALR) from Section E.4 for each LDS sump, and indicate if the action leakage rate has been exceeded during the post-closure period.

2. To determine if the ALR has been exceeded, the owner or operator must convert the monthly flow rate from the monitoring data to an average daily flow rate (gallons per acre per day) for each sump. The average daily flow rate for each LDS sump must be calculated monthly during the post-closure care period, unless Illinois EPA approves a different frequency pursuant to Section 724.403(c)(2).

3. Describe the response action(s) meeting the requirements of 35 Ill. Admin. Code 724.404 that will be implemented if the leachate removal rate exceeds the action leakage rate.

E.7.5. Groundwater Monitoring System

E.7.6. Gas Collection System

For units required to have a gas collection / monitoring system, describe how the information about the gas collection system for each unit identified in E.7.2 is monitored, evaluated, and recorded. Frequent evaluation of this information will be essential in ensuring the system is operating effectively and will also give insight into any adjustments that need to be made to the operations of the system.

E.7.6.1. Gas Quality

Describe the procedures followed to monitor the quality of the gas in the unit on a regular basis during the post-closure care period (including sample collection, sample handling and sample

analysis). Discuss how the parameters (Methane, Pressure, Oxygen; and Carbon Dioxide) in the gas system have changed during the post closure period and any actions taken in response to those changes.

1. Summary of Sample Results: Provide a summary table of the gas sampling results for each unit since post closure began for that unit. Identify the concentration for each parameter detected in each sampling event.
2. Parameter Comparison: Describe the parameter thresholds used to adjust the gas collection system to improve overall efficiency of the system. Describe any major gas system upgrades/ overhauls since post closure began.

E.7.6.2. Gas Quantity

1. Provide a record of the amount of gas removed from each unit at least monthly after closure of the unit identified in E.7.2 above. The following information regarding gas generation rates needs to be provided both in table form and graphically:
   a. Monthly for each year for each unit since the unit was closed
   b. Annually for each unit since the unit was closed
2. If the gas generation rates are not trending downward during the post closure period, discuss why this is not happening.

E.7.6.3. Summary of Results from the Gas Collection / Monitoring System

1. Describe the procedures followed to document/record information associated with the operation of the landfill gas collection, monitoring, and processing systems in the operating record.
2. Summarize the operation of the landfill gas collection, monitoring, and processing systems since the unit was closed. Describe any adjustments to the design or operation of the systems since the unit was closed.

E.8 Post-Closure Maintenance Plan

E.8.1. Procedures, Equipment & Materials:

Describe the preventive and corrective maintenance procedures, equipment and materials that will be required to properly maintain everything needed to provide adequate post-closure care of the unit closed as a landfill. Include the following items in the maintenance plan, as applicable:

1. Repair of security control devices;
2. Erosion damage repair;
3. Correction of settlement, subsidence and displacement;
4. Mowing, fertilization and other vegetative cover maintenance;
5. Repair of run-on and run-off control structures;
6. Maintenance of any leachate removal system(s) including the flushing of the LCS and LDS;
7. Maintenance of any gas monitoring/extraction system;
8. Replacement of groundwater monitoring wells; and
9. Surveyed benchmarks

E.8.2. Rationale

Provide the rationale which will be used to determine the need for corrective maintenance activities for each of the items mentioned above.

E.8.3. Frequency.

Provide the frequency for maintaining each of the items mentioned above if it is known. This needs to include, but not be limited to:

1. The frequency for mowing, fertilization and other vegetative cover maintenance, and
2. Annual maintenance / cleaning of pumps used in the LCS, LDS, and gas collection systems.
3. The manufacturer's recommended replacement rate for the pumps used in the LCS, LDS or gas collection systems.
4. High pressure jet flushing of the LCS & LDS collection pipes and sump every 5 years.
5. Procedures and scheduling of non-routine maintenance and change-out of equipment.

E.9 Survey Plat: 724.216

The application must include documentation that a survey plat was prepared/submitted no later than the submission of the certification of closure for each disposal unit or areas where hazardous waste is left in place. The application must also describe the wording placed on the survey plat.

- The survey plat must indicate the location and dimensions of landfill cells or other disposal units/areas with respect to permanently surveyed benchmarks and the legal boundary of the facility.
- The plat must contain a note, prominently displayed that states: (1) the land has been used to manage hazardous wastes; and (2) the owner's and operator's obligations to restrict disturbance of the units containing hazardous waste in accordance with the applicable Subpart G regulations.
- The plat must be prepared and certified using the wording at 702.126(d)(1) by a professional land surveyor.
- The survey plat must be filed with any local zoning authority or authority with jurisdiction over local land use, the IEPA, and recorded with the land titles.
- If the facility includes a RCRA disposal unit that is already certified closed, provide a copy of the survey plat for that unit.

E.10 Notice in Deed and Certification: 703.183(n), 724.216, 724.217(c), 724.219

The application must include copies, as appropriate, of the notation recorded on the deed to the facility property, or on some other instrument which is normally examined during title search that will in perpetuity notify any potential purchaser of the property that:

- The land has been used to manage hazardous waste.
- Use of these areas is restricted.
- A survey plat and record of the type/location/quantity of material in the disposal units or areas have been filed with the Illinois EPA, the County Recorder, and any local zoning authority or authority with jurisdiction over local land use.

- For hazardous wastes disposed prior to January 12, 1981, identify the type, location and quantity of the hazardous waste to the best of the owner or operator's knowledge and in accordance with any records the owner or operator has kept.

A certification signed by the owner or operator, that the owner or operator has properly recorded the notification must be developed after this notice has been recorded and submitted to Illinois EPA. This submittal must include a copy of the document in which the notification has been placed.

For facilities which have already filed: Provide a copy of the notice for the unit and the document in which it was placed, the required notice of or the deed, the application should contain: a certified copy of the filed notice; the document that the notice was placed in, and certification by the owner or operator that it was properly filed.

E.11 Post Closure Cost Estimate: 703.183(p), 724.244

Provide an estimate of the cost of completing the required post-closure care activities, based on current year costs, including all calculations and supporting information used in developing the estimate. The following must be used in preparing this estimate:

1. Cost estimates must be based on third party costs and cannot include the salvage value form the sales of hazardous wastes, structures or equipment present at the facility.

2. The number of years for which post-closure care must still be provided must be identified.

3. Due to the fact that inflation affects the actual value of a given amount of money over time, the year in which this cost estimate is developed must be clearly identified. It must be noted that inflation will always need to be taken into account to bring estimates from previous year up to the current year.

4. The various tasks need to carry out the required post-closure care activities must be identified as well as the cost associated with each task;

5. The amount of time/materials/efforts needed to complete each task must be provided as well as their unit costs. Justification must be provided for all values used in making these calculations;

6. An estimate of the annual cost of providing all required post-closure care activities should be developed;

7. Some post-closure care activities are not carried out on an annual basis, but at some other frequency. These activities, their frequency, and their cost must be presented.

8. The estimate for providing all required post-closure care activities must be developed using the information in Items 4 and 5 above.

A copy of the most recent post-closure care cost estimate provided to the Illinois EPA must also be provided. In general, these estimates are provided in annual reports and financial assurance documents.

E.12 Financial Assurance Mechanism for Post-Closure Care: 703.183(p), 724.245

Provide a copy of the established financial assurance mechanism for post-closure care of the facility. The mechanism must be one of those described in 724.245. Contact the Illinois EPA Bureau of Land Permit Section to obtain the proper forms and instructions.

E.13 State Mechanisms: 40 CFR 264.149, 40 CFR 264.150, 40 CFR 264.151, 40 CFR 220.14(b)(18)

If the State of Illinois assumes legal responsibility for compliance with closure, post closure, or liability requirements, or the state assures that state funds are available to cover those requirements, submit a copy of a letter from the state describing the state assumption of responsibility and including the facility EPA ID number, name, address, and amounts of liability coverage or funds for closure or post-closure care that are assured by the state, together with a letter requesting that the state's assumption of responsibility be considered acceptable.

SECTION F—CORRECTIVE ACTION

35 Ill. Adm. Code 724.201 requires that facilities seeking a RCRA permit institute corrective action, as necessary, to protect human health and the environment for all releases of hazardous waste or constituents from any solid waste management unit at the facility, regardless of the time at which waste was placed in the unit. The information identified in Items F.1 through F.3 below must be contained in the original RCRA permit application submitted by a facility to allow Illinois EPA to develop permit conditions for ensuring this requirement is met; only the information in Item F.4 below needs to be submitted by facilities seeking a renewed RCRA permit.

F.1 Identification of Solid Waste Management Units (703.187(a))

Identify the solid waste management units (SWMUs) present at the facility. A SWMU includes any unit where solid waste has been managed in the past and which is not a hazardous waste management unit. Units that are SWMUs include, but are not limited to, the following:

- Landfills
- Surface impoundments
- Waste piles
- Land treatment units
- Injection wells
- Incinerators
- Tanks (including wastewater treatment units)
- Container storage areas
- Waste transfer areas
- Waste recycling operations

F.2 Characterization of the SWMUs (703.187(a))

For each solid waste management unit identified above, submit the following information:

1. Type of unit
2. Location on the topographic map required by Item B.2 of the decision guide/checklist
3. Engineering drawings and construction details as available
4. General dimensions
5. Dates when the unit was in operation
6. Description (including physical/chemical characteristics) of the materials/wastes managed in the unit
7. Quantity or volume of waste managed in the unit, if known
8. A description of: (1) the soil types present at the unit; and (2) the geology of the area where the unit is located.
9. An indication of whether the wastes managed in the unit have been removed or still remain in it.

F.3 Characterization of Releases from SWMUs (703.187(b))

Provide all available information on whether or not any releases have occurred from each of the SWMUs identified above. Reasonable efforts to identify releases must be made, even if releases have not been verified. A release may include: spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping or disposing into the environment. If a determination is made that there has not been a release from a given SWMU, then a description of the efforts and information used to reach this conclusion must be provided.

The information to be provided regarding any releases from a SWMU, as available, includes:

1. Date of the release
2. Type of waste or constituent released
3. Physical and chemical characteristics of the released material
4. Quantity or volume released
5. Nature of the release (such as spill, overflow, ruptured pipe or tank, etc.).
6. Groundwater monitoring or other analytical data describing the nature/extent of the release.
7. Physical evidence of distressed vegetation or soil contamination
8. Historical evidence of releases, such as tanker truck accidents
9. Any state, local or federal enforcement actions which may address releases
10. Any public citizen complaints about the facility which could indicate a release
11. Any information showing the migration of the release.
12. A detailed description of any remedial activities taken in response to the release.

F.4 Information Required for Renewal Applications (703.187(c))

Facilities seeking a renewed RCRA permit have likely completed a substantial amount of corrective action under the original permit. Illinois EPA has only been authorized to implement the corrective action program in RCRA permits since April 1990; the USEPA portion of permits issued before this date contained corrective action requirements. For permits issued before April 1990, Illinois EPA likely does not have a complete file of corrective action efforts carried out at the facility, as such efforts were overseen by USEPA. However, for permits issued after April 1990, Illinois EPA already has a complete file of all corrective action efforts carried out to date at the facility.

A summary/description of the corrective action efforts completed to date at the facility must be provided in the application. The level of detail of this summary/description will be dependent on whether Illinois EPA oversaw these corrective action efforts and thus has a complete file of these efforts already. This summary/description will create an administrative record adequate to support the corrective action requirements eventually placed in the renewed permit and will form the foundation for determining future corrective action efforts to ensure the requirements of 35 Ill. Admin. Code 724.201 are met.

F.4.1. Required Information if USEPA Oversaw Initial Corrective Action Program

Facilities applying for a renewed RCRA permit which conducted corrective action efforts in accordance with requirements of the USEPA portion of the original RCRA permit issued to the facility must provide the following information:

1. A detailed chronology of all corrective action correspondence between USEPA and the facility, starting from the issuance of the original permit;
2. Copies of all letters received from USEPA regarding corrective action efforts, starting with the issuance of the original RCRA permit;
3. Copies of all letters and documents sent to the USEPA regarding corrective action efforts conducted in accordance with the original RCRA permit;
4. A detailed discussion of each of the SWMU identified and addressed in accordance with the provision of the facility's original RCRA permit, including:
    a. A detailed description of each unit as outlined in Item F. 2 above, including layout drawings;

b. A summary of the investigation/remediation efforts completed to date; and

c. A discussion of any investigation/remediation efforts which must still be carried out to complete corrective action responsibilities for the unit.

5. The information in the appropriate portions of Section C (Groundwater Monitoring) of this document regarding any on-going groundwater monitoring/remediation program being carried out at the facility.

F.4.2 Required Information if IEPA Oversaw the Initial Corrective Action Program

Facilities which carried out corrective action under the requirements of the Illinois EPA portion of the original permit must provide the following information regarding corrective action efforts at the facility:

1. A chronological list of all documents submitted to Illinois EPA regarding the corrective action efforts required by the original RCRA permit and Illinois EPA's response to each submittal. For each document, provide:

   a. The name of the document;

   b. A brief discussion of the contents/purpose of the document;

   c. The date the document was submitted to Illinois EPA;

   d. The person who submitted the document

   e. A discussion of Illinois EPA's response to the document (include the date of the response and the general conclusions/requirements in the response).

2. Copies of all Illinois EPA letters, in chronological order, regarding corrective action efforts at the facility (these letters serve as important decision documents and will help to verify corrective action efforts completed to date and what must still be done to complete corrective action responsibilities at the facility.

3. A detailed discussion of each of the SWMUs identified and addressed in accordance with the facility's permit. This should include:

   a. A detailed description of each unit as outlined in Item F.2 above;

   b. A summary of the investigation/remediation efforts completed to date; and

   c. A discussion of any investigation/remediation efforts which must still be carried out to complete corrective action responsibilities for the unit.

4. The information in the appropriate portions of Section C (Groundwater Monitoring) of this document regarding any on-going groundwater monitoring/remediation program being carried out at the facility.

F.5 Proposed Interim Measures to be Conducted: (703.187)

An applicant may propose to begin/continue interim measures for the purpose of preventing/mitigating releases from a SWMU before completing a formal RCRA Facility Investigation or Corrective Measures Program. Requests to begin/continue interim measures should contain detailed information about the proposed effort, including:

1. Background information about the unit and surrounding area (including, but not limited to, construction/operation of the unit, wastes managed in the unit; geology/hydrogeology of the area; and discussion/presentation of all sampling/analysis efforts conducted in/around the unit);

2. The objectives of the interim measure. Of special concern is how the measure will prevent/mitigate the release of concern and how it will be integrated into any necessary long-term corrective measures at the facility;

3. Information regarding the design, construction, operation and maintenance of the measure;
4. Schedules for design, construction and operation of the measure.

It must be noted that it may be necessary to complete a RCRA Facility Investigation and a Corrective Measures Study for the SWMU of concern while the interim measure is being carried out. Such efforts will be necessary if the extent of contamination at the SWMU has not been completely determined or if additional remedial efforts are needed to properly address the contamination resulting from the release in the long term.

F.6 Cost Estimate for Required Corrective Action (724.201)

35 Ill. Admin. Code 724.201 requires that permitted facilities provide financial assurance for any required corrective action. As such, the application must contain an estimate of the cost of the required corrective action efforts to be carried out at the facility.

1. If a facility proposes to conduct an interim measure as set forth in Item F.5 above, then an estimate of the cost of these measures must be provided in the application.
2. Development/presentation of a cost estimate must be carried out in accordance with Item E.5 above. This cost estimate will then form the foundation for the establishment of financial assurance for corrective action in the permit. This estimate will need to be updated, as appropriate, to reflect the cost of carrying out all approved corrective action activities at this facility.
3. As each workplan/report associated with corrective action is developed, they must contain cost estimates for carrying out the activities proposed in the workplans and then financial assurance must established for these activities once they are approved.

F.7 Financial Assurance for Corrective Action (724.201)

Adequate financial assurance must be provided in the amount developed in Item F.6 above. Establishment of this financial assurance must meet the requirements of 35 Ill. Admin. Code 724, Subpart H and Item E.6 above. Financial assurance for corrective action must be updated, as appropriate, to reflect the current corrective action cost estimate.

Instructions for RCRA Post-Closure Permit Applications

Attachment 1

Baseline List of Constituents Expected to be Present in Landfill Leachate							
		Basis for Inclusion on List					
Parameter	Predicted Values for SW Landfill (ug/l) [1,2]	40 CFR 258 App. II	Expected In Leachate	35 IAC Part 620	35 IAC Part 302	40 CFR Part 141.40	40 CFR 258 App. I [3]
Butanol	15,000	X	X				
N-butylbenzene						X	
Sec-butylbenzene						X	
Butyl benzyl phthalate	150	X	X				
Cadmium (total)	100	X	X	X	X		5
Calcium	1,200,000		X				
Carbofuran				X			
Carbon disulfide	6	X	X				22
Carbon tetrachloride	400	X	X	X			23
Chemical oxygen demand (COD)	10,000,000		X				
Chlordane		X		X	X		
Chloride	3,000,000		X	X	X		
Chlorobenzene	400	X	X	X		X	24
Chloroethane	400	X	X			X	25
Bis (2-chloroethoxy) methane	25	X	X				
Chloroform	400	X	X			X	26
Chloromethane	400	X	X			X	44
Bis (chloromethyl) ether	400	X	X			X	
O-chlorotoluene						X	
P-chlorotoluene						X	
Chromium (total)	50	X	X	X	X		6
Chlorodibromomethane		X				X	27
Cobalt	130	X	X	X			7
Copper	1,000	X	X	X	X		8
P-cresol		X					
Cyanide	300	X	X	X	X		
Dalapon							
DDT		X		X	X		
Dibromomethane	10	X	X			X	45
M-dichlorobenzene		X				X	
O-dichlorobenzene		X				X	30
P-dichlorobenzene		X		X			31
Dichlorodifluoromethane	450	X	X			X	
Dichloromethane		X		X		X	46

Baseline List of Constituents Expected to be Present in Landfill Leachate							
	Predicted Values for SW Landfill (ug/l) [1,2]	Basis for Inclusion on List					
Parameter		40 CFR 258 App. II	Expected In Leachate	35 IAC Part 620	35 IAC Part 302	40 CFR Part 141.40	40 CFR 258 App. I [3]
Dieldrin		X			X		
Diethyl phthalate	200	X	X				
Dimethyl phthalate	60	X	X				
Di-n-butyl phthalate	150		X				
Dinoseb		X		X			
1,4-dioxane			X				
Endothall		X		X			
Endrin		X	X				
Ethyl acetate	130		X				
Bis (2-ethylhexyl) phthalate	400		X				
Ethyl methacrylate		X					
Ethylbenzene	500	X	X	X		X	41
Ethylene dibromide (EDB)		X		X		X	29
Fluoride				X			
Fluorotrichloromethane						X	
gross alpha (pCi/l)				X			
Heptachlor		X		X	X		
Heptachlor epoxide		X		X	X		
Hexachlorobutadiene		X				X	
Hexachlorocyclopentadiene		X		X			
Iodomethane		X		X	X		48
Iron	500,000		X	X	X		
Isophorone	2,500	X	X				
Isopropylbenzene						X	
p-isopropyltoluene						X	
Lead	500	X	X	X	X		9
Lindane	25		X	X	X		
Magnesium	500,000		X				
Manganese	20,000		X	X	X		
Mercury	10	X	X	X			
Methoxychlor				X	X		
methylene chloride (Chloromethene)	46	X	X				
Naphthalene	75	X	X			X	
Nickel	1,000	X	X	X			10
Nitrate				X	X		
Nitrobenzene	120	X	X				
Oil (hexane-soluble or equivalent)					X		
Parathion		X			X		

Baseline List of Constituents Expected to be Present in Landfill Leachate							
		Basis for Inclusion on List					
Parameter	Predicted Values for SW Landfill (ug/l) [1,2]	40 CFR 258 App. II	Expected In Leachate	35 IAC Part 620	35 IAC Part 302	40 CFR Part 141.40	40 CFR 258 App. I [3]
Pentachlorophenol	400	X	X	X			
pH	9-May		X	X			
Phenanthrene	3	X	X				
Phenols	5,000	X	X	X	X		
Picloram				X			
Polychlorinated biphenyls (PCBs)		X		X			
Potassium	500,000		X				
N-propylbenzene						X	
Radium				X			
Selenium	50	X	X	X	X		11
Silver	50	X	X	X			12
Simazene							
Sodium	1,500,000		X	X			
strontium - 90				X			
Styrene		X		X		X	50
Sulfate	1,000,000		X	X	X		
TDS	10,000,000		X	X	X		
TOC	6,000,000		X				
tert-butylbenzene						X	
Tetrachloroethylene	300	X	X	X		X	53
Tetrahydrofuran	1,000		X				
Thallium	500	X	X	X			13
Tin	2,000	X	X				
Toluene	2,000	X	X	X		X	54
Toxaphene	2	X	X	X	X		
Trichloroethylene (or ethene)	400	X	X	X			57
Trichlorofluoromethane	150	X	X				58
Tritium				X			
Vanadium	30	X	X				14
Vinyl chloride	60	X	X	X			61
Vinyl acetate							60
Xylenes (total)	300	X	X	X			62
m-xylene	200	X	X			X	
o-xylene						X	
p-xylene						X	
Zinc	20,000	X	X	X			15

References

1 Gasper, James A. and Jeff M. Harris, Management of Leachate from Sanitary Landfills (for Browning Ferris Industries).
2 Dolan, David, Helen Keough, R.E. O'Hara and Kevin O'Leary, 1991, A Comparison of Chemical Constituents in Industrial Hazardous Waste Municipal Waste Landfill Leachates (for Waste Management of North America, Inc.).
3 From 40 CFR Part 258 Appendix I & II numbered as presented in Federal Register, Vol. 56, No. 196, October 9, 1991 pages 51032-51038

RCRA POST-CLOSURE PERMIT APPLICATION
COMPLETENESS AND TECHNICAL REVIEW CHECKLIST
November 2019

Facility Name : _____
Log No. : _____
State ID No. : _____
USEPA No. : _____

Date Application Received : _____
Revision No. : _____
Reviewer : _____
Review Dates : _____

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
A	**Forms, Certifications, Confidentiality, and Public Involvement**	**XX**	**XX**		
A.1	**RCRA Part A Application Form**				
A.2	**Certification Using the LPC-PA23 Form**				
A.2.1	Facility Certification				
A.2.2	Technical Information Certification				
A.2.3	39i Certification				
A.3	**Public Disclosure Exemption Claims and Trade Secret Claims**				
A.3.1	No information Claimed Exempt from Public Disclosure				
A.3.2	Trade Secrets Claims				
A.3.3	Exempt or Exempt In-Part Data Claims				
A.3.4	Privileged Information				
A.4	**Public Participation: Facility Mailing List & Information Repositories**				
A.4.1	Facility Mailing				
A.4.2	Identification of Repositories				
A.4.3	Contents of Repository				

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
A.4.4	Public Notice of Repository Availability				
B	**Facility Description**	**XX**	**XX**		
B.1	**General Facility Description**				
B.1.1	Operation of Facility				
B.1.2	Hazardous Waste Management Units at the Facility				
B.1.3	Solid Waste Management Units at the Facility				
B.2	**Topographic Map**				
B.2.1	Facility + 1 mile				
B.2.2	Facility + 1000 feet				
B.3	**Location Standards**				
B.3.1	Seismic Standard				
B.3.2	Floodplain Standard				
B.3.3	Facilities in the 100-year Floodplain				
B.3.3.1	Engineering Analysis and Structural/Engineering Study				
B.3.3.2	Procedures to Remove Waste				
B.3.4	Existing Facilities not in Compliance with 35 Ill. Admin Code 724.118(b)				
B.4	**Operating Record**				

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
C	**Groundwater Monitoring**	**XX**	**XX**		
C.1	**Exemption from Groundwater Protection Requirements**				
C.1.1	Waste Piles				
C.1.2	Landfills				
C.1.3	No Migration				
C.2	**Interim Status Groundwater Monitoring Data**				
C.3	**Historical Hydrogeological Summary**				
C.4	**Topographic Map Requirements**				
C.5	**Contaminant Plume Description**				
C.6	**Detection Monitoring Program**				
C.6.1	Indicator Parameters, Waste Constituents, Reaction Productions to be Monitored				
C.6.2	General Monitoring Program Requirements				
C.6.3	Groundwater Monitoring System				
C.6.4	Description of Sampling and Analysis Procedures				
C.6.5	Evaluation of Groundwater Surface				
C.6.6	Background Quality				
C.6.7	Statistical Evaluations				
C.6.8	Statistically Significant Increases				
C.7	**Compliance Monitoring Program**				
C.7.1	Description of the Monitoring Program				
C.7.1.1	Waste Description				

Facility:
Log No.:

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
C.7.1.2	Concentration Limits				
C.7.1.3	Compliance Point				
C.7.1.4	Compliance Period				
C.7.2	Alternate Concentration Limits				
C.7.2.1	Adverse Effects on Groundwater Quality				
C.7.2.2	Potential Adverse Effects on Hydraulically Connected Surface Water Quality				
C.7.3	General Monitoring Program Requirements				
C.7.4	Groundwater Monitoring System				
C.7.5	Description of Sampling and Analysis Procedures				
C.7.6	Background Quality				
C.7.7	Statistical Evaluations				
C.7.8	Evaluation of Groundwater Surface				
C.7.9	Annual Appendix I				
C.7.10	Statistically Significant Increases				
C.8	**Corrective Action Program**				
C.8.1	Description of Corrective Action Program				
C.8.1.1	Characterization of Contaminated Groundwater				
C.8.1.2	Concentration Limits				
C.8.1.3	Compliance Point				
C.8.1.4	Compliance Period				
C.8.1.5	Construction Detail				
C.8.1.6	Effectiveness of Corrective Action				

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
C.8.2	Alternate Concentration Limits				
C.8.2.1	Adverse Effects on Groundwater Quality				
C.8.2.2	Potential Adverse Effects on Hydraulically-Connected Surface Water Quality				
C.8.3	Corrective Action Plan				
C.8.4	Groundwater Monitoring Program				
C.8.4.1	General Monitoring Program Requirements				
C.8.4.2	Groundwater Monitoring System				
C.8.4.3	Description of Sampling and Analysis Procedures				
C.8.4.4	Background Quality				
C.8.4.5	Statistical Evaluations				
C.8.4.6	Evaluation of Groundwater Surface				
C.8.4.7	Extension of Compliance Period				
C.8.4.8	Effectiveness of Corrective Action				
C.8.4.9	Evaluation of the Corrective Action Program				
C.9	**Reporting Requirements**				
D	**Procedures to Prevent Hazards**	**XX**	**XX**		
D.1	**Security**				
D.1.1	Waiver from the Security Requirements				
D.1.2	Restricting Entry to the Facility				
D.1.3	Warning Signs				
D.2	**Equipment Requirements**				

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
D.2.1	Waiver				
D.2.2	Internal Communications				
D.2.3	External Communications				
D.2.4	Emergency Response Equipment				
D.2.5	Water for Fire Control				
D.2.6	Personnel Protection Equipment				
D.2.7	Testing & Maintenance of Emergency Equipment				
D.2.7.1	Equipment Testing				
D.2.7.2	Schedule				
D.2.8	Equipment and Power Failure				
D.3	**Inspection Requirements**				
D.3.1	Inspection Log				
D.3.1.1	Items Inspected				
D.3.1.2	Types of Problems				
D.3.1.3	Inspection Frequency				
D.3.2	Repair Log				
D.3.3	24 Hour Reporting				
E	**Post-Closure Requirements**	**XX**	**XX**		
E.1	**Information Regarding the Unit(s) Closed as a Landfill**				
E.1.1	General Information Regarding the Unit to Receive Post-Closure Care				

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
E.1.2	Geology and Hydrogeology Around/ Beneath the Unit				
E.1.3	Characterization of Waste/ Contaminated Soil Present in the Landfill Unit				
E.1.4	Initial Closure Activities				
E.1.5	Details Associated with the Closed Unit				
E.2	**Contact Person**				
E.3	**Operation of the Leachate Collection System**				
E.3.1	Quality of Leachate in the Leachate Collection System				
E.3.2	Leachate Collection System Within the Landfill				
E.3.3	Leachate Collection System Outside the Landfill				
E.3.4	Management of Leachate Collection System				
E.3.5	Summary of Leachate Management Program Conducted to Date				
E.4	**Operation of the Leak Detection System**				
E.4.1	Description of the Leak Detection System Within the Landfill				
E.4.2	Description of the Leak Detection System Outside the Landfill				
E.4.3	Management of Leachate Accumulating in the Leak Detection System				
E.4.4	Recent Operation of the Leak Detection System				
E.5	**Operation of the Gas Monitoring/ Collection System**				

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
E.5.1	Detailed Description of the Landfill Gas Collection System				
E.5.2	Landfill Gas Monitoring Plan				
E.5.3	Landfill Gas Disposal/ Processing System				
E.5.4	Summary of the Landfill Gas Collection/ Monitoring/ Processing Systems				
E.6	**Post-Closure Inspection Plan**				
E.6.1	Inspection Log				
E.6.1.1	Items Inspected				
E.6.1.2	Types of Problems				
E.6.1.3	Inspection Frequency				
E.6.2	Repair Log				
E.6.3	24-Hour Reporting				
E.7	**Post-Closure Monitoring Plan**				
E.7.1	Facility Controls				
E.7.2	Surveys and Corrective Action				
E.7.2.1	Provide the Following				
E.7.3	Leachate Collection System (LCS)				
E.7.3.1	Leachate Quality				
E.7.3.2	Leachate Quantity				
E.7.3.3	Leachate Reporting				
E.7.4	Leak Detection System (LDS)				
E.7.4.1	LDS Leachate Quantity				
E.7.4.2	Action Leakage Rate (ALR)				

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
E.7.5	Groundwater Monitoring System				
E.7.6	Gas Collection System				
E.7.6.1	Gas Quality				
E.7.6.2	Gas Quantity				
E.7.6.3	Summary of Results from the Gas Collection/ Monitoring System				
E.8	**Post-Closure Maintenance Plan**				
E.8.1	Procedures, Equipment & Materials				
E.8.3	Frequency				
E.9	**Survey Plat**				
E.10	**Notice in Deed and Certification**				
E.11	**Post Closure Cost Estimate**				
E.12	**Financial Assurance Mechanism for Post-Closure Care**				
E.13	**State Mechanisms**				
F	**Corrective Action (CA)**				
F.1	**Identification of Solid Waste Management Units (SWMUs)**				
F.2	**Characterization of the SWMUs**				
F.3	**Characterization of Releases from SWMUs**				
F.4	**Information Required for Renewal Applications**				
F.4.1	Required Information if USEPA Oversaw Initial Corrective Action Program				

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
	(1) Chronology of all CA related correspondence between USEPA & facility				
	(2) Copies of all letters received from USEPA regarding CA				
	(3) Copies of all letters regarding CA sent to USEPA				
	(4) Detailed discussion of each SWMU				
	(5) Information in Section C regarding any on-going groundwater monitoring/remediation				
F.4.2	Required Information if IEPA Oversaw Initial Corrective Action Program				
	(1) Chronology of all corrective action efforts completed to date				
	(2) Discussion of all CA related correspondence between IEPA and facility & copies of all correspondence				
	(3) Detailed discussion of each SWMU				
	(4) Information in Section C regarding any on-going groundwater monitoring/remediation effort				
F.5	**Proposed Interim Measures to be Conducted**				
F.6	**Cost Estimate for Required Corrective Action**				
F.7	**Financial Assurance for Corrective Action**				

RCRA Part B Permit Renewal Application

B-167R2

Received: 05/11/2021

R000077

Foth

Permit Application B-167R2

RCRA Part B Permit Renewal Application

IEPA - Division of Records Management
Releasable
JUL 10 2025
Reviewer: SAB

RECEIVED
MAY 11 2021
IEPA/DLPC
PERMIT SECTION

Modern Plating Corporation
Freeport, Illinois

January 8, 2021 (revised)
May 7, 2021

Project I.D.: 20M144

Solving our clients' toughest science and engineering challenges.

Foth

IEPA - Division of Records Management
Releasable
JUL 10 2025
Reviewer: SAB

2121 Innovation Court, Suite 100
P.O. Box 5095
De Pere, WI 54115-5095
(920) 497-2500
foth.com

May 7, 2021

Mr. Kenneth E. Smith, P.E.
Permit Section Manager
Illinois Environmental Protection Agency
1021 N. Grande Ave. East
P.O. Box 19276
Springfield, IL 62794-9276

Dear Mr. Smith:

RE: Response to Notice of Incompleteness regarding Renewal Application for RCRA Part B Post-Closure Permit
Modern Plating Corporation, Freeport, Illinois
IEPA#1770200010

On behalf of Modern Plating Corporation (MPC) of Freeport, Illinois, Foth Infrastructure & Environment, LLC (Foth) is submitting the attached materials in response to a Notice of Incompleteness issued by the Illinois Environmental Protection Agency (IEPA) dated March 5, 2021. This submittal is based on the Illinois Environmental Protection Agency (IEPA) requirements and in accordance with 35 Illinois Administrative Code (IAC) Part 702.121. We have included one copy with original signature pages (marked "original") and three copies for your distribution.

The following details the response to the Notice of Incompleteness items included with this submittal:

1. Section A: No Part A Permit Application was provided. Please included an updated Part A Permit Application with your response.

   The Part A Permit Application was completed and is included in Attachment 3.

2. Section C.2: Interim Status Groundwater Monitoring Data was not complete. Although the Permittee did not collect groundwater monitoring data during interim status, the Permittee must provide a general discussion of historical groundwater results collected at the MPC site.

   The discussion of historical groundwater results has been added to Section C.2 found on pages 13-14 of Attachment 2 RCRA Part B Permit Application.

3. Section C.3: Historical Hydrogeological Summary was not complete. A narrative description of the aquifers beneath the MPC site, such as thickness of each aquifer and the location of the aquifers in mean sea level below ground surface, must be provided. In addition, geologic cross-section created from boring log data and a reference map showing the boring locations must also be provided.

   The requested narrative description of the aquifers has been added to Section C.3 on page 14 of Attachment 2 RCRA Part B Permit Application.

4. Section C.4: Topographic Map Requirement was not complete. The Permittee did not *include* on the topographic map the GMZ boundary, monitoring wells MW23B and MW23C, and contour lines for the entire area of the property. This information must be provided as well as the requirements of 35 Ill. Adm. Code 703.183(s) and 703.185(c).

   Topographic contour lines have been extended to cover the entire property area and the GMZ and monitoring wells MW23B and MW23C have been added to Drawing 2R and Drawing 2. Revised copies of these drawings are included for inclusion with Attachment 2 RCRA Part B Permit Application.

5. Section C.5: Contaminant Plume Description was not complete. A narrative description of the contaminant plume since the time it was detected and measured maximum concentrations in each plume location, describing the source (regulated unit or other source) must be provided. In addition, changes to the contaminant plume over time using actual measured data must also be provided.

   A narrative description of the history of the contaminant plume has been added to Section C.5, found on page 16-17 of Attachment 2 RCRA Part B Permit Application.

6. Section C.8.1: Description of Corrective Action Program was not complete. To demonstrate compliance with 35 Ill. Adm. Code 724.200, the Permittee must, at a minimum, provide the following *items:*

   a. A characterization of the contaminated groundwater, including concentrations of hazardous constituents,

   b. The concentration limit for each hazardous constituent found in the groundwater, as set forth in 35 111. Adm. Code 724.194,

   c. Detailed plans and an engineering report describing the corrective action to be taken, and

   d. A description of how the groundwater monitoring program will assess the adequacy of the corrective action.

   A narrative description has been added to Section C.8.1, on page 23 of Attachment 2 RCRA

Part B Permit Application, which includes a characterization of contaminated groundwater, concentration limits for each hazardous constituent, detailed plans and an engineering report describing the corrective action, and a description of the groundwater monitoring program.

7. Section C.8.4: Groundwater Monitoring Program was not complete. It is not appropriate to only reference approved letters or reports. A narrative description must be provided. The proposed Groundwater Monitoring Program must be effective in determining compliance with groundwater standards. This section must be revised to include the groundwater monitoring program which meets the requirements of 35 Ill. Adm. Code 703. 185(h)(4), 742.192, and 724.200(d).

   Foth contacted IEPA by email and received a response on May 5, 2021 correcting the code above from 35 Ill. Adm. Code 703. 185(h)(4) to 35 Ill. Adm. Code 703. 185(h) and 742.192 to 724.192. *A narrative description was added to Section C.8.4, on pages 26-27 of Attachment 2 RCRA Part B Permit Application to describe the monitoring program and how it is effective in determining compliance with groundwater standards.*

8. Subsection C.8.4.1: General Monitoring Program Requirements was not complete. It is not appropriate to only reference approved letters or reports. A narrative description must be provided. This section must be revised to include detailed plans and an engineering report describing the proposed groundwater monitoring program to be implemented to meet the requirements of 35 Ill. Adm. Code 724.197 and 703.185(e).

   A narrative description was added to Section C.8.4.1, pages 27-28 of Attachment 2 RCRA Part B Permit Application to describe the monitoring program and how it meets regulatory requirements. An engineering report is included in Appendix U.

9. Subsection C.8.4.2: Groundwater Monitoring System was not complete. It is not appropriate to only reference boring logs and completion reports. A narrative description of the corrective action monitoring system must be provided. In addition, paper copies of the boring logs and completion reports must be provided as well as geologic cross-sections derived from the boring logs at the MPC site.

   A narrative description has been added to Section C.8.4.2, on page 29 of Attachment 2 RCRA Part B Permit Application to describe the corrective action monitoring system. Paper copies of Appendix H are included, which contains boring logs. Appendix T contains geologic cross-sections.

10. Section E.3.1: No historical information on leachate analysis was provided. Please provide this information in your response.

    An explanation was added to Section E.3.1, on page 49-50 of Attachment 2 RCRA Part B Permit Application to explain that no leachate samples have been collected and analyzed at any time since the construction of the CAMU. This was due to the leachate sampling

requirement not being present in the original permit, which was in place from approximately 2000 to 2010. When the permit was renewed in 2010, leachate had ceased draining and collecting, therefore sampling could not take place.

11. Section E.7.5: Groundwater Monitoring System was not complete. It is not appropriate to only reference boring logs and completion reports. A narrative description of the information must be provided. Subsection C.8.4.2 may be referenced if the information required to be submitted in Condition 9 above, is provided and determined to be adequate.

    Section E.7.5, on page 68 of Attachment 2 RCRA Part B Permit now references Section C.8.4.2.

12. Section F: No information from checklist Section F was provided. It is understood that the corrective action activities conducted at the site are historical, but that information should be included in the application. Please provide it with your response.

    Foth contacted IEPA by email and received a response from Paula Stine on April 26, 2021 instructing us to complete Section F as described in the "Information Which Must be Provided in an Application for a RCRA Post-Closure Permit, November 2019". Information was added to Section F on pages 74-80 of Attachment 2 RCRA Part B Permit to complete the requirements.

The format of this application follows instructions found on the IEPA website, as provided in the *RCRA Part B Permit Application Decision Guide* (July, 2006). The guidance text from IEPA's letter dated June 23, 2020 is retained in the application, appearing in under each section heading. The response appears in italics under the applicable section.

If you have any questions or comments concerning this letter report, please call either of the undersigned at (920) 497-2500.

Sincerely,

Foth Infrastructure & Environment, LLC

Heather L. Hallett
Project Environmental Scientist

Michael S. Raimonde
Project Manager

Andrea Martin, P.E.
Lead Environmental Engineer

attachments

B-167R2

Green Bay Location

2121 Innovation Court
P.O. Box 5126
De Pere, WI 54115-5126
(920) 497-2500 • Fax: (920) 497-8516
www.foth.com

January 8, 2021

Mr. Kenneth E. Smith, P.E.
Permit Section Manager
Illinois Environmental Protection Agency
1021 N. Grande Ave. East
P.O. Box 19276
Springfield, IL 62794-9276

RECEIVED
JAN 08 2021
IEPA-BOL
PERMIT SECTION

Dear Mr. Smith:

RE: Renewal Application for RCRA Part B Post-Closure Permit
Modern Plating Corporation, Freeport, Illinois
IEPA#1770200010

On behalf of Modern Plating Corporation (MPC) of Freeport, Illinois, Foth Infrastructure & Environment, LLC (Foth) is submitting an application for the renewal of the referenced permit. This submittal is based on the Illinois Environmental Protection Agency (IEPA) requirements and in accordance with 35 Illinois Administrative Code (IAC) Part 702.121. We have included one copy with original signature pages (marked "original") and three copies for your distribution.

Attachment 1 includes the RCRA Permit Application form (LPC-PA23). The RCRA Part B Permit application is provided in Attachment 2. The format of this application follows instructions found on the IEPA website, as provided in the *RCRA Part B Permit Application Decision Guide* (July, 2006). The guidance text from IEPA's letter dated June 23, 2020 is retained in the application, appearing in under each section heading. The response appears in italics under the applicable section.

If you have any questions or comments concerning this letter report, please call either of the undersigned at (920) 497-2500.

Sincerely,

Foth Infrastructure & Environment, LLC

Heather L. Hallett
Project Environmental Scientist

Michael S. Raimonde
Project Manager

Andrea Martin, P.E.
Lead Environmental Engineer

attachments

pw:\Modern Plating\0020M114.00\10000 Reports\2020 RCRA Part B Renewal Application\RCRA Part B Permit Renewal Application.docx

RCRA Part B Permit Renewal Application

Distribution

No. of Copies	Sent To
4*	Mr. Kenneth E. Smith Permit Section Manager Illinois Environmental Protection Agency 1021 N. Grande Avenue East P.O. Box 19276 Springfield, IL 62794-9276
1	Mr. James Blough U.S. Environmental Protection Agency 77 West Jackson Blvd, M/C LR-8J Chicago, IL 60604-3590
1	Mr. David Retzlaff Bureau of Land, IEPA 4302 North Main Street Rockford, IL 61103
1	Ms. Ashley Huffines Freeport Public Library 100 E. Douglas Street Freeport, IL 61032
1	Mr. Dave Servatius Modern Plating Corporation 701 S. Hancock Avenue Freeport, IL 61032

*Includes one copy with original signatures

RCRA Part B Permit Renewal Application

Table of Contents

Attachments

Attachment 1	RCRA Permit Application Form LPC-PA23
Attachment 2	RCRA Part B Permit Application
Attachment 3	RCRA Part A Permit Application

1. Illinois EPA Letter to Modern Plating, June 30, 2020, Reminder of Expiration of RCRA Post Closure Permit Renewal (R-)

Attachment 1

Attachment 1

RCRA Permit Application Form LPC-PA23

B-167R2 (AI)
cc: Rockford
RD0000881

Illinois Environmental Protection Agency

2520 West Iles Avenue • P.O. Box 19276 • Springfield • Illinois • 62794-9276 • (217) 782-3397

RCRA Permit Application Form (LPC-PA23)

View Instructions

This form must be used for any permit application for a hazardous waste management facility regulated in accordance with RCRA, Subtitle C, including all requests to modify an existing permit. One original and three (3) copies, of all permit applications must be submitted. Attach the original and appropriate number of copies of a cover letter, any necessary plans, specifications, reports, forms, (e.g., corrective action certification form), and any other certifications etc. to fully support and describe the activities or modifications being proposed. Attach sufficient information to demonstrate compliance with all applicable regulatory requirements. Applications without this form will be deemed incomplete. Please refer to the RCRA checklist and decision guide documents for further guidance. For RCRA corrective action, this form should only be used if requesting an actual modification to a RCRA permit. A RCRA Corrective Action Certification form should be used in all other instances.

Note: Permit applications which are hand-delivered to the Bureau of Land, Permit Section must be delivered to 1021 North Grand Avenue East between the hours of 8:30 a.m. to 5:00 p.m., Monday through Friday (excluding State holidays).

Please type or print all information legibly.

I. Site Identification

Site # (Illinois EPA): 1770200010 USEPA ID Number: ILD 005172325

Site Name: Modern Plating Corporation

Physical Site Location (street, road, etc.): 701 South Hancock Avenue

City: Freeport Zip Code: 61032-0838 County: Stephenson

Existing RCRA Permit (if applicable): Log No. B-167R

II. Owner/Operator Identification

Owner Information

Name: David Servatius

Mailing Address:

701 South Hancock Avenue, P.O. Box 838, Freeport, IL 61032-0838

Contact Name: David Servatius

Phone #: (815) 235-3111

Email: dave.servatius@modernplating.com

Operator Information

Name: Brandon Smith

Mailing Address:

701 South Hancock Avenue, P.O. Box 838, Freeport, IL 61032-0838

Contact Name: Brandon Smith

Phone #: (815) 235-3111

Email: brandon.smith@modernplating.com

A 39(i) certification must be submitted with information concerning the following persons or entities:

- the owner of the business entity applying for the permit;
- the operator of the business entity applying for the permit;
- each employee or officer of the owner or operator who signed the permit application or has managerial authority at the site; and
- any additional owner, operator, or officer or employee of the owner or operator from whom a certification is requested by the Illinois EPA, including any officer or employee who will be responsible for overseeing or implementing regulated activities governed by the permit.

RECEIVED
JUN 05 2025
IEPA-BOL
PERMIT SECTION

Operator

I certify under penalty of law that this document and all attachment were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons that manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information.

Operator Name (Printed or Typed): Brandon Smith

Operator Signature: _____ Date: 5/30/25

Title: President/CEO

Notary (Required for both owner and operator signatures)

Subscribed and Sworn before me this 30th day of May 20 25.

Notary Signature: Dawn Pontius

My commission expires on: 4/25/2027

DAWN PONTIUS
OFFICIAL SEAL
Notary Public - State of Illinois
Commission No. 970749
My Commission Expires 04/25/2027

Engineer

I certify under penalty of law that this document and all attachment were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons that manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information.

RECEIVED
JUN 05 2025
IEPA-BOL
PERMIT SECTION

Engineer Name (Print or Type): Brian D. Symons

Engineer Signature: Brian Symons

Illinois License No.: 062-57411

Expiration Date of License: November 30, 2025

Engineer Phone No. (803) 250-4772

Email: Brian.Symons@foth.com

Engineer Address:

101 Trade Zone Drive, Suite 16A
West Columbia, SC 29170

BRIAN D. SYMONS
062-57411
LICENSED
PROFESSIONAL
ENGINEER
STATE OF ILLINOIS

5/29/25

Engineer Seal

All information submitted as part of the Application is available to the public except when specifically designated by the Applicant to be treated confidentially as a trade secret or secret process in accordance with Section 7(a) of the Environmental Protection Act, applicable Rules and Regulations of the Illinois Pollution Control Board and applicable Illinois EPA rules and guidelines.

Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44(h))

III. Permit Application Identification

Application Type

- ☐ New Part B Permit
- ☒ Part B Permit Renewal
- ☐ Class 1 Modification
- ☐ Class 1* (prior approval required) Modification
- ☐ Class 2 Modification
- ☐ Class 3 Modification
- ☐ Additional information to supplement UIC Class I application Log Number _____
- ☐ Remedial Action Plan Permit (RAPP)
- ☐ Sig RAPP Modification
- ☐ Non Sig RAPP Modification
- ☐ Major UIC Modification
- ☐ Minor UIC Modification

This Application Involves

- ☐ Storage
- ☐ Treatment
- ☐ Disposal
- ☐ Incineration
- ☐ Groundwater
- ☐ Corrective Action
- ☐ UIC Class I
- ☐ UIC Class V

Description of This Permit Request: (Include a brief narrative description here.)

RCRA Part B Permit Renewal per 35 IAC Part 702.121

IV. SIGNATURES

Original signatures required. Signature stamps or applications transmitted electronically or by facsimile are not acceptable. All applications shall be signed by the person in accordance with 35 IAC 702.126(a).

Please check the box of the appropriate certification.

Owner

☒ I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons that manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Alternative owner certification. For remedial action plans (RAPs) permit under Subpart H of 35 IAC 703, the owner may choose to make the following certification instead of the certification above.

☐ Based on my knowledge of the conditions of the property described in the RAP and my inquiry of the person or persons that manage the system referenced in the operator's certification, or those persons directly responsible for gathering the information, the information submitted is, upon information and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Owner Name (Printed or Typed): David Servatius

Owner Signature: David J. Servatius Date: 5/30/2025

Title: Owner

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JUN 05 2025
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PERMIT SECTION

Attachment 2

Attachment 2

RCRA Part B Permit Application

RCRA Part B Permit Renewal Application

Table of Contents

Page

Sections

Section A	Forms, Certifications, Confidentiality, and Public Involvement	1
Section B	Facility Description	5
Section C	Groundwater Monitoring	13
Section D	Procedures to Prevent Hazards	36
Section E	Closure and Post-Closure Requirements	42
Section F	Corrective Action	75
	References	84

Tables

Table B-1	Post-Closure Inspection Schedule and Log for CAMU Landfill
Table B-2	Post-Closure Maintenance Plan for CAMU Landfill
Table B-3	Post Closure Repair Log for CAMU Landfill
Table C-1	Groundwater Sampling Well Summary for GMZ and CAMU
Table C-2	Analytical Methods Summary
Table C-3	Groundwater Quality Results
Table C-4	Maximum Historical Groundwater Concentrations
Table F-1	Submittals to IEPA (1999 to 2020) on Corrective Action
Table F-2	Summary of Remedial Actions

Figures

Figure B-1	Site Location Map
Figure WR	Wind Rose
Figure C-1	Groundwater Contours – A Wells
Figure C-2	Groundwater Contours – B Wells
Figure C-3	Groundwater Contours – C Wells
Figure C-4	Groundwater Contours – D and E Wells
Figure C-5	Groundwater Management Zone
Figure C-6	Chromium Concentrations in C and D Wells – Class I
Figure C-7	Lead Concentrations in C and D Wells – Class I
Figure C-8	Nickel Concentrations in C and D Wells – Class I
Figure C-9	Tetrachloroethene Concentrations in C and D Wells – Class I
Figure C-10	Trichloroethene Concentrations in C and D Wells – Class I
Figure C-11	Vinyl Chloride Concentrations in C and D Wells – Class I
Figure C-12	Cadmium Concentrations in A and B Wells – Class II
Figure C-13	cis-1,2-dichloroethene Concentrations in A and B Wells – Class II
Figure C-14	Trichloroethene Concentrations in A and B Wells – Class II
Figure C-15	Vinyl Chloride Concentrations in A and B Wells – Class II

Table of Contents *(continued)*

Drawings

Drawing 2R	Existing Conditions
Drawing 2	Extent of Areas Remediated

Appendices

Appendix A	Mailing List and Notice
Appendix B	Surrounding Land Use
Appendix C	CAMU Construction Drawings
Appendix D	CAMU Location Information
Appendix E	IEPA May 25, 1999 Groundwater Management Zone (GMZ) Approval Letter
Appendix F	Soil Testing Summary
Appendix G	Spring 2020 and Fall 2020 Semi-Annual Groundwater Monitoring Reports
Appendix H	Monitoring Well Construction Information and Boring Logs
Appendix I	Emergency Equipment Location Figures
Appendix J	Survey Plat for the CAMU Landfill Documentation
Appendix K	39i Certification for Operating a Waste Management Facility
Appendix L	Letters Received from the IEPA Regarding Corrective Action
Appendix M	CAMU Pumping Log
Appendix N	Post Closure Care Cost Estimate
Appendix O	CAMU Financial Assurance,
Appendix P	Letter of Credit from Amcore Bank
Appendix Q	CAMU Landfill Construction Documentation
Appendix R	Closure Documentation Report
Appendix S	Wastewater Discharge Permit Issued by City of Freeport
Appendix T	Geologic Cross-Sections
Appendix U	Modification to RCRA Closure Plan and Basis of Design

A. FORMS, CERTIFICATIONS, CONFIDENTIALITY, AND PUBLIC INVOLVEMENT

A.1 RCRA Part A Application: 702.121, 702.123, 702.126(a) and (d),703.181

The Part A application must be complete and consistent with the Part B application. 703.181 specifies the contents of a Part A application. Signatures must be provided for both the owner and operator of the facility as described in Item A.2.1 below (of special concern is when the landowner(s) of a site are different from the company operating the hazardous waste facility).

This section does not apply because MPC is applying for a renewal of their RCRA Part B Permit.

A.2 Certification Using the LPC-PA23 Form: 703.182

A completed LPC-PA23 form must be included in the application. Completion of this form should ensure the requirements of A.2.1 and A.2.2 below are met.

A.2.1 Facility Certification: 702.121, 703.182, 702.126

Applications must be accompanied by a certification as specified in 702.126(d) signed by authorized representatives of both the owner and operator of the facility (of special concern is when the landowner(s) of a site are different from the company operating the hazardous waste facility). Authorized representatives of an owner or operator which must complete and sign this certification are as follows: (1) for a corporation, a principal executive officer (at least at the level of vice-president); (2) for a partnership or sole proprietorship, a general partner or the proprietor, respectively; (3) for a municipal, state, Federal, or other public Agency, either a principal executive officer or ranking elected official. If the application is not signed by representatives other than those just described, information must be provided indicating that the person is authorized to sign RCRA permit applications for the owner or operator.

The required signatures are provided on the RCRA Permit Application Form LPC-PA23 provided in Attachment 1.

A.2.2 Technical Information Certification: 703.182, Illinois Professional Engineering Act

Technical data, such as design drawings, specifications and engineering studies, must be certified (sealed) by a qualified Professional Engineer licensed to practice in the State of Illinois in accordance with Ill. Rev. Stat., par. 5101, Sec. 1 and par. 5119, Sec. 13.1.

Work required to be conducted in developing an application or work required to be conducted for compliance with the RCRA regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The IEPA may refer any discovered violation of these laws to the appropriate regulating authority.

All technical data has been certified by Andrea K. Martin, a qualified Professional Engineer licensed to practice in the State of Illinois. Andrea K. Martin's certification is provided in Attachment 1.

A.2.3 39i Certification: Section 39 (i) of Environmental Protection Act

Section 39, Paragraph (i) of the Illinois Environmental Protection Act requires that IEPA conduct an evaluation of prospective owner's or operator's prior experience in waste management operations before it issues a RCRA permit. This paragraph goes on to state that

the IEPA may deny such a permit if the prospective owner or operator or any employee or officer of the prospective owner or operator has a history of:

1. Repeated violations of federal, State, local laws, regulations, standards, or ordinances in the operation of waste management facilities; or
2. Conviction in this or another State of any crime which is a felony under the laws of this State, or conviction of a felony in a federal court, or conviction in this or another state or federal court of any of the following crimes: forgery, official misconduct, bribery, perjury, or knowingly submitting false information under any environmental law, regulation, or permit term or condition; or
3. Proof of gross carelessness or incompetence in handling, storing, processing, transporting, or disposing of waste.

IEPA has created a form (available on its internet site) which applicants (the owner and the operator) must use to provide it with the information necessary to make the evaluation described above.

A completed Prior Conduct Certification Form is provided in Appendix K.

A.3 Public Disclosure Exemption Claims and Trade Secret Claims:

Section 7 of the Act; 2 IAC Part 1828; 35 IAC Part 130

Note: A.3.2 thru A.3.5 below are only applicable if an applicant desires to request a public disclosure exemption claim or trade secret claim. Any documents submitted that are not properly marked and justified will not be regarded as exempt and will be released to the public upon request.

No public disclosure exemption is sought for this application.

A.3.1 No Information Claimed Exempt from Public Disclosure

If no information in the application is claimed exempt from public disclosure, the applicant should clearly state this in the cover letter and this subsection of the application. This will release any disclaimers on drawings, plans etc. that are included in the application.

No public disclosure exemption is sought for this application.

A.3.2 Trade Secrets Claims

This claim should be asserted if any portion of the application is regarded as trade secret pursuant to 35 IAC 130.

- Provide claim and justification letter with submittal.
- Stamp each page in red ink "TRADE SECRET" that is to be exempt.
- Provide sanitized version for public review.

No trade secrets are presented in this application.

A.3.3 Exempt or Exempt In-Part Data Claims: 2 Ill. Adm. Code 1828.401

This claim should be asserted if any portion of the application is regarded as exempt or exempt in part pursuant to 2 IAC 1828.401.

- Provide claim and justification letter with submittal.
- Appropriately mark those portions of the application for which the exemption is requested.
- Provide a version of the application for public review which does not contain the information for which the exemption is requested.

There are no exempt or exempt in-part data claims in this application.

A.3.4 Privileged Information: 2 IAC 1828.401

This claim should be asserted if any portion of the submittal is regarded as privileged and meets the definition of privileged information pursuant to 1828.401.

- Provide claim and justification letter with submittal.
- Appropriately mark those portions of the application for which the claim is requested.
- Provide sanitized version for public review.

There is not privileged information in this application.

A.4 Public Participation: Facility Mailing List & Information Repositories:

Environmental Protection Act, Section 39(d): 703.193, 703.248, 705.163

A.4.1 Facility Mailing List:

The Facility Mailing List required to be established and maintained in 35 IAC 765.163(a) is a list of all entities who must be notified of any permit-related activities at a RCRA permitted facility. The application must include the most-recent list the facility has; this list must identify its last revision date and be provided as an attachment to the application. A printed copy and an electronic copy in MS Word format must be provided.

The list must be updated and resubmitted to the IEPA as needed to include individuals who have interacted with the facility such as: those attending the pre-application meeting, respondents to mailings, and those attending the public meeting when a permit modification is requested. IEPA will review and approve all updates prior to using the mailing list. Mailing lists originally developed by IEPA are available from IEPA's RCRA community involvement coordinator.

A facility mailing list is included in Appendix A.

A.4.2 Identification of Repositories:

It is important that information regarding a RCRA permitted hazardous waste management facility be available to the local citizens for review. Thus all information submitted to IEPA in furtherance of a RCRA permit application, with the exception of trade secrets, must be made available to the public at the office of the County Board or governing body of the municipality and also in another location in the host community (or nearest community to the facility) no later than the date the permit application is submitted to IEPA. Provide the name, address, contact person, phone number, and business hours for each repository.

Note: The community repository may not be located at the facility and must be available to the community for review and copying of application documents after regular office hours. Public libraries are recommended repository locations.

The community repository for this RCRA Part B permit renewal application will be the Freeport Public Library. The location and contact person for this repository are as follows:

Ms. Ashley Huffines
Freeport Public Library
100 E. Douglas Street
Freeport, IL 61032
Phone: (815) 233-3000

Hours: *Monday-Thursday 9:00 am to 8:00 pm*
Friday 9:00 am to 6:00 pm
Saturday 10:00 am to 3:00 pm
Sunday closed

A.4.3 Contents of Repository:

The repository contents must include all information submitted to IEPA in furtherance of a RCRA permit application with the exception of trade secrets. The applicant is required to maintain, verify and update the contents of the repositories throughout the application process. Each time information is submitted to IEPA, a copy must also be placed in the repository. Placement of a given submittal in the repository should be documented in the cover letter transmitting the submittal to IEPA.

Repositories must be well-organized and kept up-to-date. A comprehensive inventory of all documents in the repository should be maintained, as well as a brief description of each document listed in the inventory. The applicant should visit each repository on a regular basis to ensure its organization is maintained.

MPC recognizes the importance of keeping the documentation available for public review up to date with any changes taking place during the application review. MPC will assure the contents of the publically available document in the repository is updated throughout the application process.

A.4.4 Public Notice of Repository Availability:

The applicant must provide written notice of the repositories' availability for public review to everyone on the facility mailing list; this notice must include all of the following information:

- Identification and address or map of the facility and the hazardous waste management operations that this permit application addresses.
- A statement that permit application materials have been prepared and are available for community members to review and copy at the repository.
- The location and business hours of the repository.
- A statement that the applicant will update the repository materials periodically during the IEPA's review of the permit application.
- The name, address, and telephone number of the applicant's contact person to address questions regarding the application or to be added to the facility's mailing list for future permit activities.
- A statement "For general information on the hazardous waste management permit program in Illinois, please contact" then provide the address of the IEPA RCRA Community Involvement Coordinator.

This notice must be made no later than the date the permit application is submitted to the IEPA. Documentation that the public notices were made must be included in the application. Specifically provide a copy of the letter sent to individuals on the approved facility mailing list. Indicate the date the letter was sent and the revision date of the mailing list used for the mailings.

Appendix A includes the Public Notice of repository availability, as well as the mailing list used to provide notice. All information noted above is included in the Notice.

B. FACILITY DESCRIPTION

B.1 General Description: 702.123, 703.183(a), 703.183(n), 703.183(s)

B.1.1 Operation of Facility:

Provide the following information about the facility:

1. Identify the owner and operator of the facility as well as the address and size of the facility;

The facility is owned by Modern Plating Corporation. The MPC facility is located on 19 acres of land at 701 South Hancock Avenue, Freeport, Illinois. The site is located in the SE ¼ of Section 32, Township 27 North, Range 8 East, Stephenson County (refer to Figure B-1). The size of the Resource Conservation and Recovery Act (RCRA) Corrective Action Management Unit (CAMU) is indicated on Drawing 2.

2. Describe the facility in general, its operations, and the specific activities conducted by the applicant that require a permit under RCRA, including the name of the business.
   a. Commercial facilities should identify the types of industry served;
   b. On-site facilities should briefly describe the process(es) involved in the generation of hazardous waste.

This facility is a job-shop plating business with the capabilities to plate a variety of metals. Materials used in operations include zinc, tin, nickel, iron, and phosphate. Drawings 2R and 2 are maps of the site showing the location of RCRA-regulated CAMU, and Solid Waste Management Units (SWMUs). The facility has operated as an electroplater since 1963 and has a U.S. Department of Labor Standard Industrial Code of 3471 (Plating and Polishing).

The area is surrounded by a mixture of residential and commercial properties to the south, east, and west. Agricultural property and wetlands exist between the MPC facility and the Pecatonica River located to the north of the facility.

The original owner of the MPC property was the Arcade Company, a toy and novelty manufacturer which operated on the site from 1885 until the late 1920s or 1930s. The Arcade Company performed casting, forging, stamping, and painting.

At the beginning of World War II, Rockwell Industries acquired the assets of the bankrupt Arcade Company and reconstructed several buildings on the site. Ordnance supplies (Howitzer shells, rockets (signal), etc.) were produced until about 1946. The plant was then operated on a reduced level until the Korean War, when a higher level of production was resumed. Some local companies rented warehouse space for storage from Rockwell during this period. Rockwell apparently operated the plant for the U.S. government. Some Rockwell operations required large amounts of cooling water (no known wet processing); hence, at some point in the 1940s, a large (24-inch) discharge line was installed to the Pecatonica River. A second sanitary sewer discharge line was also installed. In 1953 - 1954, the Rockwell operation was permanently closed.

Modern Plating Corporation purchased the site from the Rockwell Charitable Trust in 1963 and began operation in 1964. In 1964 and 1965, Modern Plating Corporation removed much of Rockwell's equipment and began major building reconstruction, including new roofs, walls and floors. A used plating machine (Stevens nickel-chrome) was purchased. The unsegregated flow, which consisted of nickel, hexavalent and trivalent chromium, was directed through pipe in a newly-constructed tunnel to the northeast wall of the plant to connect with the existing cooling water discharge line. The Freeport Water and Sewer Commission treatment plant apparently had insufficient capacity to accept MPC flow. In 1965 - 1966, MPC planned to prepare for waste treatment in the area northeast of the plant,

taking advantage of natural grade. As additional plating lines were installed (VIP-1 zinc barrel plater in 1966; nickel-chrome hoist line and bronze-brass hoist line in 1967; zinc hoist line and phosphate line in 1968; hard chrome, barrel nickel, pan line in 1969; etc.), discharges from these lines were piped to the tunnel. Sometime in 1967 - 1969, three separate discharge lines were created for cyanide, chrome, and acids and alkalis.

In 1968 - 1969, a large excavation was made at the north wall and an underground room (20-feet by 15-feet x 12-feet deep) was created (the cyanide vault). In this underground room, a wastewater treatment system with cyanide oxidation, chromate reduction, and neutralization of acid and alkali, was installed. There was no waste solids separation, but a consistent pH was produced (to protect the tile discharge line) with little cyanide or hexavalent chromium present. This system was operated manually with little or no instrumentation.

During the 1965 - 1970 period, three separate environmental projects were undertaken. First, several acres to the north of the facility were filled in to present grade. A significant amount of clay, clayey loam, and clayey sand were brought to the site (purchased) and/or excavated from the site. Secondly, engineering plans were produced for a large wastewater treatment plant on the present site. The IEPA was heavily involved in this process of design, principally because no National Pollution Discharge Elimination System (NPDES) discharger in Standard Industrial Classification Code 3471 apparently existed at that time. The past practice in metal finishing had been to rinse untreated sludges (bottom sludge, etc.) to the sewer. MPC's approach was to eliminate this practice and commence storing in an impoundment. As a result, in 1968 or 1969, a clay-lined impoundment constructed in clay soils (Lagoon No. 0), using 2-feet to 3-feet of partially compacted clay was created northwest of the office. The "lagoon" was approximately 50-feet by 50-feet by 15-feet deep and the above-ground berm extended 3 to 4-feet above grade with a ramp for adding materials. The nature of the materials added is in dispute. However, it is acknowledged that various cyanide sludges and zinc, cadmium, and copper stripping were added, as well as limited amounts of alkaline sludge (cleaner bottom sludge, nickel filter cake, etc.). There may have been trichloroethene (TCE)-containing waste added to Lagoon No. 0. Sufficient solid waste was added such that some liquids could be added without reducing viscosity. Around the summer of 1970, a decision was made to close the lagoon. A large amount of Oil Dry and lime mixture was added for solidification, as well as several loads of sand. Several feet of clay were used to cover the lagoon and the adjoining land was filled to match the mound caused by lagoon closure.

In May of 1971, the current wastewater treatment plant was put into operation with simultaneous closure of the underground treatment system. The contents of the room (sludges in the cyanide treatment basin, chromium treatment basin and acid-alkali neutralization basin) were pumped through the new wastewater treatment plant. IEPA personnel were present during this process.

Following the closure of Lagoon No. 0, there was no further disposal, either on- or off-site, of untreated wastes. In the spring of 1971, before the treatment plant was in operation, the west lagoon (Lagoon No. 1) was constructed in a clay soil environment. A pipe (4-inch or 6-inch) was laid from the sludge thickening basin of the treatment plant to Lagoon No. 1. The initial clarifier sludge (bottom blowdown) was apparently quite low in solids, as primitive flocculate and polymers were used. The lagoon filled quite rapidly and, by mid-1972, was overflowing.

The overflow was reportedly clear liquid. Pumps were installed to transfer topwater to either the wastewater treatment plant or to the final sewer line. During the 1972 - 1973 winter, this pumping was impractical. In the spring of 1973, the center lagoon (Lagoon No. 2) was constructed in a clay soil environment and immediately put into service. Topwater was pumped out of Lagoon No. 1. Spring floods of 1973 caused erosion to the back berms of both lagoons. Collapse of the Lagoon No. 1 back berm was considered imminent. A contract was issued to chemically fix the contents of Lagoon No. 1 (approximately 1,850 cy), place the "cemented" product in a new pit (Lagoon No. 1A), and reconstruct the Lagoon No. 1 floor

and berms. This work, performed by Chemfix, Inc. in the summer of 1973, was permitted under IEPA Permit 83-316 and observed by IEPA personnel.

From 1973 through 1979, the waste treatment sludge was alternately discharged into each of the two lagoons. The freeboard rule was not applied. Each lagoon was filled to overflowing before switching discharges, then topwater was pumped off. Solids content increased steadily during this period. Plans were made for a third lagoon to be constructed in 1979 - 1980.

In 1978, quality problems resulted from operating an "open-air" treatment plant for several months. Compounding the problem was the deterioration of the wastewater segregation system, which necessitated a multi-year reconstruction of this system. During 1979 - 1980, there were repeated instances of lagoon overtopping. An Illinois Pollution Control Board case (PCB 78-226) resulted from the discharge of effluents containing several heavy metals to the Pecatonica River. A settlement was reached with MPC. They were fined $125,000.

Lagoon No. 3 was constructed in a clay soil environment in the spring of 1980 and was immediately utilized. Materials were removed from Lagoon No.1 and No. 2 in the summer of 1980, and the discharge lines to those lagoons were sealed.

During the 1977 - 1980 period, vegetative growth around the lagoons became very well established. Initially, the areas were mowed, but later a decision was made to cease mowing and to spray the growth with TCE. TCE was used at MPC for industrial cleaning applications. The TCE was bought from an unknown distributor. The amount of TCE used has been reported by various MPC employees as two to four drums. The application(s) of TCE on the weeds most likely took place during mid-summer of 1979 and 1980. A firm was hired to apply an environmentally safe herbicide to the lagoon areas in 1981 and 1982. Subsequently, no chemicals have been used, and mowing or hand-cutting has been performed.

In 1980/1981, faced with the need for a significant addition to the waste treatment plant in order to meet NPDES limits, MPC obtained permission from the Freeport Water and Sewer Commission (FWSC) and the IEPA (January, 1982) to connect to the FWSC plant. The discharge line from the MPC wastewater treatment plant to the Pecatonica River was sealed. As one condition, MPC agreed to install (by June 1, 1983), solids dewatering equipment and to cease, at that point, discharge into the lagoons. The sludge discharge line to Lagoon No. 3 was therefore sealed. This action was completed on May 27, 1983. The dewatering capacity of the first pressure filter was inadequate, and a second unit was purchased and installed in October of 1983. MPC overlooked a discharge pipe from a sump in an underground vault in front of the treatment plant. This vault was used to contain two tanks used in MPC's process. Precipitation and runoff occasionally seeped into the vault and were pumped into the lagoons. This flow resulted in a minimal overtopping condition in the winter of 1985/1986. This line was sealed in March 1986. All discharge routes to the lagoons have now been sealed.

As described in the Final RCRA Part B Permit Application for Proposed Corrective Action Management Unit – Modern Plating Corporation (FVD, 1999), all known contaminated areas at the facility were remediated in 2000/2001. Remediation activities at the site are documented in the reports titled Modern Plating Corporation CAMU Landfill Construction Documentation (FVD, 2001) and Closure Documentation Report (FVD, 2001).

Currently, hazardous waste is being generated at the MPC facility as part of their normal plating operations. Specifically, hazardous waste sludge, with an F006 classification, is generated in the MPC wastewater treatment plant. The generation and disposal of this waste is unrelated to the hazardous waste that what excavated and disposed of in the CAMU. Therefore, this application only deals with the hazardous waste remediated and placed in the CAMU landfill at the MPC facility.

3. A legal description of the facility developed and certified by a professional land surveyor licensed to practice in Illinois.

   A legal description is included in Appendix J.

4. The Tax Property Identification Number(s) of the land which comprises the facility. If more than one Property Identification Numbers are associated with the facility, a scaled drawing showing the boundaries of each parcel within the facility must be provided.

   The Tax Property Identification Number is included in Appendix J.

B.1.2 Hazardous Waste Management Units at the Facility

Identify and briefly describe the hazardous waste management units at the facility.

Note: More information about these units will be provided in Section E of the application.

The following areas and structures were remediated in the initial corrective action, excavating the contaminated soils and depositing into the CAMU. Section E.1.4 provides more detail.

Hazardous waste management units (HWMUs)
Lagoons 1, 2, 3, and Shawnee Building

Solid waste management units (SWMUs)
Lagoons 0, 1A, Cyanide Treatment Vault, Wetlands 1, 1A, II, and III.

Areas of Concern
Outfall Pipe and wastewater release area

Drawings 2R and 2 show the RCRA-regulated CAMU, and the location of areas and structures listed above. There are no active hazardous and solid waste management units currently at the MPC facility.

B.1.3 Solid Waste Management Units at the Facility

Identify and briefly describe the solid waste management units and the facility which are the focus of the RCRA corrective action program at the facility.

The following areas and structures were remediated in the initial corrective action, excavating the contaminated soils and depositing into the CAMU. Section E.1.4 provides more detail.

Hazardous waste management units (HWMUs)
Lagoons 1, 2, 3, and Shawnee Building

Solid waste management units (SWMUs)
Lagoons 0, 1A, Cyanide Treatment Vault, Wetlands 1, 1A, II, and III.

Areas of Concern
Outfall Pipe and wastewater release area

Drawings 2R and 2 show the RCRA-regulated CAMU, and the location of areas and structures listed above. There are no active hazardous and solid waste management units currently at the MPC facility.

B.2 Topographic Map: 702.123(g), 703.183(s), 703.184, 703.185(c), 703.185(d), 724.197

B.2.1 Facility + 1 mile: Provide a topographic map (or Quadrangle map) that extends at least 1 mile beyond the property boundaries. This map must depict the legal boundaries of the facility and surrounding land uses.

Figure B-1 is a topographic map that extends 1 mile beyond the MPC property boundaries. Legal boundaries for MPC facility are provided on Drawing 2R. A surrounding land use map is provided in Appendix B.

B.2.2 Facility + 1000-feet: Provide a topographic map that shows the facility and a distance of 1,000-feet outside the facility's property line, at a scale of 1-inch equal to not more than 200-feet. Multiple maps may be submitted to meet this requirement if necessary. The map(s) must contain/identify the following (If an item does not pertain to the facility, the narrative should indicate why it is not pertinent):

- Map Orientation (north arrow)
- Map Date May/2021
- Scale 1-inch : 200'
- Legal boundaries ✓
- ✓ Equipment required by Item D.2 below
- Surrounding land uses
- Access controls
- Buildings and Structures
- ✓ Storm drains
- Sewers: storm, sanitary and process
- Surface waters including intermittent streams
- Any waste injection or groundwater withdrawal wells (both on-site and off-site).
- Areas in the 100 year flood plain ✓
- Flood control or drainage barriers
- Run-off control systems
- Fire control facilities
- A wind rose
- Existing hazardous waste units
- Solid waste management units

Drawing 2R is a topographic map that extends 1,000-feet beyond MPC's property line at a scale of 1-inch = 200-feet. The base map was prepared from an aerial survey performed by Aero-Metric Engineering of Sheboygan, Wisconsin on November 28, 1986. Drawing 2R includes the following:

- ✓ *Map Orientation (north arrow)*
- ✓ *Map Date*
- ✓ *Scale*
- ✓ *Legal boundaries*
- o *Equipment required by Item D.2 is located in the production plant identified on Drawing 2R.*
- ✓ *Buildings and Structures*
- ✓ *Storm drains*
- ✓ *Sewers: storm, sanitary and process*
- ✓ *Contours sufficient to show surface water flow around facility unit operations*
- ✓ *Surface waters including intermittent streams*
- *Any waste injection or groundwater withdrawal wells (both on-site and off-site). There are no waste injection wells.* ??
- ✓ *Areas in the 500 year flood plain*

- *A wind rose is included on Drawing 2R, prepared circa 1998. A more recent wind rose has been prepared (Figure WR).*
- *Loading and unloading areas are shown on Figure C-5. These shipping and receiving areas are associated with the daily operation of the MPC production facility, not with the hazardous waste managed in the CAMU.*

The following items are not included on Drawing 2R:

Surrounding Land Uses
A surrounding land use map is provided in Appendix B.

Access Controls
Access controls at the facility consists of a fence that surrounds the CAMU. The location of this fence is shown on Drawing 7A provided in Appendix C.

Flood Control and Drainage Barriers
Flood control is not shown on Drawing 2R because the CAMU is located outside of the flood zone. Therefore, flood control is not required.

Run-off Control Systems
Run-off control systems are shown on Drawing 7A provided in Appendix C.

Fire Control Systems
Fire control systems are not shown on Drawing 2R. Fire control systems are described in Section D.2 and are primarily focused on the main production facility and activities. The CAMU system has been designed with a gas venting system that minimizes the potential buildup of explosive gases. The electrical control panel on the Leachate Pump Building is built explosion proof fixtures where appropriate. Drawing 12 in Appendix C shows the Leachate Pump Building details.

Existing Hazardous Waste Units
Closed Hazardous waste units and CAMU are shown on Drawing 2.

Solid Waste Management Units
Closed Solid waste management units are shown on Drawing 2.

B.3 Location Standards: 703.184, 724.118

B.3.1 Seismic Standard: Identify any hazardous waste management units within 200-feet (61 meters) of a fault which has had displacement during Holocene time.

Appendix D contains a copy of the map for the State of Illinois reproduced from the "Preliminary Map of Young Faults in the United States, as a Guide to Possible Fault Locations" by Howard, K.A. et al, U.S. Geological Survey, 1978. The approximate site location has been marked on the referenced map which shows that no faults active during the Holocene period exist within 2 miles of the MPC facility and CAMU Landfill.

B.3.2 Floodplain Standard: Document whether or not the facility is located within a 100-year floodplain. The source of data used for this determination must be provided as well as a copy of the relevant flood map produced by the National Flood Insurance Program (NFIP). Appropriate calculations and flood plain maps must be provided when NFIP maps are not available.

Drawing 2R shows the location of the 500-year floodplain, which occurs at a higher elevation and therefore encompasses the 100-year floodplain. The location of this floodplain is as defined on the National Flood Insurance Program (NFIP) Map for the City of Freeport, Illinois, Panel H+1-01, a copy of which is included in Appendix D.

Appendix D also contains information from the U.S. Army Corps of Engineers Rock Island Water Control Center concerning the flood stages of the Pecatonica River near the City of Freeport, Illinois.

B.3.3 Facilities in the 100-year Floodplain: Facilities located within the 100-year floodplain must provide the following information regarding procedures in place to prevent flooding of the facility:

As shown on Drawing 2R, the closed CAMU containing RCRA hazardous waste is located outside 500-year floodplain and therefore is also the outside the 100-year floodplain. Therefore, the following subsections of section B.3.3 do not apply.

B.3.3.1 Engineering Analysis and Structural/Engineering Study

Provide the following regarding information to demonstrate that flooding of the hazardous waste management units will not occur:

1. Provide an engineering analysis that identifies and evaluates the various hydrodynamic and hydrostatic forces expected to result at the site as a consequence of a 100-year flood.

2. Structural or other engineering study that shows how the design of the hazardous waste management units and flood protection devices at the facility will prevent flooding of the units.

Section B.3.3.1 does not apply because the facility is not located in the 100-year floodplain.

B.3.3.2 Procedures to Remove Waste: In lieu of B.3.3.1 and B.3.3.2, provide a detailed description of the procedures to be followed to remove hazardous waste to safety before the facility is flooded. This information must include:

1. Timing of movement relative to flood levels, including estimated time to move the waste, to show that such movement can be completed before floodwaters reach the facility.

2. The location(s) to which the waste will be moved, and a demonstration that those facilities are eligible to receive hazardous waste in accordance with 702, 703, 724 and 725.

3. The planned procedures, equipment, and personnel to be used, and the means to ensure that such resources will be available in time for such use.

4. The potential for accidental discharge of waste during movement.

Section B.3.3.3 does not apply because the facility is not located in the 100-year floodplain.

B.3.4 Existing facilities not in compliance with 724.118(b): Provide a plan showing how the facility will be brought in compliance and a schedule for compliance with 724.118(b). A variance petition regarding this plan/schedule to come into compliance with 35 IAC 724.118(b) must be filed concurrently with the Illinois Pollution Control Board.

All existing facilities are in compliance. Therefore, Section B.3.4 is not applicable.

B.4 Operating Record: 724.173:

The permittee must keep and maintain a written operating record that includes all the records, reports, notifications, and data required by 35 IAC 724.173 and the conditions in this permit for the entirety of the post-closure care period. Identify the location where the Operating Record is maintained at the facility. Describe the procedures used to record the following information described in 724.173 in the facility's operating record (as such information becomes available) during the post-closure period:

- Records of inspections and repairs,
- Monitoring, testing, or analytical data and corrective action data where required,
- All closure and post-closure cost estimates,
- Annual certification, that a program in place to reduce the volume/toxicity of hazardous waste generated at the facility,

Separate documents may be used provided the requirements of 724.173 are met. A description of where this operating record will be maintained must also be provided.

Inspections and maintenance at the MPC CAMU occur on a regular basis. Tables B-1 and B-2 are the Post-Closure Inspection Schedule and Log and Post-Closure/Maintenance Plan, respectively, and are used at the facility to document inspections and maintenance activities. Completed inspection logs and maintenance records are maintained in a locked filing system at the MPC facility and serve as a record of each inspection. Monitoring, testing, and analytical data, as well as post-closure cost estimates are also housed in the same filing system.

Further details regarding the post-closure inspection schedule and maintenance logs are provided in Section E.6.

C. GROUNDWATER MONITORING

C.1 Exemption from Groundwater Protection Requirements: 703.185, 724.190(b)

If a waiver from the Subpart F groundwater monitoring requirements is requested, the applicant must demonstrate one of the following conditions applies to the facility or exempted under 724.101.

An exemption from groundwater protection requirements 703.185 and 724.190(b) is not being requested. As such, this section and sections C.1.1, C.1.2, and C.1.3 do not apply.

C.1.1 Waste Piles: 724.190(b)(2) and (5)

The waste pile has been designed and operated to meet conditions specified in 724.350(c).

As stated above, this section does not apply since an exemption from the groundwater protection requirements is not being proposed.

C.1.2 Landfill: 724.190(b)(2)

The landfill has been designed and operated to meet conditions specified herein.

As stated above, this section does not apply since an exemption from the groundwater protection requirements is not being proposed.

C.1.3 No Migration: 724.190(b)(4)

No potential for migration of liquid from a regulated unit to the uppermost aquifer exists during the active life of the regulated unit (including the closure period) and the post closure period. Predictions must be based on assumptions maximizing the rate of liquid migration.

As stated above, this section does not apply since an exemption from the groundwater protection requirements is not being proposed.

C.2 Interim Status Groundwater Monitoring Data: 703.185(a)

The applicant must provide, by reference, the location of a summary of the groundwater monitoring data obtained during the interim status period.

Interim groundwater monitoring has not been conducted at the facility. Therefore, this section does not apply. The facility is in post-closure status. Semi-annual groundwater monitor reports are prepared and submitted to IEPA in accordance with the permit.

The following describes historical groundwater trends for the parameters of concern:

- *Lead has historically been detected in wells adjacent to and downgradient of the former lagoons, with the former lagoons being the presumed source area. Lead concentrations in these wells has fallen below the groundwater standards or below detection. Lead was detected slightly above the groundwater standard in MW-20C, on the southern edge of the property, in September 2020 and also in upgradient well MW-16C.*

- *Chromium, in total and dissolved samples, has been historically detected primarily adjacent to the former lagoons, which are the presumed source area, and downgradient towards the river. Chromium concentrations in these wells have dropped below groundwater standards or below detection. Chromium was detected slightly above the groundwater standard in MW-20C, on the southern edge of the property, in September 2020 and also in MW-5D on the upgradient side of the site.*

- *Cadmium, in total and dissolved samples, has historically been primarily detected adjacent to the former lagoons, which are the presumed source area. Cadmium is still detected above groundwater standards in shallow wells MW-9A and MW-22A, near the former lagoons, while concentrations in downgradient wells have fallen below groundwater standards or below detection.*

- *Nickel, in total and dissolved samples, has historically been primarily detected adjacent to the former lagoons, which are the presumed source area, and downgradient towards the river. Nickel concentrations in these wells have dropped below groundwater standards or below detection. Nickel was detected above the groundwater standard in MW-20C, on the southern edge of the property, in September 2020 and also in MW-5D on the upgradient side of the site.*

- *Tetrachloroethene, trichloroethene, vinyl chloride, and cis-1,2-dichloroethene have historically been primarily detected adjacent to the former lagoons, which are the presumed source area. In deep wells, these parameters of concern have also been detected in wells downgradient of the former lagoons, towards the river. Chlorinated solvents are still detected in wells near the former lagoons, but at overall lower concentrations. Vinyl chloride was detected above the groundwater standard in downgradient wells MW-19B and MW-23C in September 2020.*

C.3 Historical Hydrogeological Summary: 703.185(b), 620.210

The applicant must provide an identification of the uppermost aquifer and aquifers hydraulically interconnected beneath the facility property. Include groundwater classification, flow direction and rate, and the basis for such identification (i.e., the information obtained from hydrogeologic investigations of the facility area). A table of hydraulic properties must be submitted which includes at a minimum permeability, sieve analysis, porosity, hydraulic conductivities, etc.

Figures C-1, C-2, C-3, and C-4 display groundwater potentiometric groundwater surface maps for the October 2020 groundwater sampling event. The following is a brief summary of key points with respect to hydrogeologic conditions at the site:

- *Two aquifers were identified at the MPC site including an upper aquifer consisting of permeable alluvial sand and gravel and a bedrock aquifer consisting of Ordovician age Galena and Platteville Group dolomite.*

- *The dolomite was encountered as shallow as 20 feet below ground surface (bgs, elevation 760 feet) at MW-5 in the southwest portion of the property to as deep as approximately 130 feet bgs (elevation 630 feet) in MW-18 on the north side of the property near the river. The upper aquifer was found to be as much as 30 feet thick at the north end of the property, extending down to an elevation of 720 feet. At the southwest corner of the property, the upper aquifer was found to be as thin as approximately 2 feet thick from 765 to 767 feet elevation.*

- *The two aquifers are separated by a clay aquitard that is thin to absent near the bedrock high in the vicinity of the former sludge lagoons and increases to over 70-feet thick near the Pecatonica River.*

- *Geologic cross-sections are included in Appendix T.*

- *Groundwater flow in both aquifers is north/northeast with a relatively uniform flow field exhibited in the unconsolidated aquifer and more divergent flow in the dolomite aquifer. Horizontal gradients are approximately 0.006 ft/ft in the unconsolidated aquifer and 0.008 ft/ft in the dolomite aquifer.*

- *Vertical hydraulic gradients are generally downward except in the area near the wetlands just north of the former lagoons.*

- *The unconsolidated aquifer is permeable with an average measured field hydraulic conductivity of $3.17x10^{-3}$ cm/s. Similarly the dolomite aquifer exhibits an average field hydraulic conductivity of $4.27x10^{-3}$ cm/s.*

- *The permeability of the clay aquitard as measured by lab permeameter tests ranges from $8.5x10^{-8}$ cm/s to $1.2x10^{-7}$ cm/s.*
- *Water exchange between the two aquifers primarily occurs where the clay aquitard is absent. Where the clay aquitard is present, water exchange is restricted due to the low permeability of the clay.*
- *The classification of groundwater per 35 IAC 620 has been an issue of historical discussion on this project. During a meeting with Illinois Environmental Protection Agency (IEPA) and the United State Environmental Protection Agency (USEPA) on September 25, 1997, the issue of groundwater classification was discussed and concluded that groundwater at the site would be classified as Class II groundwater per the provisions of 35 IAC 620.220. However, during a project meeting with IEPA on September 25, 1997 and in the May 25, 1999 approval letter (Appendix E), IEPA notified MPC that the Class II designation of groundwater at the site may be appropriate for the unconsolidated aquifer but a Class I designation would apply to groundwater in the dolomite aquifer. Based on Foth Infrastructure & Environment, LLC's (Foth) (formerly known as Foth & Van Dyke and Associates, Inc. [FVD]) interpretation of 35 IAC 620.210 and 620.220, the groundwater in the unconsolidated aquifer is typically less than 10-feet below ground surface and thus meets the Class II designation. Based on the permeability and depth of the dolomite aquifer, IEPA has applied the Class I designation to the dolomite aquifer.*

For the unconsolidated aquifer, assuming a hydraulic conductivity of about 7.6 ft/d, a hydraulic gradient based on potentiometric surface maps of 0.01 to 0.005 (ft/ft) and an effective porosity value of 0.2, the average linear velocity of groundwater at the site is approximately 0.4 ft/d. Accounting for retardation, the rate at which dissolved constituents in the groundwater migrate is considerably less than 0.4 ft/d.

For the dolomite aquifer, assuming a hydraulic gradient of 0.006 to 0.08 (ft/ft), a hydraulic conductivity of 3.8 ft/d and a porosity value of 0.15, the average linear velocity of groundwater is approximately 0.2 ft/d to approximately 0.5 ft/d. Again accounting for retardation, the migration rate of dissolve constituents in groundwater within the dolomite will be considerably less the linear velocity of groundwater.

Tables of hydraulic properties such as permeameter data, sieve analysis data, and field measured hydraulic conductivities are provided in Appendix F. Note that data on porosity of the unconsolidated sand and gravel and dolomite are not available.

C.4 Topographic Map Requirements: 703.183(s), 703.185(c)

The applicant must provide on the map required in 703.183(s) a complete legal description of the property boundary along with the following additional information:

The waste management area, the property boundary, the proposed point of compliance, the proposed groundwater monitoring zone (if applicable), the proposed location of groundwater monitoring wells and the information required in 703.185(b).

Drawings 2R and 2 show the MPC facility layout and the location of the CAMU. The complete legal description of the property boundary is noted on Drawing 2R. Figure C-5 shows the location of groundwater monitoring wells included in the May 25, 1999 IEPA approved groundwater monitoring program and the approved groundwater monitoring zone (GMZ). IEPA provided an approval of a Revised GMZ subject to conditions noted in the October 16, 2020 letter to MPC (IEPA, 2020).

A compliance point is not shown because it will not be established at the site until the applicable groundwater protection standards are attained and the GMZ expires. Class I standards of 35 IAC 620.410 apply to the dolomite aquifer and Class II standards of 35 IAC 620.420 apply to the unconsolidated aquifer. When these standards are achieved and the GMZ expires, MPC will submit a proposal to establish a point of compliance to satisfy the regulatory requirements found in 35 IAC 724, Subpart F, and reflect the conditions at the facility.

C.5 Contaminant Plume Description: 703.185(d), 721-Appendix I

The applicant must provide a description of any plume of contamination detected in the groundwater originating from a regulated unit. Identify the concentrations of Part 721, Appendix I constituents (throughout the plume or the maximum concentration of each Appendix I constituent) for the plume of contamination delineated on the topographic map.

The monitoring program for a given unit must be established based on the monitoring data from the facility and be appropriate for the groundwater conditions beneath the regulated unit. Complete only the monitoring program section which is currently appropriate for the facility (C.6: Detection, C.7: Compliance, C.8: Corrective action).

Multiple groundwater contamination plumes were documented in 1990, as included in the Final RCRA Part B Permit Application for Proposed Corrective Action Management Unit (FVD, 1999a) submitted in 1999. The contaminants of concern at that time are the same as those present currently, including cadmium, chromium, lead, nickel, cis-1,2-dichloroethene, tetrachloroethene, trichloroethene, and vinyl chloride. The following describes the condition of the historical groundwater plumes for the parameters of concern as documented in 1990 and compares them with the maximum concentration conditions after closure of the CAMU and with current conditions. September 2020 groundwater concentrations are presented in Table C-3 and historical maximum post-closure groundwater concentrations, representing 2004 through 2020 are presented in Table C-4:

- *Lead has historically been detected in wells adjacent to and downgradient of the former lagoons, with the former lagoons being the presumed source area of the plume. The maximum historical lead concentration of 190 micrograms per liter (µg/L) was detected in upgradient well MW-16C in February 2004. Since then, lead concentrations in the downgradient wells has fallen below the groundwater standards or below detection. Lead was detected slightly above the groundwater standard in MW-20C, on the southern edge of the property, in September 2020 (Table C-3) and also in upgradient well MW-16C, but the plume appears to have dissipated.*

- *Chromium, in total and dissolved samples, has been historically detected primarily adjacent to the former lagoons, which are the presumed source area, and downgradient towards the river. However, the maximum historical chromium concentration of 36,000 µg/L was detected in MW-20C, on the eastern property boundary, in March 2017 and was down to 7,200 µg/L in September 2020. Since then, chromium concentrations in the wells near the former lagoons have dropped below groundwater standards or below detection. Chromium was detected slightly above the groundwater standard in MW-20C, on the southern edge of the property, in September 2020 and also in MW-5D on the upgradient side of the site, but the historic plume seems to have dissipated.*

- *Cadmium, in total and dissolved samples, has historically been primarily detected adjacent to the former lagoons, which are the presumed source area. The maximum historical cadmium concentration of 2,900 µg/L was detected in MW-09A in March 2006. Cadmium is still detected above groundwater standards in shallow wells MW-9A and MW-22A, near the former lagoons.*

- *Nickel, in total and dissolved samples, has historically been primarily detected adjacent to the former lagoons, which are the presumed source area, and downgradient towards the river. The maximum historical nickel concentration of 8,700 µg/L was detected in MW-05D in February 2004. Nickel concentrations in these wells have dropped below groundwater standards or below detection. Nickel was detected above the groundwater standard in MW-20C, on the southern edge of the property, in September 2020 and also in MW-5D on the upgradient side of the site and the historical plume seems to have dissipated.*

- *Tetrachloroethene , trichloroethene, vinyl chloride, and cis-1,2-dichloroethene have historically been primarily detected adjacent to the former lagoons, which are the presumed source area. In deep wells, these parameters of concern have also been detected in wells downgradient of the former lagoons,*

towards the river. The maximum historical concentrations of trichloroethene and vinyl chloride, of 410 and 170 µg/L, respectively were detected in MW-08A and MW-06A in 2004. The maximum historical concentration of cis-1,2-dichloroethene of 760 µg/L was detected MW-08A in September 2019 and came down to 540 µg/L in September 2020. The maximum concentration of tetrachloroethene of 42.6 was detected in MW-08A in 2012. Chlorinated solvents are still detected in wells near the former lagoons, but at overall lower concentrations. Vinyl chloride was detected above the groundwater standard in downgradient wells MW-19B and MW-23C in September 2020.

Appendix G provides a summary of groundwater quality monitoring data at the facility from the Fall 2020 report submitted to IEPA, including color bar charts depicting the historical concentrations with time for the wells down gradient of the former lagoons. The principal groundwater contaminants that have been identified at the site are the metals cadmium, chromium, nickel, and lead and the volatile organic compounds (VOCs) tetrachloroethene, TCE, cis-1,2-dichloroethene, (cis-1,2-DCE), and vinyl chloride (VC). Detects of metals are confined to groundwater monitoring wells within the property boundary. Detects of chlorinated ethenes (VOCs) were found primarily in groundwater monitoring wells within the unconsolidated aquifer and extend out to the perimeter wells defined by MW-17A/B, MW-18A/B and MW-19A/B. Figures C-6, C-7, C-8, C-9, C-10, C-11, C-12, C-13, C-14, and C-15 are iso-concentration figures depicting areas where the parameters of concern are detected above the Class I and Class II standards in the dolomite aquifer and unconsolidated deposit aquifer respectively.

C.6 Detection Monitoring Program: 703.185(f), 724.198

If the presence of hazardous constituents has not been detected in the groundwater at the time of permit application, the applicant must provide sufficient information, supporting data and analyses to establish a detection monitoring program which meets the requirements of 724.198.

A detection monitoring program must include at a minimum the ability to monitor for specific indicator parameters based upon the type and characteristics of waste(s) managed at the facility and to maintain a complete and accurate record and statistical evaluation of all groundwater monitoring data.

The presence of hazardous constituents has been measured in the groundwater that exceeds the concentration limits established under 35 IAC Part 620.410 and 35 IAC Part 620.420. As such, this section and sections C.6.1 through C.6.8 do not apply.

C.6.1 Indicator Parameters, Waste Constituents, Reaction Products to be Monitored: 703.185(f)(1), 724.198(a)

The applicant must provide a list of indicator parameters, waste constituents or reaction products to be used in providing a reliable indication of the presence of hazardous constituents in the groundwater.

As stated above, this section does not apply since the presence of hazardous constituents has been measured in the groundwater which exceeds the concentration limits established under 35 IAC Part 620.410 and 35 IAC Part 620.420.

C.6.2 General Monitoring Program Requirements: 703.185(e), 724.197

The applicant must provide detailed plans and an engineering report describing the proposed groundwater monitoring program to be implemented to meet the requirements of 724.197.

Groundwater monitoring systems must be developed to provide a sufficient number of wells for the regulated unit(s), constructed in a manner to provide representative samples from the uppermost aquifer. The program must include appropriate procedures for sampling, analyzing and evaluating groundwater quality.

As stated above, this section does not apply since the presence of hazardous constituents has been measured in the groundwater which exceeds the concentration limits established under 35 IAC Part 620.410 and 35 IAC Part 620.420.

C.6.3 Groundwater Monitoring System: 703.185(f)(2), 724.197(a) & (b), 724.198(b)

The detection monitoring system must be installed at the established compliance point and comply with 724.197(a) & (b). All groundwater monitoring wells must be installed at appropriate locations and depths to yield representative groundwater samples and be cased in a manner capable of maintaining the integrity of the monitoring well bore hole.

The applicant must reference, by location, boring logs and well completion reports (including a cross reference if necessary). A table of wells must be submitted identifying the well ID# and measurements for the following in both mean sea level (MSL) and feet below ground surface (fbgs): well depth, screen interval, ground surface, and stick-up.

As stated above, this section does not apply since the presence of hazardous constituents has been measured in the groundwater which exceeds the concentration limits established under 35 IAC Part 620.410 and 35 IAC Part 620.420.

C.6.4 Description of Sampling and Analysis Procedures: 703.185(f)(4), 724.197(d) & (e)

The applicant must provide a description of sampling and analysis procedures including at a minimum procedures and techniques for sample collection, sample preservation, and shipment, and analytical procedures and chain of custody control. The sampling and analytical methods must be appropriate for groundwater sampling and accurately measure hazardous constituents in groundwater samples. Alternative methods must be included for contingency basis.

As stated above, this section does not apply since the presence of hazardous constituents has been measured in the groundwater which exceeds the concentration limits established under 35 IAC Part 620.410 and 35 IAC Part 620.420.

C.6.5 Evaluation of Groundwater Surface: 724.197(f), 724.198(e)

The applicant must provide procedures for the evaluation of the groundwater surface at the facility. A determination of the groundwater surface elevation each time the groundwater is sampled. The applicant must determine the groundwater flow rate and direction in the uppermost aquifer at least annually.

As stated above, this section does not apply since the presence of hazardous constituents has been measured in the groundwater which exceeds the concentration limits established under 35 IAC Part 620.410 and 35 IAC Part 620.420.

C.6.6 Background Quality: 703.185(f)(3), 724.197(g), 724.198(c)

The applicant must provide an evaluation of background groundwater quality and if necessary, re-establish background based on the historical data gathered over the active life of the permit using a trend analysis.

As stated above, this section does not apply since the presence of hazardous constituents has been measured in the groundwater which exceeds the concentration limits established under 35 IAC Part 620.410 and 35 IAC Part 620.420.

C.6.7 Statistical Evaluations : 703.185(f)(4), 724.197(h), 724.198(d)

The applicant must provide a demonstration that the current statistical method remains appropriate or justify a new method to be used for statistical evaluation of data.

As stated above, this section does not apply since the presence of hazardous constituents has been measured in the groundwater which exceeds the concentration limits established under 35 IAC Part 620.410 and 35 IAC Part 620.420.

C.6.8 Statistically Significant Increases: 724.198(f) & (g)

Using methods required in E.7.7, The applicant must evaluate the existence of statistically significant evidence of contamination in the groundwater. If such evidence exists, specific measures of retesting and IEPA notification must be provided.

As stated above, this section does not apply since the presence of hazardous constituents has been measured in the groundwater which exceeds the concentration limits established under 35 IAC Part 620.410 and 35 IAC Part 620.420.

C.7 Compliance Monitoring Program: 703.185(g), 724.199

If the presence of hazardous constituents has been detected in the groundwater at the point of compliance at the time of permit application, the applicant must submit sufficient information, supporting data and analyses to establish a compliance monitoring program which meets the requirements of 724.199.

The presence of hazardous constituents has been measured in the groundwater exceeding the concentration limits established under 35 IAC Part 620.410 and 35 IAC Part 620.420. There is no point of compliance proposed at the facility. As such, this section and sections C.7.1 through C.7.10 do not apply.

C.7.1 Description of the Monitoring Program: 724.199(a)

The program will be used to determine if compliance standards have been achieved by a regulated unit.

As stated above, there is no point of compliance proposed at the facility, therefore, this section does not apply. The presence of hazardous constituents has been measured in the groundwater exceeding the concentration limits established under 35 IAC Part 620.410 and 35 IAC Part 620.420.

C.7.1.1 Waste Description: 703.185(g)(1), 724.193(a), 724.199(a)(1)

The applicant must provide a list of hazardous constituents for groundwater that are reasonably expected to be in or derived from waste(s) in the regulated unit.

As stated above, this section does not apply.

C.7.1.2 Concentration Limits: 703.185(g)(4), 724.194(a), 724.199(a)(2)

The applicant must provide a discussion addressing the appropriate concentration limits for the hazardous constituents in groundwater.

As stated above, this section does not apply.

C.7.1.3 Compliance Point: 724.195, 724.199(a)(3)

The applicant must provide a discussion addressing the compliance point including rationale for location of groundwater monitoring wells utilized to delineate the compliance point.

As stated above, this section does not apply.

C.7.1.4 Compliance Period: 724.196, 724.199(a)(4)

The applicant must provide a discussion addressing the compliance period.

As stated above, this section does not apply.

C.7.2 Alternate Concentration Limits: 703.185(g)(4), 724.194(b)

In situations where the IEPA determines, based on information and supporting data provided by the applicant, a constituent will not pose a substantial hazard an alternate concentration limit can be established.

Alternate concentration limits are not proposed; this section does not apply since the presence of hazardous constituents has been measured in the groundwater exceeding the concentration limits established under 35 IAC Part 620.410 and 35 IAC Part 620.420.

C.7.2.1 Adverse Effects on Groundwater Quality: 724.193(b)(1), 724.194(b)(1)

The applicant must provide information and supporting data addressing any proposed alternate concentration limit and adverse effects on groundwater quality.

As stated above, alternate concentration limits are not proposed; this section does not apply since the presence of hazardous constituents has been measured in the groundwater exceeding the concentration limits established under 35 IAC Part 620.410 and 35 IAC Part 620.420.

C.7.2.2 Potential Adverse Effects on Hydraulically Connected Surface Water Quality: 724.193(b)(2), 724.194(b)(2)

The applicant must provide information and supporting data addressing any proposed alternate concentration limit and potential adverse effects on hydraulically connected surface water quality.

As stated above, alternate concentration limits are not proposed; this section does not apply since the presence of hazardous constituents has been measured in the groundwater exceeding the concentration limits established under 35 IAC Part 620.410 and 35 IAC Part 620.420.

C.7.3 General Monitoring Program Requirements: 703.185(g)(5), 724.197

The applicant must provide detailed plans and an engineering report describing the proposed groundwater monitoring program to be implemented to meet the requirements of 724.197.

Groundwater monitoring systems must be developed to provide a sufficient number of wells for the regulated unit(s), constructed in a manner to provide representative samples from the uppermost aquifer. The program must include appropriate procedures for sampling, analyzing and evaluating groundwater quality.

As stated above, this section does not apply since the presence of hazardous constituents has been measured in the groundwater exceeding the concentration limits established under 35 IAC Part 620.410 and 35 IAC Part 620.420.

C.7.4 Groundwater Monitoring System: 724.197(a), (b) & (c), 724.199(b)

The compliance monitoring system must be installed at the established compliance point as specified by 724.197(a)(2), 724.197(b) and 724.197(c). All groundwater monitoring wells must

be installed at appropriate locations and depths to yield representative groundwater samples and be cased in a manner capable of maintaining the integrity of the monitoring well bore hole.

The applicant must reference, by location, boring logs, and well completion reports (including a cross reference if necessary). A table of wells must be submitted identifying the well ID# and measurements for the following in both mean sea level (MSL) and feet below ground surface (fbgs): well depth, screen interval, ground surface, and stick-up.

As stated above, this section does not apply since the presence of hazardous constituents has been measured in the groundwater exceeding the concentration limits established under 35 IAC Part 620.410 and 35 IAC Part 620.420.

C.7.5 Description of Sampling and Analysis Procedures: 703.185(g)(6), 724.197(d) & (e), 724.199(c)

The applicant must provide a description of sampling and analysis procedures including at a minimum procedures and techniques for sample collection, sample preservation, and shipment, and analytical procedures and chain of custody control. The sampling and analytical methods must be appropriate for groundwater sampling and accurately measure hazardous constituents in groundwater samples. Alternative methods must be included for contingency basis.

As stated above, this section does not apply since the presence of hazardous constituents has been measured in the groundwater exceeding the concentration limits established under 35 IAC Part 620.410 and 35 IAC Part 620.420.

C.7.6 Background Quality: 724.197(g)

The applicant must provide an evaluation of background groundwater quality and if necessary, re-establish background based on the historical data gathered over the active life of the permit using a trend analysis.

As stated above, this section does not apply since the presence of hazardous constituents has been measured in the groundwater exceeding the concentration limits established under 35 IAC Part 620.410 and 35 IAC Part 620.420.

C.7.7 Statistical Evaluations: 703.185(g)(6), 724.197(h), 724.199(d)

The applicant must provide a demonstration that the current statistical method remains appropriate or justify a new method to be used for statistical evaluation of data.

As stated above, this section does not apply since the presence of hazardous constituents has been measured in the groundwater exceeding the concentration limits established under 35 IAC Part 620.410 and 35 IAC Part 620.420.

C.7.8 Evaluation of Groundwater Surface: 724.197(f), 724.199(e)

The applicant must provide procedures for the evaluation of the groundwater surface at the facility. A determination of the groundwater surface elevation must take place each time the groundwater is sampled. The owner or operator shall determine the groundwater flow rate and direction in the uppermost aquifer at least annually.

As stated above, this section does not apply since the presence of hazardous constituents has been measured in the groundwater exceeding the concentration limits established under 35 IAC Part 620.410 and 35 IAC Part 620.420.

C.7.9 Annual Appendix I: 724.199(g)

The applicant must provide procedures for the Annual Appendix I sampling event. Samples from all monitoring wells at the compliance point must be analyzed for all constituents listed in Appendix I at least annually to determine whether additional hazardous constituents are present in the uppermost aquifer.

As stated above, this section does not apply since the presence of hazardous constituents has been measured in the groundwater exceeding the concentration limits established under 35 IAC Part 620.410 and 35 IAC Part 620.420.

C.7.10 Statistically Significant Increases: 724.199(h) & (i)

Using methods required in E.8.6, The applicant must evaluate the existence of statistically significant evidence of contamination in the groundwater of the point of compliance. If such evidence exists, specific measures of retesting and IEPA notification must be met.

As stated above, this section does not apply since the presence of hazardous constituents has been measured in the groundwater exceeding the concentration limits established under 35 IAC Part 620.410 and 35 IAC Part 620.420.

C.8 Corrective Action Program: 703.185(h), 724.191(a)(2) & (3), 724.200

If hazardous constituents have been measured in the groundwater which exceed the concentration limits established under 724.194, Table 1, or if groundwater monitoring conducted at the waste boundary indicates the presence of hazardous constituents from the facility in groundwater over background concentrations, the applicant must submit sufficient information supporting data and analyses to establish a corrective action program which meets the requirements of 724.200.

The corrective action program permitted at the MPC facility consisted of excavating and disposing of RCRA regulated and non-RCRA solid wastes in an on-site CAMU landfill constructed with a double liner, a leachate collection system, a leak detection system, and a composite cap. The construction of the CAMU and excavation and deposition of hazardous solids waste in the CAMU, was completed in August, 2001, and is documented in the reports titled Modern Plating Corporation CAMU Landfill Construction Documentation, July 2001 (FVD, 2001a) and Closure Documentation Report, August 2001 (FVD, 2001b). Currently, the only active part of the original corrective action program permitted on April 11, 2000 is the monitoring and maintenance of the GMZ and post-closure care of the closed CAMU landfill. The IEPA approved a revised GMZ Re-evaluation in a letter dated October 16, 2020 (Appendix L) with conditions and modifications that included low flow sampling and monitored natural attenuation parameter sampling. MPC will perform the low flow sampling and monitored natural attenuation sampling during the first semi-annual sampling event in 2021 and submit the results to IEPA in a Corrective Action modification request with conclusions and proposals.

C.8.1 Description of Corrective Action Program: 703.185(h), 724.200

The program will be used to demonstrate the effectiveness of a corrective action measure.

In accordance with 35 IAC Part 620.250, a GMZ was initially established at the MPC facility on May 25, 1999. In June 2009, a GMZ evaluation report was submitted in accordance with 35 IAC Part 620. In October, 2020, IEPA provided an approval of a current GMZ based on historic monitoring data review. The approval letter (IEPA, 2020) includes additional sampling requirements for the upcoming semi-annual monitoring event. It should be noted that the principal sources of contaminants in the groundwater at the site were derived from the solid wastes that have been excavated and placed in the CAMU landfill.

Prior to remediation, the site included five sludge storage lagoons. The lagoons received electroplating wastes from 1968 to 1983. Lagoons No. 1, No. 2 and No. 3 were regulated RCRA

units and Lagoons No. 0 and No. 1A were non-RCRA-regulated solid waste management units. Wastes (primarily electroplating sludge) from the lagoons listed and the contaminated soils from the former cyanide vault; soils below the former Shawnee Building; and soils identified in the wetlands north of the lagoons were disposed of in the CAMU Landfill. The CAMU was constructed and closed per RCRA Part B standards. The CAMU is located at the former locations of Lagoons No. 2 and No. 3. The CAMU is shown on Drawing 2R.

The IEPA approved a revised GMZ Re-evaluation in October 16, 2020 (IEPA, 2020). The Revised GMZ Re-evaluation was approved with conditions for monitoring primary sources of contamination. Primary sources of contamination at this site include the lagoons listed above, the Shawnee Building, the cyanide vault and contaminated soils. By isolating and managing the sources of contamination the CAMU will promote groundwater improvements through natural attenuation.

It is important to note that the IEPA has recognized that the remediation activities completed including the construction of the CAMU do not meet the clean closure requirements of 35 IAC 725, Subpart G.

C.8.1.1 Characterization of Contaminated Groundwater: 703.185(h)(1), 724.200(a)(1)

The applicant must include a characterization of the contaminated groundwater, including concentrations.

Appendix G provides the two 2020 groundwater semi-annual reports that were submitted to IEPA. The groundwater monitoring system is described in the RCRA Post-Closure Permit for Modern Plating Corporation, Permit No. 1770200010, RCRA Log No. B-167R, issued June 9, 2011.

The current groundwater monitoring program addresses the following parameters of concern:

Volatile Organic Compounds	*Metals*
Tetrachloroethene	*Cadmium*
Trichloroethene	*Chromium*
cis-1,2-dichloroethene	*Lead*
Vinyl chloride	*Nickel*

The most recent groundwater monitoring event was completed between September 14 and 16 of 2020. Sampling results for parameters of concern are included in Table C-3. These sampling results are compared to the relevant Class I and Class II Clean-Up Objectives, also listed in Table C-3. The metal constituents exceeding the Class I groundwater standards during the fall 2020 sampling event are chromium (MW-5D and MW-20C), lead (MW-16C and MW-20C), and nickel (MW-5D and MW-20C). The metal constituent exceeding the Class II groundwater standard is cadmium (MW-9A and MW-22A).

The volatile organic compounds (VOC) that exceeded a Class I groundwater standard are tetrachloroethene (PCE) (MW-6C and MW-7D), and vinyl chloride (MW-11C, MW-15C, MW-17D, and MW-23C). The VOCs that exceeded Class II groundwater standards are cis-1,2-DCE (MW-8A), trichloroethene (TCE) (MW-8A), and vinyl chloride (MW-6A, MW-7A, MW-8A, and MW-19B).

Additional groundwater sampling parameters will be added to the first 2021 semi-annual sampling event, as required by IEPA (2020). For that sampling event, low flow sampling techniques will be employed with the following additional parameters:

- *Laboratory analytes: natural attenuation parameters including ethane/ethane/methane parameters,*
- *Field parameters: oxidation-reduction potential, dissolved oxygen.*

C.8.1.2 Concentration Limits: 703.185(h)(2), 724.194(a), 724.200(a)(2)

The applicant must provide a discussion addressing the appropriate concentration limits for groundwater for each of the hazardous constituents.

Comparative standards indicating concentration limits are as follows:

- *GMZ wells screened in unconsolidated materials (A and B wells) are compared to Class II (35 IAC Part 620.420)*
- *GMA wells screened in dolomite aquifer (C, D and E wells) are compared to Class I (35 IAC Part 620.410)*
- *The following is the groundwater protection standards established in the 2011 RCRA Post-Closure Permit, as set forth in 35 Ill. Adm. Code 724.194*

Hazardous Waste Constituents	Groundwater Concentration Limits (mg/l)		
Volatile Organic Compounds	**Storet Number**	**Class I**	**Class II**
Tetrachloroethene	34475	0.005	0.025
Trichloroethene	39180	0.005	0.025
Cis- 1,2-Dichloroethene	77093	0.07	0.2
Vinyl Chloride	39175	0.002	0.01
Inorganics (Totals)			
Cadmium	01027	0.005	0.05
Chromium	01034	0.1	1.0
Lead	01051	0.0075	0.1
Nickel	01067	0.1	2.0

C.8.1.3 Compliance Point: 724.195, 724.200(a)(3)

The applicant must provide a discussion addressing the compliance point.

Currently, there is not a compliance point established for this facility because the monitoring wells have not attained the applicable concentration limits provided in the Class I and Class II groundwater compliance standards. MPC will continue to abide by the IEPA approved permit requirements until the IEPA deems the GMZ compliant with applicable standards and regulations. MPC will follow IEPA requirements after compliance with applicable standards has been demonstrated.

C.8.1.4 Compliance Period: 724.196, 724.200(a)(4)

The applicant must provide a discussion addressing the compliance period.

A 3-year period of no Class I and II exceedance is the compliance period for MPC. Semi-annual monitoring results will continue to be submitted to IEPA until a compliance period is identified and approved, and a compliance point can be established.

C.8.1.5 Construction Detail: 703.185(h)(3)

The applicant must provide detailed plans and an engineering report describing the corrective action to be taken, including all aspects of any groundwater and/or product removal/treatment system.

Foth contacted IEPA by email and received a response on May 5, 2021 correcting the code 35 Ill. Adm. Code 703. 185(h)(4) to 35 Ill. Adm. Code 703. 185(h). It is assumed that the regulatory reference above refers to 35 Ill. Adm. Code 703.185(h).

Prior to remediation, the site included five sludge storage lagoons. The lagoons received electroplating wastes from 1968 to 1983. Lagoons No. 1, No. 2, and No.3 were regulated RCRA units and Lagoons No.0 and No. 1A were non-RCRA-regulated solid waste management units. Wastes (primarily electroplating sludge) from the lagoons listed and the contaminated soils from the former cyanide vault; soils below the former Shawnee Building; and soils identified in the wetlands north of the lagoons were disposed of in a Corrective Action Management Unit (CAMU) Landfill. The CAMU was constructed and closed per RCRA Part B standards. The CAMU is located at the former locations of Lagoons No. 2 and No. 3. The engineering report of the corrective action is found in Appendix Q.

The GMZ is approved to monitor the CAMU which is designed to remediate the primary sources of contamination which included the lagoons listed above, the Shawnee Building, the cyanide vault, and contaminated soils. By isolating and managing the sources of contamination the CAMU will promote groundwater improvements through natural attenuation.

A description of the GMZ, which is considered the corrective action, is described in the Groundwater Management Zone Re-Evaluation letter report (GMZ letter report) (Foth, 2009), which is included in Appendix L. The GMZ letter report explains that the CAMU was designed to remediate the primary sources of contamination which included the lagoons, the Shawnee Building, the cyanide vault, and contaminated soils by isolating and managing the sources of contamination. It goes on to explain that the IEPA has recognized that the remediation activities completed do not meet the clean closure requirements of 35 Ill. Adm. Code 725, Subpart G. The GMZ is approved to monitor the CAMU and confirm that improvements are being made to groundwater quality through natural attenuation. In this way, the GMZ serves as the corrective action.

C.8.1.6 Effectiveness of Corrective Action: 703.185(h)(4), 724.200(d) & (g)

The applicant must describe how the groundwater monitoring program will assess the adequacy of the corrective action.

Foth contacted IEPA by email and received a response on May 5, 2021 correcting the code 35 Ill. Adm. Code 703. 185(h)(4) to 35 Ill. Adm. Code 703. 185(h). It is assumed that the regulatory reference above refers to 35 Ill. Adm. Code 703.185(h).

Corrective action efforts at the site have achieved the reduction of groundwater contamination as documented in the semi-annual groundwater reports submitted to IEPA. For the parameters of concern, reduction in groundwater concentrations are documented in the Fall 2020 semi-annual groundwater report provided in Appendix G. Remediation efforts at the site have followed approved methods and have coincided with contamination reductions at the site. This is one indication of the adequacy of the ongoing controls and continued management of the GMZ and CAMU. The Revised GMZ Re-evaluation was approved, with conditions and modifications, in a letter from IEPA dated October 16, 2020 (IEPA, 2020). MPC will continue to comply with IEPA permits and regulatory requirements.

The groundwater monitoring program will continue to be used to assess the adequacy of the corrective action, the GMZ. In accordance with IEPA expectations on GMZs as described in Re-evaluation of Groundwater Management Zones at RCRA Facilities (IEPA, 2002), Modern Plating will submit a report to IEPA describing the status of the GMZ, based on groundwater monitoring results, and requesting any appropriate modifications. IEPA will review the GMZ every 5 years along with determination of adequacy of ongoing controls and continued management of the GMZ. Upon reaching prescribed remediation goals at the site, monitoring will be performed in accordance with IEPA instructions and applicable regulations.

C.8.2 Alternate Concentration Limits: 724.194(b)

In situations where the IEPA determines, based on information and supporting data provided by The applicant, a constituent will not pose a substantial hazard an alternate concentration limit can be established.

Alternate concentration limits are not being proposed for the MPC facility and the GMZ. As a result, this section and sections C.8.2.1 and C.8.2.2 do not apply.

C.8.2.1 Adverse Effects on Groundwater Quality: 724.193(b)(1), 724.194(b)(1)

The applicant must provide information and supporting data addressing any proposed alternate concentration limit and adverse effects on groundwater.

As stated above, this section does not apply because alternate concentration limits are not being proposed.

C.8.2.2 Potential Adverse Effects on Hydraulically-Connected Surface Water Quality: 724.193(b)(2), 724.194(b)(2)

The applicant must provide information and supporting data addressing any proposed alternate concentration limit and adverse effects on hydraulically connected surface water quality.

As stated above, this section does not apply because alternate concentration limits are not being proposed.

C.8.3 Corrective Action Plan: 703.185(h), 724.200(b), 724.200(c), 724.200(e)

In addition to the other requirements of 724.200, the applicant must provide and describe a corrective action program to remove or treat in place hazardous waste constituents in groundwater between the point of compliance and the downgradient facility boundary, or beyond the facility boundary where necessary to protect human health and the environment.

The corrective action program must begin corrective action within a reasonable time period after the groundwater protection standard is exceeded considering the extent of contamination.

Corrective action activities were completed and onsite wastes were disposed of in the CAMU, which was closed in 2001. The construction and closure of the CAMU are documented in the reports titled Modern Plating Corporation CAMU Landfill Construction Documentation, July 2001 (FVD, 2001a) and Closure Documentation Report, August 2001 (FVD, 2001b). As stated in Section C.8, additional corrective actions are not planned for the MPC facility. As a result, there is no corrective action plan for the facility.

C.8.4 Groundwater Monitoring Program: 703.185(h)(4), 724.192, 724.200(d)

The groundwater monitoring program must be as effective as the program required under C.7 in determining compliance with groundwater protection standards and in determining the success of a corrective action program.

Foth contacted IEPA by email and received a response on May 5, 2021 correcting the code 35 Ill. Adm. Code 703. 185(h)(4) to 35 Ill. Adm. Code 703. 185(h). It is assumed that the regulatory reference above refers to 35 Ill. Adm. Code 703.185(h).

The groundwater corrective action program includes:

1. *The construction of the CAMU which serves as the corrective action and subsequently the basis for the establishment of the GMZ.*
2. *Determining the quality of groundwater, within the GMZ and in the vicinity of the MPC facility, by comparing analytical results for the specified hazardous constituents to the concentration limits that comprise the groundwater protection standard.*
3. *Evaluating the effectiveness of the corrective action based on the quality of groundwater within the GMZ and in the vicinity of the MPC facility.*
4. *The postponement of the establishment and monitoring of the point of compliance until the monitoring wells in the program have attained the applicable concentration limits that comprise the groundwater protection standard and the GMZ expires. The compliance period (post-closure period) during which the groundwater protection standard applies shall be extended until it can be demonstrated that the groundwater protection standard has not been exceeded at the point of compliance for three consecutive years.*

The groundwater monitoring program in place at MPC is described in the Modification to RCRA Closure Plan and Basis of Design (Appendix U), which serves as an engineering report describing the groundwater monitoring program in place at the site. The report includes a detailed summary of the GMZ, which was established at MPC in accordance with 35 IAC 620.250. The IEPA approved a revised GMZ Re-evaluation (IEPA, 2020) with conditions and modifications that include low flow sampling for additional laboratory analytes and field parameters for the upcoming Spring 2021 sampling event.

Monitoring well locations are shown on Figure C-5. The sampling protocol was prepared as part of the permit application (FVD, 1999) in accordance with 35 IAC Subtitle G, Chapter I, Parts 703.185(h), 724.192, 724.200 and is summarized below in Sections C.8.4.2 and C.8.4.3.

To satisfy Ill. Adm. Code 703.185(h)(1) and 724.192, the groundwater monitoring program is designed to characterize the contaminated groundwater by sampling for hazardous constituents and comparing them with limits, as described in Section C.8.1.2. The following subsections will provide a narrative description of the groundwater monitoring program and explain how the groundwater monitoring program in place at the site meets the requirements of 35 Ill. Adm. Code 724.200 and is effective in determining compliance with groundwater standards To satisfy Ill. Adm. Code 703.185(h)(1).

The success of the corrective action program is still being assessed. The groundwater plume appears to be attenuating, suggesting that the corrective actions have been successful. IEPA requested, in the GMZ approval letter included in Appendix E, that additional groundwater sampling to confirm these conclusions. That sampling is underway.

C.8.4.1 General Monitoring Program Requirements: 724.197: 703.185(e), 724.197

The applicant must provide detailed plans and an engineering report describing the proposed groundwater monitoring program to be implemented to meet the requirements of 724.197.

Groundwater monitoring systems must be developed to provide a sufficient number of wells for the regulated unit(s), constructed in a manner to provide representative samples from the uppermost aquifer. The program must include appropriate procedures for sampling, analyzing and evaluating groundwater quality.

The groundwater monitoring program follows the program approved by the IEPA dated May 25, 1999. It has been modified as the program has been implemented as described below. All modifications have been approved by IEPA. A summary of the monitoring wells is provided in Table C-1. The location of the GMZ and associated monitoring wells is provided in Figure C-5. The sampling protocol associated with the monitoring program is summarized in Section C.8.4.3. Wells are sampled semi-annually during the first and third quarters. The groundwater flow rate and direction in the uppermost aquifer is determined at least annually. Groundwater surface elevation is measured each time the groundwater is sampled. The stick-up elevation is measured every five years or whenever the elevation changes. Elevation of the bottom of each monitoring well is reported annually, taken during the second semi-annual sampling event each year. Monitoring, testing, and analytical data obtained will be collected and reported by April 15 for the first quarter samples and October 15 for the third quarter samples to comply with 35 Ill. Adm. Code 724.197(j). Groundwater surface elevation is collected and reported at least semi-annually. Data is reported in electronic format along with three paper copies of the groundwater report. Statistical evaluations are submitted with each report and the report discusses the effectiveness of the corrective action program.

The Modification to RCRA Closure Plan and Basis of Design (Appendix U), which serves as an engineering report, describes the groundwater monitoring program in place at the site and includes detailed plans, to comply with 35 Ill. Adm. Code 703.185(e). The sample size and interval described in the engineering report and this section is appropriate to detect releases from the CAMU, as required in 35 Ill. Adm. 724.197(g) by providing a sequence of at least 4 samples at a semi-annual interval, which assures, to the greatest extent technically feasible, that an independent sample is obtained.

The GMZ is approved to monitor the CAMU which is designed to remediate the primary sources of contamination which included the former lagoons, the Shawnee Building, the cyanide vault, and contaminated soils. By isolating and managing the sources of contamination the CAMU will promote groundwater improvements through natural attenuation.

The current groundwater monitoring program addresses the following parameters of concern and includes the following field parameters:

Hazardous Waste Constituents	Groundwater Concentration Limits (mg/l)		
Volatile Organic Compounds	**Storet Number**	**Class I**	**Class II**
Tetrachloroethene	34475	0.005	0.025
Trichloroethene	39180	0.005	0.025
Cis- 1,2-Dichloroethene	77093	0.07	0.2
Vinyl Chloride	39175	0.002	0.01
Inorganics (Totals)			
Cadmium	01027	0.005	0.05
Chromium	01034	0.1	1.0
Lead	01051	0.0075	0.1
Nickel	01067	0.1	2.0
Field Parameters	Storet Number	Units	
pH	00400	Standard Units	
Specific Conductance	00094	micromhos/cm	
Temperature of Water Sample	00011	(°F)	
Turbidity	45626	NTUs	
Depth to Water (below land surface)	72019	Feet	
Depth to Water (below measuring point)	72109	Feet	
Elevation of Groundwater Surface	71993	Ft MSL	
Elevation of Bottom of Well #	72020	Ft MSL	
Elevation of Measuring Point (Top of casing)	72110	Ft MSL	

The sampling program also includes analysis of copper, cyanide, zinc, and the complete SW-846 8010 list of VOCs, plus arsenic once annually. The IEPA approved a revised GMZ Re-evaluation (IEPA, 2020) with requirements that include low flow sampling and additional laboratory analytes and field parameters for the upcoming Spring 2021 sampling event. The results will be submitted to IEPA in a Corrective Action modification request with conclusions and proposals as appropriate.

Details about the groundwater monitoring network are provided in Section C.8.4.2 to comply with 35 Ill. Adm. Code 724.197(a) through (c). Details on the collection and analysis of groundwater samples are provided in Section C.8.4.3 to comply with 35 Ill. Adm. Code 724.197(d) through (e). Section C.8.4.3 describes how the groundwater monitoring program includes the groundwater surface elevation to comply with 35 Ill. Adm. Code 724.197(f). Statistical methods for evaluating groundwater monitoring data are described in Section C.8.4.5 to comply with 35 Ill. Adm. Code 724.197(h) and (i).

C.8.4.2 Groundwater Monitoring System: 724.197(a) & (b), 724.200(d)

The corrective action monitoring system must be installed at the established compliance point as specified by 724.197(a)(2), 724.197(b), and 724.197(c). All groundwater monitoring wells must be installed at appropriate locations and depths to yield representative groundwater samples and be cased in a manner capable of maintaining the integrity of the monitoring well bore hole.

The applicant must reference, by location, boring logs and well completion reports (including a cross reference if necessary). A table of wells must be submitted identifying the well ID# and measurements for the following in both mean sea level (MSL) and feet below ground surface (fbgs): well depth, screen interval, ground surface, and stick-up.

The groundwater monitoring well construction information, boring logs, and well completion reports are provided in Appendix H. A summary of the monitoring wells is provided in Table C-1. This summary table provides information such as well depth, screen interval, and ground surface elevation. The location of the GMZ and associated monitoring wells is provided on Figure C-5. The groundwater monitoring network consists of 15 A unit monitoring wells, 11 B unit monitoring wells, 16 C unit monitoring wells, 5 D unit monitoring wells, and 4 E unit monitoring wells. The A and B unit monitoring wells are installed in the shallow unconsolidated aquifer to a depth of between 12 and 26 feet for A unit wells and between 22 and 37 feet for B unit wells. The C, D, and E wells are installed in the dolomite bedrock aquifer. The C wells range in depth from 23 to 111 feet, the D wells range in depth from 39 to 150 feet and the E wells range in depth from 87 to 117 feet. The monitoring wells were generally constructed of stainless steel with a 5-foot stainless steel screen section and were installed with a bentonite seal. The well logs provided in Appendix H demonstrate how the wells were installed to meet the requirements in 35 Ill. Adm. Code 724.197(c) by using casing to maintain the integrity of the borehole, are screened, packed with a sand pack, and include an annual space seal. The monitoring wells are located to monitor both the shallow unconsolidated aquifer and the bedrock aquifer upgradient, cross-gradient, and downgradient from the former lagoons and other source material areas at the site based on the groundwater flow direction observed to be northeast to fulfill the requirements of 35 Ill. Adm. Code 724.197(a). Upgradient well MW-16C was installed to fulfill the requirement of 35 Ill. Adm. Code 724.197(a) to represent background groundwater quality. Only one regulated unit exists at the site, the CAMU, so 35 Ill. Adm. Code 724.197(b) does not apply.

C.8.4.3 Description of Sampling and Analysis Procedures: 724.197(d) & (e)

The applicant must provide a description of sampling and analysis procedures including at a minimum procedures and techniques for sample collection, sample preservation, and shipment, and analytical procedures and chain of custody control. The sampling and analytical methods must be appropriate for groundwater sampling and accurately measure hazardous constituents in groundwater samples. Alternative methods must be included for contingency basis.

Groundwater monitoring is completed on the wells shown on Figure C-5 for parameters indicated in Table C-2. Field parameters are also collected from all wells sampled for metals (cadmium, chromium, lead, and nickel) and VOCs (tetrachloroethene, trichloroethene, cis-1,2 dichloroethene, and vinyl chloride). Field parameters include pH, specific conductance, temperature, turbidity, depth to water below land surface, and depth to water from top of well casing. The elevation of the top of well casing, ground surface elevation, and well bottom elevation are also recorded and reported. Wells not sampled for organic or inorganic parameters are measured for depth to groundwater to acquire additional data on groundwater elevation and aid in the development of potentiometric surface maps which are submitted annually in October.

The IEPA approved a revised GMZ Re-evaluation (IEPA, 2020) with requirements that include low flow sampling and monitored natural attenuation parameter sampling and additional field parameters. MPC will perform the low flow sampling and monitored natural attenuation sampling by appropriate methods during the first

semi-annual sampling event in 2021 and submit the results to IEPA in a Corrective Action modification request with conclusions and proposals.

With the exception of the planned low flow sampling event, wells which are to be sampled for metals and/or VOCs, the following procedures are followed:

- *The inner diameter (I.D.) of the well casing will be measured and recorded.*
- *The static water level and depth of the well will be measured with an electronic water level indicator. The electronic water level indicator will be lowered into the water slowly to prevent splashing and the depth to water recorded to within 0.01-feet. The electronic water level indicator will once again be lowered into the well to determine the total depth of the well within 0.01-feet. The point of reference for both measurements will be a mark on the top of the well casing with the locking cap off. Between wells, the water level indicator will be decontaminated with a non-phosphate detergent wash and deionized water rinse. The indicator will then be allowed to air dry. The time of the depth to water reading, point of reference, depth to water level, and depth of the well will be recorded.*
- *From the water level information collected, the number of linear feet of static water in the well will be calculated (total depth of well – depth to water = number of linear feet of water).*
- *The static water volume will be calculated using the following formula:*

  $v = r^2h\ (0.163)$, *where:*

  v = *Static volume of water in well in gallons,*

  r = *Inside radius of well casing in inches,*

  h = *Length of water column in feet, and*

  0.163 = A constant conversion factor which compensates for the conversion of the casing radius from inches to feet, the conversion of cubic feet to gallons, and pi.

  For 2-inch wells, 6-feet of water column is equivalent to almost one gallon.

After static water volume is calculated, each well will be purged of three times the volume of water in the monitoring well, or to dryness, using a stainless steel bailer, a submersible pump, or dedicated stainless steel bailers. Detailed field logs of purging procedures will be maintained. Stabilized (<5 percent fluctuation) readings or the removal of three well volumes will be required prior to sample collection. Temperature, pH, and specific conductivity measurements will be taken and recorded initially and after the removal of each well volume if stabilized readings are used for purging. The volume of water purged will be drummed and stored near the well. The drums will be emptied into MPC's wastewater treatment plant during the sampling event unless wet conditions limit machinery access to the well locations. If wet conditions are encountered, the drums will be emptied into MPC's wastewater treatment plant within 90 days, or as soon as conditions permit.

As soon as the wells have recovered, samples will be removed for pH (field) and specific conductance (field), VOCs and/or metals. If the wells are purged to dryness, samples being tested for VOCs, specific conductivity and pH will be collected first upon recovery. The remaining samples will be collected in the order of their

descending volatility (i.e., metals) as soon as a sufficient volume is available for each parameter.

The submersible pump and stainless steel bailer will be cleaned between sample locations using the following procedure: the pump or bailer will be washed with non-phosphate detergent and then rinsed with deionized water, and air-dried before being placed into the wells. Nylon rope, for stainless steel bailer retrieval, will be changed after each use.

Temperature, conductivity and pH readings will be performed at the well head. A pH/conductivity meter will be used to perform these readings. Natural attenuation sampling field parameters, including oxidation-reduction potential, and dissolved oxygen, will be collected at this time. The meter will be decontaminated between samples by rinsing with pH 7 water for pH probe and deionized water for conductivity probe per manufacturer's recommendations. The meter will be calibrated for pH and conductivity per manufacturer's recommendations.

The water samples will be poured into the proper containers which have been specifically prepared for the given parameter(s). Samples will be poured directly from the stainless steel bailer, filling the VOC vials first, and the bottles for metals last.

VOC samples will be placed in the sample containers with all headspace eliminated. When pouring the water from the bailer to the sample container, the sample will be exposed a minimum amount of time to the air. The sample will be purged so as to cause minimal agitation. The holding time for VOC samples is seven days from the date of sampling.

The metals sample will not be filtered and will be analyzed for total recoverable metals. This sample will be acidified with nitric acid to a pH less than 2.0.

After the appropriate sample bottles have been filled, another sample will be collected from the well to confirm consistency in pH, temperature, and specific conductivity readings. If full recovery exceeds two hours, the samples will be collected as soon as sufficient volume is available.

One field blank will be collected for each day of sampling. A blank will be made for each type of sample matrix.

Each day of a sampling event, one sample point will be selected at random to be a full duplicate sample. Field duplicate samples will be subject to the full complement of analyses for that sample point. Results will be used to evaluate possible matrix problems.

Each sample bottle will be sealed with chain of custody tape and labeled with the following information:

- *Tag number*
- *Lab ID number*
- *Station number*
- *Station Description*
- *Date of Collection*
- *Client identification*
- *Preservative*
- *Sampler's signature(s)*
- *Sample type (grab or composite)*

A field log will be maintained by the field sampler. The following will be documented on these forms.

- *Well number and location*
- *Well depth*
- *Depth to static water level and measurement technique*
- *Well yield*
- *Well evacuation procedure and equipment*
- *Sample collection date and time*
- *Well sampling sequence*
- *Types of sample containers used and sample identification numbers*
- *Preservatives used*
- *Parameters requested for analysis*
- *Field analysis data and methods*
- *Sample distribution and transport (2)*
- *Name of sample collector*

After collection and identification, the samples will be maintained under Chain-of-Custody procedures. The field sampler will be personally responsible for the care and custody of the samples until they are transferred or properly dispatched. Samples will be properly packaged with sample labels for shipment with a separate signed Custody Record enclosed in each sample box or cooler. The laboratories and any other person receiving the samples will sign and date the Custody Record. A sample analysis request sheet will accompany the samples to the laboratory. A laboratory log book will be maintained at the laboratory. All pertinent information about the samples will be recorded in this book. All other pertinent information about the sampling event will be recorded in the field log book. Table C-2 provides a summary of the analytical methods that will be followed and includes information on sample container, preservatives, holding times and sample volume. The field sampler will be responsible for transporting the sample coolers to the laboratory directly or by a shipping service within the hold times.

For the first semi-annual sampling event of 2021, low flow sampling will be conducted and natural attenuation parameters including ethane/ethane/methane, oxidation-reduction potential, and dissolved oxygen will be collected in accordance with IEPA (2020).

C8.4.4 Background Quality: 724.197(g), 724.199(c)

The applicant must provide an evaluation of background groundwater quality and if necessary, re-establish background based on the historical data gathered over the active life of the permit using a trend analysis.

The background groundwater monitoring point for the MPC facility is groundwater monitoring well MW-16C, a well no located on MPC property. That well is monitored and documented in semiannual monitoring reports.

C.8.4.5 Statistical Evaluations: 703.185(f), 724.197(h), 724.199(d)

The applicant must provide a demonstration that the current statistical method remains appropriate or justify a new method to be used for statistical evaluation of data.

The following procedures are used to evaluate the groundwater quality monitoring data and are consistent with historical practice at the MPC facility which was established at the direction of the IEPA. An example of the semi-annual report from June 2009 is included in Appendix G. The procedures used are as follows:

- *Trends and changes in specific parameters and overall groundwater quality are presented on graphs;*
- *An evaluation of contaminant levels in the groundwater with respect to established clean up levels are presented in tables; and*
- *A graphical evaluation of the groundwater surface data from wells (hydrographs) accompanied with annual potentiometric surface maps of the facility and surrounding area are prepared annually and submitted to IEPA.*

C.8.4.6 Evaluation of Groundwater Surface: 724.197(f), 724.199(e)

The applicant must provide procedures for the evaluation of the groundwater surface at the facility. A determination of the groundwater surface elevation each time the groundwater is sampled. The owner or operator shall determine the groundwater flow rate and direction in the uppermost aquifer at least annually.

Annually during the Fall sampling event, the groundwater surface is evaluated via hydrographs and the development of potentiometric surface maps. The groundwater flow rate and direction are also evaluated during the fall event. Groundwater contour maps for the Fall 2020 sampling event are provided on Figures C-1, C-2, C-3, and C-4.

C.8.4.7 Extension of Compliance Period: 724.200(f)

The applicant must provide a discussion addressing the extension of the compliance period. The compliance period during which the groundwater protection standard applies shall be extended until the applicant demonstrates that the groundwater protection standard of 724.192 has not been exceeded for three consecutive years.

The compliance period during which groundwater monitoring applies shall be extended until MPC demonstrates that the groundwater quality standards established by the IEPA per 35 IAC 724.192 have been attained.

The IEPA approved a revised GMZ Re-evaluation (IEPA, 2020) requirements that include low flow sampling and monitored natural attenuation parameter sampling. MPC will perform the low flow sampling and monitored natural attenuation sampling during the first semi-annual sampling event in 2021 and submit the results to IEPA in a Corrective Action modification request with conclusions and proposals as appropriate.

Given that a GMZ has been established and that groundwater remediation is not required per 35 IAC 742.925 it is MPC's understanding that groundwater at the site will need to be monitored until such time that the groundwater quality standards of 35 IAC 620.410 and 620.420 have not been exceeded for a period of three consecutive years.

C.8.4.8 Effectiveness of Corrective Action: 724.200(g)

The applicant must provide a discussion addressing the evaluation and reporting of the effectiveness of the corrective action program to the IEPA. The written reports must be submitted semi-annually.

As part of the semi-annual monitoring program and reporting requirements, MPC has been and will continue to provide an assessment of the corrective action program which will focus on concentration trends and the progress towards attaining the 35 IAC 620.410 standards for the dolomite aquifer and the 35 IAC 620.420 standards for the unconsolidated aquifer.

C.8.4.9 Evaluation of the Corrective Action Program: 724.200(h)

The applicant must provide a discussion addressing any determination that the corrective action program no longer satisfies the requirements of 724.200.

If it is determined that the corrective action program no longer satisfies the requirements of 35 IAC 724.200, an application for permit modification to make any appropriate changes to the program will be submitted to the IEPA within 90 days of notice of that determination.

C.9 Reporting Requirements: 724.197(j)

The applicant must provide a discussion addressing groundwater monitoring data collected and the maintenance of the data in the facility operating record.

MPC will continue to maintain in the facility operating record a copy of the collected groundwater monitoring data. Any changes to the monitoring program will be submitted as an application for a permit modification. MPC will continue to submit to the IEPA semi-annual reports that summarize the semi-annual sampling events and provide an evaluation of the groundwater quality data collected in the GMZ.

D. PROCEDURES TO PREVENT HAZARDS

D.1 Security: 703.183(d), 724.114

The owner or operator must prevent the unknowing entry, and minimize the possibility for the unauthorized entry, of persons or livestock onto the active portion of the facility. Unless a waiver is granted, the facility must have either a 24-hour surveillance systems, or a barrier and a means to control entry as set forth in Item D.1.2 below.

All RCRA and non-RCRA hazardous waste at the MPC facility has been excavated and placed in the CAMU landfill, which has been closed. As part of the CAMU post-closure care, a fence has been constructed and maintained around the CAMU as a means to control entry to the site.

D.1.1 Waiver from the Security Requirements: Facilities seeking a waiver from the security requirements must demonstrate that:

D.1.1.1 Physical contact with the waste, structures or equipment within the active portion of the facility will not injure unknowing or unauthorized persons or livestock which may enter the active portion of a facility; and

D.1.1.2 Disturbance of the waste or equipment, by the unknowing or unauthorized entry of persons or livestock onto the active portion of a facility, will not cause a violation of the requirements of 724.

MPC is not seeking a waiver from the security requirements. As a result, section D.1.1 and subsections D.1.1.1 and D.1.1.2 do not apply.

D.1.2 Restricting Entry to the Facility
Describe the means used to restrict entry to the facility.

1. **24-Hour Surveillance System:** Describe the 24-hour surveillance system (e.g., television monitoring or surveillance by guards or facility personnel) at the facility that continuously monitors and controls entry onto the active portion of the facility; or

   A 24-hour surveillance system is not employed at the MPC facility.

2. **Barrier and Controlled Entry:** Describe the artificial or natural barrier system (e.g., a fence in good repair or a fence combined with a cliff), which completely surrounds the active portion of the facility; and the means to control entry, at all times, through the gates or other entrances to the active portion of the facility (e.g., an attendant, television monitors, locked entrance or controlled roadway access to the facility).

   All RCRA and non-RCRA hazardous waste at the MPC facility has been excavated and placed in the CAMU landfill, which has been closed. As part of the CAMU post-closure care, a 6-foot high chain-link fence has been constructed around the CAMU to limit human and animal access to the CAMU. The location of the security fence is shown on Drawing 7A located in Appendix C. Details of the security fence materials and construction are also included in Appendix C on Drawing 7B.

D.1.3 Warning Sign: Identify the locations of all warning signs on a scale drawing of the facility. A sign with the legend, "Danger X - Unauthorized Personnel Keep Out," must be posted at each entrance to the active portion of a facility, and at other locations, in sufficient numbers to be seen from any approach to this active portion. The sign must be legible from a distance of at least 25 feet. Existing signs with a legend other than "Danger X - Unauthorized Personnel Keep Out" may be used if the legend on the sign indicates that only authorized personnel are allowed to enter the active portion, and that entry onto the active portion can be dangerous.

Warning signs with the legend, "Danger Hazardous Waste - Unauthorized Personnel Keep Out," are posted at the access control gate to the CAMU and along each of the other 3 sides of the CAMU fence. The signs have a print large enough to be legible from a distance of at least 25 feet.

D.2 Equipment Requirements: 703.183, 724.132, 724.133, 724.134, 724.135

All facilities must be equipped with the equipment and procedures listed in D.2.2 through D.2.8 below in place unless the applicant submits a waiver request as identified in D.2.1 below. The location within the facility of the equipment described in this section must be shown on the drawings required in Section B.2.2 above.

D.2.1 **Waiver: Facilities** seeking a waiver from any or all of the equipment/procedure requirements below. To obtain a waiver, the applicant must demonstrate that none of the hazards posed at the facility would require the particular type of equipment/procedure at issue.

MPC is not requesting a waiver from the equipment requirements. Therefore Section D.3.1 does not apply.

D.2.2 **Internal Communications:** Describe the internal communications or alarm system capable of providing immediate emergency instruction (voice or signal) to facility personnel.

In accordance with federal and state requirements, MPC maintains an updated version of a Hazardous Waste Contingency Plan (FVD, 1999c, update 2017) addressing internal communications in the event of certain emergency conditions:

- *Fire and/or explosions*
- *Spills or material release*
- *Floods*

First, second, and third shift emergency coordinators and their alternates are listed in FVD (1999c) with both office, home, and cell phone numbers. A telephone paging system and two-way radio supplements internal communications. In the event of a power failure, an emergency generator provides power to operate the telephone system.

Alarm systems are provided for the CAMU systems. The Leachate Pump Building designed and constructed with explosion proof fixtures as appropriate. Leak detection, indicators, and a prominent alarm light are provided on the Building Control Panel. Drawing 12 in Appendix C shows details.

D.2.3 **External Communications:** Describe the device, such as a telephone (immediately available at the scene of operations) or a hand-held two-way radio, capable of summoning emergency assistance from local police departments, fire departments, state or local emergency response teams.

In accordance with federal and state requirements, MPC maintains an updated version of a Hazardous Waste Contingency Plan (FVD, 1999c, update 2017) addressing external communications in the event of certain emergency conditions:

- *Fire and/or explosions*
- *Spills or material release*
- *Floods*

The Contingency Plan has been provided to the local hospital, fire and police departments, and a local environmental clean up company. External communications are addressed in the plan with contact phone numbers to these organizations. Additionally, emergency contact information for the U.S. Coast Guard, National Response Center, Illinois EPA 24-Hour Hotline, Chemtrec, and

PDC Response, Inc. (CAMU Landfill Spill Response) are included. A decision-making flow chart is included in the Plan.

D.2.4 **Emergency Response Equipment:** Describe the following emergency response equipment present at the facility: portable fire extinguishers; fire control equipment, spill control equipment, and decontamination equipment.

The facility has several types of emergency response equipment in place. Appendix I has two figures from the Contingency Plan (FVD, 1999c updated in 2017). Multipurpose ABC fire extinguishers are located as sown on Figure G-1; fire hydrants and spill equipment are marked on Exhibit 1. The facility includes a sprinkler system. A spill cart is located at the facility for spill response. Decontamination equipment is maintained.

D.2.5 **Water for Fire Control:** Provide a statement signed by an independent fire control professional, or the responsible fire department, certifying that the facility has water at adequate volume and pressure to supply water hose streams, foam producing equipment, automatic sprinklers, or water spray systems. The document must include an original signature from the fire control professional or responsible fire department.

MPC will be requesting a signed statement from the appropriate fire control professional to fulfill this requirement. We anticipate forwarding the statement to IEPA by January 31, 2021 to fulfill this requirement.

D.2.6 **Personnel Protection Equipment:** Describe the procedures, structures, and clothing equipment used to protect personnel from undue exposure to hazardous waste.

At a minimum, Level D personal protection equipment (PPE) is worn by personnel when sampling and servicing the CAMU and associated monitoring equipment. In addition, chemical resistant gloves and safety glasses are worn when monitoring groundwater or leachate. Hard hats are worn when an overhead hazard exists. PPE may be added to these minimum requirements based upon the situation. A list of emergency equipment is included in Section G-5 of the Contingency Plan, Hazardous Waste Contingency Plan and Related Documents (FVD, 1999c updated in 2017).

D.2.7 **Testing & Maintenance of Emergency Equipment:** Demonstrate that all facility communications or alarm systems, fire protection equipment, spill control equipment and decontamination equipment, where required, is tested, maintained, and calibrated, as necessary to assure its proper operation in time of emergency.

The Contingency Plan (FVD, 1999c updated in 2017) describes testing and maintenance for the emergency equipment.

D.2.7.1 Equipment Testing: Identify all emergency equipment and describe how the equipment is tested, maintained, and calibrated.

The sprinkler signaling system is maintained by the company maintenance department and maintenance reports are filed with the company's insurance carrier. The system is tested monthly utilizing a flow test. Blowdowns on the sprinkler system are conducted annually.

The fire extinguisher equipment is maintained by the safety committee and is reviewed by contract quarterly by Safety Services of Freeport.

Inspection of emergency equipment is performed weekly and is recorded.

Telephones are in daily use and the radio is checked when activities are performed in the waste storage building (reference 35 Ill. Adm. 724.133 and 40 CFR 264.33).

D.2.7.2 Schedule: Provide a testing and maintenance/calibration schedule for all communications, monitoring, safety, spill control, decontamination, and emergency equipment.

The internal communication systems employed in the CAMU leachate detection and leachate collection system are inspected on a regular basis by trained MPC personnel. The leachate detection system alarms are inspected monthly and the leachate collection systems alarms are inspected every 15 days.

D.2.8 Equipment and Power Failure: Describe the procedures, structures, and equipment used to mitigate the effects of equipment failure and power outage.

If power outage occurs for more than 12 hours, an additional emergency generator can be rented from the agencies listed in G-4A of the Contingency Plan (FVD, 1999c updated in, 2017). This generator can be used to power the leachate collection system pumps.

D.3 Inspection Requirements: 703.183(e), 724.115

Describe the inspection procedures followed at the facility. Provide copies of the inspection log and repair log that will be used to document inspections and repairs at the facility in accordance with the RCRA requirements.

Post-closure inspections on the CAMU and associated systems are conducted at the facility on a regular basis. All inspection procedures are outlined in the "Post-Closure Inspection Schedule and Log" contained in Table B-1.

D.3.1 Inspection Log: An inspection log must be maintained which includes all of the items listed below. The log must also include the date and time of each inspection, the name of the inspector, notation of the observations made, and the date of any repairs or remedial actions.

Table B-1 provides the "Post-Closure Inspection Schedule and Log," which describes the post-closure inspection plan for the MPC facility. The repair log in Table B-3 is a form that will be used to document completion of repairs identified in the inspection and maintenance activities.

D.3.1.1 Items Inspected: Identify each item the owner/operator will inspect at the facility in order to comply with the RCRA requirements. These items include, all RCRA regulated units, monitoring equipment, safety and emergency equipment, security and communication devices, and operating and structural equipment that are vital to prevent, detect, or respond to environmental or human health hazards.

The "Post-Closure Inspection Schedule and Log" contained in Table B-1 provides inspection requirements for the CAMU and associated systems. Visual inspection and appropriate checks are performed regularly on the Leachate Collection System, the Leak Detection System, the CAMU exterior, erosion control structures, sedimentation basins, CAMU cover system, security equipment, the gas venting system, the groundwater monitoring wells, and the horizontal and vertical benchmarks.

The sprinkler signaling system is maintained by the company maintenance department and reports are filed with the company's insurance carrier. The system is tested monthly utilizing a flow test. Blowdowns on the sprinkler system are conducted annually. The fire extinguisher system is maintained by the safety committee and is reviewed by contract quarterly by Safety Services of Freeport. Inspection of this emergency equipment is performed weekly and is recorded.

D.3.1.2 Types of Problems: Identify the types of problems (e.g., malfunctions or deterioration) the inspector must look for during an inspection (e.g. inoperable sump pump, leaking fitting, eroding dike).

The types of problems associated with all items inspected as part of the post-closure plan is provided in the "Post-Closure Inspection Schedule and Log" contained in Table B-1. Depending on the item, inspectors look for signs of loss of integrity, corrosion, subsidence, operability, erosion, and breaches.

D.3.1.3 Inspection Frequency: Identify the inspection frequency for each item in the log. In addition, provide justification for the inspection frequency proposed for each item. (This justification should be separate from the actual inspection log.) The frequency of inspection needs to be based on the rate of possible deterioration of equipment and the probability of an environmental or human health incident if the deterioration, malfunction, or operator error goes undetected between inspections.

The inspection frequency associated with all items inspected as part of the post-closure plan is provided in the "Post-Closure Inspection Schedule and Log" contained in Table B-1. Depending on the item, inspection frequency is assigned and performed on an appropriate basis such that developing deterioration will be identified before an item loses operability or functionality.

D.3.2 Repair Log: The repair log must be used to schedule and record repairs (deterioration, or malfunction of equipment or structures) revealed by an inspection of the items listed in the inspection log. The repair log must include the following items:

1. The item needing repair.
2. The problem identified during the inspection that needs repair.
3. The date the inspection took place.
4. The name of the person who conducted the inspection.
5. The name of the person who makes the corrected repair.
6. The date the repair was made.
7. The efforts carried out in making the repair.
8. Any other appropriate comments.

Most repairs should be made at the time it is determined to be necessary and all repairs should be made within 24 hours. The timeliness of the repair is dependent on the potential impact the problem needing repair may have on protection human health, the environment, and the safe operation of the facility.

The repair log in Table B-3 is a form that will be used to document completion of repairs identified in the inspection and maintenance activities.

D.3.3 24 Hour Reporting (702.152(f), 703.245(b)): Describe the procedures to be followed if an inspection reveals any noncompliance with the permit which may endanger health of the environment: 1) report the required information about the incident orally within 24 hours from the time the Permittee becomes aware of the circumstances, and 2) provide a written description of the incident within 5 days of the time the Permittee becomes aware of the circumstances.

The inspection and maintenance procedures are designed and implemented to prevent CAMU operability issues that might lead to permit noncompliance. Should an issue arise, MPC shall report to the IEPA any noncompliance that may endanger health or the environment. Any such information shall be reported orally within 24 hours from discovery. This report shall include the following:

i. Information concerning the release of any hazardous waste that may cause an endangerment to public drinking water supplies.

ii. *Information concerning the release or discharge of any hazardous waste or of a fire or explosion at the HWM facility, which could threaten the environment or human health outside the facility.*

The description of the occurrence and its cause shall include:

i. *Name, address, and telephone number of the owner or operator;*
ii. *Name, address, and telephone number of the facility;*
iii. *Date, time, and type of incident;*
iv. *Name and quantity of material(s) involved;*
v. *The extent of injuries, if any;*
vi. *An assessment of actual or potential hazards to the environment and human health outside the facility, where applicable; and*
vii. *Estimated quantity and disposition of recovered material that resulted from the incident.*

A written submission shall also be provided within 5 days of the discovery. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance including exact dates and times and if the noncompliance has not been corrected; the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. The IEPA may waive the five day written notice requirement in favor of a written report within 15 days. (35 IAC 702.152(l) and 703.245(b))

E. CLOSURE AND POST-CLOSURE REQUIREMENTS

See 703.183(m), 703.203(f), 703.204(h), 703.207(e), 724.218, 724.297(b) and (c), 724.328(b), 724.328(c)(1)(B), 724.380(c), 724.401(b)

E.1 Information Regarding the Unit(s) Closed as a Landfill

The foundation for developing an appropriate post-closure care program for a unit closed as a landfill is a thorough understanding of the unit, focusing on its surroundings, construction, operation and closure.

E.1.1 General Information Regarding of the Unit to Receive Post-Closure Care

Identify the unit(s) at the facility which were closed as landfills to which the post-closure requirements of 35 Ill. Admin. 724, Subpart G apply. Among other things, provide:

1. A scaled drawing showing the location and boundaries of the unit within the facility;
2. A copy of IEPA's letter accepting certification of closure of the unit as a landfill;
3. The date that the post-closure care period for the unit began; and
4. A certified copy of the survey plat and post-closure notices filed in accordance with 35 IAC 724, Subpart G or 725, Subpart G with the county in which the facility is located.

1. The location and boundaries of the CAMU are shown on Drawing 2R. A survey plat is provided in Appendix J.
2. The closure plan was approved by the IEPA with the issuance of the RCRA Hazardous Waste Management Post-Closure, Permit No. 1770200010, Log No. B-167, issued April 11, 2000. A copy of this document is included in Appendix L.
3. The post-closure care period began April 11, 2000.
4. A certified survey plat is included in Appendix J.

E.1.2 Geology and Hydrogeology Around/Beneath the Unit

Provide a detailed description of the geology and hydrogeology around/beneath the unit. Of special concern is the presence of silt, sand or other permeable zones around and beneath the unit which, if not properly addressed, could be a conduit for the migration of leachate or landfill gas away from the landfill. This description should be supplemented with boring logs, drawings and cross-sections.

General Geology of the Surrounding Area

The facility location is within the Rock River Hill Country of the Till Plains Section of the Central Lowlands Province. The area was glaciated, however, drift is thin in many areas and the major uplands and valleys are controlled mainly by the bedrock surface. The area is characterized by rolling hills considered to be in the stage of late youth to early maturity.

Summary of Geology of Unconsolidated Materials within the GMZ

The MPC facility is located adjacent to the floodplain of the Pecatonica River. The Quaternary deposits in the floodplain consist of Cahokia Alluvium, which is comprised mostly of poorly sorted sand, silt or clay which contains local deposits of sandy gravel. This alluvium is approximately 50 to 100-feet thick in the site area. The upland area consists of Illinoian age till, specifically, the Ogle Till Member of the Glasford Formation. It is composed of thin and discontinuous, tan to grayish-brown sandy, silty till and interbedded sand and gravel which rests directly on bedrock.

In general, there are four major strata at the site: organic clay, alluvial sand and gravel, lacustrine clay, and the dolomite bedrock. The organic clay stratum ranges in thickness from 3 feet to 18 feet. The stratum consists of dark brown clay with silt and is classified as an OL or CL. The grain size analysis of the stratum averages 0% gravel, 8% sand, 62% silt, and 30% clay. The

liquid limit averages 44.2 and the plastic index averages 22. The laboratory permeability of the stratum ranged from 3.3x10-8 centimeters per second (cm/sec) to 6.8x10-4 cm/sec.

The stratum underlying the organic clay is the alluvial sand and gravel. The sand and gravel ranges in thickness from about 5 feet to 30 feet. The stratum consists of dark brown to light brown fine to coarse sand with gravel and is classified as SP, SP-SM, and SM. The grain analyses range from 0-38% gravel, 41-98% sand, and 7-50% P200 (grains ≤ 0.075 millimeter). The soil is non-plastic, and laboratory permeabilities ranged from 5.1x10-7 cm/sec to 2.8x10-3 cm/sec.

The organic clay and alluvial sand and gravel comprise the unconsolidated aquifer. Underlying the alluvial sand and gravel is the lacustrine clay. The lacustrine clay acts as an aquitard (confining unit) between the unconsolidated aquifer and the bedrock aquifer. An aquitard is characterized by low permeability that does not readily permit water to pass through it despite the fact that it stores large quantities of water. The clay ranges in thickness from about 7 feet to over 70 feet. The Lacustrine clay was not encountered in upland borings outside of the floodplain. This stratum consists of dark green brown to dark green grey clay with silt to grey silt with clay and is classified as a CL. The grain size analyses indicate the soil contains 0% gravel, less than 1% sand, 42-68% silt, and 32-58% clay. The liquid limit averages 41 and the plastic index averages 22. The laboratory permeability of the clay ranges from 8.5x10-8 cm/sec to 1.2x10-7 cm/sec.

Summary of Bedrock Geology within the GMZ

The bedrock at the facility is Ordovician Age Galena and Platteville Group dolomites are underlain by Ancel Group Sandstone. The Galena and Platteville Group dolomites form the uppermost bedrock unit throughout most of the area. In most of northern Illinois, the Galena Group consists of dolomite formations overlying the Platteville Group. The Platteville Group is finely crystalline, dense, partially argillaceous dolomite that is frequently cherty in the upper part and sandy in the lower. The Galena Group dolomite is medium to coarse grained and partly cherty and overlies the Platteville Group. Both of these units yield groundwater through joints, bedding planes, fractures, solution channels, etc. The depth to the dolomite bedrock at the MPC facility ranges from 17 feet at location MW-5 to approximately 125 feet near the Pecatonica River. Based on the site borings, the dolomite bedrock is at least 40-feet thick in the vicinity of the site.

The Ancel Group sandstone which underlies the dolomite includes both the St. Peter Sandstone and Glenwood Formation. The St. Peter Sandstone is an occasionally silty, fine- to medium-grained, well sorted, well rounded, with frosted grains of quartz sand, and averages 270-feet thick. The Glenwood Formation consists of interbedded dolomite, sandstone and shale, which is 5 to 60-feet thick. Neither of these formations were encountered during drilling programs at the facility.

Hydrogeology

Two aquifers were identified at the MPC site including an upper aquifer consisting of permeable alluvial sand and gravel and a bedrock aquifer consisting of Ordovician age Galena and Platteville Group dolomite.

- *The two aquifers are separated by a clay aquitard that is thin to absent near the bedrock high in the vicinity of the sludge lagoons and increases to over 70 ft thick near the Pecatonica River.*
- *Groundwater flow in both aquifers is north northeast with a relatively uniform flow field exhibited in the unconsolidated aquifer and more divergent flow in the dolomite aquifer. Horizontal gradients are approximately 0.005 ft/ft in the unconsolidated aquifer and range from approximately 0.01 ft/ft to 0.006 ft/ft in the dolomite aquifer.*
- *Vertical hydraulic gradients within the unconsolidated aquifer are upwards near the Pecatonica River and downward near the sludge lagoons.*

- *The unconsolidated aquifer is permeable with an average measured field hydraulic conductivity of 3.17x10-' cm/s. Similarly the dolomite aquifer exhibits an average field hydraulic conductivity of 4.27x10 -3 cm/s.*

- *The permeability of the clay aquitard as measured by lab permeameter tests ranges from 8.5x10'8 cm/s to 1.2x1 -7 pm/s.*

- *Water exchange between the two aquifers primarily occurs where the clay aquitard is absent. Where the clay aquitard is present, water exchange is restricted due to the low permeability of the clay.*

- *Based on elevation data, it was concluded that four of the five sludge lagoons are at times in contact with the groundwater. Waste Lagoon No. 1A is above the groundwater table (for additional information see data in Appendix C of the September 1997 RCRA Closure Plan).*

The classification of groundwater per 35 IAC 620 has been an issue of historical discussion on this project. During a meeting with IEPA and USEPA, on September 25, 1997, the issue of groundwater classification was discussed and concluded that groundwater at the site would be classified as Class II groundwater per the provisions of 35 IAC 620.220. However, during a project meeting with IEPA on September 25, 1997 and in the September 15, 1997 approval letter (Appendix W), IEPA notified MPC that the Class II designation of groundwater at the site may be appropriate for the unconsolidated aquifer but a Class I designation would apply to groundwater in the dolomite aquifer. Based on our interpretation of 35 IAC 620.210 and 620.220, the groundwater in the unconsolidated aquifer is typically less than 10 ft below ground surface and thus meets the Class II designation. Based on the permeability and depth of the dolomite aquifer, it is our understanding that IEPA will apply the Class I designation to the dolomite aquifer.

For the unconsolidated aquifer, assuming a hydraulic conductivity of about 7.6 ft/d, a hydraulic gradient based on potentiometric surface maps of 0.01 to 0.005 (ft/ft) and an effective porosity value of 0.2, the average linear velocity of groundwater at the site is approximately 0.4 ft/d.

Accounting for retardation, the rate at which dissolved constituents in the groundwater migrate is considerably less than 0.4 ft/d.

For the dolomite aquifer, assuming a hydraulic gradient of 0.006 to 0.08 (ft/ft), a hydraulic conductivity of 3.8 ft/d and a porosity value of 0.15, the average linear velocity of groundwater is approximately 0.2 ft/d to approximately 0.5 ft/d. Again accounting for retardation, the migration rate of dissolve constituents in groundwater within the dolomite will be considerably less the linear velocity of groundwater.

Information regarding the soils underlying the unit are provided in Appendix F. General soils information is also provided on the construction drawings that are provided in Appendix C.

E.1.3 Characterization of Waste Contaminated Soil Present in the Landfill Unit

Provide a description of the type, quantity and characteristics of the waste and/or contaminated soil remaining in the unit.

Several types of remediation waste have been placed in the CAMU. The wastes placed in the CAMU are defined as F006 and F002 listed sludge wastes which are also contaminated with cyanide, and various metals. A description of the type and quantity of waste associated with each remediated area is provided on Drawing 2.

E.1.4 Initial Closure Activities

Provide a detailed description, as appropriate, of the following initial activities carried out in closing the unit as a landfill:

1. Removal of waste and contaminated soil;
2. Stabilization of material remaining in the unit; and
3. Use of structural fill material to establish final contours.

Removal of Waste and Contaminated Soil

Four hazardous waste management units (HWMUs), four solid waste management units (SWMUs), and two areas of concern were remediated by excavating the contaminated soils and depositing these soils in the CAMU landfill in accordance with the plan outlined in the RCRA Part B Permit Application for Proposed Corrective Action Management Unit (FVD, 1999) and documented in the report titled Closure Documentation Report (Appendix R). The four HWMUs excavated were Lagoon 1, Lagoon 2, Lagoon 3, and the Shawnee Building. The remediated SWMUs consisted of Lagoon 0, Lagoon 1A, Cyanide Treatment Vault, Wetland 1 and 1A, and Wetland II and III. The two areas of concern remediated were the outfall pipe and the wastewater release area.

The CAMU landfill was constructed and closed in a manner to eliminate future environmental impacts from the excavated hazardous wastes. To minimize and eliminate future environmental impacts the CAMU landfill was constructed with a double liner, a leachate collocation system, leak detection system, and a composite cap. Further details regarding the construction of the CAMU landfill are provided in section E.1.2.3.

Remedial action was approved by the IEPA with the issuing of the RCRA Hazardous Waste Management Post-Closure permit for the CAMU on April 11, 2000 (IEPA, 2000). MPC constructed, operated, and closed a CAMU receiving remediation waste generated from the closure and corrective actions taken at several HWMUs and SWMUs at the facility. Construction of all units was done in accordance with IEPA approved design, construction, and operating requirements including liner systems, cover systems, leachate collection and removal systems, leak detection system, and groundwater monitoring requirements as described in the permit.

Closure of the Shawnee Building, Wetlands Area, Wastewater Release Area, Lagoons 0, 1, 1A, 2, and 3 and the Cyanide Treatment Vault have received certification of Completed Closure with conditions as outlined in the permit. As outlined in the RCRA Hazardous Waste Management Post-Closure permit for the Corrective Action Management Unit (CAMU), April 11, 2000 (IEPA, 2000) and shown on Drawing 2, the following remediation and closure activities have occurred at the MPC facility:

Lagoon 0, Lagoon 1, Lagoon 1A, Lagoon 2, Lagoon 3

Waste sludges in the listed lagoons were dried, solidified and/or treated. After removal of waste, at least 1 foot of the base and 1-foot of the interior side slopes were excavated. Excavated soil and electroplating waste was removed from the lagoons and placed in the CAMU. After waste was removed, each area was backfilled with clean soils and compacted in lifts and the surface graded to drain. Additional excavation details regarding the waste types and quantities are provided on Drawing 2.

Cyanide Treatment Vault Area

The concrete cyanide vault was remediated by breaking up and removing the concrete vault. Approximately 2 feet of contaminated soil was excavated from the floor and sidewalls of the cyanide treatment vault. Approximately 200 cubic yards of contaminated soil was excavated and placed in the CAMU. After waste was removed, this area was backfilled with approximately 10 feet of clay soil, compacted in lifts, and the surface was graded to drain. An engineered barrier was also installed over the remediated area.

Shawnee Building

Approximately 30 cubic yards of contaminated soil was excavated from storage areas in the Shawnee Building and placed in the CAMU. The remediation was completed by cutting and removing a section of the concrete slab measuring approximately 25 feet by 25 feet and excavating the soil below to a depth of approximately 3 feet. After excavation of the contaminated soil, the excavated area was backfilled with clay soil, compacted in lifts, and the graded to promote drainage.

Wetland Area

Approximately 2,905 cubic yards of contaminated soils were removed from four areas in the Wetland Area and placed in the CAMU. The wetland areas were backfilled and graded with wetland soils that were stockpiled during the excavation of a pond on the former Stephenson Service Co. property, which was purchased by MPC.

Outfall Pipe

An abandoned outfall pipe from the wastewater treatment plant (WWTP) to the Pecatonica River was excavated. An area approximately 30-feet long, 10-feet wide and 10-feet deep was excavated. Contaminated soil from this area was placed in the CAMU. The excavated area was backfilled and graded with clean soil.

Wastewater Release

During construction of the CAMU, a pipeline that transfers wastewater from the manufacturing plant to the WWTP ruptured (IEPA Incident No. 20001377). Approximately 3 cubic yards of soil were contaminated as a result of the spill. This contaminated soil was removed and placed in the CAMU. The excavated area was backfilled and graded with clean soil.

Following the placement of contaminated material in the CAMU, a cover system on top of the CAMU was constructed. The cover systems consisted of the following layers, listed from top to bottom:

- *6 inches of topsoil*
- *18 inches of cover soil*
- *Geocomposite drainage material*
- *40 mil HDPE geomembrane*
- *Geosynthetic clay liner (GCL)*
- *6 inches of grading/venting layer*

Stabilization of material remaining in the unit

After the sludge and contaminated soils generated during the remediation activities were placed in the CAMU and graded using a low ground pressure bulldozer.

Final Contours

A final cover design meeting the requirements of 35 IAC 724.410(a) is proposed for the CAMU Landfill which generally has components as follows:

- *6 inches of topsoil*
- *18 inches of cover soil*
- *Geocomposite drainage layer*
- *40 mil HDPE geomembrane*
- *GCL (soil component of composite cap)*
- *6 inch grading/venting layer*

A registered land surveyor completed a topographic survey of the final waste grades on an approximately 50-foot grid. The final grading is shown on Drawing 2 in Appendix J.

A run-off control system was also installed around the CAMU to prevent erosion of the CAMU cover. In August, 2001, FVD submitted the Closure Documentation Report, August 2001 (FVD, 2001) to the IEPA to formally close the CAMU landfill.

E.1.5 Details Associated with the Closed Unit

Provide a detailed description, as-built drawings, cross-sections, and scaled drawings of the overall unit that includes/shows the following. Of special concern is the vertical elevations associated with each component of the unit. Note: the specific information regarding any leachate collection system, leak detection system and/or gas management system present in the landfill that must be described/shown is identified in Sections E.3 thru E.5 below.

Appendix C contains engineering drawings of the construction of the CAMU that illustrate the information provided in 1 through 8 below.

1. The soils underlying the unit;

   Information regarding the soils underlying the unit are provided in Appendix F. General soils information is also provided on the construction drawings that are provided in Appendix C. The soils underlying the CAMU range from silt and clay with sand and gravel to silty sand with gravel.

2. The bottom liner system of the unit (if any is present);

   - *Geocomposite drainage material (high density polyethylene [HDPE] drainage net sandwiched between two layers of geotextile) with a minimum transmissivity of 3 x 10-5 m2/sec (leachate collection system [LCS])*
   - *60 mil textured HDPE geomembrane (top liner)*
   - *HDPE drainage net (geocomposite on sideslopes) with a transmissivity of 3x10-5 m2/sec or more (leak detection system)*
   - *60 mil textured HDPE geomembrane (upper component of the bottom liner)*
   - *Geosynthetic clay liner (GCL), (lower component of the bottom liner)*
   - *Prepared subgrade consisting of a minimum 1-foot thickness of recompacted fine-grained soils*

3. A description of the base of the unit if it has no constructed liner system;

   Not applicable

4. Any permeable zones around or beneath the landfill and a description of the procedures used to seal off these zones;

   No permeable zones were noted around or beneath the CAMU in the Construction Documentation Report (Appendix Q). To prepare the Lagoon No. 2 and 3 excavations for the construction of the subbase, a 2-foot thick bridging layer was required for both Phase 1 and Phase 2 due to wet site conditions resulting from unseasonal rainfall during the construction. The groundwater table at the site was elevated due to several heavy rain events during the summer which caused groundwater infiltration into both the Phase 1 and Phase 2 excavations. This infiltration made it impossible to achieve the specified compaction and moisture values for the initial 1-foot thick lift for each phase. It was decided in the field to install the bridging layer to provide a dry and stable base on which to construct the subbase.

   The bridging layer was installed using off-site soils placed in a 2-foot lift using a bulldozer. The top of the bridging layer was compacted to a 95% standard proctor value at +/- 2% of optimum moisture content using a Dynapac CA15 sheepsfoot compactor and proof rolled using a Dynapac CA15 drum roller.

The subbase was installed and tested in 1 -foot thick lifts using a Troxler Model 3440 moisture/ density gauge. The compacted subbase soils placed in Phase 1 of the CAMU ranged from approximately 3 ft thick at the sump area to approximately 7 feet thick at the northwest end of the phase. The subbase thickness of Phase 2 ranged from 5 ft at the sump to 10 ft at the northeast end of the phase.

The bottom elevation for the Phase 1 sump was raised from 753.5 ft to 754.5 ft prior to the liner installation because of high groundwater conditions which resulted from the unusually wet whether which occurred during construction. The area of the sump was increased by moving the slope intercept approximately 7 feet to the northwest to maintain the original design volume.

This modification was discussed with IEPA and verbally approved prior to implementation.

The top layer of the subbase was proof rolled using a Dynapac CA15 drum roller to remove ruts larger than 1 in. All stones and other protruding objects larger than 'Z<-in were removed by hand or using a mechanical lawn rake mounted on a Bobcat.

5. Any cut-off walls or slurry walls constructed outside the landfill boundaries to address migration of leachate or landfill gas from the landfill;

   Not applicable.

6. The final cover system over the unit;

   This was accomplished by constructing a composite cap consisting from top to bottom of a 6-inch topsoil vegetative layer, 18-inches rooting zone, geocomposite drainage layer, 40 mil HDPE textured geomembrane, geosynthetic clay liner (GCL) and a 6-inch venting layer above the wastes. To minimize the migration of fluids from the closed CAMU, a double liner was constructed consisting from top to bottom of a geocomposite (leachate collected layer), a 60 mil textured HDPE geomembrane, a second geocomposite (leak detection layer), a second 60 mil textured HDPE geomembrane, a GCL and 1-foot of compacted fine ground soil. The reports submitted provided evidence that the composite liner and cap are effective in minimizing the migration of fluids.

   The report prepared by FVD titled "Final RCRA Part B Permit Application for Proposed Corrective Action Management Unit," December 1999, contains calculations and a discussion of the equivalency of the composite final cover and the composite liner. Both are considered equal since both include a geocomposite, geomembrane and GCL components.

   The CAMU final cover is vegetated to minimize soil erosion and protect the composite cover. The final cover is graded to drain to a perimeter ditch which drains into a sedimentation basin.

7. The final contours established for the unit; and

   The final contours are shown on Drawing 7A of Appendix C.

8. The run-on and run-off control systems of the unit.

   The final cover has slopes designed 6:1 (horizontal to vertical [H:V]) near the landfill crest and 4:1 (H:V) adjacent to the berm. The slopes are well vegetated and sloped to a perimeter drainage ditch which routes flow to two sedimentation basins located north and west of the CAMU landfill.

   - *Accommodate settling and subsidence so that the cover integrity is maintained.*

The report prepared by FVD titled "Final RCRA Part B Permit Application for Proposed Corrective Action Management Unit," December 1999, included calculations which predicted the settlement expected as the sludge desiccated. The CAMU composite final cover was constructed with flexible materials such as the GCL and 40 mil HDPE geomembrane which are capable of accommodating the expected subsidiaries.

- *Have a permeability less than or equal to the permeability of any bottom liner system or natural subsoil present.*

The report referenced above contains calculations and a discussion of the equivalency of the composite final cover and the composite liner. Both are considered equal since both include a geocomposite, geomembrane and GCL components.

E.2 Contact Person

Provide the name, address and phone number of the person or office to contact about the unit during the post-closure care period. A copy of the post-closure permit and associated approved permit modifications must be maintained by this person/office; a copy of these documents must also be maintained at the facility subject to the permit.

Mr. James Stenberg
Modern Plating Corporation
701 South Hancock Avenue
Freeport, Illinois 61032
Telephone: (815) 235-3111

E.3 Operation of the Leachate Collection System

Note: This section need only be addressed if a leachate collection system is present in the landfill unit.

E.3.1 Quality of Leachate in the Leachate Collection System

1. The leachate needs to be analyzed for the parameters listed below, and the results of annual analyses conducted on representative samples of leachate must be provided in the permit application. This will give an indication of the potential contaminants in a subsurface release from the unit to the groundwater. The leachates need to be analyzed for:

   a. Those constituents for which a public or food processing water supply standard has been established in 35 IAC 302.

   b. Those constituents for which a groundwater quality standard has been established in 35 IAC 620.

   c. The 51 organic chemicals in drinking water described in 40 CFR 141.40.

   d. Any other contaminants expected to be present in the leachate, based on the characteristics of the waste and materials present in the unit.

A list of all the above contaminants is provided as Attachment 1 to this document. This list may be reduced if information is provided indicating that certain listed contaminants are not expected to be present in the leachate.

Attachment 1 noted above refers to the IEPA "Information Which Must be Provided in an Application for a RCRA Post-Closure Permit, November 2019", not provided in this application. Leachate sampling parameters were incorporated in MPC's RCRA Post-Closure

Permit (IEPA, 2011) undergoing renewal by this application. Leachate analysis has not been conducted under the current permit because no leachate has been collected since 2010, as presented in the pumping log in Appendix M. Leachate samples have not been analyzed at any time since the construction of the CAMU, so analytical data is not available.

2. If the list of analytes has been reduced, provide an analysis for all constituents listed in E.3.1.1 each time the post-closure permit is renewed. Compare the reduced list, to the full list. If no new parameters are detected, the application can propose to resume analyzing leachate for the previously approved reduced list. If any new parameters are detected, they must be added to the reduced list and the list of groundwater monitoring parameters.

In accordance with the RCRA Post-Closure Permit (IEPA, 2011), representative samples of leachate from Phases 1 and 2 are required to be collected annually and analyzed individually for the following analytes:

TABLE 1

Sample Parameters

Parameter	Cas No.	ICP/MS	Reporting Units
Boron	7440-42-8	EPA-6020A	mg/L
Cadmium	7440-43-9	EPA-6020A	mg/L
Chromium	7440-47-3	EPA-6020A	mg/L
Cobalt	7440-48-4	EPA-6020A	mg/L
Cooper	7440-50-8	EPA-6020A	mg/L
Iron	7439-89-6	EPA-6020A	mg/L
Lead	7439-92-1	EPA-6020A	mg/L
Manganese	7439-96-5	EPA-6020A	mg/L
Magnesium	7439-95-4	EPA-6020A	mg/L
Mercury	7439-97-6	EPA-6020A	mg/L
Nickel	7440-02-0	EPA-6020A	mg/L
Potassium	7440-09-7	EPA-6020A	mg/L
Silver	7440-22-4	EPA-6020A	mg/L
Sodium	7646-69-7	EPA-6020A	mg/L
Thallium	7440-28-0	EPA-6020A	mg/L
Zinc	7440-66-6	EPA-6020A	mg/L
Total Metals	--	EPA-6020A	mg/L
VOC Scan	--	EPA-8260	ug/L
PaHs	--	EPA-550	ug/L
Chloride	--	325.2/325.3	mg/L
Fluoride	--	340.1/340.2	mg/L
Nitrate	--	353.2/353.4	mg/L
Sulfate	--	375.4/375.2	mg/L
Cyanide	57-12-5	SM4500CN C/SW9012A	mg/L
BOD	--	SM5210B	mg/L
TSS	--	SM2540D	mg/L
pH	--	150.1/150.2	S.U.
Alkalinity	--	EPA-310.2	

*Some parameters may be combined in a sample bottle determined by the analytical lab.

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The expanded list of analytes could not be analyzed because there was no leachate collected since 2010.

3. If there is more than one leachate sump but the application does not propose to analyze the leachate from each sump, provide justification for how the leachate sample(s) are considered "representative" for a given landfill.

This section does not apply since, in accordance with the RCRA Post-Closure Permit (IEPA, 2011), representative samples of leachate from Phases 1 and 2 are to be collected annually and analyzed individually.

4. Describe the procedures used to collect, handle, and analyze the leachate samples discussed above. All such efforts must be carried out in accordance with procedures approved/established by IEPA or USEPA.

   In accordance with the RCRA Post-Closure Permit (IEPA, 2011), representative samples of leachate from Phases 1 and 2 should be collected annually and analyzed individually. Samples would be collected into lab-provided containers and kept on ice until delivered to the laboratory using chain-of-custody procedures. Sampling has not taken place under the current permit because no leachate has collected in the system since 2010.

E.3.2 Leachate Collection System Within the Landfill

1. Identify the general components of the leachate collection system within the landfill (includes the filter layer, leachate collection layer, leachate collection trenches, the leachate collection pipes, leachate level monitoring locations, leachate collection sumps, leachate collection wells, leachate removal pumps or other equipment used to remove leachate, manholes, clean-outs, etc.).

   The leachate collection system is designed to collect all liquids which leach out of the waste placed in the CAMU. The downward percolation of the leachate is stopped by the primary geomembrane. The leachate flows toward the leachate collection sump through the primary geocomposite which was placed on top of the primary geomembrane. Leachate which collects in the rock-filled sump is pumped from the CAMU via leachate collection pipes to the pump building constructed adjacent to Phases 1 and 2 of the CAMU. Leachate levels are measured in the sumps..

   A piping and instrumentation diagram was not prepared as part of the design. Detail drawings of the construction of the leachate collection system and leak detection system are provided in Appendix C, Drawings 11R and 12.

2. Provide a detailed description of the procedures used to construct the leachate collection system within the landfill. Provide specifications and as-built drawings (plan view, detail and cross-sectional) of the installed system. Identify the contours of the top of the liner system including any leachate collection trenches; the elevation of the lateral leachate collection pipes; the screened interval of any leachate collection wells or monitoring points; and the elevation of the bottom of the leachate collection sumps, wells, manholes and clean-outs.

   Details of the construction of the leachate collection system and leak detection system are provided in Appendix C, on Drawings 11R and 12. Further detail on how the leachate collection system was constructed is provided in Section 12 of the Construction Documentation Report in Appendix Q.

3. Provide detailed information regarding all equipment (pumps, monitoring equipment, etc.) associated with the leachate collection system within the landfill. Specifically:

   a. Provide (as appropriate) the make, model and specifications for each piece of equipment;
   b. Identify each piece of equipment on a piping and instrumentation diagram; and
   c. Describe the operational function and capabilities of each piece of equipment.

   The Construction Documentation Report provided in Appendix Q contains equipment information and the construction details of the leachate collection system. Figures of the leachate collection system and leak detection system are provided in Appendix C, Drawings 11R and 12. A piping and instrumentation diagram was not prepared as part of the design information.

4. If the landfill was designed to meet the requirements of 35 IAC 724.401, then an engineering report must be provided demonstrating that the system was constructed and will be operated

in such a manner to prevent the leachate depth over the top liner from exceeding one foot. Appropriate calculations must be provided as part of this demonstration along with justification of all assumed parameters and of the numerical techniques used in making the demonstration.

The landfill was designed to meet the requirements of 35 IAC 724.401. The Construction Documentation Report, included in Appendix Q, provides details about how the leachate collection system was constructed. An engineering report for the CAMU was included in the Plan of Operation for the Corrective Action Management Unit at the Modern Plating Corporation Facility (FVD, 1998). The landfill was constructed as designed in the engineering report. Construction certification was included in the Closure Documentation Report (Appendix R).

During post-closure monitoring, the two CAMU Landfill sumps are checked for the accumulation of liquid on a monthly basis in accordance with 35 IAC 724.403(c), and the leachate levels recorded. The leachate level in each sump is detected by a transducer in the sump riser and displayed on the pump control. If leachate accumulates above the 1-foot pump operating level, it is pumped out and the amount of flow recorded. If the leachate level falls below the pumping level for two consecutive quarters, monitoring will be conducted semi-annually. If anytime during the post-closure period, leachate exceeds the pump operating level in the sumps, the monitoring will revert to monthly until the liquid level again drops below the pump operating level for two consecutive months.

Details of the construction of the leachate collection system and leak detection system are provided in Appendix C, Drawing 11R showing elevations including pump activation levels of the sumps.

5. If it was not necessary for the landfill to meet the requirements of 35 IAC 724.401, then information must be provided regarding the maximum leachate levels which will be present at the leachate removal points and throughout the landfill. An engineering report/analysis of the leachate levels which will be present in the landfill must be provided as well as information from past operations of the leachate collection system which will verify the projected levels.

   The landfill was designed to meet the requirements of 35 IAC 724.401 and the leachate level and sump design are described in the preceding response.

E.3.3 Leachate Collection System Outside the Landfill

1. Identify the general components of the leachate collection system which allow for the removal and of the leachate and its storage on-site (includes the piping from each leachate pump to the top of each leachate sump/well, the piping and associated appurtenances which transfer the leachate to a final storage tank, any pump stations needed in this transfer, and the tank where the leachate is eventually stored). In addition:

   a. Provide a detailed description of the procedures used to install the components of leachate collection system mentioned above;

   b. Provide specifications, piping and instrumentation diagram, and as-built drawings (plan view, detail, elevations and cross-sectional) of these components.

   c. Identify the sample point(s) used to collect leachate samples on the piping and instrumentation diagram.

   d. Indicate the locations of the leachate collection system sampling points on a scale drawing of each landfill. Identify the sample points by both the facility and IEPA identification numbers for each sample point.

Installation and construction procedures are documented in the Construction Documentation Report, included in Appendix Q. The report includes diagrams, drawings, and specifications on equipment. Outside the landfill, the leachate collection system routes the leachate to the treatment system.

The leachate collection system has two sumps which are located in the southeast and southwest corner of the Phase I and Phase 2 of the CAMU landfill respectively, shown on Drawing 4. Leachate is extracted through underground piping from the sump by a dedicated pump housed in the Leachate Pump Building adjacent to the CAMU. The arrangement is shown on Drawing 12, Appendix C. The pumps discharge to a pretreatment facility operated by MPC. The pretreatment facility treats process water from the plant operations for removal of metals and cyanide and after treatment, the water is discharged to the Freeport Publicly Owned Treatment Works (POTW).

Sampling ports were installed after the original construction. Drawing 12, Appendix C notes IEPA identification numbers as Phase 1 sample port – L301; Phase 2 sample port – L302.

2. Provide detailed information regarding all equipment pumps, monitoring equipment, etc.) associated with the leachate collection system outside the landfill. Specifically:

   a. Provide (as appropriate) the make, model and specifications for each piece of equipment;
   b. Identify each piece of equipment on a piping and instrumentation diagram; and
   c. Describe the operational function and capabilities of each piece of equipment.

Details of the construction of the leachate collection system and leak detection system including manufacturer specifications are fully described in Section 12 of the Construction Documentation Report in Appendix Q.

E.3.4 Management of Leachate Collection System (LCS)

Describe how the LCS is managed. Discuss how all parts of the leachate collection system are operated.

1. Provide piping and instrumentation diagrams and other schematics which depicts the overall leachate collection system, from the pump within each leachate collection sump/well to the leachate accumulation tank. For each leachate collection sump/well, identify:

   a. The approximate elevation of the bottom of the sump or landfill at that location;
   b. The leachate elevation which activates the pump in each sump or extraction well;
   c. The leachate level which activates the pump within the sump/well;
   d. The leachate elevation when the pump shuts off; and
   e. A description of the instrumentation in place so that the amount of leachate removed from a given sump/well over a given time period can be determined.

Drawing 11R in Appendix C shows the elevations requested.

During post-closure monitoring, the two CAMU Landfill sumps are checked for the accumulation of liquid on a monthly basis in accordance with 35 IAC 724.403(c), and the leachate levels recorded. The leachate level in each sump is detected by a transducer in the sump riser and displayed on the pump control. If leachate accumulates above the 1-foot pump operating level, equivalent to an elevation of 757.0 feet, it is pumped out and the amount of flow recorded. If the leachate level falls below the pumping level for two consecutive quarters, monitoring will be conducted semi-annually. If anytime during the post-closure period, leachate exceeds the pump operating level in the sumps, the monitoring will revert to monthly until the liquid level again drops below the pump operating level for two consecutive months. Details of the construction of the leachate collection system and leak detection system are provided in Appendix C. Maintenance and inspections of the leachate

collection system and leak detection system is conducted on a regular basis as outlined in Tables B-1 and B-2.

2. Describe the procedures which will be followed to document/record all aspects of the management of the leachate collection system(s). At a minimum, the results of leachate quality analyses and the amount of leachate removed from a given sump/well each month must be documented in the operating record.

   Maintenance and inspections of the leachate collection system and leak detection system are conducted on a regular basis as outlined in Tables B-1 and B-2. The results of annual leachate sampling are filed by MPC and submitted to IEPA.

3. Describe how the collected leachate will ultimately be managed and provide copies of the permits in place to take the leachate to an off-site facility for treatment or disposal.

   Leachate is extracted from the sumps by dedicated pumps housed in the Leachate Pump Building adjacent to the CAMU. The arrangement is shown on Drawing 12, Appendix C. The pumps discharge to a pretreatment facility operated by MPC. The pretreatment facility treats process water from the plant operations for removal of metals and cyanide and after treatment, the water is discharged to the Freeport Publicly Owned Treatment Works (POTW).

   The wastewater discharge permit issued by the City of Freeport Water & Sewer Commission is provided in Appendix S.

E.3.5 Summary of Leachate Management Program Conducted to Date

Provide information addressing the items in Section E.3.4 regarding the leachate management program implemented during the past ten years. This information should discuss the efficiency of the existing leachate management program or identify deficiencies which must be addressed to ensure leachate is adequately managed in the landfill.

Information about leachate management is submitted to IEPA annually. No deficiencies have been noted regarding the leachate management program.

E.4 Operation of the Leak Detection System: 724.402, 724.403 and 724.404

This subsection must be addressed if a Leak Detection System (LDS) is present in the landfill. The LDS must be capable of detecting, collecting and removing leaks through the upper liner system at the earliest practicable time throughout all areas of the landfill. The LDS must be constructed of a drainage layer along with sumps and pumps of sufficient size to collect and remove liquids from the sump and prevent liquids from backing up into the drainage layer.

1. Each landfill unit must have its own set of LDS sumps.

2. Each LDS sump and associated removal system must be designed so that volume of liquid in the LDS sump can be measured and as well as the volume of leachate removed from the sump.

The drawings referenced in this description can be found in Appendix C. The CAMU is divided into two phases, shown on Drawing 4. The LDS sump is separate from and below the LCS sump, shown on Drawing 11R. Although the LCS and LDS share a pump, the piping and valving are configured such that the two systems remain independent. Drawing 12 shows the pumps and piping. The flow meters shown in the Plan view are used to measure whatever is being pumped at the time, thus enabling recordkeeping.

E.4.1 Description of the Leak Detection System Within the Landfill

Provide an engineering report describing how the leak detection system was constructed and will be operated to ensure the requirements of 35 IAC 724.401 are met. Among other things, this report must:

1. Identify the general components of the leak detection system within the landfill (includes the drainage layer, the leachate collection trenches, the leachate collection pipes, leachate level monitoring locations, leachate collection sumps; manholes, clean-outs, etc.).

The LDS including drainage layer, trenches, piping, level monitoring locations, and sumps are shown on Drawing 11R, Appendix C.

2. Provide a detailed description of the procedures used to construct the leak detection system. Provide specifications and as-built drawings (plan view. detail and cross-sectional) of the installed system. Information of special importance includes: the contours of the top of the liner system; the elevation of the leachate collection pipes; and the elevation of the bottom of the leachate collection sumps, manholes and clean-outs.

The LDS was constructed under the primary geomembrane and is designed to collect any liquids which leak through the primary liner of the LCS. The leak detection system was constructed in the same manner as the LCS. LDS construction is documented in Construction Documentation Report in Appendix Q. that report describes construction details. The LDS including elevation of piping and sumps are illustrated on Drawing 11R, Appendix C.

3. Provide detailed information regarding all equipment associated with the leak detection system (pumps, monitoring equipment, etc.) within the landfill. Specifically:

   a. Provide information regarding the make. model and specifications of each piece of equipment;
   b. Identify each piece of equipment on a piping and instrumentation diagram;
   c. Describe the operational functions and capabilities of each piece of equipment.

Details of the construction of the leachate collection system and leak detection system including manufacturer specifications are fully described in Section 12 of the Construction Documentation Report in Appendix Q.

4. Provide the pump operating level for each LDS sump within each landfill unit. This is the maximum level of leachate which can accumulate in each LDS sump before the pump within the sump is activated and leachate is removed from the sump.

   a. This level can be no more than the depth of leachate that can accumulate within the LDS sump without allowing any leachate to back-up into the drainage layer.
   b. This level must also minimize the hydraulic head on the liner of the LDS sump.
   c. Development of the pump operating level for each LDS sump should also take into account the pump activation level and the sump dimensions.

Drawing 11R (Appendix C) indicates the elevations of various operating sump levels. The LDS system is designed to evacuate sump accumulation to prevent leachate back-up, minimize hydraulic head on the liner of the LDS sump, and account for sump dimensions. The Construction Documentation Report in Appendix Q contains additional details.

5. Provide the action leakage rate (ALR) (in gallons per acre per day) for each LDS sump. The action leakage rate is the maximum design flow, modified by a factor of safety, that the LDS can remove without the fluid head on the bottom liner exceeding 1 foot. The action leakage rate must include an adequate factor of safety to allow for uncertainties in the:

a. Design; construction; layout and operation of the system;
b. Characteristics of the waste and leachate in the landfill;
c. Likelihood and amounts of other sources of liquids in the LDS; and
d. Proposed response actions.

Examples of uncertainties/concerns with the LDS include decreases in the flow capacity of the system over time resulting from siltation and clogging, rib layover and creep of synthetic components of the system, and overburden pressure.

The action leakage rate (ALR) has been calculated for the CAMU in accordance with Section 724.402 of the IAC. The action leakage rate is defined as the "maximum design flow rate that the leachate detection system can remove without the fluid head on the bottom liner exceeding 1 ft." The action leakage rate is currently permitted at 2,434 gallons per day for each phase. The ALR is included at the bottom of Table B-1.

E.4.2 Description of the Leak Detection System Outside the Landfill

1. Identify the general components of the leak detection system which allow for the removal of the leachate from the landfill and its storage on-site (includes the piping from each leachate pump to the top of each leachate sump/well, the piping and associated appurtenances which transfer the leachate to a final storage tank, any pump stations needed in this transfer, and the tank where the leachate is eventually stored). In addition:

   a. Provide a detailed description of the procedures used to install the components of leak detection system mentioned above.
   b. Provide specifications and as-built drawings (plan view, detail, elevations and cross-sectional) of these components.

   Specifications, installation details. and construction procedures are documented in the Construction Documentation Report, included in Appendix Q. The report includes diagrams, drawings, and specifications on equipment. Outside the landfill, LDS routes collected leakage to the treatment system.

   Appendix C, Drawing 11R and 12 show plan view, detail, elevation, and cross sections of LDS system componence.

2. Provide detailed information regarding all equipment (pumps, monitoring equipment, etc.) associated with the leachate collection system outside the landfill. Specifically:

   a. Provide (as appropriate) the make, model and specifications for each piece of equipment;
   b. Identify each piece of equipment on a piping and instrumentation diagram;
   c. Describe the operational function and capabilities of each piece of equipment.

   Details of the construction of the leak detection system and leachate collection system including manufacturer specifications are fully described in Section 12 of the Construction Documentation Report in Appendix Q.

E.4.3 Management of Leachate Accumulating in the Leak Detection System

Describe how the LDS is managed. Discuss how all parts of the leak detection system are operated.

1. Provide piping and instrumentation diagrams and other schematics which depict the overall leak detection system, from the pump within each leachate collection sump to the leachate accumulation tank. For each leak detection sump/well, identify:

   a. The approximate elevation of the bottom of the landfill at that location,

b. The pump operating level,
c. The leachate level which activates the pump within the sump/well, and
d. The leachate elevation when the pump shuts off.

The drawings referenced in this description can be found in Appendix C. The CAMU is divided into two phases, shown on Drawing 4. The LDS sump is a separate from and below the LCS sump, shown on Drawing 11R. Various elevations including sump bottom, pump activation elevation, and other supporting information is provided on this drawing.

The CAMU was constructed above an elevation 757.0 feet above mean sea level (ft msl). The sumps in the CAMU were constructed above an elevation of 753.5 ft msl. The interior side slopes of the CAMU were constructed to not be steeper than 3-feet horizontal to 1-foot vertical (3:1). The side slopes on the final cover were constructed to not be steeper than 4:1 adjacent to the exterior berms and not steeper than 6:1 for cover lying directly over wastes. The CAMU was constructed to achieve a minimum static slope factor of safety greater than or equal to 1.5 and a seismic factor of safety greater than or equal to 1.3.

2. Describe the procedures which will be followed to document/record all aspects of the management of the LDS. At a minimum, the permittee needs to provide documentation of the amount of leachate removed from a given LDS sump over a set time period, and any exceedances of the action leakage rate in the operating record.

3. Describe how the leachate collected in the LDS will ultimately be managed and provide copies of the permits in place to take the leachate to an off-site facility for treatment or disposal.

The two CAMU sumps are checked for the accumulation of liquid on a monthly basis in accordance with 35 IAC 724.403(c), and the leachate levels recorded. The leachate level and presence of leakage in each sump is detected by a transducer in the sump riser and displayed on the pump control. If leachate accumulates above the 1-foot pump operating level, it is pumped out and the amount of flow recorded. The leak detection sumps well be pumped manually, with flow records kept in accordance with the permit.

Monitoring frequency is dictated by the rate of leachate production. If the leachate level falls below the pumping level for two consecutive quarters, monitoring will be conducted semi-annually. If anytime during the post-closure period, leachate exceeds the pump operating level in the sumps, the monitoring will revert to monthly until the liquid level again drops below the pump operating level for two consecutive months. Maintenance and inspections of the leachate collection system and leak detection system is conducted on a regular basis as outlined in Tables B-1 and B-2.

The leachate and leakage is pumped to the MPC pretreatment system where it is mixed with process water. The wastewater discharge permit issued by the City of Freeport Water & Sewer Commission is provided in Appendix S.

E.4.4 Recent Operation of the Leak Detection System

Provide information addressing the items discussed in Section E.4.3 regarding the operation of the LDS during the past ten years. This information should discuss the efficiency of the existing LDS or identify deficiencies which must be addressed to ensure system is operating properly.

During the past 10 years, leachate and leakage have been negligible. Operating data for the last 20 years is provided in Appendix M. No deficiencies have been noted regarding the leachate detection system. Information on leak detection system are provided to IEPA.

E.5 Operation of the Gas Monitoring/Collection System

This subsection must be addressed if the closed unit has a landfill gas monitoring/collection system.

The CAMU is equipped with a passive gas venting system. The gas is neither collected nor monitored.

E.5.1 Detailed Description of the Landfill Gas Collection System

The following information needs to be provided regarding any landfill gas collection system at the facility (in addition to drawings, it is also important to include text describing the various aspects of this system and the chronological history of the installation of this system).

1. A map and detailed drawings showing the location of the collection points and the layout and construction details of the collection system.

2. A description and specifications for all machinery, compressors, flares, piping and appurtenances in the system.

3. A piping and instrumentation diagram as well as other schematics to depict the system's operation.

4. A description of how the landfill gas collection system operates. Describe the information which will be monitored, evaluated and recorded regarding the operation of the system. Frequent evaluation of this information will be essential in ensuring the system is operating effectively and will also give insight into any adjustments that need to be made to the operations of the system.

5. Documentation or assurance that the gas collection system meets the following standards:

   a. The system is designed and will be operated such that the limits described in 35 IAC 811.311(a)(1), (a)(2) and (a)(3) will not be exceeded;
   b. The gas collection system will transport gas to a central point or points for processing for beneficial uses or disposal in accordance with the requirements of 35 IAC 811.312;
   c. The gas collection system has been designed to function for the entire design period;
   d. All materials and equipment used in construction of the system have been rated by the manufacturer as safe for use in hazardous or explosive environments and shall be resistant to corrosion by constituents of the landfill gas;
   e. The gas collection system has been designed to withstand all landfill operating conditions, including settlement;
   f. Provisions have been made for collecting and draining gas condensate to a management system meeting the requirements of 35 IAC 811.309;
   g. The gas collection system will not compromise the integrity of the liner, leachate collection or cover systems; and
   h. The gas collection system shall be equipped with a mechanical device, such as a compressor, capable of withdrawing gas, or has been designed so that a mechanical device can be easily installed.

6. A description of the criteria that will be used to determine when operation of the gas collection system may be discontinued.

7. A description of the testing procedures that will be used to assure that the lines from the collection points to the gas processing or disposal facility are air tight.

8. Identify where condensate in the system will be collected and then stored prior to shipment off-site for treatment or disposal. Include a description of all equipment associated with collection and storage of the condensate.

The following information addresses E.5.1(1-8):

The CAMU has a passive gas management system. The system was constructed in accordance with the approved design as presented in the Plan of Operations (FVD, 1998) Details of the construction of the gas monitoring/collection system and leak detection system are provided in Appendix C, Drawing 7B. The gas venting system is shown on Drawing 5 of Appendix C.

The gas venting system was designed to allow gases produced by the waste in the CAMU to passively vent into the atmosphere to prevent gas buildup from occurring beneath the geomembrane cap. The gas venting system consists of 6-in diameter slotted polyethylene pipe installed in the grading/gas venting layer. At four locations along the gas vent pipe, a polyvinyl chloride (PVC) tee connected to a 6-in diameter Schedule 80 PVC riser, and a 180° PVC elbow were installed to allow the gas to vent into the atmosphere. The construction of the gas vent is shown on Drawing 5 of Appendix C.

Maintenance and inspections of the gas monitoring/collection system and leak detection system are conducted on a regular basis as outlined in Tables B-1 and B-2. Gas monitoring is not required in the current RCRA Post-Closure Permit for Modern Plating Corporation, Permit No. 1770200010, RCRA Log No. B-167R, issued June 9, 2011.

E.5.2 Landfill Gas Monitoring Plan

Provide the following information regarding the landfill gas monitoring system's ability to monitor the buildup and composition of landfill gas.

1. A narrative and plan sheets describing the most likely paths of migration for gas generated by the unit and demonstrating that the proposed gas monitoring program will detect any gas buildup and/or migration.

2. Detailed drawings and material specifications of the four types of gas monitoring devices required (i.e., devices within the waste unit, below ground devices around the unit, air ambient monitoring devices and continuous air monitoring devices within buildings) on site or near the facility if there is an indication of gas.

3. A map showing the locations of the below ground monitoring devices and the continuous air monitoring devices.

4. Documentation that the various types of below ground gas monitoring devices:

   a. Are placed at intervals and elevations within the waste to provide a representative sampling of the composition and buildup of gases within the unit.
   b. Are placed around the unit at locations and elevations capable of detecting migrating gas from the ground surface to the lowest elevation of the liner system or the top elevation of the groundwater, whichever is higher.
   c. Are constructed from materials that will not react with or be corroded by the landfill gas.
   d. Have been designed and constructed to measure pressure and allow collection of a representative sample of gas.
   e. Are constructed and maintained to minimize gas leakage.
   f. Do not interfere with the operation of the liner, leachate collection system or delay the construction of the final cover system.

5. A description of the procedures and prerequisite weather conditions for performing ambient air monitoring including the location standards for placement of the monitoring devices and maximum wind speed.

6. A description (narrative or graphic) of the location of the continuous air monitoring devices inside the buildings within the facility (and nearby buildings if applicable).

7. A schedule specifying the frequency and minimum duration of gas monitoring.

8. Identification of the parameters that samples from each type of monitoring device will be analyzed.

9. A description of the procedures which will be used to collect and analyze the various air samples to be obtained as part of the landfill gas monitoring program.

The following information addresses E.5.2(1-9):

The CAMU has a passive gas management system. Details of the construction of the gas monitoring/collection system and leak detection system are provided in Appendix C.

Maintenance and inspections of the gas monitoring/collection system and leak detection system is conducted on a semi-annual basis as outlined in Tables B-1 and B-2. Gas monitoring is not required in the current RCRA Post-Closure Permit for Modern Plating Corporation, Permit No. 1770200010, RCRA Log No. B-167R, issued June 9, 2011.

E.5.3 Landfill Gas Disposal/Processing System

The following information must be provided regarding the gas disposal system or gas processing system at this facility. These systems can be either an on-site or an off-site facility.

1. For on-site facilities (either flare systems or facilities which process the gas for beneficial use) the following information must be provided:

   a. A map showing the location of the facility;
   b. Engineered drawings showing the layout and details of landfill gas processing and disposal system, including compressors, blowers, raw gas monitoring systems, devices used to control the flow of gas from the unit, flares, gas treatment devices, air pollution control devices and monitoring equipment;
   c. A copy of the approved air discharge permit or, if the permit is pending, a copy of the air discharge permit application required by 35 IAC 200 through 245; and
   d. A list of the parameters and constituents for which the gas shall be monitored.

2. For off-site processing facilities the following information must be provided:

   a. A list of the parameters and constituents for which the gas shall be monitored;
   b. A description of the means by which the gas shall be conveyed from the landfill to the off-site processing facility; and
   c. Documentation that the off-site processing facility meets the following requirements:
      (1) The solid waste disposal facility will contribute less than 50 percent of the total volume of gas accepted by the gas processing facility. (Otherwise, the processing facility must be considered a part of the solid waste management facility); and
      (2) The gas processing facility is sized to handle the expected volume of gas.

This section does not apply as it does not include an on-site or an off-site gas disposal facility or gas processing facility.

E.5.4 Summary of the Landfill Gas Collection Monitoring Processing Systems

1. Describe the procedures followed to document/record information associated with the operation of the landfill gas collection, monitoring, and processing systems in the operating record.

The CAMU has a passive gas system and neither collects, monitors, nor processes landfill gas.

2. Summarize the operation of the landfill gas collection, monitoring, and processing systems during the past ten years. Describe any adjustments to the design or operation of the systems since the unit was closed.

   The CAMU has a passive gas system and neither collects, monitors, nor processes landfill gas. Activities supporting the gas venting system have focused on inspection and maintenance. Table B-2 describes the preventative and corrective maintenance, and materials and equipment requirements. The need for maintenance and repair shall be made on the basis of the results of the post-closure inspections completed as described in Table B-1.

   No deficiencies have been noted in the operation of the gas venting system. No significant adjustments have been made to the design or operation of the system since the unit was closed.

E.6 Post-Closure Inspection Plan

Describe the procedures followed to inspect/ensure the functionality of everything needed to provide adequate post-closure care of the unit closed as a landfill at the facility in accordance with the RCRA requirements.

Copies of the inspection log and repair log that are used to document inspections and repairs at the facility in accordance with the RCRA requirements must be provided as part of the permit application.

Indicate that copies of the inspection log and repair log are maintained at the facility as part of the operating record and where they are located.

Table B-2 describes the preventative and corrective maintenance, equipment requirements and materials needed for the operation and maintenance activities which will occur during the post-closure care period. The need for repair of these items shall be made on the basis of the results of the post-closure inspections completed as described in Table B-1. The repair log in Table B-3 is a form that will be used to document completion of repairs identified in the inspection and maintenance activities. Copies of the inspection and repair records are maintained at the facility in a secure file cabinet.

E.6.1 Inspection Log

An inspection log must be maintained which includes all of the items listed below. The log must include the date and time of each inspection, the name of the inspector, notation of the observations made, and the date of any repairs or remedial actions.

E.6.1.1 Items Inspected

The plan must identify each item to be inspected in order to comply with the RCRA requirements. These include, but not necessarily limited to:

1. All RCRA regulated units;
2. Monitoring equipment;
3. Safety and emergency equipment;
4. Security control devices;
5. Erosion damage;
6. Cover settlement, subsidence and displacement;
7. Vegetative cover condition;
8. Integrity of run-on and run-off control measures;
9. Cover drainage system functioning;
10. Leachate collection and removal system;
11. Leak detection system;
12. Gas monitoring/extraction system;

13. Condition of the groundwater monitoring wells;
14. Benchmark integrity; and
15. All operating and structural equipment that are vital to prevent, detect, or respond to environmental or human health hazards.

E.6.1.2. Types of Problems

For each item to be inspected as identified above, describe the types of problems (e.g. malfunctions or deterioration) the inspector must look for during an inspection (e.g. inoperable sump pump, leaking fitting, cracks, eroding berm, etc.).

E.6.1.3. Inspection Frequency

Identify the inspection frequency for each item in the log. In addition, provide justification for the inspection frequency proposed for each item. (This justification should be separate from the actual inspection log.). The frequency of inspection needs to be based on the rate of possible deterioration of equipment and the probability of an environmental or human health incident if the deterioration, malfunction, or operator error goes undetected between inspections.

Indicate the facility will be inspected within 24 hours of any rain fall event of 2 or more inches in 24 hours to detect evidence of any of deterioration, malfunctions, or improper operation of run-on and run off systems. Indicate that appropriate corrective action shall be taken if problems, including erosion, blockage of the channels, slope failure, etc. are observed.

The following information addresses E.6.1(1-3):

Table B-2 describes the preventative and corrective maintenance, equipment requirements and materials needed for the operation and maintenance activities which will be conducted during the post-closure care period. The need for maintenance and repair shall be made on the basis of the results of the post-closure inspections completed as described in Table B-1. Copies of the inspection and repair records are maintained at the facility in a secure file cabinet. The maintenance and inspection logs address the details listed above.

The inspection frequency associated with all items inspected as part of the post-closure plan is provided in the "Post-Closure Inspection Schedule and Log" contained in Table B-1.

E.6.2 Repair Log

The repair log must be used to schedule and record repairs (deterioration, or malfunction of equipment or structures) revealed by an inspection of the items listed in the inspection log. The repair log must include the following items:

1. The item needing repair;
2. The problem identified during the inspection that needs repair;
3. The date the inspection took place;
4. The name of the person who conducted the inspection;
5. The name of the person who made the corrected repair;
6. The date the repair was made;
7. The efforts carried out in making the repair;
8. Any other appropriate comments.

Most repairs should be made at the time it is determined to be necessary and all repairs should be made within 24 hours. The timeliness of the repair is dependent on the potential impact the

problem needing repair may have on protecting human health, the environment, and the safe operation of the facility.

The repair log in Table B-3 is a form that will be used to document completion of repairs identified in the inspection and maintenance activities.

E.6.3 24 Hour Reporting (702.152(f), 703.245(b))

Describe the how the Permittee will take the following actions if an inspection reveals any noncompliance with the permit which may endanger health or the environment: 1) report the required information about the incident orally within 24 hours from the time the Permittee becomes aware of the circumstances, and 2) provide a written description of the incident within 5 days of the time the Permittee becomes aware of the circumstances.

The inspection and maintenance procedures are designed and implemented to prevent CAMU operability issues that might lead to permit noncompliance. Should an issue arise, MPC shall report to the IEPA any noncompliance that may endanger health or the environment. Any such information shall be reported orally within 24 hours from discovery. This report shall include the following:

i. *Information concerning the release of any hazardous waste that may cause an endangerment to public drinking water supplies.*

ii. *Information concerning the release or discharge of any hazardous waste or of a fire or explosion at the HWM facility, which could threaten the environment or human health outside the facility.*

The description of the occurrence and its cause shall include:

i. *Name, address, and telephone number of the owner or operator;*

ii. *Name, address, and telephone number of the facility;*

iii. *Date, time, and type of incident;*

iv. *Name and quantity of material(s) involved;*

v. *The extent of injuries, if any;*

vi. *An assessment of actual or potential hazards to the environment and human health outside the facility, where applicable; and*

vii. *Estimated quantity and disposition of recovered material that resulted from the incident.*

A written submission shall also be provided within 5 days of the discovery. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance including exact dates and times and if the noncompliance has not been corrected; the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. The IEPA may waive the five day written notice requirement in favor of a written report within 15 days. (35 IAC 702.152(l) and 703.245(b))

E.7 Post-Closure Monitoring Plan

Describe the monitoring to be conducted during the post-closure care period, including, as applicable, the procedures for conducting and evaluating the data gathered in accordance with the RCRA requirements.

Indicate that copies of the monitoring reports and data are maintained at the facility as part of the operating record.

E.7.1 Facility Controls

Indicate that the benchmarks used to identify the location of disposal units, solid waste management units, and units/areas covered by an Environmental Land Use Controls (ELUCs) or the Uniform Environmental Covenants Act (UECA) are surveyed at least once every five (5) years.

Benchmarks, labeled as control points, are indicated on the Survey Plat for the CAMU Landfill Documentation included in Appendix J.

E.7.2 Surveys and Corrective Action

Identify the units at the facility that will be surveyed every five years. The following units need to be surveyed at least once every five years:

- Units subject to post-closure requirements per 35 IAC 724.210(b)
- SWMUs with cover systems and/or engineered barriers
- Units/Areas subject to an Environmental Land Use Controls (ELUCs) or the Uniform Environmental Covenants Act (UECA).

The CAMU, identified on Drawings 2 and 2R, will be surveyed every 5 years.

E.7.2.1. Provide the following for the units identified in Item E.7.2:

1. A copy of the survey provided to the IEPA when the unit was certified closed.

2. A copy of the survey for each unit generated every five years since the unit was closed that shows the horizontal and vertical extent of the unit, drainage control structures, leachate collection wells, and groundwater monitoring wells.

3. Scale drawing(s) (1 inch= 200ft) and cross sections that identify those areas of the cover system or engineered barrier that have changed 1 foot or more in elevation since the unit was closed.

4. If corrective action was required in response to a release, damage to the cover system, settlement, erosion, stressed vegetation, or damage to a leachate well, groundwater monitoring well, or benchmark since post-closure care began, identify the date and location of the corrective action on the scale drawings required above. Also, provide copies of the inspection and repair logs that includes the date each incident was discovered, a description of the incident & corrective action taken, and the date corrective action was completed.

5. If corrective action occurred in the same general area 2 or more times since post-closure began, discuss the actions the permittee has implemented to prevent this from happening again.

The following information addresses E.7.2.1(1-5):

The CAMU was surveyed at the completion of construction as documented on Drawing 5 in Appendix C. The drawing documents the final grades at closure with elevation contours provided. This drawing can be used as a basis to evaluate settlement, erosion, and the like. A survey has not been completed since the unit closed.

MPC is planning a survey of the CAMU in 2021, which is the applicable unit at the facility. No corrective actions have been performed.

E.7.3 Leachate Collection System

Describe how the information about the leachate collection system for each unit identified in E.7.2 is monitored, evaluated, and recorded. Frequent evaluation of this information is essential in ensuring the system is operating effectively and will also give insight into any adjustments that need to be made to the operations of the system.

E.7.3.1. Leachate Quality

Describe the procedures which are followed to monitor the quality of the leachate in the unit on a regular basis during the post-closure care period (including sample collection, sample handling and sample analysis). Discuss if the concentrations of the constituents in the leachate have changed during the post closure period and any actions taken in response.

These samples should be collected quarterly for the first two years at which time the frequency can be decreased to semi-annually. The samples must be analyzed for the constituents described in Item E.3.1 above.

Leachate quality is required, however, has not been assessed in the last 10 years because no leachate has been generated. When present, in accordance with the RCRA Post-Closure Permit (IEPA, 2011), representative samples of leachate from Phases 1 and 2 would be collected annually and analyzed individually for the following analytes:

TABLE 1

Sample Parameters

Parameter	Cas No.	ICP/MS	Reporting Units
Boron	7440-42-8	EPA-6020A	mg/L
Cadmium	7440-43-9	EPA-6020A	mg/L
Chromium	7440-47-3	EPA-6020A	mg/L
Cobalt	7440-48-4	EPA-6020A	mg/L
Cooper	7440-50-8	EPA-6020A	mg/L
Iron	7439-89-6	EPA-6020A	mg/L
Lead	7439-92-1	EPA-6020A	mg/L
Manganese	7439-96-5	EPA-6020A	mg/L
Magnesium	7439-95-4	EPA-6020A	mg/L
Mercury	7439-97-6	EPA-6020A	mg/L
Nickel	7440-02-0	EPA-6020A	mg/L
Potassium	7440-09-7	EPA-6020A	mg/L
Silver	7440-22-4	EPA-6020A	mg/L
Sodium	7646-69-7	EPA-6020A	mg/L
Thallium	7440-28-0	EPA-6020A	mg/L
Zinc	7440-66-6	EPA-6020A	mg/L
Total Metals	--	EPA-6020A	mg/L
VOC Scan	--	EPA-8260	ug/L
PaHs	--	EPA-550	ug/L
Chloride	--	325.2/325.3	mg/L
Fluoride	--	340.1/340.2	mg/L
Nitrate	--	353.2/353.4	mg/L
Sulfate	--	375.4/375.2	mg/L
Cyanide	57-12-5	SM4500CN C/SW9012A	mg/L
BOD	--	SM5210B	mg/L
TSS	--	SM2540D	mg/L
pH	--	150.1/150.2	S.U.
Alkalinity	--	EPA-310.2	

*Some parameters may be combined in a sample bottle determined by the analytical lab.

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Leachate samples should be collected during the first quarter inspections and the results are submitted to IEPA.

1. **Summary of Sample Results:** Provide a summary table of the leachate sampling results for each unit since post closure began for that unit. Identify the concentration for each parameter detected in each sampling event.

   No leachate has been produced by the leachate collection system in the last ten years, therefore no leachate samples have been collected.

2. **Parameter Comparison:** Indicate if any of the leachate analyses detected a parameter for which the groundwater is/was not being analyzed and the actions taken if this occurred.

   No leachate has been produced by the leachate collection system in the last ten years, therefore no leachate samples have been collected.

E.7.3.2. Leachate Quantity

1. Provide a record of the amount of liquid removed from each leachate collection sump (in gallons) at least monthly after closure of the unit identified in E.7.2 above. The following information regarding leachate generation rates needs to be provided both in table form and graphically:

   a. Monthly for each year for each sump since the unit was closed
   b. Annually for each sump since the unit was closed
   c. Annually for each unit since the unit was closed

2. If the leachate generation rates are not trending downward during the post closure period, discuss why this is not happening. Provide information regarding precipitation rates during the post-closure period, as well as groundwater elevations relative to the invert of the LCS sumps.

   The following information addresses E.7.3.2(1-2):

   During post-closure monitoring, the two CAMU Landfill sumps are checked for the accumulation of liquid on a monthly basis in accordance with 35 IAC 724.403(c), and the leachate levels recorded. Leachate removal rates for 2003-2020 are included in Appendix M. The data and graph presented show leachate generation rates dropped off to zero since 2010.

E.7.3.3. Leachate Reporting

Describe the procedures followed to electronically report the quality and quantity of leachate generated at the facility to the IEPA.

The leachate quantities generated are measured and reported annually, electronically to IEPA.

E.7.4 Leak Detection System (LDS)724.402, 724.403, 724.404

Describe how the information from the leak detection system for each unit identified in E.7.2 will be monitored, evaluated, and recorded. Frequent evaluation of this information will be essential in ensuring the system is operating effectively and will also give insight into any adjustments that need to be made to the operations of the system.

E.7.4.1. LDS Leachate Quantity

1. Describe the procedures used to determine the volume of leachate removed from each LDS sump over a given time period. This determination must initially be made monthly If the liquid level in a LDS sump stays below the pump operating level (and thus no leachate is removed during that time period) for two consecutive months, then the amount of liquids in the LDS sump need only be recorded quarterly. Similarly, if the liquid level in a LDS sump stays below the pump operating level for two consecutive quarters, the amount of liquids in the sumps need only be recorded semi-annually. Finally, if the pump operating level for an LDS sump is exceeded during the quarterly or semi-annual monitoring, then monitoring of the amount of leachate removed from that LDS sump must revert back to monthly.

   The LDS sump is inspected for the presence of liquid in accordance with Table B-1. Since 2010, no liquid has been observed in the LDS sump. In the event liquid is present, it is manually pumped and routed through a flow meter and to the MPC pretreatment system. Appendix C Drawing 11R shows the pump, piping, and instrumentation configuration.

2. Provide a record of the amount of liquid removed from each LDS sump (in gallons) at least monthly after closure of the unit identified in E.7.2 above. The following information regarding leachate generation rates needs to be provided both in table form and graphically:

   a. Monthly for each year for each sump since the unit was closed
   b. Annually for each sump since the unit was closed
   c. Annually for each unit since the unit was closed

   Leachate removal rates for 2003-2020 are included in Appendix M. The data and graph presented show leachate generation rates dropped off to zero since 2010.

3. If the leachate generation rates are not trending downward during the post closure period, discuss why this is not happening. Provide information regarding precipitation rates during the post-closure period, as well as groundwater elevations relative to the invert of the LDS sumps.

   Leachate removal rates for 2003-2020 are included in Appendix M. The data and graph presented show leachate generation rates dropped off to zero since 2010.

E.7.4.2. Action Leakage Rate (ALR)

1. Identify the ALR from Section E.4 for each LDS sump, and indicate if the action leakage rate has been exceeded during the post-closure period.

   No leakage has been observed since the CAMU was closed.

2. To determine if the ALR has been exceeded, the owner or operator must convert the monthly flow rate from the monitoring data to an average daily flow rate (gallons per acre per day) for each sump. The average daily flow rate for each LDS sump must be calculated monthly during the post-closure care period, unless IEPA approves a different frequency pursuant to Section 724.403(c)(2).

   No leakage has been observed since the CAMU was closed.

   Describe the response action(s) meeting the requirements of 35 IAC 724.404 that will be implemented if the leachate removal rate exceeds the action leakage rate.

In the event the leachate removal rate exceeds the ALR, MPC will take the following actions:

1. Notify the Agency in writing of the exceedance within seven days of the determination;
2. Submit a preliminary written assessment to the Agency within 14 days of the determination, as to the amount of liquids, likely sources of liquids, possible location, size, and cause of any leaks, and short-term actions taken and planned;
3. Determine to the extent practicable the location, size, and cause of any leak;
4. Determine whether any waste should be removed from the unit for inspection, repairs, or controls;
5. Determine any other short-term and longer-term actions to be taken to mitigate or stop any leaks; and
6. Within 30 days after the notification that the action leakage rate has been exceeded, submit to the Agency the results of the determinations specified in subsections (3), (4), and (5), the results of actions taken, and actions planned. Monthly thereafter, as long as the flow rate in the LDS exceeds the action leakage rate, MPC will submit to the Agency a report summarizing the results of any remedial actions taken and actions planned.

E.7.5 Groundwater Monitoring System

The groundwater monitoring system documentation on well construction information, boring logs, and well completion reports are provided in Appendix H. Figure C-5 shows the location of groundwater monitoring wells included in the May 25, 1999 IEPA approved groundwater monitoring program and the approved groundwater monitoring zone. A summary of the monitoring wells in the monitoring systems is provided in Table C-1. This summary table provides information such as well depth, screen interval, and ground surface elevation. Groundwater monitoring is completed semi-annually.

Section C.8.4.2 provides a narrative description of the groundwater monitoring system.

E.7.6 Gas Collection System

For units required to have a gas collection/ monitoring system, describe how the information about the gas collection system for each unit identified in E.7.2 is monitored, evaluated, and recorded. Frequent evaluation of this information will be essential in ensuring the system is operating effectively and will also give insight into any adjustments that need to be made to the operations of the system.

The CAMU has a passive gas management system which vents gas that might be generated under the cover of the structure. There are no collection or monitoring devices in the system.

E.7.6.1. Gas Quality

Describe the procedures followed to monitor the quality of the gas in the unit on a regular basis during the post-closure care period (including sample collection, sample handling and sample analysis). Discuss how the parameters (Methane, Pressure, Oxygen; and Carbon Dioxide) in the gas system have changed during the post closure period and any actions taken in response to those changes.

1. **Summary of Sample Results:** Provide a summary table of the gas sampling results

for each unit since post closure began for that unit. Identify the concentration for each parameter detected in each sampling event.

2. **Parameter Comparison:** Describe the parameter thresholds used to adjust the gas collection system to improve overall efficiency of the system. Describe any major gas system upgrades/ overhauls since post closure began.

   Gas testing of the passive gas system on the CAMU is not required.

E.7.6.2. Gas Quantity

1. Provide a record of the amount of gas removed from each unit at least monthly after closure of the unit identified in E.7.2 above. The following information regarding gas generation rates needs to be provided both in table form and graphically:

   a. Monthly for each year for each unit since the unit was closed.
   b. Annually for each unit since the unit was closed.

   Gas quantity monitoring of the passive gas system on the CAMU is not required.

2. If the gas generation rates are not trending downward during the post closure period, discuss why this is not happening.

   Gas quantity monitoring of the passive gas system on the CAMU is not required.

E.7.6.3. Summary of Results from the Gas Collection / Monitoring System

1. Describe the procedures followed to document/record information associated with the operation of the landfill gas collection, monitoring, and processing systems in the operating record.

   The gas vents are inspected visually for plugging monthly. The need for repair of these items shall be made on the basis of the results of the post-closure inspections completed as described in Table B-1. The repair log in Table B-3 is a form that will be used to document completion of repairs identified in the inspection and maintenance activities.

   As mentioned above, gas quantity and quality monitoring of the passive gas system on the CAMU is not required.

2. Summarize the operation of the landfill gas collection, monitoring, and processing systems since the unit was closed. Describe any adjustments to the design or operation of the systems since the unit was closed.

   No adjustments have been made to the design or operation of the systems since the unit was closed. No deficiencies have been noted in the operation of the landfill gas collection, monitoring, and processing systems.

E.8 Post-Closure Maintenance Plan

E.8.1 Procedures, Equipment & Material

Describe the preventive and corrective maintenance procedures, equipment and materials that will be required to properly maintain everything needed to provide adequate post-closure care of the unit closed as a landfill. Include the following items in the maintenance plan, as applicable:

1. Repair of security control devices;
   Inspect gates and locks, repair/replace as needed.

2. Erosion damage repair;
   Repair grass cover and erosion damage as needed.

3. Correction of settlement, subsidence and displacement;
   Fill areas of subsidence to maintain cover.

4. Mowing, fertilization and other vegetative cover maintenance;
   Maintain vegetative cover to protect cover.

5. Repair of run-on and run-off control structures;
   Maintain storm water control features by removing silt, leaves, and debris and repair any erosion damage. Hand tools required.

6. Maintenance of any leachate removal system(s) including the flushing of the LCS and LDS;
   Service pumps in accordance with the manufacturer's requirements, clean pump according to the manufacturer's recommendations, clean interior piping annually, inspect liquid level sensor as per manufacturer's O&M manual. Consult O&M manual for equipment and materials needs.

7. Maintenance of any gas monitoring/extraction system;
   Repair any damage to the gas vents. Hand tools may be required.

8. Replacement of groundwater monitoring wells: and
   Damaged monitoring wells should be reported to IEPA and replaced at the direction of their direction.

9. Surveyed benchmarks
   Benchmarks that are damaged should be replaced and re-surveyed.

Table B-2 describes the preventative and corrective maintenance, equipment requirements and materials needed for the operation and maintenance activities which will occur during the post-closure care period. The need for repair of these items shall be made on the basis of the results of the post-closure inspections completed as described in Table B-1. The repair log in Table B-3 is a form that will be used to document completion of repairs identified in the inspection and maintenance activities.

E.8.2 Rationale

Provide the rationale which will be used to determine the need for corrective maintenance activities for each of the items mentioned above.

Corrective maintenance activities will occur for all areas where the post-closure inspections and maintenance plan indicate that potential human or environmental impacts are likely to occur without corrective maintenance and/or the overall CAMU will function more efficiently if corrective maintenance is performed.

E.8.3 Frequency

Provide the frequency for maintaining each of the items mentioned above if it is known. This needs to include, but not be limited to:

1. The frequency for mowing, fertilization and other vegetative cover maintenance, and
   Mow grass semiannually. Perform other maintenance as necessary.

2. Annual maintenance / cleaning of pumps used in the LCS, LDS, and gas collection systems.
Clean and maintain pumps according to manufacturer's recommendations. Clean interior piping annually. Inspect liquid level sensor according to manufacturer's recommendations.

3. The manufacturer's recommended replacement rate for the pumps used in the LCS, LDS or gas collection systems.
Replace pumps according to inspection results and manufacturer's recommendations

4. High pressure jet flushing of the LCS and LDS collection pipes and sump every 5 years.
Clean interior pipes annually.

5. Procedures and scheduling of non-routine maintenance and change-out of equipment.
Perform non-routine maintenance and replace equipment as needed.

Table B-2 describes the preventative and corrective maintenance, equipment requirements and materials needed for the operation and maintenance activities which will occur during the post-closure care period and states the frequency.

E.9 Survey Plat: 724.216

The application must include documentation that a survey plat was prepared/submitted no later than the submission of the certification of closure for each disposal unit or areas where hazardous waste is left in place. The application must also describe the wording placed on the survey plat.

- The survey plat must indicate the location and dimensions of landfill cells or other disposal units/areas with respect to permanently surveyed benchmarks and the legal boundary of the facility.

- The plat must contain a note, prominently displayed that states: (1) the land has been used to manage hazardous wastes; and (2) the owner's and operator's obligations to restrict disturbance of the units containing hazardous waste in accordance with the applicable Subpart G regulations.

- The plat must be prepared and certified using the wording at 702.126(d)(l) by a professional land surveyor.

- The survey plat must be filed with any local zoning authority or authority with jurisdiction over local land use, the IEPA, and recorded with the land titles.

- If the facility includes a RCRA disposal unit that is already certified closed, provide a copy of the survey plat for that unit.

On July 5, 2001 the field survey of the completed and closed CAMU was performed by Mr. Jim Prehn, Illinois registered land surveyor. The survey plat consisted of surveying the chain-link fence which surrounds the CAMU. The chain-link fence is outside of the CAMU waste limits and was used to generate a meets and bonds survey descriptions for the CAMU. Appendix J contains two 11-inch by 17-inch drawings which include Drawing No. 1 - the Plat of Survey for the CAMU and Drawing No. 2 - Extent of Area Remediated.

Drawing No. 1 includes:

- *Meets and bounds description of the area inside of the chain-link fence which is occupied by the CAMU Landfill.*

- *An Illinois registered land surveyor certification of the survey plat.*

- *The required survey notes from the RCRA Part B Permit Section I, Condition H. 3. and 4., which were included as follows:*
  - *The CAMU contains the remediation wastes generated during the closure of hazardous waste and solid waste units at the Modern Plating facility in accordance with an IEPA approved closure plan (Log No. C-259-M-8).*
  - *The waste materials contained in the CAMU are considered RCRA hazardous wastes. They include electroplating sludges (F006), wastes with trichloroethene (F002) and wastes containing cadmium, chromium, and cyanide.*
  - *Any fill material removed from the CAMU during future activities must be managed as a hazardous waste in accordance with 35 IAC Subtitle G: Waste Disposal.*
  - *The use of the area is restricted.*
  - *A survey plat and record of the type, location, and quantity of waste materials in the CAMU have been filed with IEPA, the county, and any local zoning authority with jurisdiction over local land use.*

Drawing No. 2 includes:

- *The quantities of wastes which were excavated from the hazardous and solid waste management units on the MPC property.*
- *The locations of the other units which were closed as part of the MPC remediation including Lagoons 0, 1 and 1A, the cyanide vault, Wetlands No. 1, 1A, 2 and 3 and the Shawnee Building.*

The survey plat for the CAMU as provided in Appendix J has been filed with the Stephenson County Recorder's Office in Freeport, Illinois. The survey map was filed on July 26, 2001 by Mr. Jim Prehn, licensed land surveyor in the state of Illinois. The record data is as follows: Document No. 200100016096, Box 15, pages 111-116 (each 11" x 17" drawing was recorded as three separate 8.5" x 11" pages).

E.10 Notice in Deed and Certification: 703.183(n), 724.216, 724.217(c), 724.219

The application must include copies, as appropriate, of the notation recorded on the deed to the facility property, or on some other instrument which is normally examined during title search that will in perpetuity notify any potential purchaser of the property that:

- The land has been used to manage hazardous waste.
- Use of these areas is restricted.
- A survey plat and record of the type/location/quantity of material in the disposal units or areas have been filed with the IEPA, the County Recorder, and any local zoning authority or authority with jurisdiction over local land use.
- For hazardous wastes disposed prior to January 12, 1981, identify the type, location and quantity of the hazardous waste to the best of the owner or operator's knowledge and in accordance with any records the owner or operator has kept.

  A certification signed by the owner or operator, that the owner or operator has properly recorded the notification must be developed after this notice has been recorded and submitted to IEPA. This submittal must include a copy of the document in which the notification has been placed.

For facilities which have already filed: Provide a copy of the notice for the unit and the document in which it was placed, the required notice of or the deed, the application should contain: a certified copy of the filed notice; the document that the notice was placed in, and certification by the owner or operator that it was properly filed.

The Plat of Survey, discussed in Section E.3, was attached to the deed to the property and serves as an instrument which is normally examined during the title search that will in perpetuity notify any potential purchaser of the property that:

- *The waste material in the CAMU is considered a RCRA hazardous waste;*
- *Use of the area is restricted; and*
- *A survey plat and record of the type, location and quantity of waste material in the CAMU was filed with the IEPA and the County Recorder.*

E.11 Post Closure Cost Estimate: 703.183(p), 724.244

Provide an estimate of the cost of completing the required post-closure care activities, based on current year costs, including all calculations and supporting information used in developing the estimate. The following must be used in preparing this estimate:

1. Cost estimates must be based on third party costs and cannot include the salvage value form the sales of hazardous wastes, structures or equipment present at the facility.
2. The number of years for which post-closure care must still be provided must be identified.
3. Due to the fact that inflation affects the actual value of a given amount of money over time, the year in which this cost estimate is developed must be clearly identified. It must be noted that inflation will always need to be taken into account to bring estimates from previous year up to the current year.
4. The various tasks need to carry out the required post-closure care activities must be identified as well as the cost associated with each task;
5. The amount of time/materials/efforts needed to complete each task must be provided as well as their unit costs. Justification must be provided for all values used in making these calculations;
6. An estimate of the annual cost of providing all required post-closure care activities should be developed;
7. Some post-closure care activities are not carried out on an annual basis, but at some other frequency. These activities, their frequency, and their cost must be presented.
8. The estimate for providing all required post-closure care activities must be developed using the information in Items 4 and 5 above.

A copy of the most recent post-closure care cost estimate provided to the IEPA must also be provided. In general, these estimates are provided in annual reports and financial assurance documents.

A post closure cost estimate is provided in Appendix N. The cost estimate covers all routine post closure care activities and also accounts for equipment replacement costs prorated to an annual cost. Post closure care for the CAMU landfill is required for an additional 10 years. The information in Appendix N corresponds to the Post Closure Care Cost estimate permit modification submitted by Fehr-Graham and Associates, LLC.

E.12 Financial Assurance Mechanism for Post-Closure Care: 703.183(p), 724.245

Provide a copy of the established financial assurance mechanism for post-closure care of the facility. The mechanism must be one of those described in 724.245. Contact the IEPA Bureau of Land Permit Section to obtain the proper forms and instructions.

MPC has established a Letter of Credit with Amcore Bank as part of the conditions with their current RCRA Part B permit. The Letter of Credit is in the amount of $339,960.00 and has an expiration date of February 24, 2021. The CAMU Financial Assurance document is included in Appendix O. A copy of the latest amendment to the Letter of Credit is provided in Appendix P.

E.13 State Mechanisms: 40 CFR 264.149, 40 CFR 264.150, 40 CFR 264.151, 40 CFR 220.14(b)(18)

If the State of Illinois assumes legal responsibility for compliance with closure, post closure, or liability requirements, or the state assures that state funds are available to cover those requirements, submit a copy of a letter from the state describing the state assumption of responsibility and including the facility EPA ID number, name, address, and amounts of liability coverage or funds for closure or post-closure care that are assured by the state, together with a letter requesting that the state's assumption of responsibility be considered acceptable.

The State of Illinois does not assume legal responsibility for compliance with post-closure for this site. As such, this section does not apply.

F. CORRECTIVE ACTION (35 IAC 724.201)

35 IAC 724.201 requires that facilities seeking a RCRA permit institute corrective action, as necessary, to protect human health and the environment for all releases of hazardous waste or constituents from any solid waste management unit at the facility, regardless of the time at which waste was placed in the unit. The information identified in Items F.1 through F.3 below must be contained in the original RCRA permit application submitted by a facility to allow IEPA to develop permit conditions for ensuring this requirement is met; only the information in Item F.4 below needs to be submitted by facilities seeking a renewed RCRA permit.

F.1 Identification of Solid Waste Management Units: (703.187(a))

Identify the SWMUs present at the facility. A SWMU includes any unit where solid waste has been managed in the past and which is not a hazardous waste management unit. Units that are SWMUs include, but are not limited to, the following:

1. Landfills
2. Surface impoundments
3. Waste piles
4. Land treatment units
5. Injection wells
6. Incinerators
7. Tanks (including wastewater treatment units)
8. Container storage areas
9. Waste transfer areas
10. Waste recycling operations

The MPC facility contains no active SWMUs. Former SWMUs include Lagoon No. O, Lagoon No. 1A, Cyanide Vault, Wetland No. 1, Wetland No. 1A, Wetland No. 2, and Wetland No. 3. All former SMWUs were remediated and closed as required by the April 11, 2000 RCRA Part B Permit Condition No. Section I, Condition H. 1. through 5. and documented in the Closure Documentation Report (FVD, 2001b) submitted to the IEPA.

F.2 Characterization of the SWMUs: (703.187(a))

For each solid waste management unit identified above, submit the following information:

1. Type of unit
2. Location on the topographic map required by Item B-2 of the decision guide/checklist
3. Engineering drawings and construction details as available
4. General dimensions
5. Dates when the unit was in operation
6. Description (including physical/chemical characteristics) of the materials/wastes managed in the unit
7. Quantity or volume of waste managed in the unit, if known
8. A description of: (1) the soil types present at the unit; and (2) the geology of the area where the unit is located.
9. An indication of whether the wastes managed in the unit have been removed or still remain in it.

Table F-2 is a summary of the remedial actions completed and the closure of the hazardous and solid waste management units including type of unit, estimated volume, closure dates, material descriptions, and waste status. Drawing 2 provides the unit locations and volumes.

The areas occupied by the cyanide vault, outfall pipeline excavation, Lagoons No. 0, No. 1, No. 1A, No. 2, and No. 3 are located in reclaimed area earlier occupied by the flood plain of the Pecatonica River and its associated wetlands. This area was filled with a variety of soil types and construction debris. The upper most soil below the fill are primarily glaceo-lactiune silts and clays which are underlain by layers of waste

bearing sand and gravel. Analysis of confirmation soil samples collected during the closure of the Wetlands No. 1, 1A, 2 and 3 areas were categorized as organic silty clay, soft, black (OL). The Shawnee Building native soil was characterized as brown, silty clay with trace sand and gravel (CL). The CAMU was constructed over the remaining units.

F.3 Characterization of Releases from SWMUs: (703.187(b))

Provide all available information on whether or not any releases have occurred from each of the SWMUs identified above. Reasonable efforts to identify releases must be made, even if releases have not been verified. (A release may include: spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping or disposing into the environment.) If a determination is made that there has not been any releases from a given SWMU, then a description of the efforts and information used to reach this conclusion must be provided.

The information to be provided regarding any releases from a SWMU, as available, includes:

1. Date of the release
2. Type of waste or constituent released
3. Physical and chemical characteristics of the released material
4. Quantity or volume released
5. Nature of the release (such as spill, overflow, ruptured pipe or tank, etc.).
6. Groundwater monitoring or other analytical data describing the nature/extent of the release.
7. Physical evidence of distressed vegetation or soil contamination
8. Historical evidence of releases, such as tanker truck accidents
9. Any state, local or federal enforcement actions which may address releases
10. Any public citizen complaints about the facility which could indicate a release
11. Any information showing the migration of the release.
12. A detailed description of any remedial activities taken in response to the release.

The RCRA Corrective Action and Closure process involved numerous hydrogeologic investigations at the MPC site from the mid 1980s through the late 1990s. Based on the results of the hydrogeologic investigations, a RCRA Closure Plan was proposed by MPC and ultimately approved by the EPA and IEPA. The Closure Plan was implemented in 2000 and 2001, with final closure of the SWMUs achieved in 2001. Remedial activities at the MPC site the excavation of soil from Wetlands No. 1, 1A, 2 and 3, the Shawnee Building, and the Cyanide Vault and the excavation of plating sludge from Lagoons No. 0, 1, 1A, 2, and No. 3. The soil and plating sludge was placed in the CAMU constructed in the vicinity of the lagoons. The Final RCRA Closure Plan and Basis of Design (FVD, 1999b) provides additional background on historical evidence of releases and historical hydrogeologic conditions at the site. Modern Plating Corporation CAMU Landfill Construction Documentation (FVD, 2001a) and Closure Documentation Report (FVD, 2001b) provide additional documentation of the closure activities.

Removal of Waste and Contaminated Soil

Four HWMUs, four SWMUs, and two areas of concern were remediated by excavating the contaminated soils and depositing these soils in the CAMU landfill in accordance with the plan outlined in the RCRA Part B Permit Application for Proposed Corrective Action Management Unit (FVD, 1999) and documented in the report titled Closure Documentation Report (Appendix R). The four HWMUs excavated were Lagoon 1, Lagoon 2, Lagoon 3, and the Shawnee Building. The remediated SWMUs consisted of Lagoon 0, Lagoon 1A, Cyanide Treatment Vault, Wetland 1 and 1A, and Wetland II and III. The two areas of concern remediated were the outfall pipe and the wastewater release area.

The CAMU landfill was constructed and closed in a manner to eliminate future environmental impacts from the excavated hazardous wastes. To minimize and eliminate future environmental impacts the CAMU landfill was constructed with a double liner, a leachate collocation system, leak detection system, and a composite cap. Further details regarding the construction of the CAMU landfill are provided in section E.1.2.3.

Remedial action was approved by the IEPA with the issuing of the RCRA Hazardous Waste Management Post-Closure permit for the CAMU on April 11, 2000 (IEPA, 2000). MPC constructed, operated, and closed a CAMU receiving remediation waste generated from the closure and corrective actions taken at several HWMUs and SWMUs at the facility. Construction of all units was done in accordance with IEPA approved design, construction, and operating requirements including liner systems, cover systems, leachate collection and removal systems, leak detection system, and groundwater monitoring requirements as described in the permit.

Closure of the Shawnee Building, Wetlands Area, Wastewater Release Area, Lagoons 0, 1, 1A, 2, and 3 and the Cyanide Treatment Vault have received certification of Completed Closure with conditions as outlined in the permit. As outlined in the RCRA Hazardous Waste Management Post-Closure permit for the Corrective Action Management Unit (CAMU), April 11, 2000 (IEPA, 2000) and shown on Drawing 2, the following remediation and closure activities have occurred at the MPC facility:

Lagoon 0, Lagoon 1, Lagoon 1A, Lagoon 2, Lagoon 3

Waste sludges in the listed lagoons were dried, solidified and/or treated. After removal of waste, at least 1 foot of the base and 1 foot of the interior side slopes were excavated. Excavated soil and electroplating waste was removed from the lagoons and placed in the CAMU. After waste was removed, each area was backfilled with clean soils and compacted in lifts and the surface graded to drain. Additional excavation details regarding the waste types and quantities are provided on Drawing 2.

Cyanide Treatment Vault Area

The concrete cyanide vault was remediated by breaking up and removing the concrete vault. Approximately 2 feet of contaminated soil was excavated from the floor and sidewalls of the cyanide treatment vault. Approximately 200 cubic yards of contaminated soil was excavated and placed in the CAMU. After waste was removed, this area was backfilled with approximately 10 feet of clay soil, compacted in lifts, and the surface was graded to drain. An engineered barrier was also installed over the remediated area.

Shawnee Building

Approximately 30 cubic yards of contaminated soil was excavated from storage areas in the Shawnee building and placed in the CAMU. The remediation was completed by cutting and removing a section of the concrete slab measuring approximately 25 feet by 25 feet and excavating the soil below to a depth of approximately 3 feet. After excavation of the contaminated soil, the excavated area was backfilled with clay soil, compacted in lifts, and the graded to promote drainage.

Wetland Area

Approximately 2,905 cubic yards of contaminated soils were removed from four areas in the Wetland Area and placed in the CAMU. The wetland areas were backfilled and graded with wetland soils that were stockpiled during the excavation of a pond on the former Stephenson Service Co. property, which was purchased by MPC.

Outfall Pipe

An abandoned outfall pipe from the wastewater treatment plant (WWTP) to the Pecatonica River was excavated. An area approximately 30-feet long, 10-feet wide and 10-feet deep was excavated. Contaminated soil from this area was placed in the CAMU. The excavated area was backfilled and graded with clean soil.

Wastewater Release

During construction of the CAMU, a pipeline that transfers wastewater from the manufacturing

plant to the WWTP ruptured (IEPA Incident No. 20001377). Approximately 3 cubic yards of soil were contaminated as a result of the spill. This contaminated soil was removed and placed in the CAMU. The excavated area was backfilled and graded with clean soil.

Following the placement of contaminated material in the CAMU, a cover system on top of the CAMU was constructed. The cover systems consisted of the following layers, listed from top to bottom:

- *6 inches of topsoil*
- *18 inches of cover soil*
- *Geocomposite drainage material*
- *40 mil HDPE geomembrane*
- *Geosynthetic clay liner (GCL)*
- *6 inches of grading/venting layer*

Stabilization of material remaining in the unit

After the sludge and contaminated soils generated during the remediation activities were placed in the CAMU and graded using a low ground pressure bulldozer.

Final Contours

A final cover design meeting the requirements of 35 IAC 724.410(a) is proposed for the CAMU landfill which generally has components as follows:

- *6 inches of topsoil*
- *18 inches of cover soil*
- *Geocomposite drainage layer*
- *40 mil HDPE geomembrane*
- *GCL (soil component of composite cap)*
- *6 inch grading/venting layer*

A registered land surveyor completed a topographic survey of the final waste grades on an approximately 50-foot grid. The final grading is shown on Drawing 2 in Appendix J.

A run-off control system was also installed around the CAMU to prevent erosion of the CAMU cover. In August 2001, FVD submitted the Closure Documentation Report, August 2001 (FVD, 2001) to the IEPA to formally close the CAMU landfill.

F.4 Information Required for Renewal Applications: (703.187(c))

Facilities seeking a renewed RCRA permit have likely completed a substantial amount of corrective action under the original permit. IEPA has only been authorized to implement the corrective action program in RCRA permits since April 1990; the USEPA portion of permits issued before this date contained corrective action requirements. For permits issued before April 1990, IEPA likely does not have a complete file of corrective action efforts carried out at the facility, as such efforts were overseen by USEPA. However, for permits issued after April 1990, IEPA already has a complete file of all corrective action efforts carried out to date at the facility.

A summary/description of the corrective action efforts completed to date at the facility must be provided in the application. The level of detail of this summary/description will be dependent on whether IEPA oversaw these corrective action efforts and thus has a complete file of these efforts already. This summary/description will create an administrative record adequate to support the corrective action requirements eventually placed in the renewed permit and will form the foundation for determining future corrective action efforts to ensure the requirements of 35 IAC 724.201 are met.

The MPC facility is seeking a renewed RCRA permit. The current permit for the remedial action at this site is:

RCRA Post-Closure Permit for Modern Plating Corporation, Permit No. 1770200010, RCRA Log No. B-167R, issued June 9, 2011.

The remedial action completed was overseen by IEPA. A summary/description of the corrective action efforts completed to date is provided in the response to Item E.1.4.

Removal of Waste and Contaminated Soil

Four HWMUs, four SWMUs, and two areas of concern were remediated by excavating the contaminated soils and depositing these soils in the CAMU landfill in accordance with the plan outlined in the RCRA Part B Permit Application for Proposed Corrective Action Management Unit (FVD, 1999) and documented in the report titled Closure Documentation Report (Appendix R). The four HWMUs excavated were Lagoon 1, Lagoon 2, Lagoon 3, and the Shawnee Building. The remediated SWMUs consisted of Lagoon 0, Lagoon 1A, Cyanide Treatment Vault, Wetland 1 and 1A, and Wetland II and III. The two areas of concern remediated were the outfall pipe and the wastewater release area.

The CAMU landfill was constructed and closed in a manner to eliminate future environmental impacts from the excavated hazardous wastes. To minimize and eliminate future environmental impacts the CAMU landfill was constructed with a double liner, a leachate collocation system, leak detection system, and a composite cap. Further details regarding the construction of the CAMU landfill are provided in section E.1.2.3.

Remedial action was approved by the IEPA with the issuing of the RCRA Hazardous Waste Management Post-Closure permit for the CAMU on April 11, 2000 (IEPA, 2000). MPC constructed, operated, and closed a CAMU receiving remediation waste generated from the closure and corrective actions taken at several HWMUs and SWMUs at the facility. Construction of all units was done in accordance with IEPA approved design, construction, and operating requirements including liner systems, cover systems, leachate collection and removal systems, leak detection system, and groundwater monitoring requirements as described in the permit.

Closure of the Shawnee Building, Wetlands Area, Wastewater Release Area, Lagoons 0, 1, 1A, 2, and 3 and the Cyanide Treatment Vault have received certification of Completed Closure with conditions as outlined in the permit. As outlined in the RCRA Hazardous Waste Management Post-Closure permit for the Corrective Action Management Unit (CAMU), April 11, 2000 (IEPA, 2000) and shown on Drawing 2, the following remediation and closure activities have occurred at the MPC facility:

Lagoon 0, Lagoon 1, Lagoon 1A, Lagoon 2, Lagoon 3

Waste sludges in the listed lagoons were dried, solidified and/or treated. After removal of waste, at least 1 foot of the base and 1-foot of the interior side slopes were excavated. Excavated soil and electroplating waste was removed from the lagoons and placed in the CAMU. After waste was removed, each area was backfilled with clean soils and compacted in lifts and the surface graded to drain. Additional excavation details regarding the waste types and quantities are provided on Drawing 2.

Cyanide Treatment Vault Area

The concrete cyanide vault was remediated by breaking up and removing the concrete vault. Approximately 2 feet of contaminated soil was excavated from the floor and sidewalls of the cyanide treatment vault. Approximately 200 cubic yards of contaminated soil was excavated and placed in the CAMU. After waste was removed, this area was backfilled with approximately 10 feet of clay soil, compacted in lifts, and the surface was graded to drain. An engineered barrier was also installed over the remediated area.

Shawnee Building

Approximately 30 cubic yards of contaminated soil was excavated from storage areas in the Shawnee Building and placed in the CAMU. The remediation was completed by cutting and removing a section of the concrete slab measuring approximately 25 feet by 25 feet and excavating the soil below to a depth of approximately 3 feet. After excavation of the contaminated soil, the excavated area was backfilled with clay soil, compacted in lifts, and the graded to promote drainage.

Wetland Area

Approximately 2,905 cubic yards of contaminated soils were removed from four areas in the Wetland Area and placed in the CAMU. The wetland areas were backfilled and graded with wetland soils that were stockpiled during the excavation of a pond on the former Stephenson Service Co. property, which was purchased by MPC.

Outfall Pipe

An abandoned outfall pipe from the WWTP to the Pecatonica River was excavated. An area approximately 30-feet long, 10-feet wide and 10-feet deep was excavated. Contaminated soil from this area was placed in the CAMU. The excavated area was backfilled and graded with clean soil.

Wastewater Release

During construction of the CAMU, a pipeline that transfers wastewater from the manufacturing plant to the WWTP ruptured (IEPA Incident No. 20001377). Approximately 3 cubic yards of soil were contaminated as a result of the spill. This contaminated soil was removed and placed in the CAMU. The excavated area was backfilled and graded with clean soil.

Following the placement of contaminated material in the CAMU, a cover system on top of the CAMU was constructed. The cover systems consisted of the following layers, listed from top to bottom:

- *6 inches of topsoil*
- *18 inches of cover soil*
- *Geocomposite drainage material*
- *40 mil HDPE geomembrane*
- *Geosynthetic clay liner (GCL)*
- *6 inches of grading/venting layer*

Stabilization of material remaining in the unit

After the sludge and contaminated soils generated during the remediation activities were placed in the CAMU and graded using a low ground pressure bulldozer.

Final Contours

A final cover design meeting the requirements of 35 IAC 724.410(a) is proposed for the CAMU landfill which generally has components as follows:

- *6 inches of topsoil*
- *18 inches of cover soil*
- *Geocomposite drainage layer*
- *40 mil HDPE geomembrane*
- *GCL (soil component of composite cap)*
- *6 inch grading/venting layer*

A registered land surveyor completed a topographic survey of the final waste grades on an approximately 50-foot grid. The final grading is shown on Drawing 2 in Appendix J.

A run-off control system was also installed around the CAMU to prevent erosion of the CAMU cover. In August 2001, FVD submitted the Closure Documentation Report, August 2001 (FVD, 2001) to the IEPA to formally close the CAMU landfill.

F.4.1 Required Information if USEPA Oversaw Initial Corrective Action Program

Facilities applying for a renewed RCRA permit which conducted corrective action efforts in accordance with requirements of the USEPA portion of the original RCRA permit issued to the facility must provide the following information:

1. A detailed chronology of all corrective action correspondence between USEPA and the facility, starting from the issuance of the original permit;

2. Copies of all letters received from USEPA regarding corrective action efforts, starting with the issuance of the original RCRA permit;

3. Copies of all letters and documents sent to the USEPA regarding corrective action efforts conducted in accordance with the original RCRA permit;

4. A detailed discussion of each of the SWMU identified and addressed in accordance with the provision of the facility's original RCRA permit, including: (1) detailed description of each unit as outlined in Item F. 2 above; including layout drawings; (2) a summary of the investigation/ remediation efforts completed to date; and (3) discussion of any investigation/remediation efforts which must still be carried out to complete corrective action responsibilities for the unit.

5. The information in the appropriate portions of Section C (Groundwater Monitoring of this decision guide) regarding any on-going groundwater monitoring/remediation program being carried out at the facility.

Corrective action efforts conducted under the current RCRA permit were overseen by the IEPA. Therefore, Section F.4.1 does not apply.

F.4.2 Required Information if IEPA Oversaw Initial Corrective Action Program
Facilities which carried out corrective action under the requirements of the IEPA portion of the original permit must provide the following information regarding corrective action efforts at the facility:

1. A chronological list of all documents submitted to IEPA regarding the corrective action efforts required by the original RCRA permit and IEPA's response to each submittal. For each document, provide:

   a. The name of the document;
   b. A brief discussion of the contents/purpose of the document;
   c. The date the document was submitted to IEPA;
   d. The person who submitted the document; and
   e. A discussion of IEPA's response to the document (include the date of the response and the general conclusions/requirements in the response).

2. Copies of all IEPA letters, in chronological order, regarding corrective action efforts at the facility (these letters serve as important decision documents and will help to verify corrective action efforts completed to date and what must still be done to complete corrective action responsibilities at the facility).

3. A detailed discussion of each of the SWMUs identified and addressed in accordance with the facility's permit. This must include: (1) detailed description of each unit as outlined in Item F.2 above; (2) a summary of the investigation/remediation efforts completed to date; and (3) a

discussion of any investigation/remediation efforts which must still be carried out to complete corrective action responsibilities for the unit.

4. The information in the appropriate portions of Section C (Groundwater Monitoring of this decision guide) regarding any on-going groundwater monitoring/remediation program being carried out at the facility.

Corrective actions conducted at the MPC facility under the current RCRA permit were overseen by the IEPA. A chronological list of all documents submitted to the IEPA regarding corrective action activities is provided in Table F-1. Copies of all letters received from the IEPA, regarding corrective action activities, are provided in Appendix L.

Corrective action at the MPC facility has consisted of the construction of the CAMU landfill and excavation of the contaminated soils present at the HWMUs and SWMUs followed by deposition of this contaminated material into the CAMU landfill. Details regarding the releases to and remediation of the HWMUs and SWMUs have been presented in the reports titled Final RCRA Closure Plan and Basis of Design, Modern Plating Corporation, December 1999 (FVD, 1999), Modern Plating Corporation CAMU Landfill Construction Documentation, July 2001 (FVD, 2001), and Closure Documentation Report, August 2001 (FVD, 2001). The location of the HWMUs and SWMUs, a summary of the wastes released to these areas, and a summary of the remediation of these areas is provided in sections B.1.1, C.8.1, and E.1 of this permit application.

Groundwater monitoring is currently being conducted on a semi-annual basis at the facility and is overseen by the IEPA. A summary of the groundwater monitoring program and GMZ is provided in Section C of this permit renewal application.

F.5 Proposed Interim Measures to be Conducted: (703.187)

An applicant may propose to begin/continue interim measures for the purpose of preventing/mitigating releases from a SWMU before completing a formal RCRA Facility Investigation or Corrective Measures Program. Requests to begin/continue interim measures must contain detailed information about the proposed effort, including:

1. Background information and the unit and surrounding area (including, but not limited to, construction/operation of the unit, wastes managed in the unit; geology/hydrogeology of the area; and discussion/presentation of all sampling/analysis efforts conducted in and around the unit);

2. The objectives of the interim measure. Of special concern is how the measure will prevent/mitigate the release of concern and how it will be integrated into any necessary long-term corrective measures at the facility;

3. Information regarding the design, construction, operation and maintenance of the measure;

4. Schedules for design, construction, and operation of the measure.

It must be noted that it may be necessary to complete a RCRA Facility Investigation and a Corrective Measures Study for the SWMU of concern while the interim measure is being carried out. Such efforts will be necessary if the extent of contamination at the SWMU has not been completely determined or if additional remedial efforts are needed to properly address the contamination resulting from the release in the long term.

Presently there are no interim measures being conducted and no new interim measures are being proposed. As a result, Section F.5 does not apply.

F.6 Cost Estimate for Required Corrective Action: (724.201)

35 IAC 724.201 requires that permitted facilities provide financial assurance for any required corrective action. As such, the application must contain an estimate of the most of the required corrective action efforts to be carried out at the facility.

- If a facility proposes to conduct an interim measure as set forth in Item F.5 above, then an estimate of the cost of these measures must be provided in the application.
- Development/presentation of such an estimate must be carried out in accordance with Item E.5 above. This cost estimate will then form the foundation for the establishment of financial assurance for corrective action in the permit. This estimate will need to be updated, as appropriate, to reflect the cost of carrying out all approved corrective action activities at this facility.
- As each workplan/report associated with corrective action is developed, they must contain cost estimates for carrying out the activities proposed in the workplans and then financial assurance must established for these activities once they are approved.

No interim measures are ongoing and no new measures are being proposed. As a result, Section F.6 does not apply.

F.7 Financial Assurance for Corrective Action: (724.201)

Adequate financial assurance must be provided for any proposed interim measures described in Item F.6 above. Establishment of this financial assurance must meet the requirements of 35 IAC 724, Subpart H and Item E.6 above. Financial assurance for corrective action must be updated, as appropriate, to reflect the current corrective action cost estimate.

Corrective actions are not being proposed for the MPC facility. Therefore, Section F.7 does not apply.

References

Foth & Van Dyke and Associates, Inc., 1998. Plan of Operation for the Corrective Action Management Unit at the Modern Plating Corporation Facility. 1998.

Foth & Van Dyke and Associates, Inc., 1999a. Final RCRA Part B Permit Application for Proposed Corrective Action Management Unit. December 1999.

Foth & Van Dyke and Associates, Inc., 1999b. Final RCRA Closure Plan and Basis of Design, Modern Plating Corporation.

Foth & Van Dyke and Associates, Inc., 1999c. Contingency Plan, Hazardous Waste Contingency Plan and Related Documents. Version Updated by Fehr Graham, 2017.

Foth & Van Dyke and Associates, Inc., 2001a. Modern Plating Corporation CAMU Landfill Construction Documentation. July 2001.

Foth & Van Dyke and Associates, Inc., 2001b. Closure Documentation Report. August 2001.

Foth Infrastructure & Environment, LLC, 2009. *Groundwater Management Zone Re-Evaluation* letter report. June 2, 2009.

Illinois Environmental Protection Agency, 2000. RCRA Post-Closure Permit for Modern Plating Corporation, Permit No. 1770200010, Log No. B-B167, issued April 11, 2000, update pending addressing RCRA Log Nos. B-167-M-1 through M-8, dated May 7, 2009.

Illinois Environmental Protection Agency, 2011. RCRA Post-Closure Permit for Modern Plating Corporation, Permit No. 1770200010, Log No. B-167R, issued June 9, 2011.

Illinois Environmental Protection Agency, 2020. Letter to Mr. Dave Servatius, RCRA Post-Closure Permit for Modern Plating Corporation, Permit No. 1770200010, Log No. B-167R-CA-3, dated October 16, 2020.

Attachment 2

Tables

Tables

Table B-1
Post-Closure Inspection Schedule and Log for CAMU Landfill

Equipment or Area	Description	Activity Description	Frequency	Date/ Time / Inspector	Comments and Action Items
Leachate Collection System (LCS)	Side Slope Riser (SSR) Pump and Piping	Check for leaks.	Annually		
		Check for leaks weekly thereafter.	5 days after start-up, repair leaks within 15 days.		
		Service pumps.	Per manufacturer's O&M manual.		
		Check pressure transducer for proper operation.	Per manufacturer's O&M manual.		
		Record liquid level and leachate quantity in sump.[1]	Monthly record gallons pumped from LCS and LDS for each phase.		
		Check flow meter and pump controls for proper operation.	Per manufacturer's O&M manual.		
		Clean paddlewheel on liquid flow sensors.	As needed for trouble free operation.		
		Check alarms and alarm lights for proper operation (press down lights on control panel).	Weekly during active life, monthly after closure.		
Leak Detection System (LDS)		Check liquid levels and remove liquids above pumping level.	Weekly during active site life; monthly after closure.		
		Record liquid level and leachate quantity in sump.[1]	Monthly record gallons pumped from LCS and LDS for each phase.		
		Check liquid levels and remove liquids above pumping level	Refer to 35 IAC 724.403 for frequencies if leakage does not occur.		
		Check pressure transducers for proper operation.	Per manufacturer's O&M manual.		
		Check alarms and alarm lights for proper operation.	Weekly during active site life, monthly after closure.		

Table B-1, Post-Closure Inspection Schedule and Log for CAMU Landfill *(continued)*

Equipment or Area	Description	Activity Description	Frequency	Date/ Time / Inspector	Comments and Action Items
Exterior of CAMU Landfill	Berms	Check for wet spots and leaks.	Semiannually		
		Check for settlement, slumping or sloughing.	Semiannually		
		Check for erosion and bare sod areas.	Semiannually and after each major rainfall event (greater than ½ inch).		
Run-on and Run-Off Control	Erosion Control Devices	Riprap-inspection for washout or undercutting.	Quarterly and after each major rainfall event.		
		Ditches-inspect for siltation and/or erosion.	Quarterly and after each major rainfall event.		
		Erosion bales or silt fencing-inspect for washout or undercutting.	Quarterly and after each major rainfall event.		
		Culverts-inspect for washout/siltation at inlet and outlet.	Quarterly and after each major rainfall event.		
	Sedimentation Basins	Inspect berms for erosion, scouring and slumping	Quarterly and after each major rainfall event		
		Inspect pond bottom for build-up of sediment.	Quarterly and after each major rainfall event.		
		Inspect inlet and outlet for erosion and sedimentation.	Quarterly and after each major rainfall event.		
		Inspect trash rack and rock filter.	Quarterly and after each major rainfall event.		
Final Cover Surface	Vegetation	Inspection for growth and overall health.	Quarterly and after each major rainfall event.		
		Evidence of stress.	Quarterly and after each major rainfall event.		
		Bare spots from erosion, washout or die-offs, etc.	Quarterly and after each major rainfall event.		
		Mow final cover	Annually during periods of dry weather		

Equipment or Area	Description	Activity Description	Frequency	Date/ Time / Inspector	Comments and Action Items
Final Cover System Integrity		Erosion resulting in rills, gullies or bare soil.	Quarterly and after each major rainfall event.		
		Conduct a survey of elevation points cecking for settlement, shifting [2].	Every five (5) years.		
		water standing on the final cover	Quarterly and after each major rainfall event.		
		Slumping or sloughing of final cover.	Quarterly and after each major rainfall event.		
Security Control Devices	Fences, Gates, Locks	Inspection for proper function.	Semiannually		
		Replace and repair as required.			
Gas Venting System	Risers	Inspect for plugging.	Semiannually		
Groundwater Monitoring Wells	Protective Tops Well	Inspect protective tops and seal for integrity and function.	Semiannually		
		Record well condition, including well depth, siltation, water depth, well pipe condition and water quality.	Semiannually		
Horizontal and Vertical Control	Benchmarks	Check for disturbance and remark (i.e., flag and/or paint).	Annually		
Groundwater Monitoring Wells	Survey	Survey stick-up once every five (5) years.	Every five (5) years.		
		Report elevation of the bottom of each monitoring well (Storet 72020).	Annually – report during second quarter sampling event.		

Notes:

1. Compare to Action Leakage Rate of 2,434 gallons per day for each Phase.
2. Compare survey elevations to original grading elevations and the elevations from previous surveys.

Table B-2
Post-Closure Maintenance Plan for CAMU Landfill

Equipment or Area	Description	Preventive Maintenance	Corrective Maintenance Procedures	Equipment Requirements	Material Needs
Leachate Collection System (LCS)	Side Slope Riser (SSR) Pump and Piping	Service pumps in accordance with the manufacturer's requirements.	Refer to O&M manual.	Refer to O&M Manual.	Refer to O&M Manuals.
		Clean pump according to the manufacturer's recommendations.	Repair leaks immediately upon discovery.	Refer to O&M Manual.	
		Clean interior piping annually.			
		Inspect liquid level sensor.	Refer to O&M manual.	Refer to O&M Manual.	
Leachate Detection System (LDS)		Service pumps in accordance with the manufacturer's requirements.	Refer to O&M manual.	Refer to O&M Manual.	Refer to O&M Manuals.
		Clean pump according to the manufacturer's recommendations.	Repair leaks immediately upon discovery.	Refer to O&M Manual.	
		Clean interior piping annually.			
		Inspect liquid level sensor.		Refer to O&M Manual.	
Final Cover	Surface Water Management System	Clean culverts of debris.	Correct erosion problems by installing erosion control devices.	Truck, bobcat, shovel.	Erosion mat, riprap, topsoil, etc.
	Cover Settlement		Fill settled areas and grade to drain.	Truck, small bulldozer,	Fill soil, topsoil, seed, fertilizer and mulch.
			Revegetate filled areas.	Seeder, landscaping tools.	
Final Cover	Vegetation Final Surface	Mow grass semiannually.	Repair eroded areas, fill with soil to grade, install erosion mat prior to seeding.	Truck small bulldozer,	Fill soil, topsoil, seed, fertilizer, mulch and erosion matting.
		Revegetate bare spots and eroded areas.	Seed, fertilize and mulch.	Seeder and mower.	

Table B-2, Post-Closure Maintenance Plan for CAMU Landfill *(continued)*

Equipment or Area	Description	Preventive Maintenance	Corrective Maintenance Procedures	Equipment Requirements	Material Needs
Berms	Exterior Berms	Mow grass semiannually.	Repair eroded areas by filling with soil to grading and adding erosion mat prior to seeding.	Track, small bulldozer,	Fill soil, topsoil, seed, fertilizer, mulch and erosion matting.
		Revegetate bare spots and eroded areas.	Seed, fertilize and mulch.	Seeder, landscaping tools.	
Environmental Monitoring Devices	Groundwater Monitoring Wells	Mark wells with flag to prevent damage during other maintenance.	Repair/replace broken protector pipes, surface seals and locks.	Shovel	Protector pipes, bentonite lock/key set, PVC pipe
Security Devices	Means to Control Entry	Repaint rusted or scratched areas.	Repair or replace worn or rusty fences.	Hand tools	Fence/gate parts and locks
	Exterior Lighting	Replace burnt out bulbs.			
Surface Water Management and Erosion Control Structures	Sedimentation Pond	Clean sediment from ponds.	Repair eroded inlet/outlet, dikes, etc.	Backhoe, truck, shovel	Fill soil, erosion control materials (e.g., riprap), pipes
		Remove debris from pipes and trash rock.	Repair eroded or silted in areas.		
			Clean trash rack, inlet and outlet pipes.		
	Ditches, Culverts, Spillways, etc.	Clean sediment from ditches.	Replace rusted culverts.	Backhoe, truck, shovels	Fill soil erosion control materials (e.g., riprap), pipes
			Repair eroded areas and install erosion control measures.		
Access Roads		Remove tracked mud.	Repair ruts, pot holes, etc.	Truck, shovels	Road gravel
Gas Vents	Gas Vents	Clean vents.	Repair, replace damaged vents and surface seals.	Shovel	Piping, glue, etc.

[1]To be compared with the action leakage rate of 2,434 gal/day per phase.

Table B-3
Post-Closure Repair Log for CAMU Landfill

Item	
Description of Planned Repair	
Date of Inspection/Discovery	
Name of Inspector	
Person Responsible for Repair	
Description of Completed Repair	
Date of Repair Initiation	
Date of Repair Completion	
Additional Comments and Follow up Actions	

Why not sampling V&M for each well??

Table C-1

Groundwater Sampling Well Summary for GMZ and CAMU

IEPA Well Number	MPC Well Number	Sampling Parameters	Ground Surface Elevation (ft MSL)[1]	Top of Casing Elevation (ft MSL)[1]	Stick-up Height (ft)[2]	Well Bottom Elevation (ft MSL)[3]	Top of Screened Interval Elevation (ft MSL)[3]	Well Depth (ft bgs)[2]	Screen Length (ft)[2]
"A" Groundwater Monitoring Wells									
G06S	MW-6A	V	754.88	758.74	3.86	742.1	747.1	12.8	5.0
G07S	MW-7A	V	753.94	756.19	2.25	740.7	745.7	13.2	5.0
G08S	MW-8A	V	758.99	762.21	3.22	741.4	746.4	17.6	5.0
G09S	MW-9A	M	769.72	772.64	2.92	745.8	755.8	23.9	10.0
G10S	MW-10A	M	765.17	767.73	2.56	743.8	753.8	21.4	10.0
G11S	MW-11A		755.43	757.56	2.13	742.7	747.7	12.7	5.0
G12S	MW-12A	M	753.84	756.75	2.91	741.6	746.6	12.2	5.0
G13S	MW-13A	M	753.14	756.28	3.14	740.9	745.9	12.2	5.0
G14S	MW-14A R?!	M	757.92	760.58	2.66	741.6	751.6	16.3	10.0
G15S	MW-15A	M	756.28	759.30	3.02	744.1	749.1	12.2	5.0
G17S	MW-17A		756.46	758.79	2.33	738.8	743.8	17.7	5.0
G18S	MW-18A		755.25	757.40	2.15	738.6	743.6	16.7	5.0
G19S	MW-19A		755.46	757.71	2.25	740.7	745.7	14.8	5.0
GA1S	MW-21A	M	772.88	772.68	-0.20	747.2	757.2	25.7	10.0
GA2S	MW-22A	M	774.16	773.79	-0.37	748.8	758.8	25.4	10.0
"B" Groundwater Monitoring Wells									
G06U	MW-6B		754.91	758.91	4.00	727.5	737.5	27.4	10.0
G07U	MW-7B		754.02	756.32	2.30	726.2	736.2	27.8	10.0
G11U	MW-11B		755.31	757.40	2.09	727.3	737.3	28.0	10.0
G12U	MW-12B	V	753.74	755.60	1.86	725.6	735.6	28.1	10.0
G13U	MW-13B	V	753.15	755.05	1.90	724.8	734.8	28.4	10.0
G14U	MW-14B	V	759.00	762.14	3.14	736.6	741.6	22.4	5.0
G15U*	MW-15B*	VM	756.34	759.21	2.87	724.6	734.6	31.7	10.0
G17U*	MW-17B*	VM	756.56	759.00	2.44	719.3	729.3	37.3	10.0
G18U*	MW-18B*	VM	755.18	757.19	2.01	717.3	727.3	37.9	10.0
G19U	MW-19B	VM	755.25	756.79	1.54	717.9	727.9	37.4	10.0
GA3U	MW-23B	VM	755.01	757.68	2.67	735.0	745.0	20.0	10.0
"C" Groundwater Monitoring Wells									
G05M	MW-5C	V	778.56	780.85	2.29	755.1	760.1	23.5	5.0
G06M	MW-6C	V	755.63	757.01	1.38	710.9	715.9	44.7	5.0
G07M	MW-7C		753.74	756.13	2.39	713.3	718.3	40.4	5.0
G08M	MW-8C	V	757.03	760.06	3.03	682.7	687.7	74.3	5.0
G11M	MW-11C	V	755.16	755.98	0.82	688.8	693.8	66.4	5.0
G12M	MW-12C		753.87	756.33	2.46	700.6	705.6	53.3	5.0
G13M	MW-13C		753.41	756.30	2.89	669.0	674.0	84.4	5.0
G14M	MW-14C	V	759.02	760.96	1.94	678.3	683.3	80.7	5.0
G15M*	MW-15C*	VM	756.11	757.94	1.83	652.7	657.7	103.4	5.0
G16M*+	MW-16C*+	VM	781.72	781.39	-0.33	754.6	764.6	27.1	10.0
G17M*	MW-17C*	VM	756.48	759.02	2.54	648.0	653.0	108.5	5.0
G19M*	MW-19C*	VM	755.60	757.77	2.17	644.6	649.6	111.0	5.0
GA0M	MW-20C	M	766.84	769.02	2.18	742.3	752.3	24.5	10.0
GA1M	MW-21C		772.88	772.68	-0.20	717.5	722.5	55.4	5.0
GA2M	MW-22C		774.23	773.84	-0.39	713.5	718.5	60.7	5.0
GA3M*	MW-23C*	VM	754.91	757.78	2.87	720.9	725.9	34.0	5.0
G05L	MW-5D	M	778.45	779.95	1.50	739.5	749.5	39.0	10.0
G07L	MW-7D	V	753.82	756.50	2.68	703.3	713.3	50.5	10.0
G17L*	MW-17D*	VM	756.42	758.91	2.49	634.8	644.8	121.6	10.0
G18L*	MW-18D*	VM	754.99	757.33	2.34	608.0	618.0	147.0	10.0
G19L*	MW-19D*	VM	755.28	757.57	2.29	604.7	614.7	150.6	10.0
G11D	MW-11E		755.23	755.77	0.54	655.8	665.8	99.4	10.0
G12D	MW-12E		753.71	756.62	2.91	666.3	676.3	87.4	10.0
G13D	MW-13E		753.28	755.67	2.39	635.8	645.8	117.5	10.0
G14D	MW-14E		758.30	761.52	3.22	644.7	654.7	113.6	10.0
River Sampling Points									
S201	PR-1	VM							
S102	PR-2	VM							

PR-2+

Notes:

Prepared by: HLH
Checked by: RLPI

* = denotes groundwater management zone (GMZ) wells

+ = upgradient well

ft = feet ft bgs = feet below ground surface

IEPA = Illinois Environmental Protection Agency

M = Metal analysis is for cadmium, chromium, lead, and nickel.

MPC = Modern Plating Corporation

MSL = mean sea level

V = VOC analysis is for cis 1,2-dichloroethene, tetrachloroethene, trichloroethene, and vinyl chloride.

VOC = volatile organic compound

[1] Ground surface elevation, casing elevation from 2016 survey.

[2] Calculated from 2016 survey information. Well depth estimated using initial bottom of screen elevations.

[3] From original permit information and review of select well construction logs.

Field parameters include pH, specific conductance, and temperature and will be collected from wells sampled for VOCs or metals.

Groundwater elevations are collected from all wells during each sampling event. Sampling events occur on a semi-annual basis.

Table C-2
Groundwater Analytical Methods Summary

Parameter	Container	Preservative	Holding Temperature	Maximum Holding Time	Minimum Volume Requirement (ml)	Analytical Method
Metals						
Cadmium	Polyethylene	HNO_3	4°C	6 months	500	SW-846 6020A
Chromium	Polyethylene	HNO_3	4°C	6 months	500	SW-846 6020A
Lead	Polyethylene	HNO_3	4°C	6 months	500	SW-846 6020A
Nickel	Polyethylene	HNO_3	4°C	6 months	500	SW-846 6020A
VOCs						
cis-1,2-Dichloroethene	Glass, Teflon-lined cap	Not Preserved	4°C	7 days	40	SW-846 8260B
Tetrachloroethene	Glass, Teflon-lined cap	Not Preserved	4°C	7 days	40	SW-846 8260B
Trichloroethene	Glass, Teflon-lined cap	Not Preserved	4°C	7 days	40	SW-846 8260B
Vinyl Chloride	Glass, Teflon-lined cap	Not Preserved	4°C	7 days	40	SW-846 8260B

Notes:
HNO_3 = nitric acid
ml = milliliter
°C = degrees Celsius
VOCs = volatile organic compounds

Prepared by: HLH
Checked by: AKM

Table C-3

Groundwater Quality Results (µg/l)
Modern Plating Corporation
September 14-16, 2020

Monitoring Well	Cadmium (Total)	Chromium (Total)	Lead (Total)	Nickel (Total)	cis-1,2-Dichloroethene	Tetra-chloroethene	Trich-chloroethene	Vinyl Chloride
Class II Clean-Up Objective (ug/l)	50	1000	100	2000	200	25	25	10
MW-06A	-	-	-	-	<5	<5	<5	23
MW-07A	-	-	-	-	<5	<5	<5	11
MW-08A	-	-	-	-	540	<5	43	15
MW-09A	510	290	<1	330	-	-	-	-
MW-10A	1.2	33	<1	31	-	-	-	-
MW-12A	1.4	10	6.1	16	p	-	-	-
MW-12B	-	-	-	-	8.5	<5	8.1	<2
MW-13A	<1	<4	2	12	-	-	-	-
MW-13B	-	-	-	-	<5	12	<5	<2
MW-14A	<1	140	1.4	16	-	-	-	-
MW-14B	-	-	-	-	<5	11	7.3	<2
MW-15A	2.1	44	1.7	360	-	-	-	-
MW-15B	<1	<4	<1	<5	<5	<5	<5	<2
MW-17B	<1	<4	1.2	<5	<5	<5	<5	<2
MW-18B	<1	<4	<1	<5	37	<5	<5	9.1
MW-19B	<1	<4	<1	<5	21	<5	<5	20
MW-21A	8.4	43	16	35	-	-	-	-
MW-22A	61	9.6	3.3	53	-	-	-	-
MW-23B	<1	44	3.1	9.1	17	<5	<5	<2
Class I Clean-Up Objective (ug/l)	5	100	7.5	100	70	5	5	2
MW-05C	-	-	-	-	<5	<5	<5	<2
MW-05D	<1	2100	4.2	640	-	-	-	-
MW-06C	-	-	-	-	<5	6.1	<5	<2
MW-07D	-	-	-	-	<5	9.4	<5	<2
MW-08C	-	-	-	-	-	-	-	-
MW-11C	-	-	-	-	12	<5	<5	19
MW-14C	-	-	-	-	<5	<5	<5	<2
MW-15C	<1	<4	<1	<5	<5	<5	<5	17
MW-16C	<1	38	15	18	<5	<5	<5	<2
MW-17C	<1	<4	1.1	<5	<5	<5	<5	<2
MW-17D	<1	<4	<1	<5	<5	<5	<5	3.2
MW-18D	<1	26	2.3	32	<5	<5	<5	<2
MW-19C	<1	<4	<1	<5	<5	<5	<5	<2
MW-19D	<1	5.6	1.6	<5	<5	<5	<5	<2
MW-20C	<1	7200	7.9	430	-	-	-	-
MW-23C	<1	25	2.1	12	27	<5	<5	4

Note: MW-08C was obstructed at 2.61'

ND : Compound Not Detected

< = not detected above detection limits

µg/L = micrograms per liter

Prepared by: SGL

Checked by: DAT

Table C-4
Maximum Historically Groundwater Concentrations
Modern Plating Corporation
2004-2020

VOCs

cis-1,2-Dichloroethene (ug/L)				Tetrachloroethene (ug/L)			
Well ID	**Date**	**Concentration**		**Well ID**	**Date**	**Concentration**	
MW-05C	8/17/2011	<	20	MW-05C	8/22/2012		**42.6**
MW-06A	2/16/2004		130	MW-06A	2/27/2006		5
MW-06C	12/6/2019		16	MW-06C	5/30/2014		9.8
MW-07A	8/23/2004		20	MW-07A	9/15/2020	<	5
MW-07D	2/27/2006		2.9	MW-07D	3/15/2016		16
MW-08A	9/24/2019		**760**	MW-08A	6/22/2020		5.2
MW-08C	8/24/2004		15	MW-08C	3/6/2017		15
MW-11C	8/24/2010		20	MW-11C	9/15/2020	<	5
MW-12B	3/7/2005		87	MW-12B	3/1/2011		1.5
MW-13B	8/7/2006		33	MW-13B	9/15/2020		12
MW-14B	2/28/2006		13	MW-14B	9/23/2019		18
MW-14C	8/23/2010		2.5	MW-14C	9/15/2020	<	5
MW-15B	8/29/2005		6.4	MW-15B	8/7/2006		0.99
MW-15C	8/23/2004		12	MW-15C	9/15/2020	<	5
MW-16C	8/15/2011	<	20	MW-16C	9/16/2020	<	5
MW-17B	3/9/2005		4.2	MW-17B	9/14/2020	<	5
MW-17C	8/26/2004	Dup.	12	MW-17C	9/14/2020	<	5
MW-17D	2/18/2004		13	MW-17D	9/14/2020	<	5
MW-18B	4/29/2009		62	MW-18B	9/14/2020	<	5
MW-18D	8/23/2010		1.2	MW-18D	9/14/2020	Dup. <	5
MW-19B	3/12/2007		250	MW-19B	8/30/2005	<	6.8
MW-19C	3/18/2015		28	MW-19C	9/14/2020	<	5
MW-19D	8/23/2010		1	MW-19D	9/14/2020	<	5
MW-23B	3/9/2005		60	MW-23B	3/12/2007		0.84
MW-23C	2/19/2004		140	MW-23C	3/2/2011		1.6
PR-1	8/23/2010		0.95	PR-1	9/15/2020	<	5
PR-2	8/23/2010		0.85	PR-2	9/15/2020	<	5

Maximum Historically Groundwater Concentrations
Modern Plating Corporation
2004-2020

Trichloroethene (ug/L)				Vinyl Chloride (ug/L)			
Well ID	Date	Concentration		Well ID	Date	Concentration	
MW-05C	8/22/2012		9.56	MW-05C	9/16/2020	<	2
MW-06A	2/27/2006		25	MW-06A	8/23/2004		**170**
MW-06C	12/6/2019		22	MW-06C	2/27/2006		4.4
MW-07A	8/31/2009		0.63	MW-07A	9/17/2007		40
MW-07D	8/23/2004		45	MW-07D	8/16/2011		2.1
MW-08A	2/17/2004		**410**	MW-08A	8/24/2004		75
MW-08C	3/12/2007		27	MW-08C	8/24/2004		0.53
MW-11C	12/5/2019		16	MW-11C	6/25/2020		23
MW-12B	3/7/2005		24	MW-12B	8/29/2005		25
MW-13B	8/23/2004		47	MW-13B	8/7/2006		15
MW-14B	2/17/2004		58	MW-14B	8/24/2004		1.2
MW-14C	9/17/2007		3.8	MW-14C	9/15/2020	<	2
MW-15B	8/29/2005		150	MW-15B	8/19/2008 Dup.		0.2
MW-15C	8/29/2005		0.28	MW-15C	3/17/2015		21
MW-16C	9/16/2020	<	5	MW-16C	9/16/2020	<	2
MW-17B	9/14/2020	<	5	MW-17B	9/14/2020	<	2
MW-17C	9/1/2009		0.23	MW-17C	2/7/2012 Dup.		4.59
MW-17D	9/14/2020	<	5	MW-17D	9/14/2020		3.2
MW-18B	9/14/2020	<	5	MW-18B	4/29/2009		36
MW-18D	9/14/2020 Dup.	<	5	MW-18D	9/14/2020	<	2
MW-19B	9/14/2020	<	5	MW-19B	9/18/2007		62
MW-19C	9/14/2020	<	5	MW-19C	3/18/2015		34
MW-19D	9/14/2020	<	5	MW-19D	9/14/2020	<	2
MW-23B	3/9/2005		7.3	MW-23B	9/15/2020 Dup.	<	2
MW-23C	2/19/2004		17	MW-23C	6/23/2020		5.7
PR-1	9/15/2020	<	5	PR-1	9/15/2020	<	2
PR-2	9/15/2020	<	5	PR-2	9/15/2020	<	2

Maximum Historically Groundwater Concentrations
Modern Plating Corporation
2004-2020

Metals

Cadmium (ug/L)			Chromium (ug/L)		
Well ID	**Date**	**Concentration**	**Well ID**	**Date**	**Concentration**
MW-05D	3/14/2007	4.9	MW-05D	3/16/2016	20000
MW-09A	3/1/2006	**2900**	MW-09A	3/16/2016 Dup.	460
MW-10A	9/20/2016	18	MW-10A	6/6/2013	370
MW-12A	8/31/2015	6.8	MW-12A	3/14/2016	33
MW-13A	9/17/2007	15	MW-13A	8/16/2011	7.5
MW-14A	8/30/2005	3.7	MW-14A	2/7/2012	346
MW-15A	8/15/2011	10	MW-15A	2/16/2004	860
MW-15B	8/31/2009	19	MW-15B	9/10/2007	20
MW-15C	9/10/2007	3.6	MW-15C	2/17/2010	63
MW-16C	5/14/2014 Dup.	3.9	MW-16C	2/16/2004 Dup.	240
MW-17B	9/16/2014	3.2	MW-17B	9/1/2009	20
MW-17C	9/20/2016	4.7	MW-17C	8/20/2008	41
MW-17D	9/20/2016	3	MW-17D	8/22/2012	36.9
MW-18B	8/31/2015 Dup.	2.9	MW-18B	3/14/2016	22
MW-18D	9/20/2018	2.8	MW-18D	9/14/2020 Dup.	36
MW-19B	3/8/2005	3.4	MW-19B	9/1/2009 Dup.	20
MW-19C	9/6/2017	2.7	MW-19C	9/1/2009	21
MW-19D	3/8/2005	5	MW-19D	3/7/2017	56
MW-20C	9/10/2007	9.3	MW-20C	3/8/2017	**36000**
MW-21A	8/24/2004	170	MW-21A	3/2/2011	390
MW-22A	8/9/2006	890	MW-22A	3/17/2015	85
MW-23B	9/6/2017	1	MW-23B	3/15/2016	2800
MW-23C	3/17/2015	2.8	MW-23C	3/12/2007	4900
PR-1	3/10/2008	1.4	PR-1	3/12/2007	22
PR-2	8/8/2006	1.4	PR-2	8/8/2006	20

Maximum Historically Groundwater Concentrations
Modern Plating Corporation
2004-2020

Lead (ug/L)			Nickel (ug/L)		
Well ID	**Date**	**Concentration**	**Well ID**	**Date**	**Concentration**
MW-05D	3/16/2016	62	MW-05D	2/19/2004 Dup.	**8700**
MW-09A	3/1/2006	5.5	MW-09A	3/1/2006	1800
MW-10A	9/10/2007	2	MW-10A	5/14/2014	150
MW-12A	3/14/2016	24	MW-12A	6/23/2020	32
MW-13A	9/19/2013	7.4	MW-13A	9/17/2007	26
MW-14A	3/11/2008	38	MW-14A	3/11/2008	46
MW-15A	8/21/2012	5.89	MW-15A	9/15/2020	360
MW-15B	8/19/2008 Dup.	8.1	MW-15B	8/31/2009	160
MW-15C	2/6/2012	7.8	MW-15C	9/10/2007	21
MW-16C	2/16/2004 Dup.	**190**	MW-16C	8/7/2006 Dup.	180
MW-17B	3/10/2008	11	MW-17B	9/1/2009	20
MW-17C	8/8/2006	12	MW-17C	9/18/2007	19
MW-17D	2/28/2006	12	MW-17D	9/18/2007	18
MW-18B	2/18/2004	5.9	MW-18B	3/12/2007	24
MW-18D	8/8/2006	18	MW-18D	9/14/2020 Dup.	35
MW-19B	8/30/2005	20	MW-19B	9/1/2009 Dup.	22
MW-19C	2/7/2012	5.2	MW-19C	3/7/2017	12
MW-19D	6/23/2020	5.4	MW-19D	3/8/2005	510
MW-20C	3/16/2016	45	MW-20C	2/19/2010	3900
MW-21A	3/2/2011	26	MW-21A	8/24/2004	100
MW-22A	4/30/2009	22	MW-22A	8/9/2006	820
MW-23B	8/9/2006	12	MW-23B	3/15/2016	170
MW-23C	3/10/2008	30	MW-23C	9/20/2016	490
PR-1	3/12/2007	17	PR-1	3/12/2007	36
PR-2	8/8/2006	74	PR-2	8/8/2006	41

Notes:

Prepared by: SGL

Checked by: HLH

Dup = duplicate sample results

< = not detected above detection limits

ug/L = micrograms per liter

bold = highest historical concentration

Table F-1

Submittals to IEPA (1999-2020) on Corrective Action

Format	Recipient	Purpose of Document	Date	Author(s)	IEPA's Response
Letter	Rob Watson	Re: RCRA Part B Application for Proposed CAMU Proposal for Excavation of Wetland Soils During the Winter of 1999-2000 and Contingency for CAMU Volume	12/6/1999	Ron Meister Steve Laszewski	Response received on 12/29/1999. IEPA agrees that it would be advantageous to excavate wetlands soil during the winter of 1999-2000. IEPA also states that MPC should submit a permit modification to increase CAMU volume.
Letter	Karen Nachtwey	Re: Response to Items 6 and 7 *Final RCRA Closure Plan and Basis of Design Review Letter* – Work Plan for Investigation of Old Outfall and Sanitary Sewer Line	12/22/1999	Erik Silvola Janis S. Kesy	Response received on 2/9/2000. Response from the IEPA states that the information provided in the 12/22/1999 letter is adequate.
Letter	Rob Watson	Re: Modern Plating Corp CAMU Landfill Contingency Plan for Volume Increase	12/22/1999	Nandakumaran Paruvakat Ron Meister	Response received on 12/29/1999. Response from IEPA states that MPC should request a volume increase by submitting a permit modification request.
Fax	Terri Blake Myers	Re: Logs for MW-20C	1/6/2000	Tonia Clement	Additional well data received.
Fax	Rob Watson	Re: Modern Plating Corp CAMU Landfill, Contingency Plan for Volume Increase letter dated 12/22/1999	1/13/2000	Jim Hutchison	Landfill stability analysis for volume increase is adequate.
Letter	Joyce Munie	Re: RCRA Closure Modification Request	1/17/2000	Ron Meister Nandakumaran Paruvakat Steve Laszewski	Response received on 2/9/2000. Response from the IEPA approves the construction of a temporary storage unit.
Letter	Bruce Yurdin	Re: Responses to Comments on the Section 401 Water Quality Certification Application for the Modern Plating Corp, Removal of Hazardous Materials from Wetlands, Log #C-1597-99 (COE appl. #393470)	1/31/2000	Ron Meister Nandakumaran Paruvakat	
Letter	Joyce Munie	Re: Additional Comments on the Draft RCRA Part B Permit Application for Modern Plating Corp	3/10/2000	Ron Meister Nandakumaran Paruvakat Steve Laszewski	Responses addressed IEPA's comments.
LOT	Michael Dura	Re: Document Release Forms	3/23/2000	Ron Meister	Required forms provided.
Letter	Joyce Munie	Re: Request to Revise the Modern Plating Corp RCRA Part B Permit Application RCRA Log #B-167 and Comments on the Draft RCRA Part B Permit	4/5/2000	Ron Meister Nandakumaran Paruvakat Steve Laszewski	Single RCRA Part B permit placed on file.
Letter	Gary Wolf	Re: Modern Plating WWTP Application for Permit for Construction Approval	4/6/2000	John Fassbender	Construction approval granted to begin in May, 2000.
Letter	Karen Nachtwey	Re: Monitoring Well Installation Documentation, MW-23B and MW-23C	4/17/2000	Erik Silvola Janis S. Kesy	IEPA accept documentation of wells constructed along GMZ.
Letter	Joyce Munie	Re: Report on the Phase I Investigation of the Abandoned Outfall Pipeline at the Modern Plating Corp Property	5/5/2000	Ron Meister Janis S Kesy	Response received on 6/8/2000. Response from the IEPA indicates that the Phase II work plan has been accepted.
Letter	Joyce Munie	Re: Request for Revised RCRA Part B Permit for the Modern Plating Corp	5/17/2000	Ron Meister Steve Laszewski	Response received on 7/16/2001. Request for revising the permit were accepted following the conditions set forth in the response.

Format	Recipient	Purpose of Document	Date	Author(s)	IEPA's Response
Letter	Joyce Munie	Re: Phase II Investigation of the Abandoned Outfall Pipeline at the Modern Plating Corp Property, 17702000010-Stephenson County, Log No. C-259-M-9, RCRA Closure	7/7/2000	Janis S. Kesy Ron Meister	Response received on 8/8/2000. Response from the IEPA indicates that the Phase II work plan has been accepted.
Letter	Rob Watson	Re: Response to IEPA Request for Information Concerning Disposal in the CAMU Landfill of Remediation Waste from a Recent Release at the Modern Plating Corp	8/18/2000	Ron Meister Steve Laszewski	Response received on 9/19/2000. Response from the IEPA states that the recent release area will need to be classified as a SWMU.
Letter	Joyce Munie	Re: Construction Certification for Modern Plating Corp	11/1/2000	Marty Cieslik Ron Meister	Response received on 11/6/2000. Response from the IEPA approves the construction certification.
Fax	Kathy Geyer Rob Watson	Re: Phase 2 Certification Letter for the Modern Plating CAMU	11/1/2000	Marty Cieslik	Response received on 11/6/2000. Response from the IEPA states Phase 2 was constructed in accordance with the approved plans.
Letter	Rob Watson	Re: Status of Construction of the Modern Plating Corp CAMU Landfill	12/6/2000	Ron Meister	
Report	Joyce Munie	Re: Construction Certification for Modern Plating Corp., CAMU Landfill Phases 1 and 2	7/5/2001	Brian Stanul Ron Meister Marten Cieslik	Certification received under review by IEPA.
Report	Joyce Munie	Re: Closure Documentation Report for Modern Plating Corp.	8/3/2001	Marten Cieslik Brian Stanul Ron Meister	Closure Certification forms received and IEPA is reviewing closure documentation.
Letter	Joyce Munie	Re: RCRA Class 1* Permit Modification Request for the Modern Plating Corp.	10/29/2002	Ron Meister Marty Cieslik Steve Laszewski	Clarification and permit modification received and being review by IEPA.
Letter	Rob Watson	Re: Clarifications for the Modern Plating Corp July, 2001 CAMU Landfill Construction Documentation Report, and August, 2001 Closure Documentation Report	10/29/2002	Ron Meister Steve Laszewski	Clarification received and being reviewed by IEPA.
Letter	Rob Watson	Re: Clarifications for the Modern Plating Corp *Closure Documentation Report* (August 2001)	12/6/2002	Brian Stanul Marty Cieslik	Clarification received and being reviewed by IEPA.
Letter	Rob Watson	Re: Clarifications for the Modern Plating Corp *Closure Documentation Report* dated August, 2001	12/13/2002	Ron Meister	Clarification received and being reviewed by IEPA.
Letter	Joyce Munie	Re: RCRA Class 1* Permit Modification for the Modern Plating Corp	9/8/2003	Ron Meister Steve Laszewski	Modification requested, under review.
Email	Rob Watson	Re: Revised Post Closure Inspection and Maintenance Schedule	12/30/2003	Ron Meister	Modification requested, under review.
Email	Rob Watson	Re: Additional Information Requested for the Revised RCRA Part B Permit	12/30/2003	Ron Meister	Modification requested, under review.
Letter	Joyce Munie	Re: RCRA Class 1* Permit Modification Request for the Modern Plating Corp	10/31/2008	Ron Meister Nandakumaran Paruvakat Steve Laszewski	Permit modification for post-closure permit received on May 7, 2009.
Letter	Amy Boley	Re: Groundwater Management Zone Re-evaluation RCRA Post-Closure Permit IEPA#1770200010 Modern Plating Corporation, Freeport, Illinois	6/2/2009	Ron Meister Steve Lehrke	
Letter	Stephen Nightengale, IEPA	RE: Notice of Deficiency Response - Renewal Application for RCRA Part B Post-Closure Permit	3/1/2010	Andrea Martin Ron Meister	IEPA granted a RCRA post-closure permit renewal for CAMU 6/9/11

Format	Recipient	Purpose of Document	Date	Author(s)	IEPA's Response
Letter	Rob Watson, IEPA	RE: RCRA Part B Post-Closure Permit Renewal Application, Response to Notice of Deficiency Dated January 12, 2010, 1st Completeness Review	3/30/2010	Andrea Martin Ron Meister	IEPA granted a RCRA post-closure permit renewal for CAMU 6/9/11
Letter	Rob Watson	Modern Plating Coipomtiori, Freeport IL tEPA #1770200010, Lzig No. 167R RCRA Part B Post-Closure Permit Renewal Application Response to Notice of Deficiency Dated January 12, 2010, I* Completeness Review	3/30/2010	Andrea Martin Ron Meister	IEPA granted a RCRA post-closure permit renewal for CAMU in letter dated 6/9/11
Letter	Stephen Nightingale	Draft Environmental Land Use Control	3/30/2010	Andrea Martin Ron Meister	IEPA approved a draft ELUC in a letter dated 5/3/10 to modify the RCRA corrective action program and requested conditions and modifications
Letter	Stephen Nightingale	Environmental Land Use Control	6/10/2010	Andrea Martin Ron Meister	IEPA approved a ELUC in a letter dated 7/22/10 to modify the RCRA corrective action program with restrictions listed
Letter	Amy Bolcy, IEPA	RE: Class I* Modification Request - Analysis of Impacts to MW-20C at Modern Plating Corporation, Freeport, Illinois	10/4/2011	Ron Meister Steve Lehrke	
Letter	Ed Wagner	Resubmittal of Corrective Action Certification Form LPC 632 Groundwater Management Zone Re-evaluation Log-in No. B167RCA1 RCRA Post-Closure Permit IEPA#1770200010 Modern Plating Corporation, Freeport, Illinois	9/12/2019	Richard Panosh Steve Laszewski	IEPA responded to letters sent on 6/23/2020 and 8/28/2020 in a letter dated 10/16/2020 accepting the revised GMZ re-evaluation
Letter	Rebecca DeMay	Groundwater Management Zone Re-evaluation RCRA Post-Closure Permit IEPA#1770200010 Modern Plating Corporation, Freeport, Illinois	5/31/2019	Richard Panosh Steve Lehrke	IEPA responded to letters sent on 6/23/2020 and 8/28/2020 in a letter dated 10/16/2020 accepting the revised GMZ re-evaluation
Letter	Kenn Smith	Request for Extension Groundwater Management Zone Re-evaluation and Related Requirements Log No. B-167R-CA-1 RCRA Post-Closure Permit IEPA#1770200010 Modern Plating Corporation, Freeport, Illinois	4/3/2020	Rick Panosh Steve Laszewski	IEPA accepted request for extension in a letter from Kenneth Smith dated 5/5/2020
Letter	Kenn Smith	Revised Groundwater Management Zone Re-evaluation Log-in No. B167RCA1 RCRA Post-Closure Permit IEPA#1770200010 Modern Plating Corporation, Freeport, Illinois	6/23/2020	Rick Panosh Steve Laszewski	IEPA responded to letters sent on 6/23/2020 and 8/28/2020 in a letter dated 10/16/2020 accepting the revised GMZ re-evaluation
Letter	Kenn Smith	Addendum to Revised Groundwater Management Zone Re-evaluation Log No. B-167R-CA-3 RCRA Post-Closure Permit IEPA#1770200010 Modern Plating Corporation, Freeport, Illinois	8/28/2020	Rick Panosh Andrea Martin	IEPA responded to letters sent on 6/23/2020 and 8/28/2020 in a letter dated 10/16/2020 accepting the revised GMZ re-evaluation

Prepared by: KMC2
Checked by: HLH

Table F-2
Summary of Remedial Actions

Management Unit	Unit Type	Waste Type	Estimated Quantity	Remedial Status
Cynaide Vault	SWMU	Concrete and Soil contaminated with Cyanide	200 CY	Closed July 20, 2000. Waste placed in CAMU.
Shawnee Building	HWMU	Concrete and Soil contaminated with metals and TCE	30 CY	Closed July 21, 2000. Waste placed in CAMU.
Outfall Pipeline	N/A	Organic silty clays contaminated with metals	67 CY	Closed October 31, to November 2, 2000. Waste placed in CAMU.
Wetland No. 1	SWMU	Organic silty clays contaminated with metals	1,050 CY	Closed December 28, 2000 to January 3, 2001. Waste placed in CAMU.
Wetland No. 1A	SWMU	Organic silty clays contaminated with metals	95 CY	Closed November 2, to December 1, 2000. Waste placed in CAMU.
Wetland No. 2	SWMU	Organic silty clays contaminated with metals	625 CY	Closed December 28, 2000 to January 3, 2001. Waste placed in CAMU.
Wetland No. 3	SWMU	Organic silty clays contaminated with metals	1,080 CY	Closed December 18, to December 27, 2000. Waste placed in CAMU.
Lagoon No. 0	SWMU	Fill, Soil, Cyanide Sludges, Zinc, Cadmium and Copper Strippings. May contain TCE. Sludges treated with oil dry, lime, and sand. (F006 and F002)	2,880 CY	Closed November 28, to November 30, 2000. Waste placed in CAMU.
Lagoon No. 1	HWMU	Electroplating Sludge (F006)	3,760 CY	Closed December 18, 2000 to January 5, 2001. Approximately 125 tons of lime kiln dust added to stabilize wet sludge. Waste placed in CAMU.
Lagoon No. 1A	SWMU	Electroplating Sludge (F006)	1,910 CY	Closed November 27, to December 1, 2000. Waste placed in CAMU.
Lagoon No. 2	HWMU	Electroplating Sludge (F006)	4,750 CY	Closed December 18, 2000 to January 5, 2001. Waste placed in CAMU.
Lagoon No. 3	HWMU	Electroplating Sludge (F006 and F002)	4,750 CY	Closed December 18, 2000 to January 5, 2001. Approximately 125 tons of lime kiln dust added to stabilize wet sludge. Waste placed in CAMU.

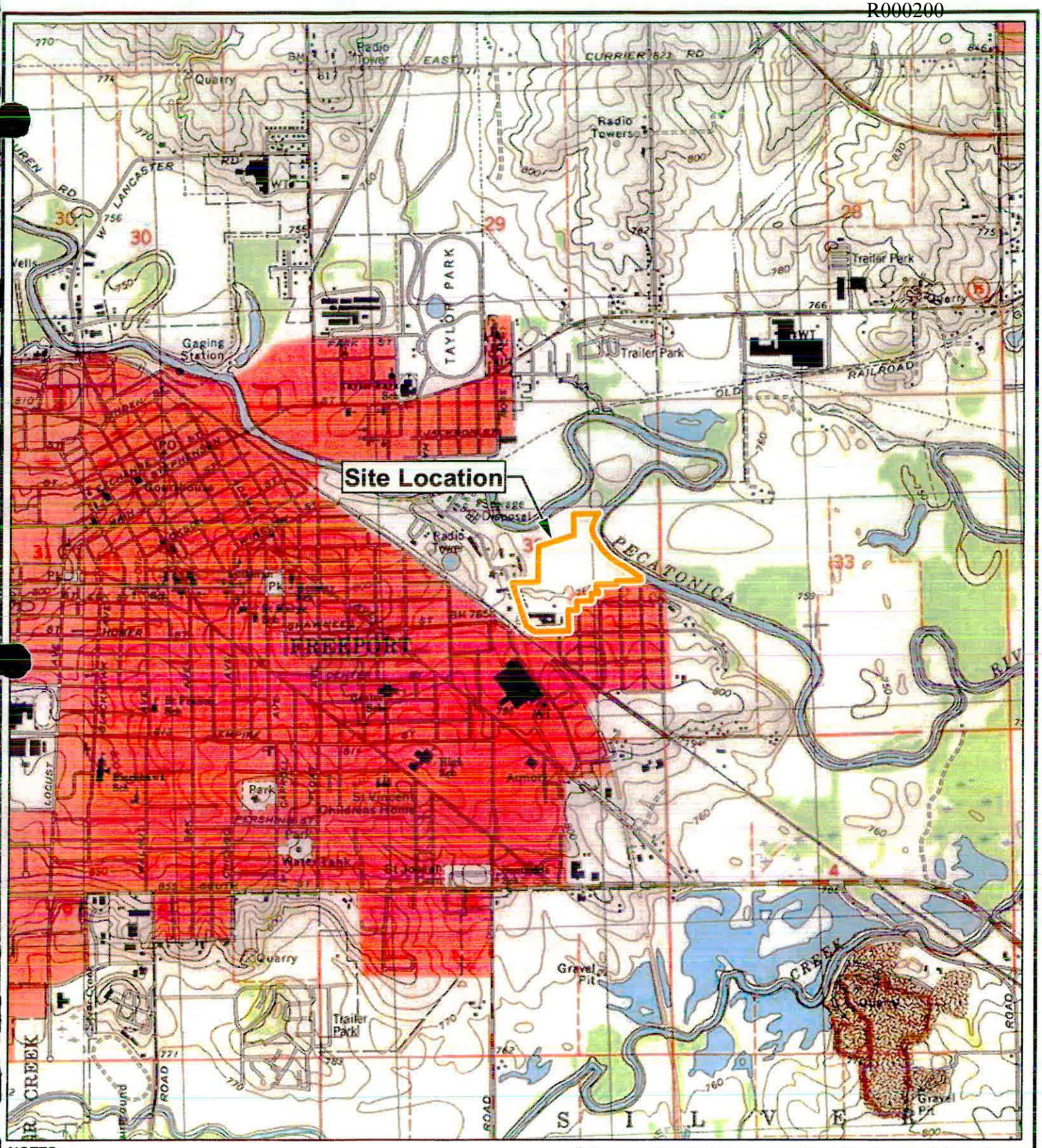
Notes:
HWMU = hazardous waste management unit
SWMU = solid waste management unit
CY = cubic yards
CAMU = corrective action management unit

Prepared by: BJS1
Checked by: HLH

Attachment 2

Figures

Figures



NOTES:

1. Topographic basemap from Esri.com, courtesy of the National Geographic Society and i-cubed.

This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information and data used for reference purposes only.

0 1,000 2,000 Feet

N

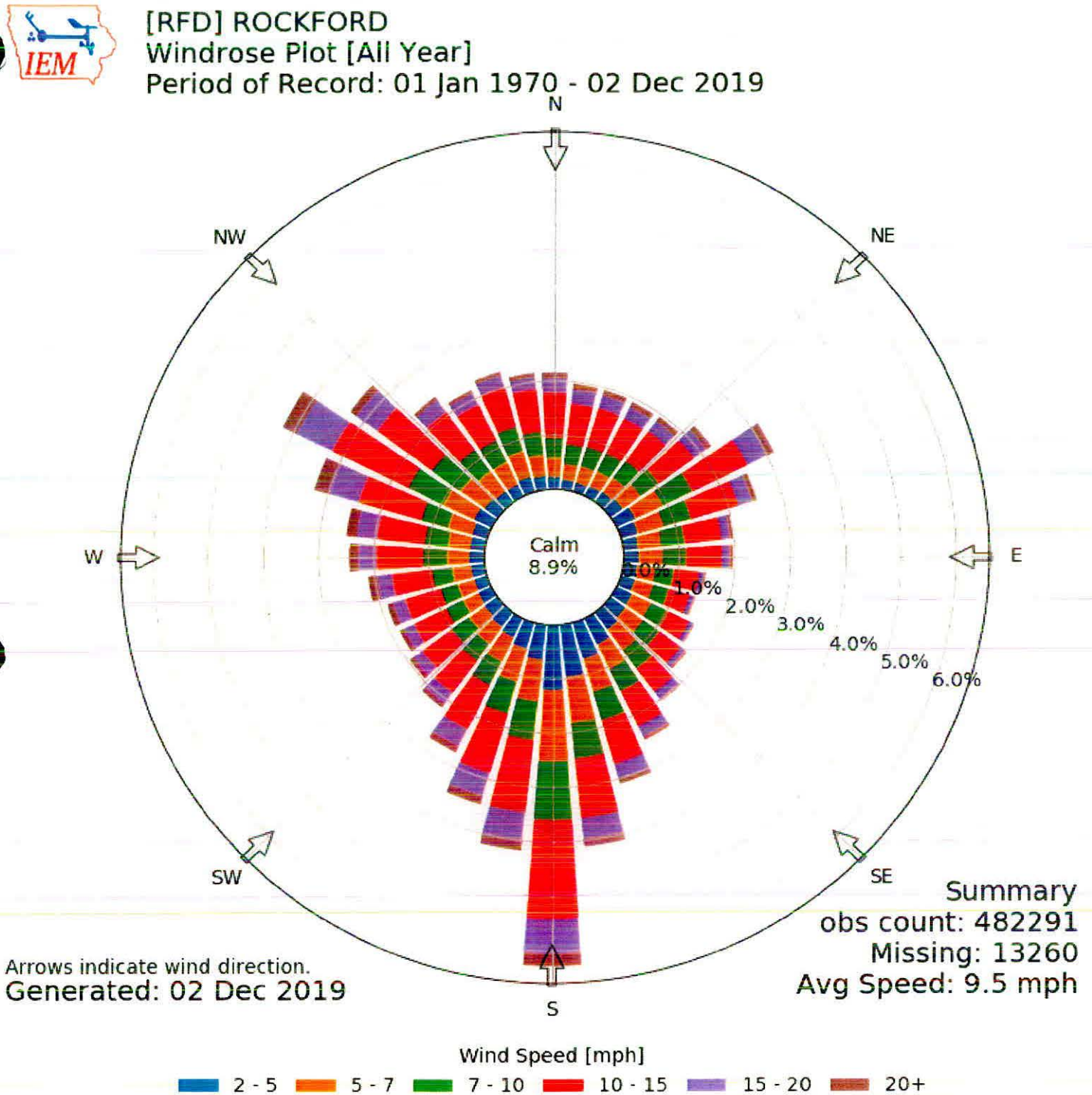
MODERN PLATING CORPORATION

FIGURE B-1

SITE LOCATION MAP
MODERN PLATING CORPORATION
701 SOUTH HANCOCK AVENUE
FREEPORT, IL 61032

Date: DECEMBER 2020	Revision Date:	
Drawn By: BJW1	Checked By: HLH	Project: 20M114

Path: Q:\Modern Plating\20M114\GIS\mxd\RCRA Part B Permit Application\Figure B-1 Site Location Map.mxd Date: 12/21/2020



NOTES:
1. Image from Iowa Environmental Mesonet.

This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information and data used for reference purposes only.

Foth

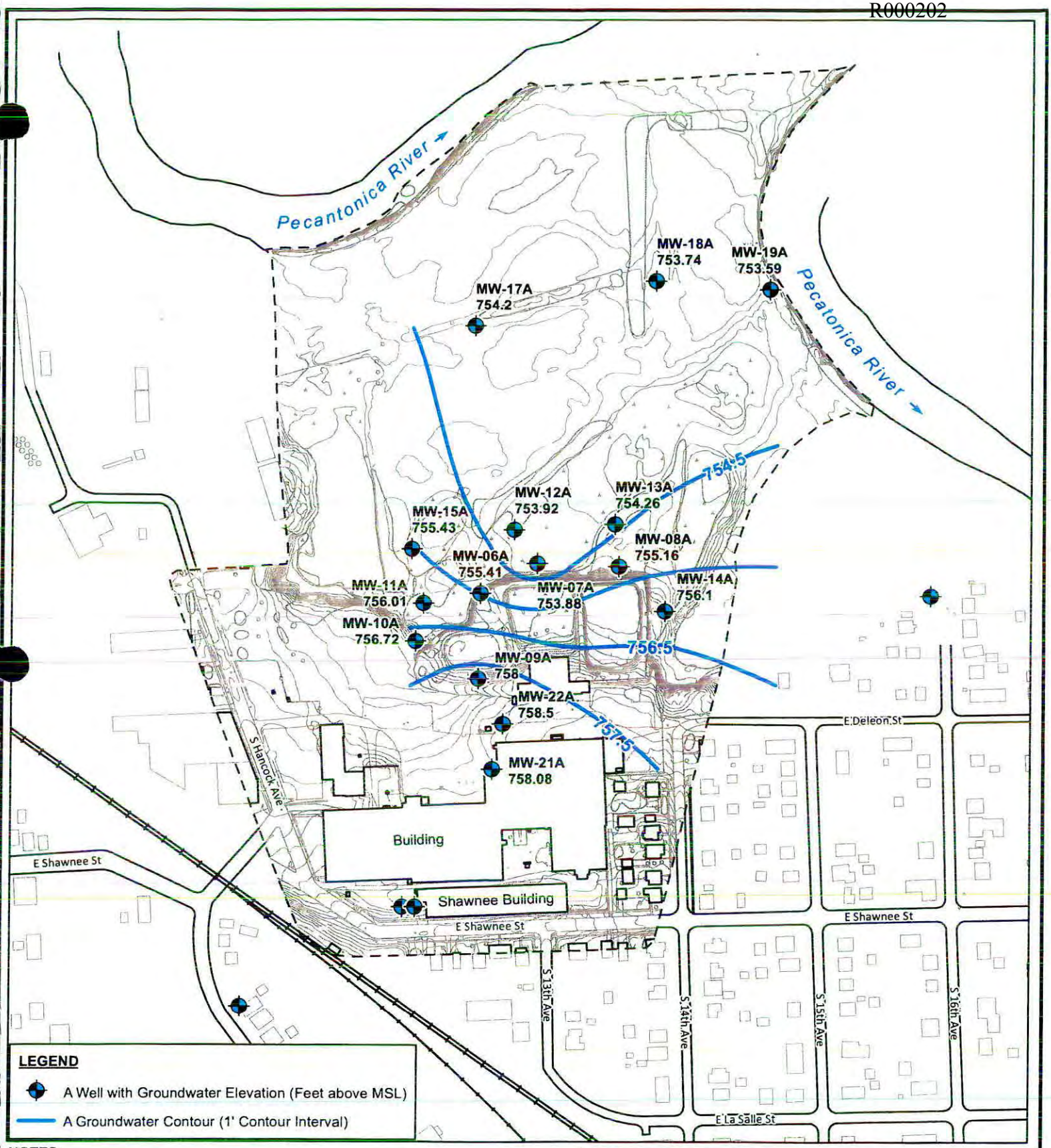
MODERN PLATING CORPORATION

FIGURE WR

WIND ROSE PLOT FOR
STATION #94822
ROCKFORD AIRPORT, ILLINOIS

SCALE: N/A	Date: DECEMBER 2020	Revision Date:	
	Drawn By: BJW1	Checked By: HLH	Project: 20M114

Path: Q:\Modern Plating\20M114\GIS\mxd\RCRA Part B Permit Application\Figure WR Wind Rose Plot.mxd Date: 12/21/2020



NOTES:
1.Horizontal coordinate system is NAD 1983 Illinois State Plane West Zone, units in US feet.

MODERN PLATING CORPORATION

FIGURE C-1

UPPER CONSOLIDATED AQUIFER
OCTOBER 2020 GROUNDWATER CONTOURS
A-WELLS

Foth

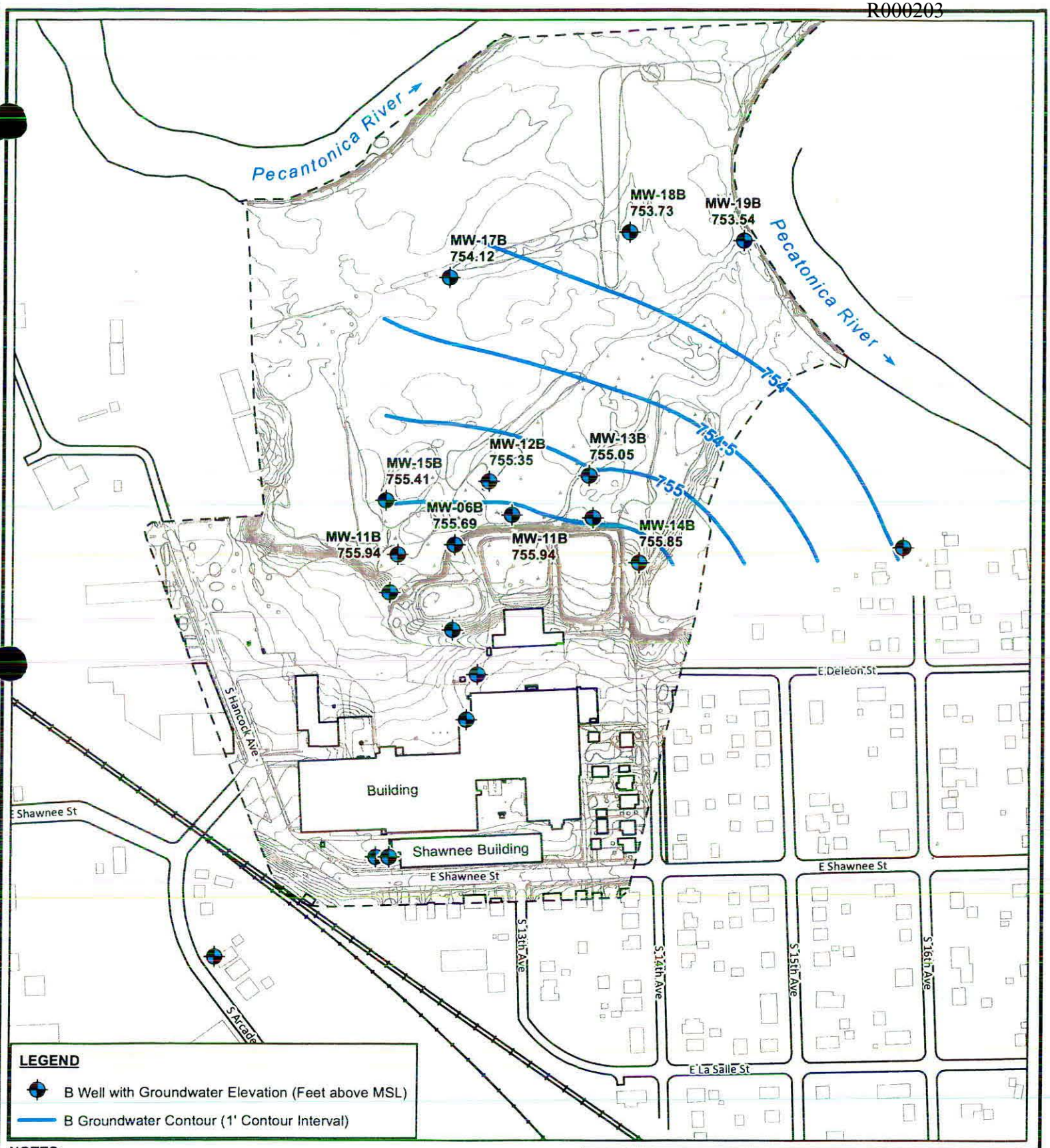
N

0 150 300 Feet

This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information and data used for reference purposes only.

Date: DECEMBER 2020	Revision Date:	
Drawn By: DAT	Checked By: HLH	Project: 20M114

Path: Q:\Modern Plating\20M114\GIS\mxd\RCRA Part B Permit Application\Figure C-1 Groundwater Contours A-Wells.mxd Date: 12/28/2020



NOTES:

1. Horizontal coordinate system is NAD 1983 Illinois State Plane West Zone, units in US feet.

MODERN PLATING CORPORATION

FIGURE C-2

UPPER CONSOLIDATED AQUIFER
OCTOBER 2020 GROUNDWATER CONTOURS
B-WELLS

Foth

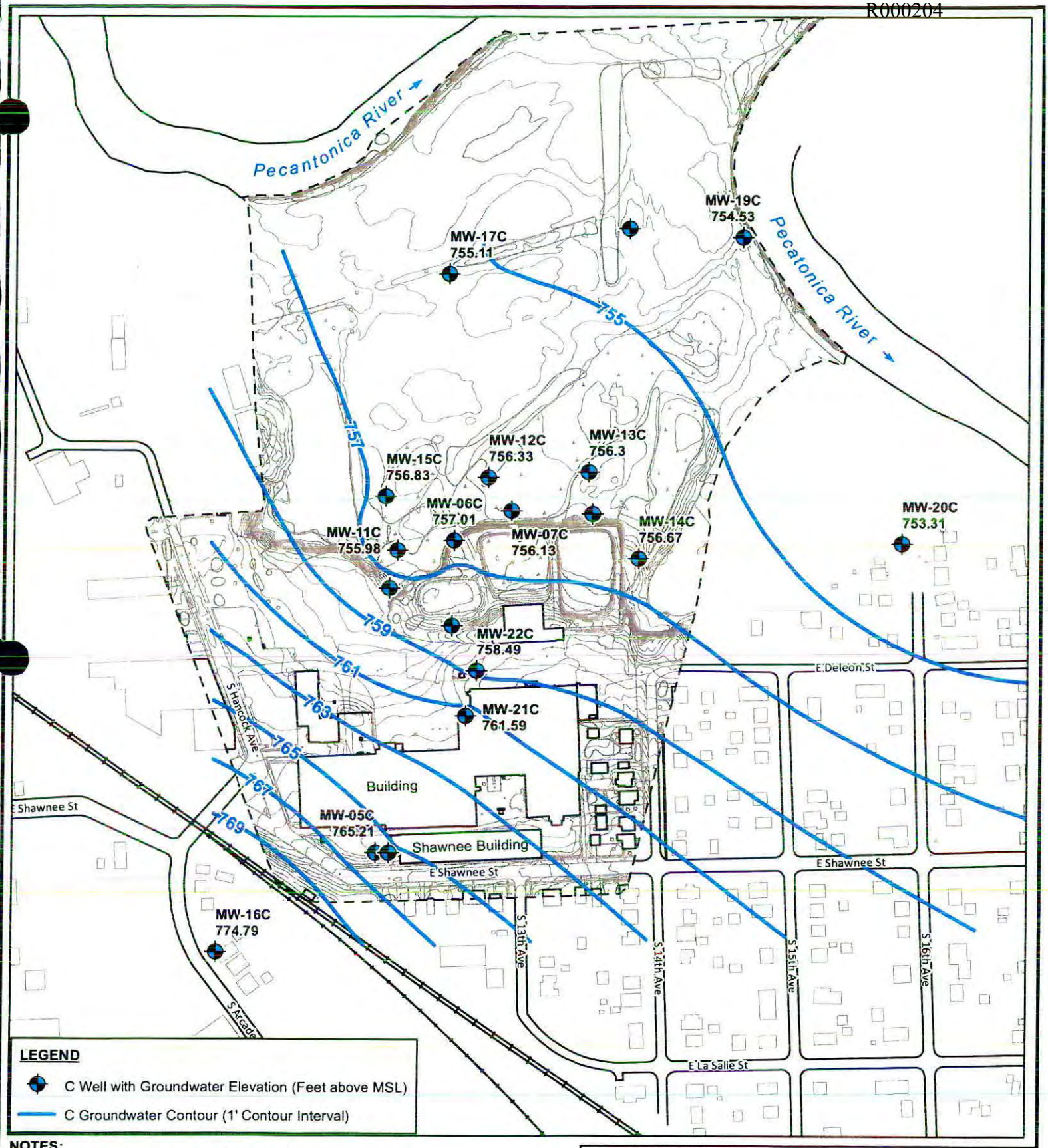
N

0 150 300 Feet

This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information and data used for reference purposes only.

Date: DECEMBER 2020	Revision Date:	
Drawn By: DAT	Checked By: HLH	Project: 20M114

Path: Q:\Modern Plating\20M114\GIS\mxd\RCRA Part B Permit Application\Figure C-2 Groundwater Contours B-Wells.mxd Date: 12/28/2020



NOTES:
1. Horizontal coordinate system is NAD 1983 Illinois State Plane West Zone, units in US feet.

MODERN PLATING CORPORATION

FIGURE C-3

UPPER CONSOLIDATED AQUIFER
OCTOBER 2020 GROUNDWATER CONTOURS
C-WELLS

Foth

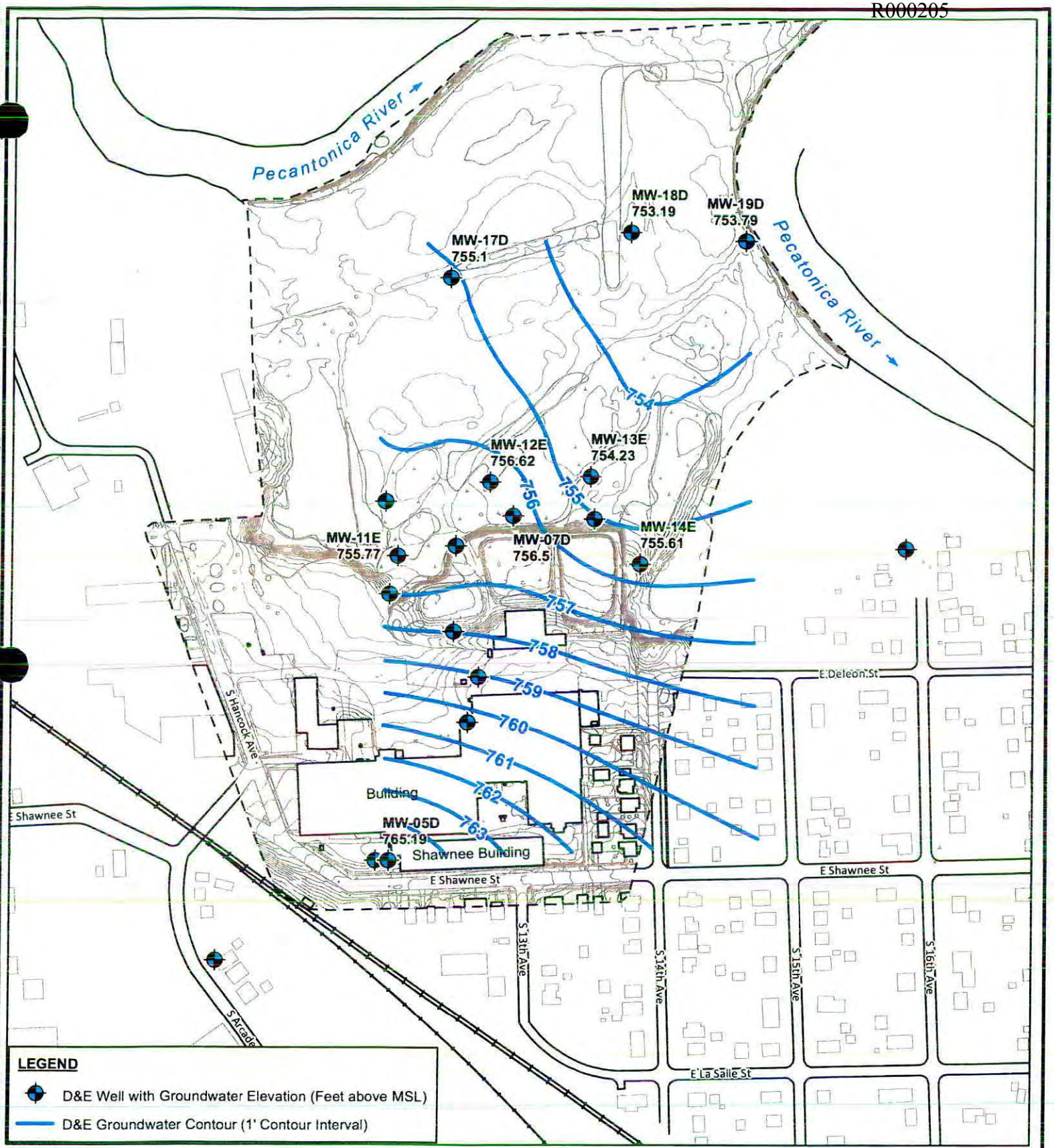
N

0 150 300 Feet

This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information and data used for reference purposes only.

Date: DECEMBER 2020	Revision Date:	
Drawn By: DAT	Checked By: HLH	Project: 20M114

Path: Q:\Modern Plating\20M114\GIS\mxd\RCRA Part B Permit Application\Figure C-3 Groundwater Contours C-Wells.mxd Date: 12/28/2020



NOTES:
1.Horizontal coordinate system is NAD 1983 Illinois State Plane West Zone, units in US feet.

Foth

N

0 150 300 Feet

This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information and data used for reference purposes only.

MODERN PLATING CORPORATION

FIGURE C-4

UPPER CONSOLIDATED AQUIFER
OCTOBER 2020 GROUNDWATER CONTOURS
D AND E WELLS

Date: DECEMBER 2020	Revision Date:	
Drawn By: DAT	Checked By: HLH	Project: 20M114

Path: Q:\Modern Plating\20M114\GIS\mxd\RCRA Part B Permit Application\Figure C-4 Groundwater Contours D&E-Wells.mxd Date: 12/28/2020

100+00 E
105+00 E
110+00 E
115+00 E
110+00 N
105+00 N
100+00 N
95+00 N

PR-2
PR-1
MW-18A
MW-18B
MW-18D
MW-19A
MW-19B
MW-19C
MW-19D
MW-17A
MW-17B
MW-17C
MW-17D
MW-12A
MW-12B
MW-12C
MW-12E
MW-13A
MW-13B
MW-13C
MW-13E
MW-15A
MW-15B
MW-15C
MW-7A
MW-7B
MW-7C
MW-7D
MW-8A
MW-8B
MW-8C
MW-11A
MW-11B
MW-11C
MW-11E
MW-6A
MW-6B
MW-6C
MW-10A
LAGOON NO. 1
LAGOON NO. 1A
LAGOON NO. 2
LAGOON NO. 3
LAGOON NO. 0
MW-14A
MW-14B
MW-14C
MW-14E
MW-9A
MW-22A
MW-22C
BM
CYANIDE VAULT
2018 BUILDING ADDITION
MW-21A
MW-21C
BUILDING
HANCOCK AVENUE
MW-5C
MW-5D
FORMER SHAWNEE BUILDING
(SEE NOTE 5)
MW-16C
EXISTING CAMU
GMZ
MW-20C
MW-23B
MW-23C
APPROXIMATE PROPERTY BOUNDARY

N

LEGEND

- EXISTING BUILDING
- 750 — EXISTING GROUND CONTOUR
- X 759.4 — EXISTING SPOT ELEVATION
- DEPRESSION
- TREES AND / OR BRUSH
- EXISTING ROADWAY
- EXISTING TRAIL
- MARSH/SWAMP SYMBOL
- WATER BOUNDARY
- EXISTING FENCE
- MW-9A — MONITORING WELL
- BM — CONTROL MONUMENT
- APPROXIMATE PROPERTY LINE
- APPROXIMATE BOUNDARY OF FORMER SLUDGE LAGOONS
- CAMU BOUNDARY
- WETLAND AREA
- APPROXIMATE LIMITS OF GROUNDWATER MANAGEMENT ZONE (GMZ)
- APPROXIMATE LIMITS OF NOVEMBER 28, 1986 TOPOGRAPHICAL MAP PREPARED BY AERO-METRIC ENGINEERING, SHEBOYGAN, WI.
- PR-1 — PECATONICA RIVER SAMPLING POINT NUMBER AND LOCATION
- MW-19C / MW-19D — GMZ BOUNDARY WELL
- SHIPPING AND RECEIVING LOCATION

NOTES:

1. SITE LOCATION: SE ¼ OF SECTION 32, T27N, R8E, STEPHENSON COUNTY, ILLINOIS
2. AREA INSIDE DASHED LINE IS TOPOGRAPHIC BASE MAP PREPARED BY AERO-METRIC ENGINEERING, SHEBOYGAN, WISCONSIN. DATE OF PHOTOGRAPHY: NOVEMBER 28, 1986. AREA OUTSIDE DASHED LINE SCANNED AND DIGITIZED BY FOTH & VAN DYKE FROM AIR PHOTOS BY THE SIDWELL CO., 1992 AND CONTOURS ON THE FREEPORT EAST U.S.G.S 7.5 MINUTE TOPOGRAPHIC QUADRANGLE.
3. ELEVATIONS BASED ON MEAN SEA LEVEL DATUM. CONTROL INTERVAL IS ONE FOOT. BENCH MARK IS LOCATED ON THE NW CORNER OF THE PUMP STATION CONCRETE SLAB, COORDINATES N 10046.1 E 10491.0 AT ELEVATION 773.82 FEET.
4. GMZ BOUNDARY WELLS ARE MW-15B, MW-15C, MW-16C, MW-17B, MW-17C, MW-17D, MW-18B, MW-18D, MW-19C, MW-19D, MW-23B, MW-23C.
5. MW-16C IS OFF OF THE MPC PROPERTY.

Foth

0' 100' 200'
BAR SCALE

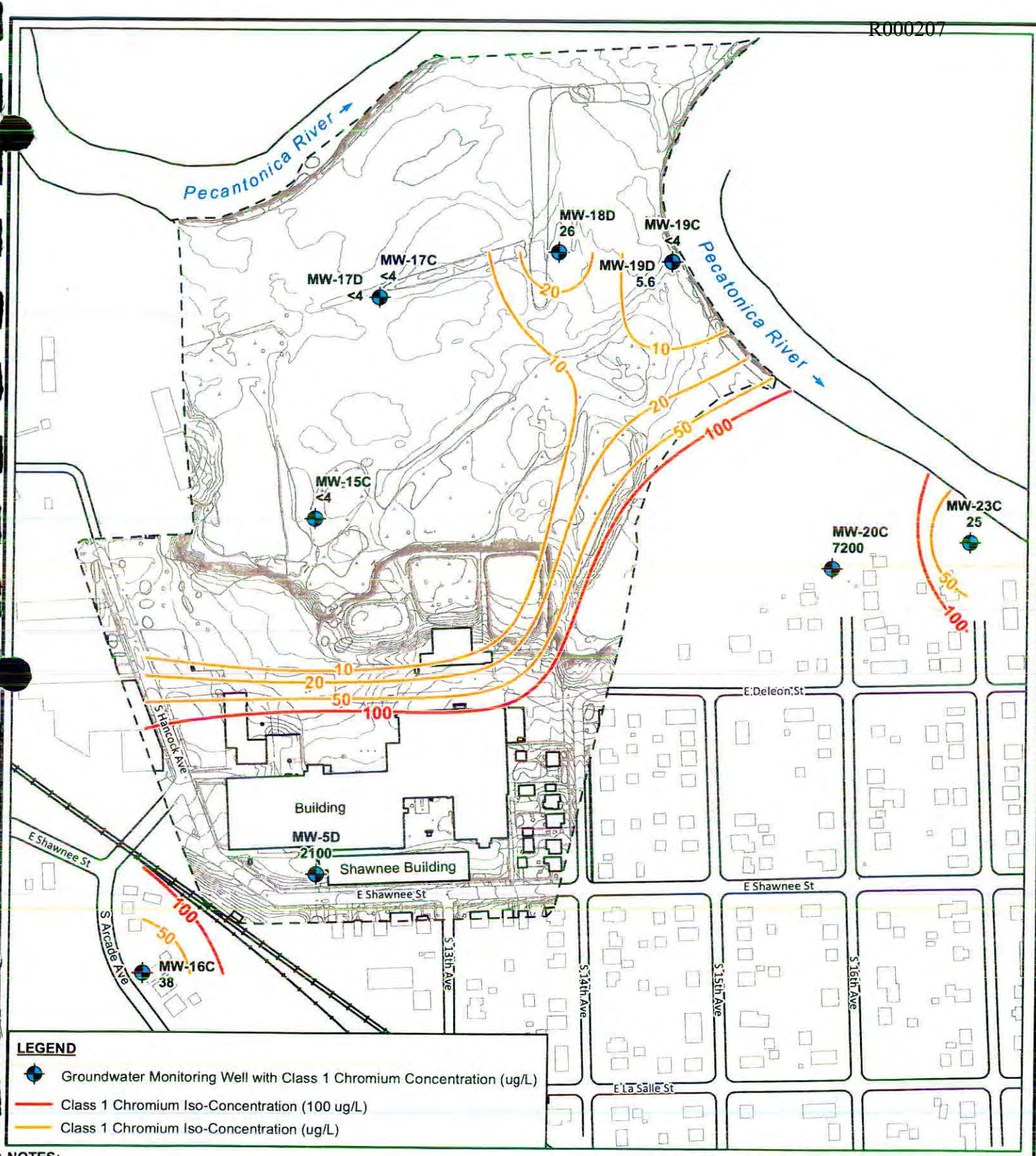
MODERN PLATING CORPORATION

FIGURE C-5

SITE FEATURES AND
GROUNDWATER MANAGEMENT ZONE
701 S. HANCOCK AVENUE
FREEPORT, ILLINOIS 61032

Date: DECEMBER 2020	Revision Date:	
Drawn By: JOW	Checked By: HLH1	Project: 20M114

pw:\\PW-APS1.foth.com:PW_IE\Documents\Clients\Modern Plating\0020M114.00\CAD\Figures\RCRA Part B Renewal App 2020\20m114 Figure C-5 GMZ.dgn
12/31/2020 8:44:06 AM jow



LEGEND

- Groundwater Monitoring Well with Class 1 Chromium Concentration (ug/L)
- Class 1 Chromium Iso-Concentration (100 ug/L)
- Class 1 Chromium Iso-Concentration (ug/L)

NOTES:

1. Horizontal coordinate system is NAD 1983 Illinois State Plane West Zone, units in US feet.

Foth

N

0 150 300 Feet

This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information and data used for reference purposes only.

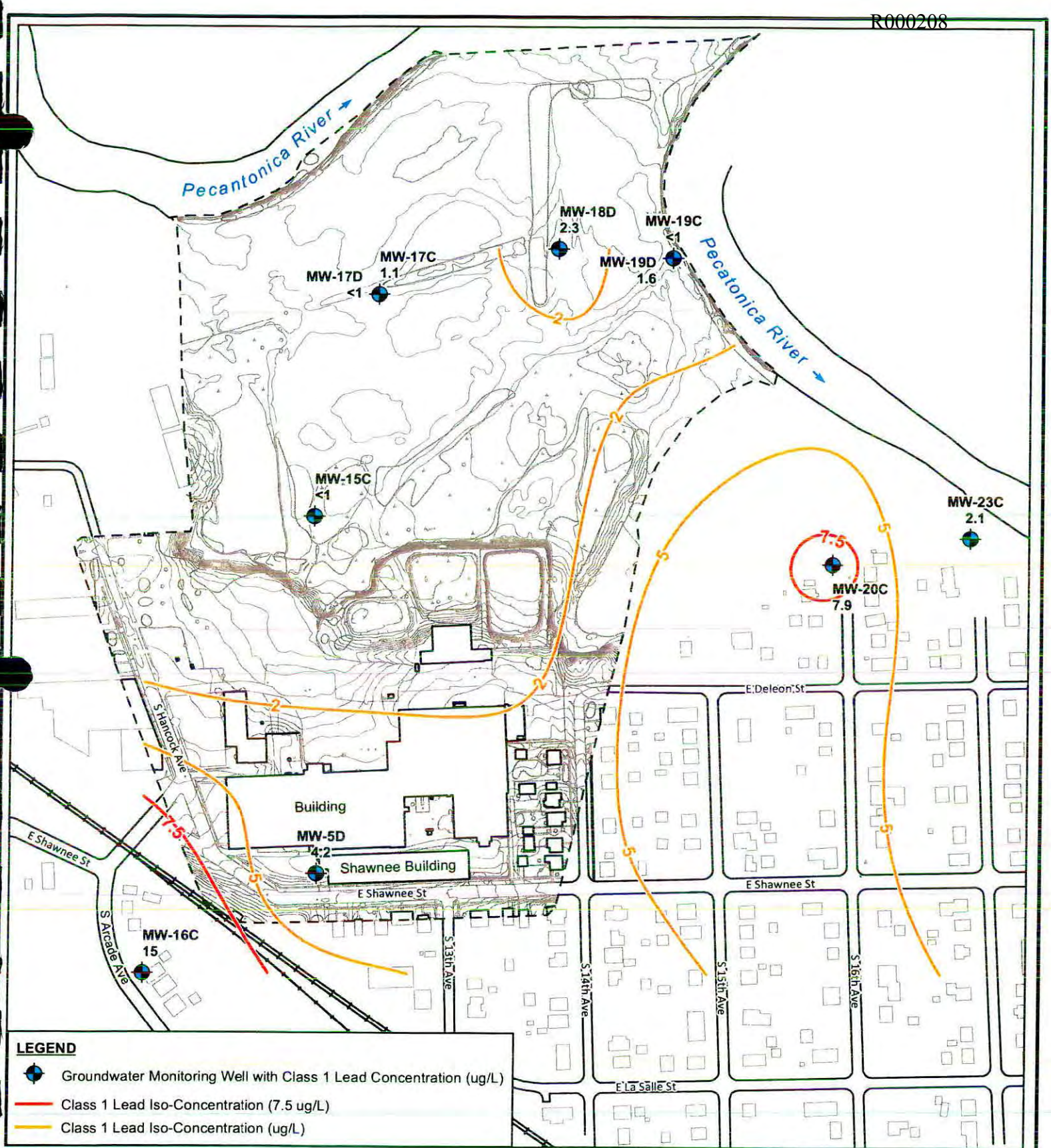
MODERN PLATING CORPORATION

FIGURE C-6

CHROMIUM CONCENTRATIONS IN C AND D WELLS - CLASS I

Date: DECEMBER 2020	Revision Date:	
Drawn By: BJW1	Checked By: HLH	Project: 20M114

Path: Q:\Modern Plating\20M114\GIS\mxd\RCRA Part B Permit Application\Figure C-6 Chromium Concentrations in C and D Wells - Class 1.mxd Date: 12/28/2020



LEGEND

- Groundwater Monitoring Well with Class 1 Lead Concentration (ug/L)
- Class 1 Lead Iso-Concentration (7.5 ug/L)
- Class 1 Lead Iso-Concentration (ug/L)

NOTES:

1. Horizontal coordinate system is NAD 1983 Illinois State Plane West Zone, units in US feet.

Foth

N

0 150 300 Feet

This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information and data used for reference purposes only.

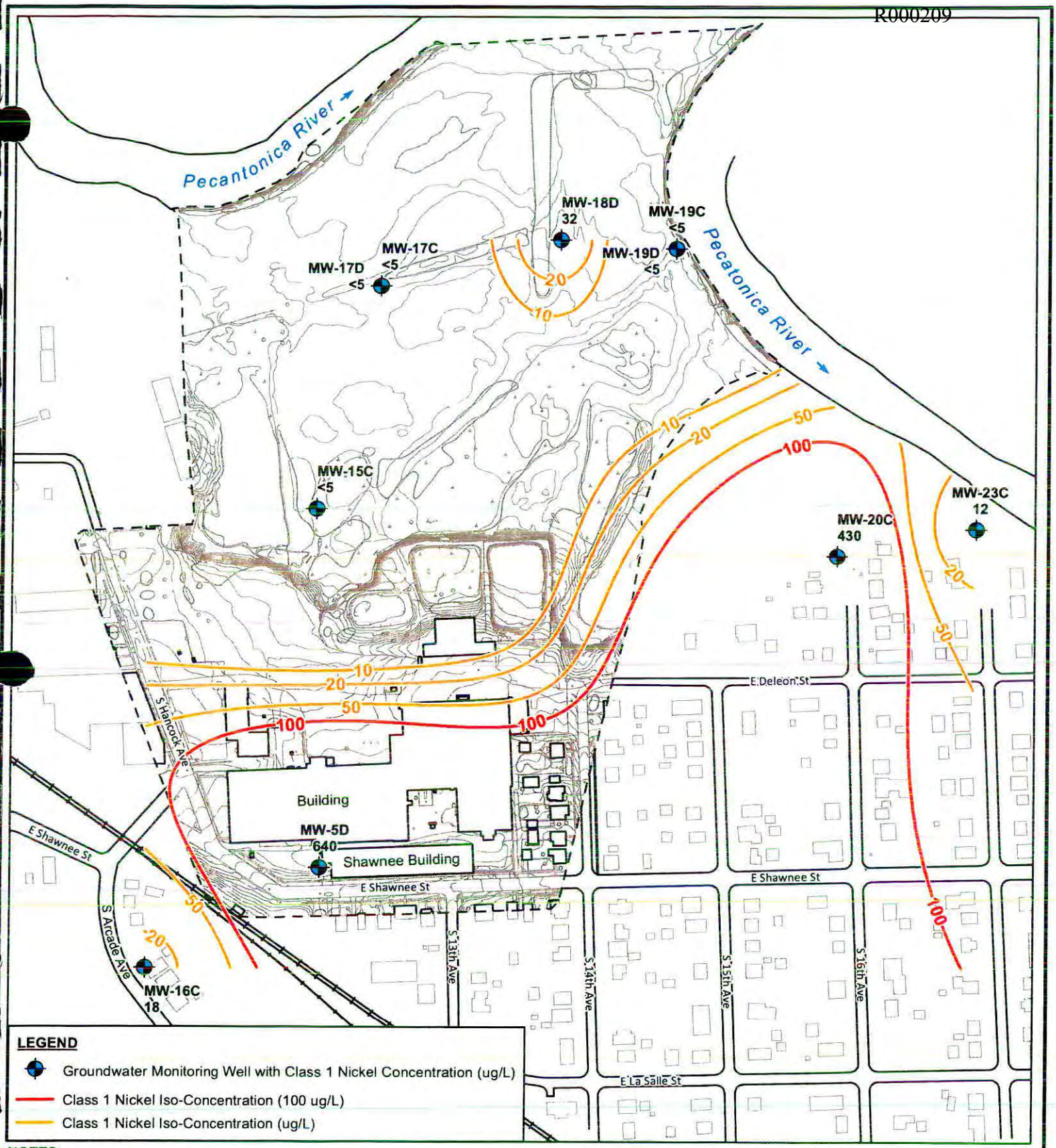
MODERN PLATING CORPORATION

FIGURE C-7

LEAD CONCENTRATIONS IN C AND D WELLS - CLASS I

Date: DECEMBER 2020	Revision Date:	
Drawn By: BJW1	Checked By: HLH	Project: 20M114

Path: Q:\Modern Plating\20M114\GIS\mxd\RCRA Part B Permit Application\Figure C-7 Lead Concentrations in C and D Wells - Class 1.mxd Date: 12/28/2020



NOTES:

1. Horizontal coordinate system is NAD 1983 Illinois State Plane West Zone, units in US feet.

Foth

N

0 150 300 Feet

This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information and data used for reference purposes only.

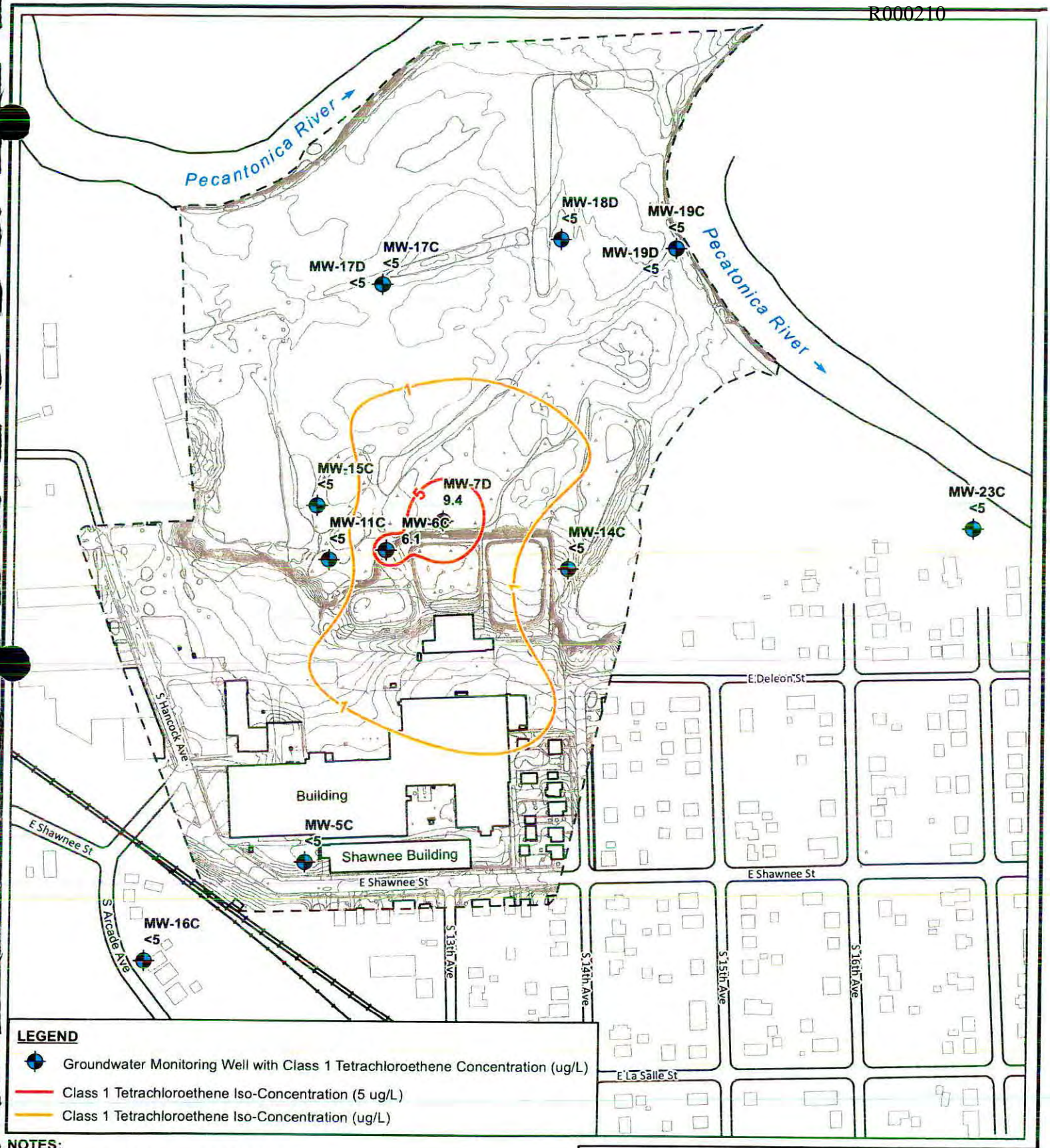
MODERN PLATING CORPORATION

FIGURE C-8

NICKEL CONCENTRATIONS IN C AND D WELLS - CLASS I

Date: DECEMBER 2020	Revision Date:	
Drawn By: BJW1	Checked By: HLH	Project: 20M114

Path: Q:\Modern Plating\20M114\GIS\mxd\RCRA Part B Permit Application\Figure C-8 Nickel Concentrations in C and D Wells - Class 1.mxd Date: 12/28/2020



LEGEND

- Groundwater Monitoring Well with Class 1 Tetrachloroethene Concentration (ug/L)
- Class 1 Tetrachloroethene Iso-Concentration (5 ug/L)
- Class 1 Tetrachloroethene Iso-Concentration (ug/L)

NOTES:

1. Horizontal coordinate system is NAD 1983 Illinois State Plane West Zone, units in US feet.

Foth

N

0 150 300 Feet

This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information and data used for reference purposes only.

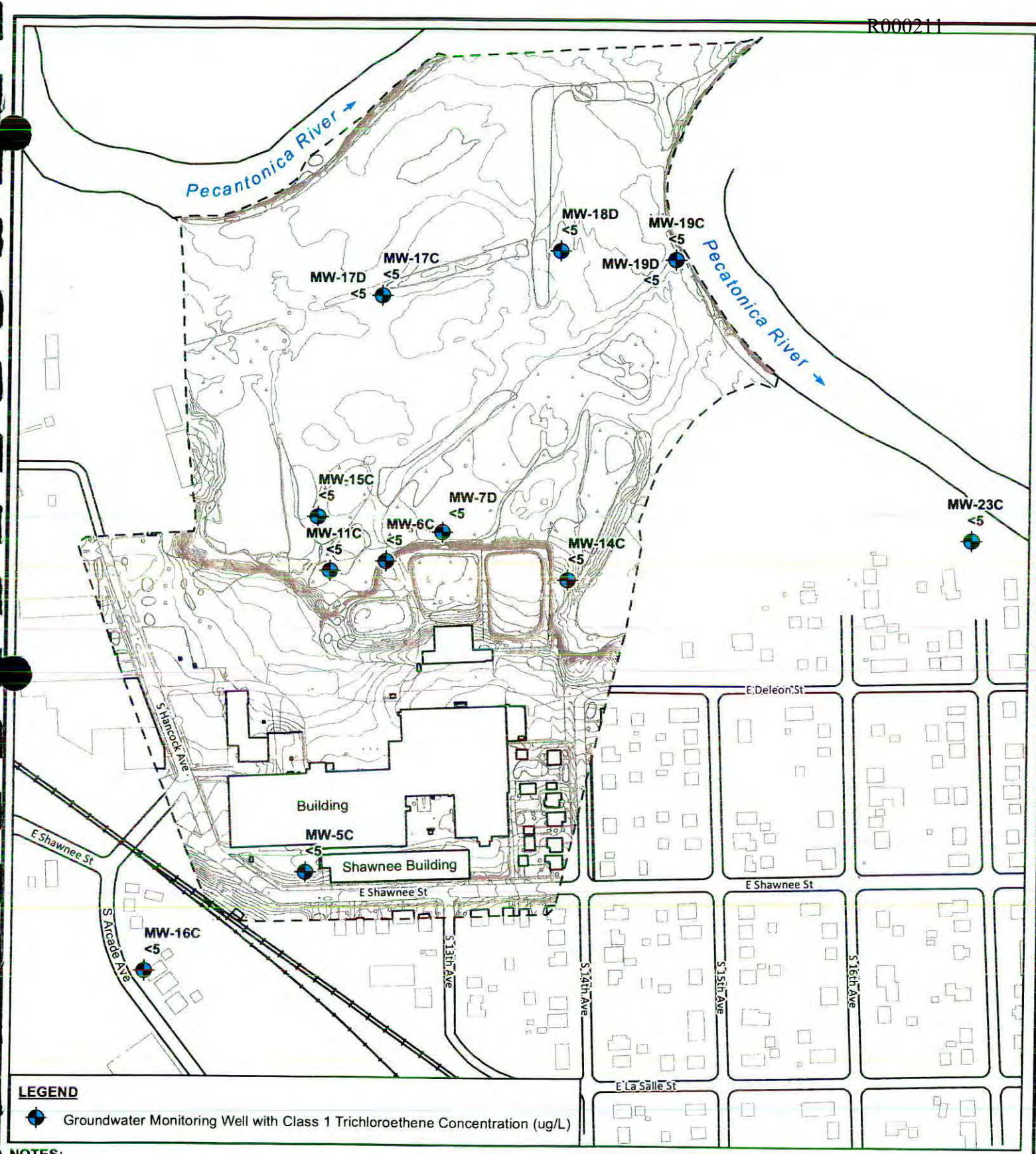
MODERN PLATING CORPORATION

FIGURE C-9

TETRACHLOROETHENE CONCENTRATIONS IN C AND D WELLS - CLASS I

Date: DECEMBER 2020	Revision Date:	
Drawn By: BJW1	Checked By: HLH	Project: 20M114

Path: Q:\Modern Plating\20M114\GIS\mxd\RCRA Part B Permit Application\Figure C-9 Tetrachloroethene Concentrations in C and D Wells - Class 1.mxd Date: 12/28/2020



LEGEND

Groundwater Monitoring Well with Class 1 Trichloroethene Concentration (ug/L)

NOTES:

1. Horizontal coordinate system is NAD 1983 Illinois State Plane West Zone, units in US feet.

Foth

N

0 150 300 Feet

This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information and data used for reference purposes only.

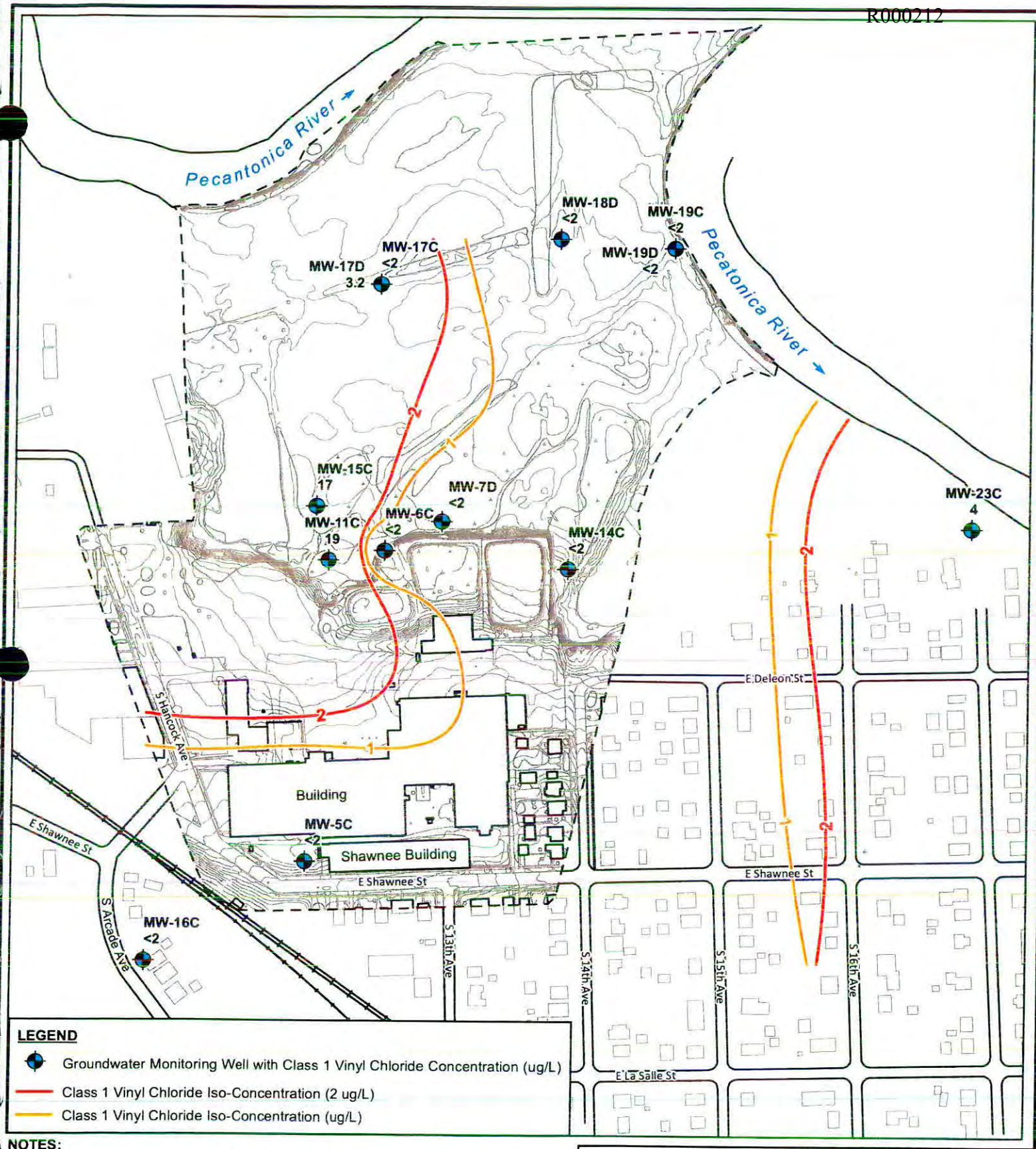
MODERN PLATING CORPORATION

FIGURE C-10

TRICHLOROETHENE CONCENTRATIONS IN C AND D WELLS - CLASS I

Date: DECEMBER 2020	Revision Date:	
Drawn By: BJW1	Checked By: HLH	Project: 20M114

Path: Q:\Modern Plating\20M114\GIS\mxd\RCRA Part B Permit Application\Figure C-10 Trichlorothene Concentrations in C and D Wells - Class 1.mxd Date: 12/28/2020



LEGEND

- Groundwater Monitoring Well with Class 1 Vinyl Chloride Concentration (ug/L)
- Class 1 Vinyl Chloride Iso-Concentration (2 ug/L)
- Class 1 Vinyl Chloride Iso-Concentration (ug/L)

NOTES:

1. Horizontal coordinate system is NAD 1983 Illinois State Plane West Zone, units in US feet.

Foth

N

0 150 300 Feet

This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information and data used for reference purposes only.

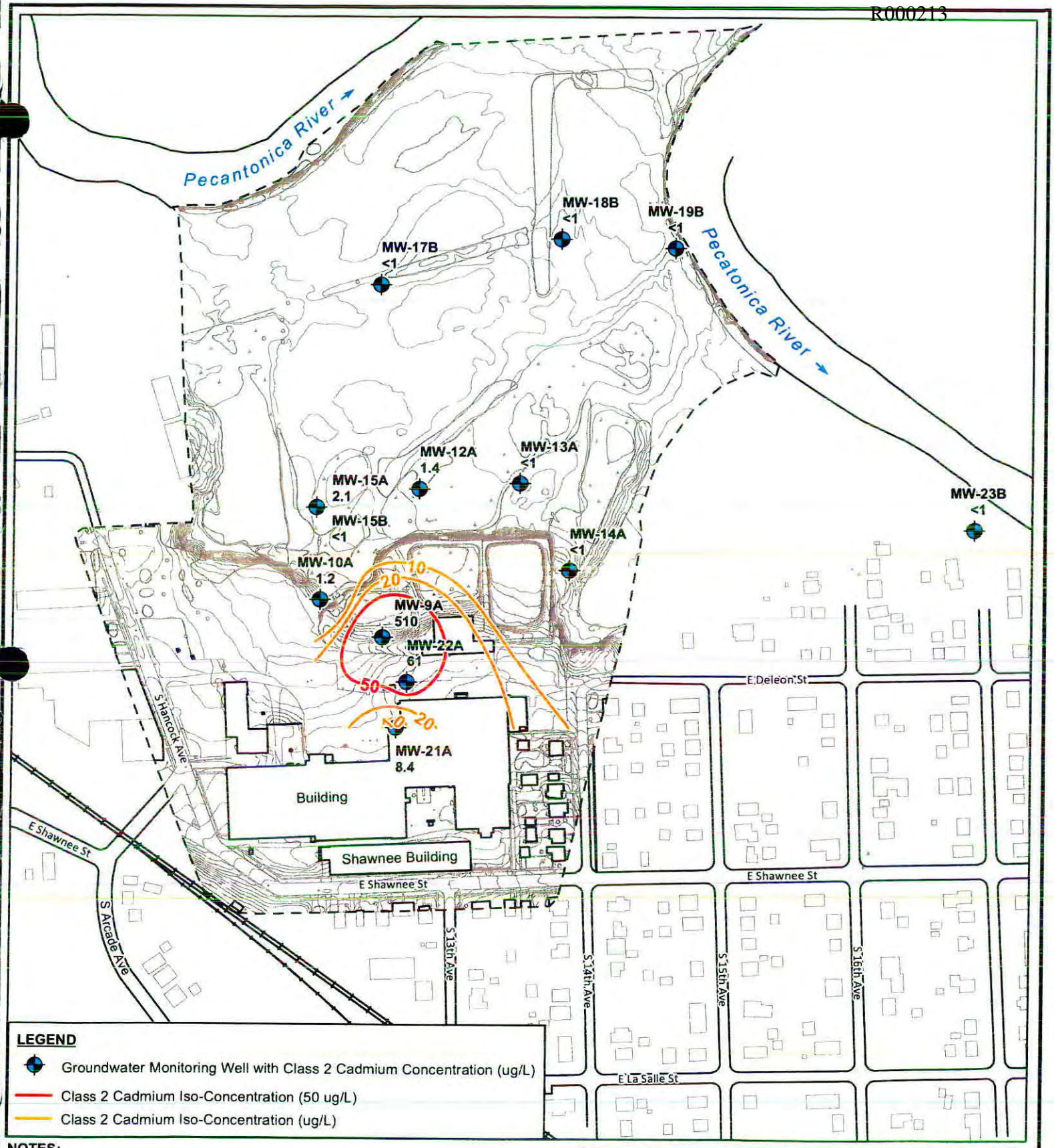
MODERN PLATING CORPORATION

FIGURE C-11

VINYL CHLORIDE CONCENTRATIONS IN C AND D WELLS - CLASS I

Date: DECEMBER 2020	Revision Date:	
Drawn By: BJW1	Checked By: HLH	Project: 20M114

Path: Q:\Modern Plating\20M114\GIS\mxd\RCRA Part B Permit Application\Figure C-11 Vinyl Chloride Concentrations in C and D Wells - Class 1.mxd Date: 12/28/2020



LEGEND

- Groundwater Monitoring Well with Class 2 Cadmium Concentration (ug/L)
- Class 2 Cadmium Iso-Concentration (50 ug/L)
- Class 2 Cadmium Iso-Concentration (ug/L)

NOTES:

1. Horizontal coordinate system is NAD 1983 Illinois State Plane West Zone, units in US feet.

Foth

N

0 150 300 Feet

MODERN PLATING CORPORATION

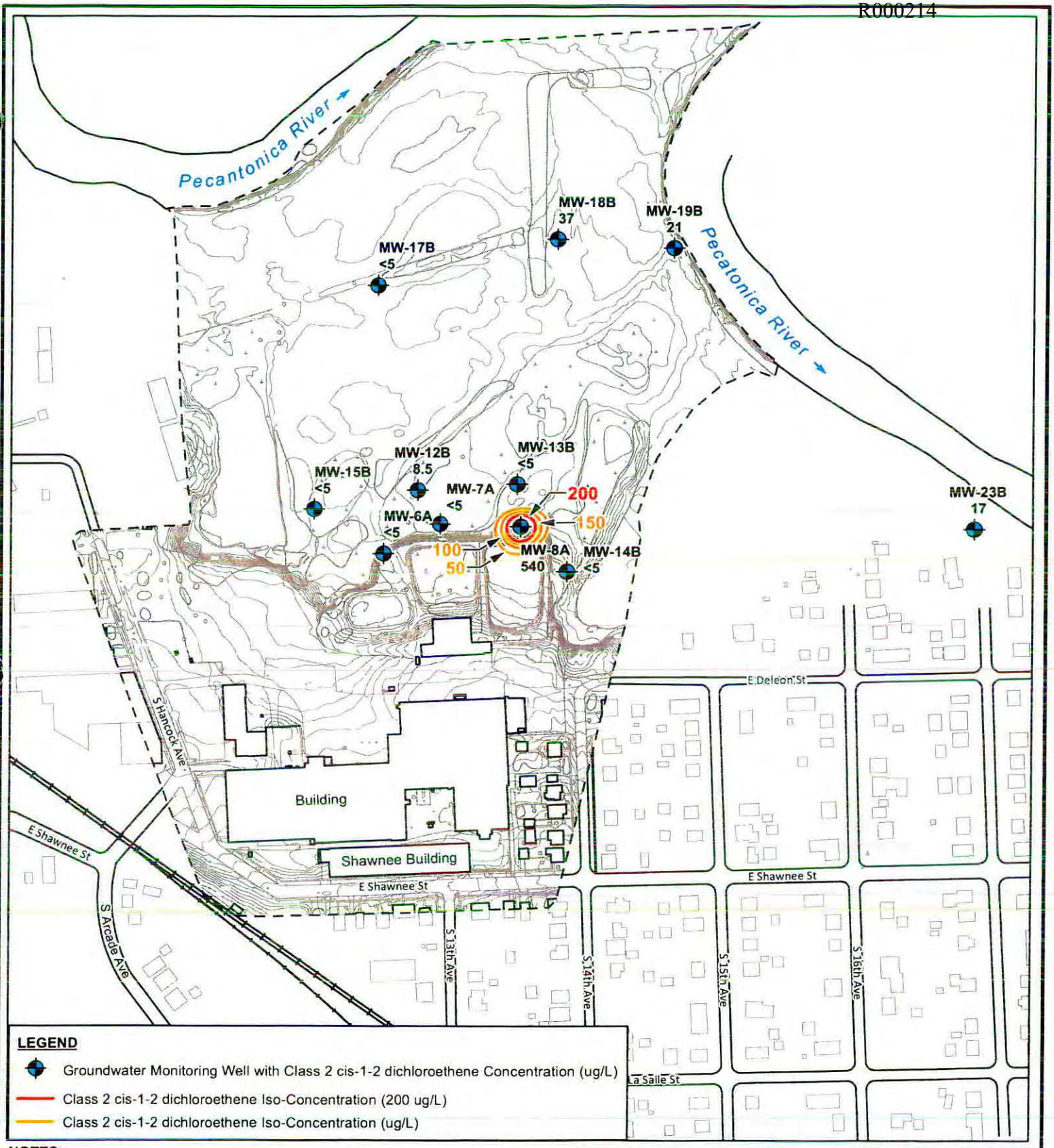
FIGURE C-12

CADMIUM CONCENTRATIONS IN A AND B WELLS - CLASS II

Date: DECEMBER 2020	Revision Date:	
Drawn By: BJW1	Checked By: HLH	Project: 20M114

This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information and data used for reference purposes only.

Path: Q:\Modern Plating\20M114\GIS\mxd\RCRA Part B Permit Application\Figure C-12 Cadmium Concentrations in A and B Wells - Class 2.mxd Date: 12/28/2020



LEGEND

- Groundwater Monitoring Well with Class 2 cis-1-2 dichloroethene Concentration (ug/L)
- Class 2 cis-1-2 dichloroethene Iso-Concentration (200 ug/L)
- Class 2 cis-1-2 dichloroethene Iso-Concentration (ug/L)

NOTES:

1. Horizontal coordinate system is NAD 1983 Illinois State Plane West Zone, units in US feet.

MODERN PLATING CORPORATION

FIGURE C-13

CIS-1,2-DICHLOROETHENE CONCENTRATIONS IN A AND B WELLS - CLASS II

Foth

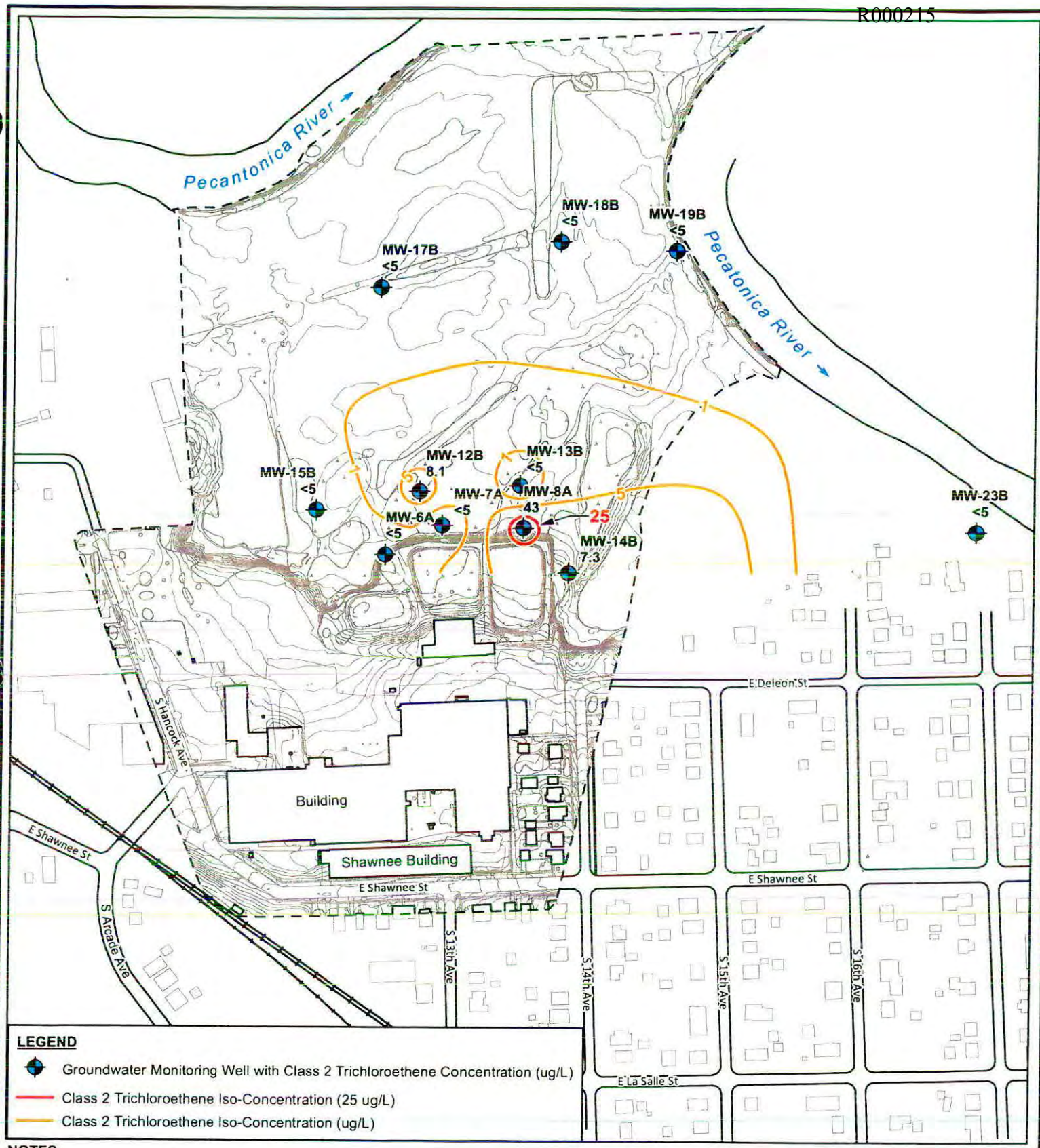
N

0 150 300 Feet

This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information and data used for reference purposes only.

Date: DECEMBER 2020	Revision Date:	
Drawn By: BJW1	Checked By: HLH	Project: 20M114

Path: Q:\Modern Plating\20M114\GIS\mxd\RCRA Part B Permit Application\Figure C-13 cis-1-2-dichlorothene Concentrations in A and B Wells - Class 2.mxd Date: 12/28/2020



LEGEND

- Groundwater Monitoring Well with Class 2 Trichloroethene Concentration (ug/L)
- Class 2 Trichloroethene Iso-Concentration (25 ug/L)
- Class 2 Trichloroethene Iso-Concentration (ug/L)

NOTES:

1. Horizontal coordinate system is NAD 1983 Illinois State Plane West Zone, units in US feet.

Foth

N

0 150 300 Feet

This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information and data used for reference purposes only.

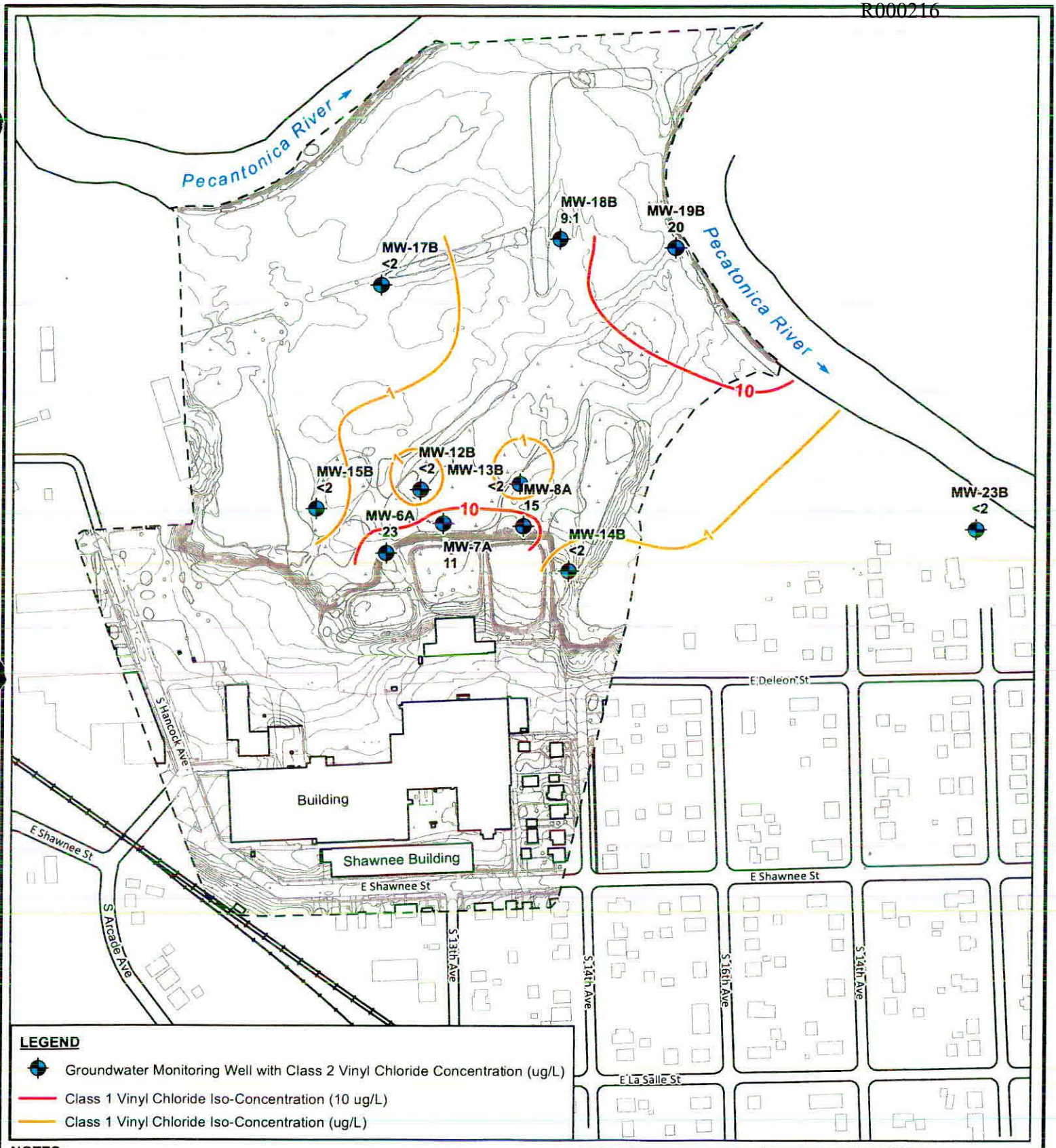
MODERN PLATING CORPORATION

FIGURE C-14

TRICHLOROETHENE CONCENTRATIONS IN A AND B WELLS - CLASS II

Date: DECEMBER 2020	Revision Date:	
Drawn By: BJW1	Checked By: HLH	Project: 20M114

Path: Q:\Modern Plating\20M114\GIS\mxd\RCRA Part B Permit Application\Figure C-14 Trichlorothene Concentrations in A and B Wells - Class 2.mxd Date: 12/28/2020



NOTES:
1. Horizontal coordinate system is NAD 1983 Illinois State Plane West Zone, units in US feet.

Foth

N

0 150 300 Feet

This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information and data used for reference purposes only.

MODERN PLATING CORPORATION

FIGURE C-15

VINYL CHLORIDE CONCENTRATIONS IN A AND B WELLS - CLASS II

Date: DECEMBER 2020	Revision Date:	
Drawn By: BJW1	Checked By: HLH	Project: 20M114

Path: Q:\Modern Plating\20M114\GIS\mxd\RCRA Part B Permit Application\Figure C-15 Vinyl Chloride Concentrations in A and B Wells - Class 2.mxd Date: 12/28/2020

Attachment 2

Drawings

Drawings

10,000 E 10,250 E 10,500 E 10,750 E 11,000 E 11,250 E

10,750 N 10,500 N 10,250 N 10,000 N 9,750 N

WETLAND III
WETLAND II
WETLAND
WETLAND IA
FORMER LAGOON NO. 1
FORMER LAGOON NO. 1A
FORMER LAGOON NO. 2
FORMER LAGOON NO. 3
FORMER LAGOON NO. 0
CAMU LIMITS OF WASTE PLACEMENT
500 YEAR FLOOD BOUNDARY
WASTE WATER TREATMENT PLANT
N 10,105.76 E 10,801.10
N 10,087.97 E 10,825.91
APPROX. LIMITS OF THE OUTFALL PIPELINE EXCAVATION
CYANIDE VAULT
BM
MW-15A MW-15B MW-15C
MW-12E MW-12C MW-12B MW-12A
MW-13A MW-13B MW-13C MW-13E
MW-7D MW-7B MW-7A MW-7C
MW-8A MW-8B MW-8C
MW-6A MW-6B MW-6C
MW-11E MW-11C MW-11B MW-11A
MW-10A
MW-14A MW-14B MW-14C MW-14E
MW-9A
MW-22A MW-22C
MW-21A MW-21C
MH-1 MH-2 MH-3 MH-4 MH-5 MH-6 MH-6A MH-6C MH-7
30' 10'
2018 BUILDING ADDITION
PRODUCTION PLANT
SHAWNEE BUILDING
HANCOCK
DELEON STREET
SHAWNEE
14TH AVENUE
15TH AVENUE
3TH STREET

LEGEND

- EXISTING BUILDING
- EXISTING GROUND CONTOUR
- EXISTING SPOT ELEVATION
- DEPRESSION
- TREES AND / OR BRUSH
- EXISTING ROADWAY
- EXISTING TRAIL
- MARSH/SWAMP SYMBOL
- WATER BOUNDARY
- EXISTING FENCE
- SA — ACTIVE DISCHARGE SANITARY SEWER PIPELINE
- SA — ABANDONED OUTFALL PIPELINE
- GMZ BOUNDARY
- AREA EXCAVATED ' 10' (WIDTH AT EXCAVATION BASE) X 30' (LENGTH) X 7' (DEPTH)
- PIPELINE PLUG NOT IN A MANHOLE
- N 10,087.97 / E 10,825.91 — SPOT LOCATIONS (X, Y)
- AREA EXCAVATED TO REMOVE CHROMATE RINSE WATER CONTAMINATED SOILS
- PIPELINE PLUGGED AND MANHOLE FILLED WITH SOIL
- MANHOLE
- MW-9A — MONITORING WELL NUMBER AND LOCATION
- BM — CONTROL MONUMENT NUMBER AND LOCATION
- BOUNDARY OF 500 YEAR FLOOD
- CAMU LIMITS OF WASTE PLACEMENT
- EXISTING WETLAND AREA
- REMEDIATION AREAS (SEE REMEDIATION QUANTITIES THIS DRAWING)
- APPROXIMATE LOCATION - WETLAND SOIL BORROW AREA

NOTES:

1. SITE LOCATION: SE ¼ OF SECTION 32, T27N, R8E, STEPHENSON COUNTY, ILLINOIS
2. AREA OUTSIDE THE REMEDIATION AREAS IS THE TOPOGRAPHICAL BASE MAP PREPARED BY AERO-METRIC ENGINEERING, SHEBOYGAN, WISCONSIN. DATE OF PHOTOGRAPHY: NOVEMBER 28, 1986. CONTOURS EAST OF THE LAGOONS DERIVED FROM 10 METER DIGITAL ELEVATION MODEL GIS FORMAT. AREA WITHIN THE REMEDIATED AREAS REPRESENT THE POST CLOSURE SURVEY GRADES.
3. ELEVATIONS BASED ON MEAN SEA LEVEL DATUM. CONTOUR INTERVAL IS ONE FOOT. BENCH MARK IS LOCATED ON THE N.W. CORNER OF THE PUMP STATION CONCRETE SLAB, COORDINATES N 10046.1 E 10491.0, AT ELEVATION 773.82 FEET.
4. 500 YEAR FLOOD BOUNDARY TAKEN FROM "NOVEMBER 1976 FLOOD INSURANCE STUDY" BY U.S. DEPARTMENT OF HOUSING & URBAN DEVELOPMENT, FEDERAL INSURANCE ADMINISTRATION.

REMEDIATION QUANTITIES[1]

AREA	ESTIMATED QUANTITY	DESCRIPTION OF ADDITIONAL REMEDIATION WASTES OR CONTAMINATED SOIL REMOVED	DESCRIPTION OF WASTE TYPE(S) REMOVED
LAGOON 1	3,760 CU. YDS.	APPROX. 125 TONS OF LIMEKILN DUST ADDED TO WET SLUDGE	ELECTROPLATING SLUDGE (F006)
LAGOON 2	4,750 CU.YDS.	AN ADDITIONAL 1 FOOT OF SOIL REMOVED FROM THE LAGOON BOTTOM	ELECTROPLATING SLUDGE (F006)
LAGOON 3	4,750 CU. YDS.	APPROX. 125 TONS OF FINE KILN DUST ADDED TO WET SLUDGES	ELECTROPLATING SLUDGE (F006 & F002)
LAGOON 0	2,880 CU. YDS.	APPROX. ADDITIONAL 2,000 CU YDS. EXCAVATED FROM LAGOON NO. 0	CYANIDE SLUDGES, ZINC, CADMIUM, AND COPPER STRIPPINGS, MAY CONTAIN TCE, SLUDGES TREATED WITH OIL DRY, LIME AND SAND (F006 &F002)
LAGOON 1A	1,910 CU. YDS.	APPROX. ADDITIONAL 70 CU. YDS. REMOVED	ELECTROPLATING SLUDGE CHEMICALLY FIXED WITH PORTLAND CEMENT
SHAWNEE BUILDING	30 CU. YDS.	N/A	SOILS CONTAIMANTED WITH METALS AND TCE
CYANIDE VAULT	200 CU. YDS.	N/A	CONCRETE VAULT AND CYANIDE CONTAMINATED SOILS
WETLAND SOILS	2,850 CU. YDS.	APPROX. ADDITIONAL 95 CU. YDS. EXCAVATED FROM WETLAND IA AND 45 CU. YDS. FROM WETLAND 2	ORGANIC SILTY CLAYS CONTAMINATED WITH METALS

[1] REMEDIATIONQUANTITIES ARE IN-PLACE CU. YDS. BASED ON ESTIMATES PREPARED FROM FIELD NOTES

Foth

0' 75' 150'
BAR SCALE

MODERN PLATING CORPORATION

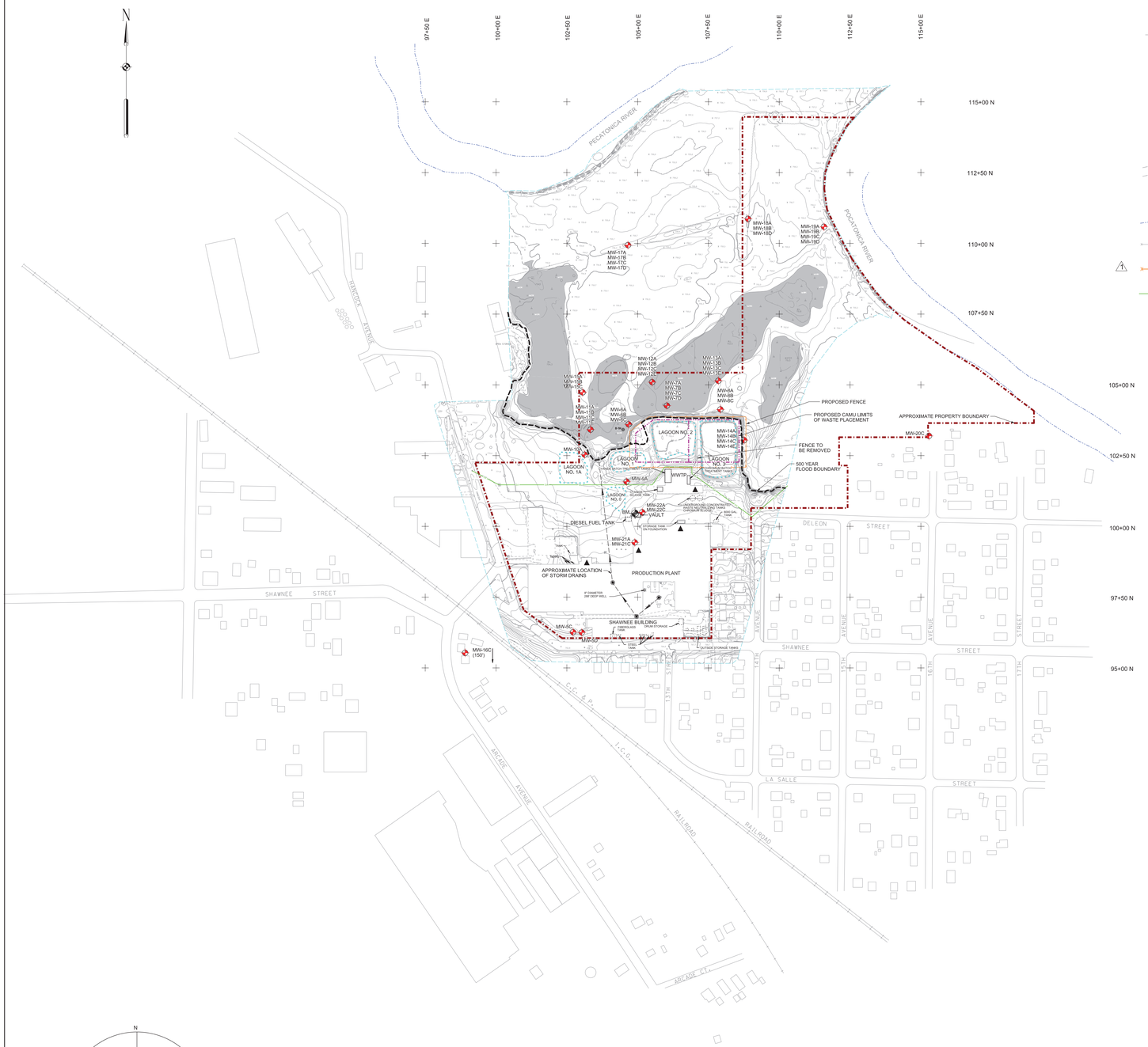
DRAWING NO. 2

EXTENT OF AREAS REMEDIATED

Date: APRIL 2021	Revision Date:		
Drawn By: JOW	Checked By: HLH1	Project: 20M114	

pw:\\PW-APS1 foth.com:PW_IE\Documents\Clients\Modern Plating\0020M114.00\CAD\Figures\RCRA Part B Incompleteness Response\Drawing 2 20m114 Extent of Areas Remediated.dgn
5/6/2021 2:59:16 PM jow

R000220



LEGEND

- EXISTING BUILDING
- EXISTING GROUND CONTOUR
- EXISTING SPOT ELEVATION
- DEPRESSION
- TREES AND / OR BRUSH
- EXISTING ROADWAY
- EXISTING TRAIL
- MARSH/SWAMP SYMBOL
- WATER BOUNDARY
- EXISTING FENCE
- PROPOSED FENCE
- EXISTING SANITARY SEWER
- APPROXIMATE LIMITS OF NOVEMBER 28, 1986 TOPOGRAPHIC MAP (SEE NOTE 5.)
- MONITORING WELL (MW-9A)
- CONTROL MONUMENT (BM)
- APPROXIMATE PROPERTY LINE
- APPROXIMATE BOUNDARY OF EXISTING SLUDGE STORAGE AREA
- BOUNDARY OF 500 YEAR FLOOD
- PROPOSED CAMU LIMITS OF WASTE PLACEMENT
- WETLAND AREA
- LOADING/ UNLOADING AREA
- STORM DRAIN
- STORAGE UNITS NO LONGER IN EXISTANCE

NOTES:

1. SITE LOCATION: SE ¼ OF SECTION 32, T27N, R8E, STEPHENSON COUNTY, ILLINOIS
2. TOPOGRAPHICAL BASE MAP PREPARED BY AERO-METRIC ENGINEERING, SHEBOYGAN, WISCONSIN. DATE OF PHOTOGRAPHY: NOVEMBER 28, 1986.
3. ELEVATIONS BASED ON MEAN SEA LEVEL DATUM. CONTROL INTERVAL IS ONE FOOT. BENCH MARK IS LOCATED ON THE N.W. CORNER OF THE PUMP STATION CONCRETE SLAB, COORDINATES N 10046.1 E 10491.0, AT ELEVATION 773.82 FEET.
4. 500 YEAR FLOOD BOUNDARY TAKEN FROM "NOVEMBER 1976 FLOOD INSURANCE STUDY" BY U.S. DEPARTMENT OF HOUSING & URBAN DEVELOPMENT, FEDERAL INSURANCE ADMINISTRATION.
5. AREA INSIDE HEAVY DASHED LINE IS TOPOGRAPHIC MAP PREPARED BY AERP-METRIC ENGINEERING, SHEYBOYGAN, WISCONSIN. DATE OF PHOTOGRAPHY: NOVEMBER 28, 1986. AREA OUTSIDE HEAVY DASHED LINE SCANNED AND DIGITIZED BY FOTH & VAN DYKE FROM AIR PHOTOS BY THE SIDWELL COMPANY, 1992

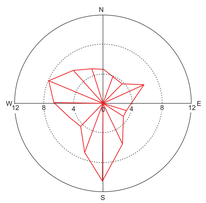
Property Description:

Lots 4, 5 and 6 in Block 4 in Gund's Second Addition to the City of Freeport, Illinois; also a part of Outlot 2 of Arcade Addition to the City of Freeport described as follows, to-wit, commencing at the Northwest corner of said Outlot 2, thence easterly long the North line of said Outlot 2 to a point where the west line of the alley in Block 8 in said Arcade Addition produced Northerly would intersect said North line of said Outlot 2, thence South to a point where the North line of Lot 7 in Block 4 in Gund's Second Addition to the City of Freeport would intersect the West line of the Alley in Block 8 in said Arcade Addition produced Northerly, thence Westerly on a line which would be an extension of said North line of Lot 7 in Block 4 in Gund's Second Addition aforesaid to the point where the North line of said Lot 7 intersects said West line of said Outlot 2, thence North along the Wet line of said Outlot 2 of said Arcade Addition to the place of beginning, excepting therefrom the following: Beginning at the Northwest corner of Lot 4 in Block 4 in Gund's Second Addition to the City of Freeport, thence East a distance of 420 feet, thence South to the South line of Lot 6 in Block 4 in Gund's Second Addition, thence West on and along the South line of said Lot 6 to the Southwest corner of said Lot 6, thence Northwesterly on and along the Westerly boundary of Lots 6, 5 and 4 in Block 4 in Gund's Second Addition to the place of beginning; provided party of the second part, her administrators, executors, heirs and assigns shall have an easement for the purpose of ingress and egress from Hancock Avenue to the premises herein to be conveyed over the North 11 feet of that part of said Lot 4 in Block 4 in Gund's Second Addition which is excepted as aforesaid, situated in the City of Freeport.

That part of Outlot 2 in Arcade Addition to the City of Freeport, which lies East of the West line of South Fourteenth Avenue (formerly Second Street) produced Northerly across said Outlot 2; Outlot 3; Outlot 5, and Outlot 4, of said Arcade addition to the City of Freeport, except that part of said Outlot 4 which lies South of the North line of Lot Number 8 in Block Number 1 in said Arcade Addition, extended West to the West line of said Outlot 4, situated in the City of Freeport, County of Stephenson, Illinois.

ALSO:

The West half of the Northerly 150 feet of 15th Avenue located westerly of Block 1 of Arcade Addition, Township 27 North, Range 8 East of the Fourth Principal Meridian. Situated in the City of Freeport, Stephenson County, Illinois.



ANNUAL WIND ROSE
NUMBERS REPRESENT FREQUENCIES (PERCENT) OF WIND DIRECTION

CADD PROJ CODE: 7M15 | PRF NAME: $$PRF$$
DRAWN BY: JOW | DATE: AUGUST, 1997
SURVEYED BY: N.A. | DATE: N.A.
SURVEY DATA: N.A.

RECORD DRAWINGS OF COMPLETED CONSTRUCTION CONFORMING TO CONTRACTORS AND/OR OWNERS RECORDS.
BY N.A. DATE

REVISIONS / REMARKS

NO.	BY	DATE	NO	BY	DATE
1	DAT	5/18/99	2	NXP	11/24/99

ADDED MAP DATA — APPROVED 11/24/99
REVIEWED 11/24/99
DESIGNED

Foth & Van Dyke
engineers - architects - scientists

REUSE OF DOCUMENTS
THIS DOCUMENT IS PREPARED FOR A SPECIFIC APPLICATION AND NOT FOR GENERAL USE. THEREFORE IT MAY NOT BE USED WITHOUT THE WRITTEN APPROVAL OF FOTH & VAN DYKE and ASSOCIATES. UNAPPROVED USE IS THE SOLE RESPONSIBILITY OF THE UNAUTHORIZED USER.

MODERN PLATING CORPORATION
FREEPORT, ILLINOIS

EXISTING CONDITIONS

SCALE 0 200' 400'

SCOPE ID 97M015

DRAWING NO.
2R

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pw:\\PW-APS1.foth.com:PW_JE\Documents\Clients\Modern Plating\0020M114.00\CAD\Figures\Historical\POO_97m15r2c_existing_conditions.dgn
12/23/2020 9:33:32 AM jow

Attachment 2

APPENDIX A

Appendix A

Mailing List and Notice

January 2021

Notice Regarding Permit-Related Activities at Modern Plating Corporation
Freeport Illinois
Illinois Environmental Protection Agency - RCRA Part B Permit
Permit No. 1770200010

To Whom It May Concern:

Modern Plating Corporation (MPC), located at 701 South Hancock Avenue, Freeport Illinois is preparing a renewal application to maintain its RCRA Part B Permit, referenced above. The permit covers the post-closure care for the facility's Corrective Action Management Unit (CAMU) and expires July 7, 2021. The CAMU was constructed in 2000 to store the remediation waste from previous activities at this site.

To make permitting information available to the public for review, the application and related documentation will be available at a community repository by **November 20, 2021**. The location and contact person for the community repository and hours of availability are:

Ashley Huffines
Freeport Public Library
100 E. Douglas Street
Freeport, IL 61032
Phone: (815) 233-3000

Hours: Monday-Thursday 9:00 am to 9:00 pm
Friday 9:00 am to 6:00 pm
Saturday 9:00 am to 5:00 pm
Sunday 1:00 pm to 4:00 pm

Documentation available for public review will include:

- Complete permit application for renewal as submitted to the Illinois Environmental Protection Agency in November 2021.
- Updates to the application will be provided in the publically available document on a timely basis. All updates will be marked with a date and a log of updates will be maintained with the document.

The applicant contact person to address questions regarding the application or to be added to the facility's mailing list for future permit activities:

Mr. James Stenberg
Modern Plating Corporation
701 South Hancock Avenue
Freeport, Illinois 61032 Telephone: (815) 235-3111

For general information on the hazardous waste management permit program in Illinois, contact:

Mr. Jay Timm
Office of Community Relations (#5)
Illinois Environmental Protection Agency
1021 North Grand Ave East
PO Box 19276
Springfield IL 62794

Modern Plating Corporation, Freeport IL
Mailing List
2020

Media:
The Freeport Journal-Standard
50 West Douglas Street #900
Freeport, IL 61032

Big Radio
PO Box 807
834 North Tower Road
Freeport, IL 61032

Legislators:
The Honorable Richard J. Durbin
U.S. Senator
525 S. Eighth Street
Springfield, IL 62703

The Honorable Tammy Duckworth
U.S. Senator
8 South Old State Capitol Plaza
Springfield, IL 62701

The Honorable Adam Kinzinger
U.S. Representative (Dist. 16)
725 N. Lyford Road, Suite 3
Rockford, IL 61107

The Honorable Brian W. Stewart
Illinois State Senator (Dist. 45)
50 W. Douglas Street
Freeport, IL 61032

The Honorable Andrew S. Chesney
Illinois State Representative (Dist. 89)
50 W. Douglas Street
Freeport, IL 61032

Federal Agencies:
U.S. Army Corps of Engineers
Chicago District
231 S. LaSalle Street, Suite 1500
Chicago, IL 60604

Jim Blough
U.S. EPA Region 5
Land, Chemicals, and Redevelopment Division
77 W. Jackson Boulevard M/C LR-8J
Chicago, IL 60604-3590

State Agencies:
Kwame Raoul
IL Attorney General
Springfield Main Office
500 S. Second Street
Springfield, IL 62701

Dave Retzlaff
Bureau of Land, IEPA
4302 N. Main Street
Rockford, IL 61103

IL Environmental Protection Agency
Field Office
1021 N. Grand Avenue, East
P.O. Box 19276
Springfield, IL 62794-9276

IL Historic Preservation Agency
1 Old State Capitol Plaza
Springfield, IL 62701-1512

IL Dept. of Natural Resources
Office of Water Resource Management
One Natural Resources Way
2nd floor
Springfield, IL 62702-9276

IL Dept. of Transportation
District 2
819 Depot Avenue
Dixon, IL 61021-3546

Office of Illinois Attorney General
Environmental Law Division
500 S. 2nd Street
Springfield, IL 62706

IL Dept. of Agriculture
Springfield Ofc–Administrative Headquarters
State Fairgrounds
P.O. Box 19281
Springfield, IL 62794-9281

IL Dept. of Commerce
and Economic Opportunity
Springfield Office
500 E. Monroe Street
Springfield, IL 62701

IL Chamber of Commerce
Capital City Office
215 E. Adams Street
Springfield, IL 62701

IL Dept. of Public Health
Springfield Headquarters Office
525-535 W. Jefferson Street
Springfield, IL 62761

Prairie Research Institute
IL Sustainable Technology Center
One Hazelwood Drive, MC-676
Champaign, IL 61820

Prairie Research Institute
IL Natural History Survey
1816 S. Oak Street, MC-652
Champaign, IL 61820

Richard C. Berg
Director
Prairie Research Institute
IL State Geological Survey
615 E. Peabody
Champaign, IL 61820

Prairie Research Institute
Illinois State Water Survey
2204 Griffith Drive, MC-674
Champaign, IL 61820

County Officials:
William Hadley
Chairman - Stephenson County Board
1100 S. School Avenue
Freeport, IL 61032

Vici R. Otte
Stephenson County Clerk
Stephenson County Courthouse
15 N. Galena Avenue
Freeport, IL 61032

Craig Beintema, MS, LEHP
Public Health Administrator
Stephenson County Health Department
10 W. Linden Street
Freeport, IL 61032

Kevin Countryman
Stephenson County Emergency Management
Agency Director
295 W. Lamm Rd.
Freeport, IL 61032

IEPA - Division of Records Management
Exempt in Part

JUL 10 2025

Reviewer: SAB

City Officials:
Jodi Miller
Mayor – City of Freeport
City Hall Building
314 W. Stephenson Street, Suite 200
Freeport, IL 61032

Dovie L. Anderson
Clerk - City of Freeport
City Hall Building
314 W. Stephenson Street, Suite 200
Freeport, IL 61032

Dennis Carr
Director of Public Works/City Engineer
City Hall Building
314 W. Stephenson Street
Freeport, IL 61032

Permit Applicant:
James Stenberg
Modern Plating Corporation
701 S. Hancock Avenue
Freeport, IL 61032

Mike Raimonde
Foth Infrastructure & Environment, LLC
7044 S. Ballpark Dr., Suite 200
Franklin, WI 53132

Repository for Public Review:
Ashley Huffines
Freeport Public Library
314 W. Stephenson Street
Freeport, IL 61032

Repository for Public Review:
Ashley Huffines
Director
Freeport Public Library
100 E. Douglas Street
Freeport, IL 61032

Interested in All Part B Permits & Mods:
League of Women Voters of Illinois
332 S. Michigan Avenue, Suite 634
Chicago, IL 60604

US Ecology
16435 Center Avenue
Harvey, IL 60426

IEPA - Division of Records Management
Exempt in Part
JUL 10 2025
Reviewer: SAB

Jack Darin, Chapter Director
Sierra Club
70 E. Lake Street, Suite 1500
Chicago, Il 60601-7447

Chicago Greens
P.O. Box 408316
Chicago, IL 60640

Local Organizations:
Stuart Levy
Sierra Club Prairie Group
P.O. Box 131
Urbana, IL 61803

Safety-Kleen Dolton Recycle Center
615 E. 138th Street
Dolton, IL 60419

American Lung Assoc. of Illinois
3000 Kelly Lane
Springfield, IL 62711

Interested Parties for Actions in Winnebago County:

[redacted]

Citizens:

[redacted]

IEPA - Division of Records Management
Exempt in Part
R000227
JUL 1 0 2025
Reviewer: SAB

[redacted]

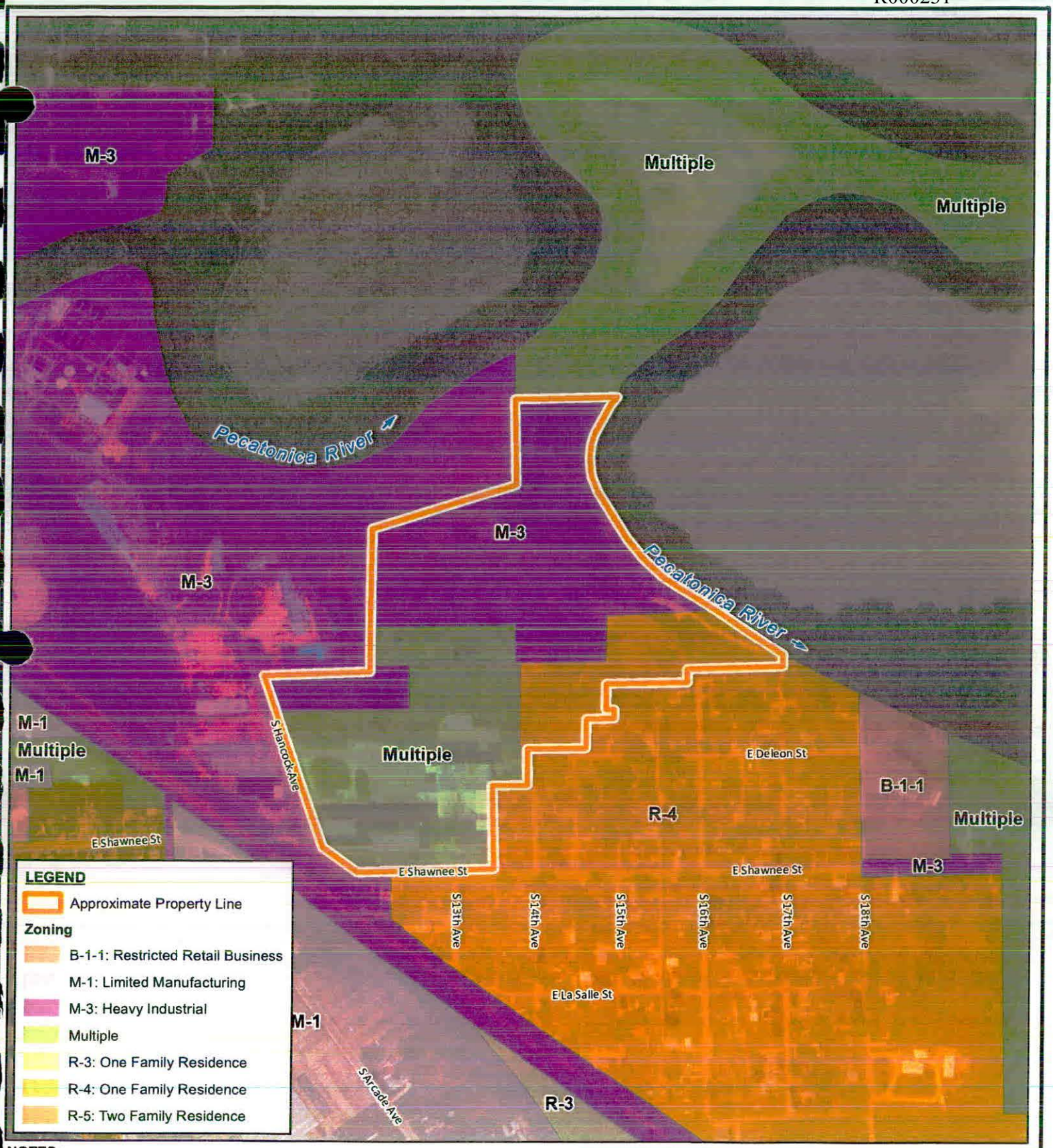
IEPA - Division of Records Management
Exempt in Part
JUL 10 2025
Reviewer: SAB

Attachment 2

APPENDIX B

Appendix B

Surrounding Land Use



NOTES:

1. Topographic basemap from Esri.com, courtesy of the National Geographic Society and i-cubed. Zoning data extracted from City of Freeport, IL Public Zoning Map Application, (https://cityoffreeport.org/galleries/zoning-map/).

Foth

N

This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information and data used for reference purposes only.

0 250 500 Feet

MODERN PLATING CORPORATION

FIGURE 1
ZONING MAP
MODERN PLATING CORPORATION
701 SOUTH HANCOCK AVENUE
FREEPORT, IL 61032

Date: DECEMBER 2020	Revision Date:	
Drawn By: BJW1	Checked By: HLH	Project: 20M114

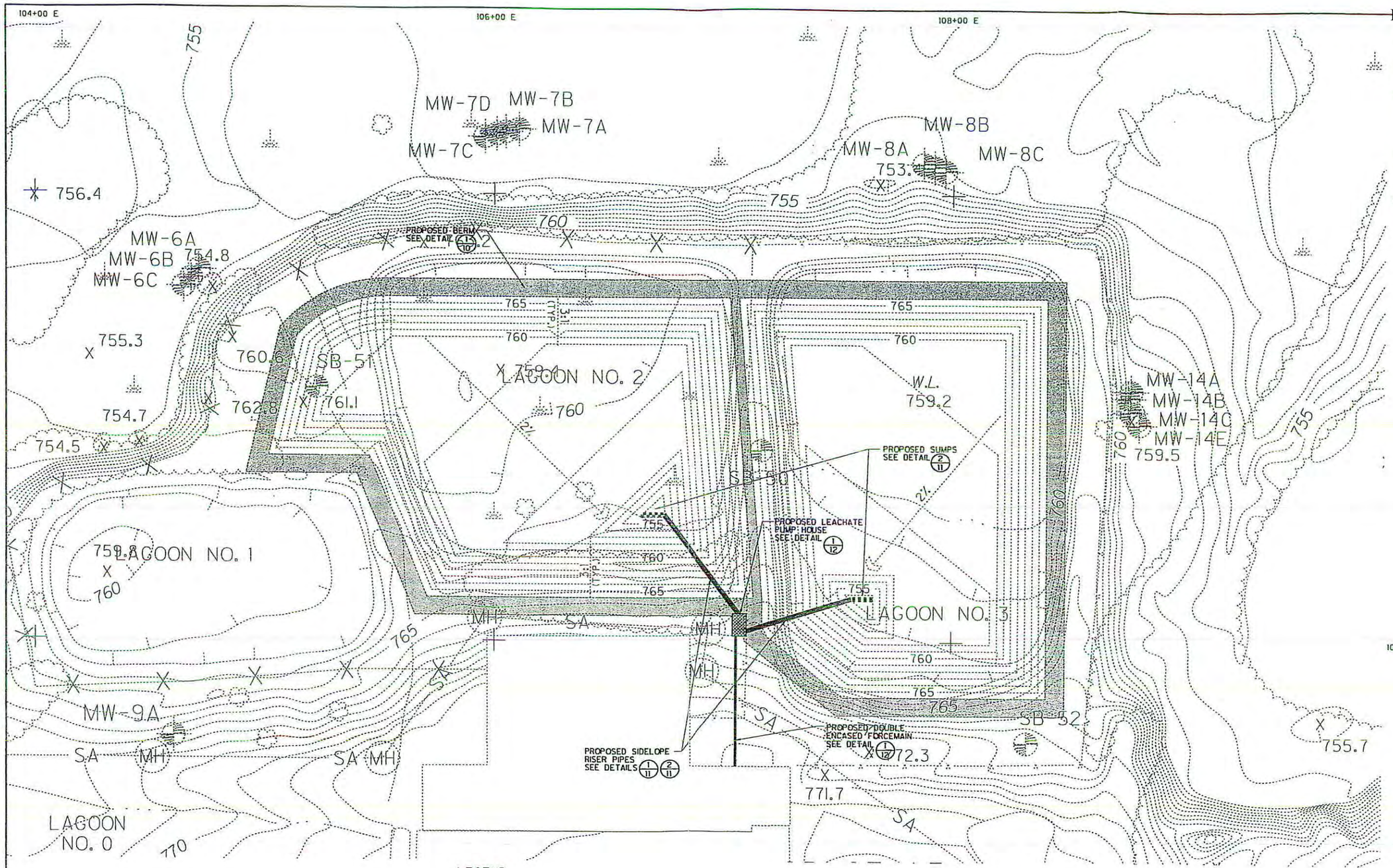
Attachment 2

APPENDIX C

Appendix C

CAMU Construction Drawings

R000234



LEGEND

- EXISTING BUILDING
- 750 — EXISTING GROUND CONTOUR
- X 759.4 — EXISTING SPOT ELEVATION
- DEPRESSION
- TREES AND / OR BRUSH
- EXISTING ROADWAY
- EXISTING TRAIL
- MARSH/SWAMP SYMBOL
- WATER BOUNDARY
- EXISTING FENCE
- MW-9A — MONITORING WELL
- BM — CONTROL MONUMENT
- APPROXIMATE PROPERTY LINE
- 760 — PROPOSED SUBBASE GRADES
- 3:1 — PROPOSED SLOPE RATIO
- 4% — PROPOSED SLOPE
- PROPOSED BERM
- PROPOSED SIDESLOPE RISER PIPE
- PROPOSED 6" PERFORATED PIPE

NOTES:

1. SITE LOCATION: SE ¼ OF SECTION 32, T27N, R8E, STEPHENSON COUNTY, ILLINOIS.
2. TOPOGRAPHICAL MAP PREPARED BY AERO-METRIC ENGINEERING, SHEBOYGAN, WISCONSIN. DATE OF PHOTOGRAPHY: NOVEMBER 28, 1986.
3. ELEVATIONS BASED ON MEAN SEA LEVEL DATUM. CONTROL INTERVAL IS ONE FOOT. BENCH MARK IS LOCATED ON THE N.W. CORNER OF THE PUMP STATION CONCRETE SLAB, COORDINATES N 10046.1 E 10491.0, AT ELEVATION 773.82 FEET.

CADD PROJ CODE: TM15 | PRF NAME: ***PRF***
DRAWN BY: JDW | DATE: MARCH, 1998
SURVEYED BY: N.A. | DATE: N.A.
SURVEY DATA: N.A.

RECORD DRAWINGS OF COMPLETED CONSTRUCTION CONFORMING TO CONTRACTORS AND/OR OWNERS RECORDS.

BY N.A. DATE

REVISIONS / REMARKS

NO.	BY	DATE
1		

APPROVED | REVIEWED | DESIGNED

Foth & Van Dyke
engineers - architects - scientists

REUSE OF DOCUMENTS
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PLAN OF OPERATION FOR THE CORRECTIVE ACTION MANAGEMENT UNIT AT THE MODERN PLATING CORPORATION FACILITY FREEPORT, ILLINOIS

LEACHATE COLLECTION SYSTEM

SCALE 0 20' 40'
SCOPE ID 97M015
DRAWING NO. 4

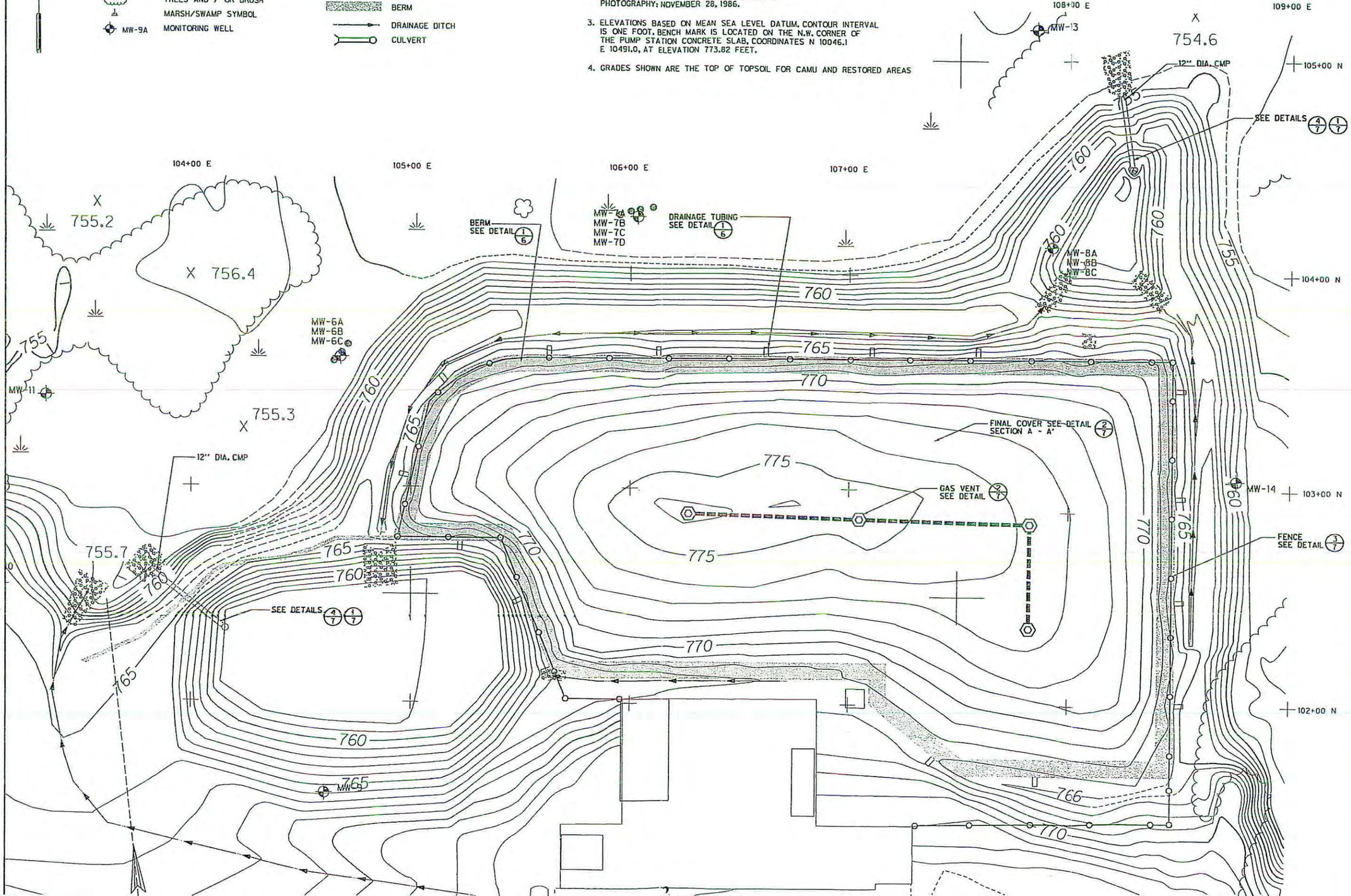
N

LEGEND

- EXISTING BUILDING
- X 759.4 — EXISTING SPOT ELEVATION
- DEPRESSION
- TREES AND / OR BRUSH
- MARSH/SWAMP SYMBOL
- MW-9A — MONITORING WELL
- 760 — DESIGN FINAL COVER GRADES
- SECURITY FENCE
- RIP RAP
- BERM
- DRAINAGE DITCH
- CULVERT

NOTES:

1. SITE LOCATION: SE ¼ OF SECTION 32, T27N, R8E, STEPHENSON COUNTY, ILLINOIS.
2. TOPOGRAPHICAL MAP PREPARED BY AERO-METRIC ENGINEERING, SHEBOYGAN, WISCONSIN. DATE OF PHOTOGRAPHY: NOVEMBER 28, 1986.
3. ELEVATIONS BASED ON MEAN SEA LEVEL DATUM. CONTOUR INTERVAL IS ONE FOOT. BENCH MARK IS LOCATED ON THE N.W. CORNER OF THE PUMP STATION CONCRETE SLAB, COORDINATES N 10046.1 E 10491.0, AT ELEVATION 773.82 FEET.
4. GRADES SHOWN ARE THE TOP OF TOPSOIL FOR CAMU AND RESTORED AREAS



CADD PROJ CODE: GM49 — PRF NAME:
DRAWN BY: JCW — DATE: JULY, 2001
SURVEYED BY: N.A. — DATE: N.A.
SURVEY DATA: — DATE: N.A.

RECORD DRAWINGS OF COMPLETED CONSTRUCTION CONFORMING TO CONTRACTORS AND/OR OWNERS RECORDS.

BY _____ DATE N.A.

REVISIONS / REMARKS

NO.	BY	DATE
△		

NO.	BY	DATE
△	MJCI	08/01/01

APPROVED

NO.	BY	DATE
△	REM	08/01/01

REVIEWED

NO.	BY	DATE
△	BJSI	08/01/01

DESIGNED

Foth & Van Dyke
consultants - engineers - scientists

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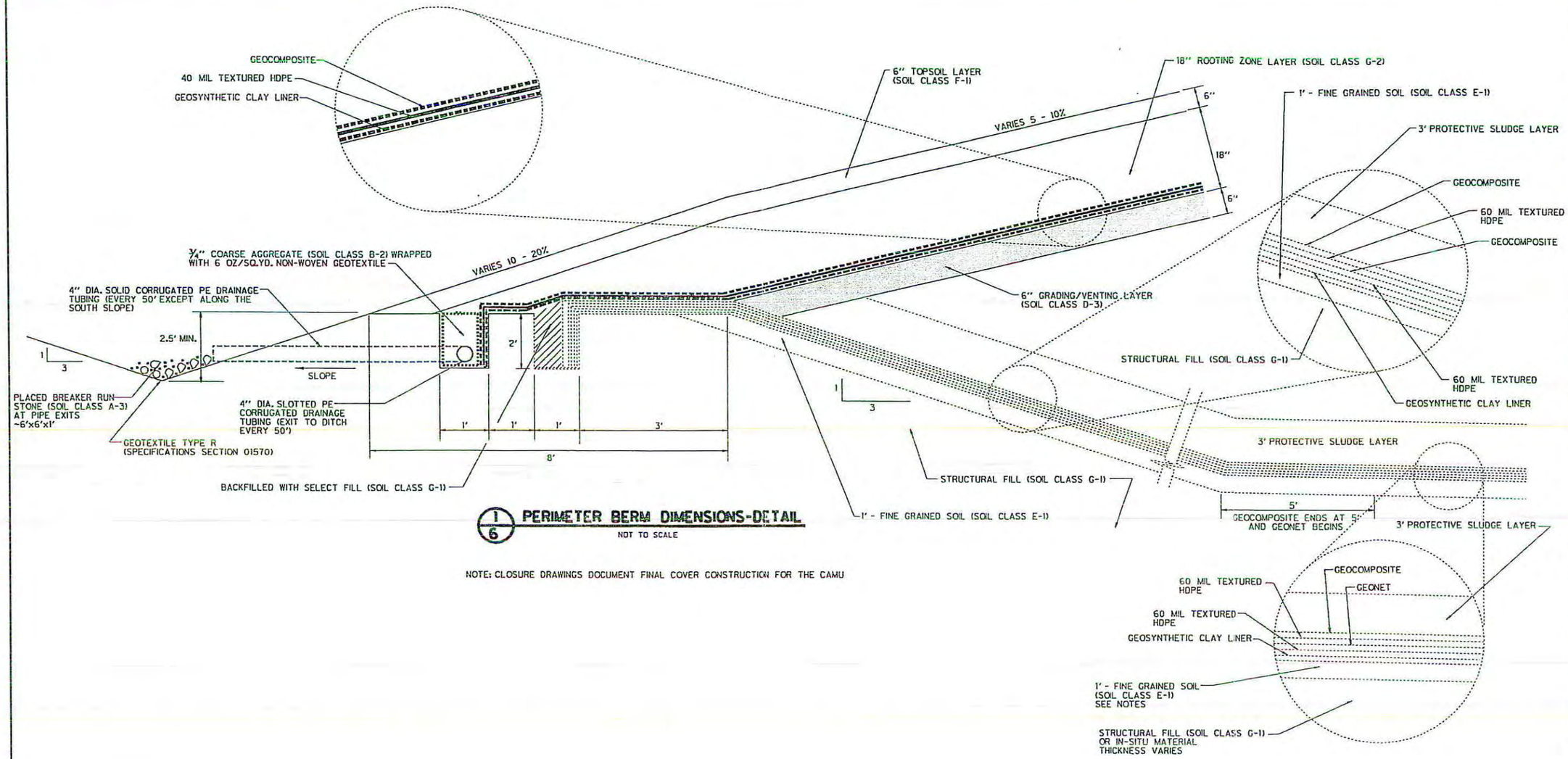
RECORD DRAWINGS FOR THE CLOSURE OF THE CORRECTIVE ACTION MANAGEMENT UNIT (CAMU) AND REMEDIATED UNITS MODERN PLATING CORPORATION FACILITY FREEPORT, ILLINOIS

CAMU FINAL GRADES SHOWING GAS VENTING SYSTEM

SCALE 0 20' 40'

SCOPE ID 97M015

DRAWING NO. 5



1/6 **PERIMETER BERM DIMENSIONS-DETAIL**

NOT TO SCALE

NOTE: CLOSURE DRAWINGS DOCUMENT FINAL COVER CONSTRUCTION FOR THE CAMU

CADD PROJ CODE: DM49 PRE RANGE
DRAWN BY: JCW DATE: JULY, 2001
SURVEYED BY: N.A. DATE: N.A.
SURVEY DATA: N.A.

RECORD DRAWINGS OF COMPLETED CONSTRUCTION CONFORMING TO CONTRACTORS AND/OR OWNERS RECORDS.

BY N.A. DATE

REVISIONS / REMARKS

NO.	BY	DATE
1		
2		
3		

APPROVED
REVIEWED
DESIGNED

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RECORD DRAWINGS FOR THE CLOSURE OF THE CORRECTIVE ACTION MANAGEMENT UNIT (CAMU) AND REMEDIATED UNITS MODERN PLATING CORPORATION FACILITY FREEPORT, ILLINOIS

DETAILS

SCALE NOT TO SCALE

SCOPE ID 97M015

DRAWING NO. 6

102+50 E

105+00 E

107+50 E

N

105+00 N

102+50 N

100+00 N

PILE

754.3

X 755.6

X 753.4

756.7 X

754.8 X

755

MW-15A
MW-15B
MW-15C

MW-12E
MW-12C
MW-12B
MW-12A

X 753.5

MW-13A
MW-13B
MW-13C
MW-13E

X 754.6

PROPOSED SEDIMENTATION BASIN NO. 3 SEE DETAIL 1/13

X 755.2

X 755.3

X 756.4

MW-7D MW-7B MW-7A MW-7C

PROPOSED DRAINAGE DITCH SEE DETAIL 3/13

PROPOSED FINAL COVER SEE DETAIL 1/10

PROPOSED CYCLONE FENCE SEE DETAIL 1/14

MW-6A
MW-6B 754.8
MW-6C

MW-11E
MW-11C
MW-11B
MW-11A

X 755.3

760
765
755

PROPOSED SEDIMENTATION BASIN NO. 2 SEE DETAIL 1/13

754.7

754.5

RIPRAP

MW-10A

LAGOON NO. 1A

767.6 X

LAGOON NO. 0

759.2 X

0.5%

LAGOON NO. 2

LAGOON NO. 3

MW-14A
MW-14B
MW-14C
MW-14E
759.5

PROPOSED LEACHATE PUMP BUILDING SEE DETAIL 1/12

PROPOSED GAS TRENCH SEE DETAIL 3/13

PROPOSED GAS VENT SEE DETAIL 2/13

MW-9A

SA MH

X 772.3

771.7 X

EXISTING FENCE AND GATE

X 774.7

MW-22A
MW-22C

BM

X 775.1

X 776.1

LEGEND

- EXISTING BUILDING
- 750 EXISTING GROUND CONTOUR
- X 759.4 EXISTING SPOT ELEVATION
- DEPRESSION
- TREES AND / OR BRUSH
- EXISTING ROADWAY
- EXISTING TRAIL
- MARSH/SWAMP SYMBOL
- WATER BOUNDARY
- EXISTING FENCE
- MW-9A MONITORING WELL
- BM CONTROL MONUMENT
- APPROXIMATE PROPERTY LINE
- PROPOSED DRAINAGE DITCH
- 760 PROPOSED FINAL GRADES
- 3:1 PROPOSED SLOPE RATIO
- 4% PROPOSED SLOPE
- PROPOSED CYCLONE FENCE
- PROPOSED GAS VENT
- PROPOSED GAS TRENCH

NOTES:

1. SITE LOCATION: SE 1/4 OF SECTION 32, T27N, R8E, STEPHENSON COUNTY, ILLINOIS.
2. TOPOGRAPHICAL MAP PREPARED BY AERO-METRIC ENGINEERING, SHEBOYGAN, WISCONSIN. DATE OF PHOTOGRAPHY: NOVEMBER 28, 1986.
3. ELEVATIONS BASED ON MEAN SEA LEVEL DATUM. CONTROL INTERVAL IS ONE FOOT. BENCH MARK IS LOCATED ON THE N.W. CORNER OF THE PUMP STATION CONCRETE SLAB, COORDINATES N 10046.1 E 10491.0, AT ELEVATION 773.82 FEET.
4. GRADES SHOWN ARE TOP OF FINAL COVER.
5. LAGOONS NO. 0 AND 1 FINAL GRADES ARE NOT SHOWN. THEY WILL BE GRADED TO DRAIN.

CADD PROJ CODE: 7MI5 | PRF NAME:

DRAWN BY: | DATE: MARCH, 1998

SURVEYED BY: JOW | DATE: N.A.

SURVEY DATA: N.A. | DATE: N.A.

RECORD DRAWINGS OF COMPLETED CONSTRUCTION CONFORMING TO CONTRACTORS AND/OR OWNERS RECORDS.

BY N.A. DATE

REVISIONS / REMARKS

NO.	BY	DATE
1	NKP	03/24/98

APPROVED

NO.	BY	DATE
1	REM	03/24/98

REVIEWED

NO.	BY	DATE
1	MRS	03/24/98

DESIGNED

Foth & Van Dyke
engineers - architects - scientists

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PLAN OF OPERATION FOR THE CORRECTIVE ACTION MANAGEMENT UNIT AT THE MODERN PLATING CORPORATION FACILITY FREEPORT, ILLINOIS

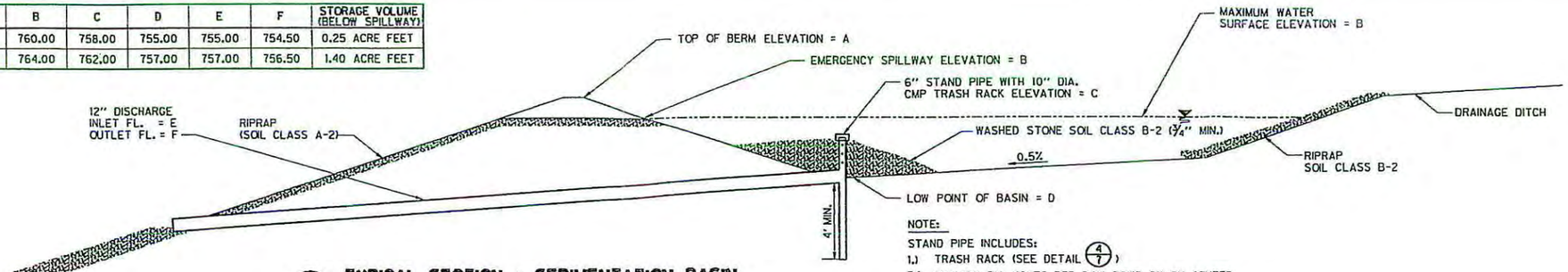
FINAL GRADES

SCALE 0 30' 60'

SCOPE ID 97M015

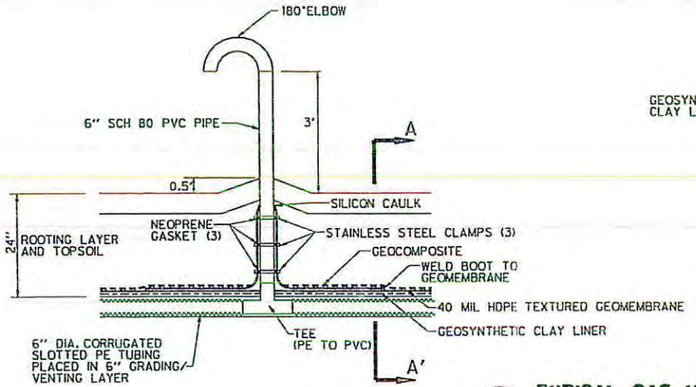
DRAWING NO. 7A

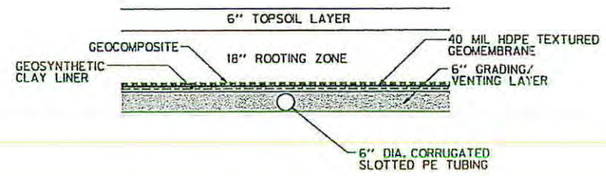
	A	B	C	D	E	F	STORAGE VOLUME (BELOW SPILLWAY)
SEDIMENTATION BASIN 1	762.00	760.00	758.00	755.00	755.00	754.50	0.25 ACRE FEET
SEDIMENTATION BASIN 2	766.00	764.00	762.00	757.00	757.00	756.50	1.40 ACRE FEET



NOTE:
STAND PIPE INCLUDES:
1.) TRASH RACK (SEE DETAIL 4/7)
2.) (4)-1/2" DIA. HOLES PER ROW, ROWS 6" ON CENTER
3.) WRAP WITH AKZO ENKADRAIN 9120 OR EQUAL

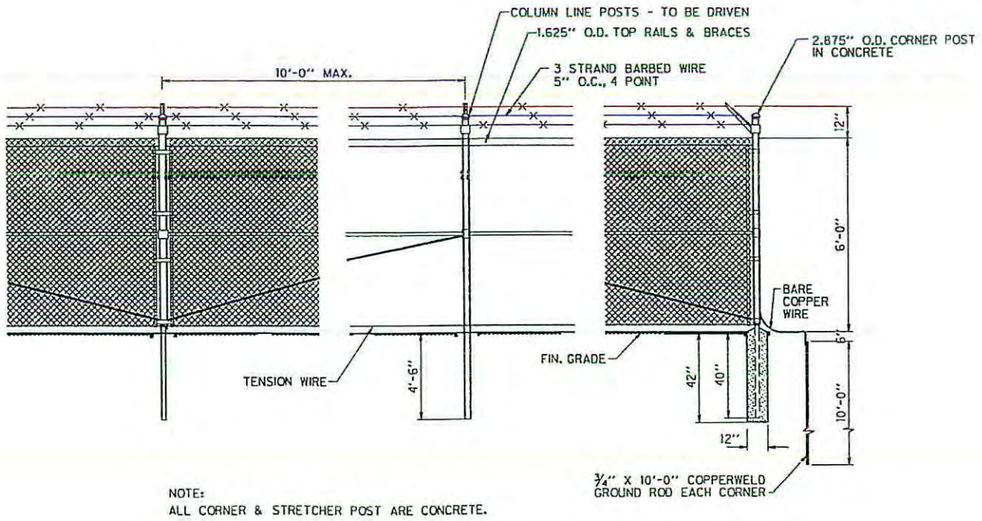
1/7 TYPICAL SECTION - SEDIMENTATION BASIN
NOT TO SCALE





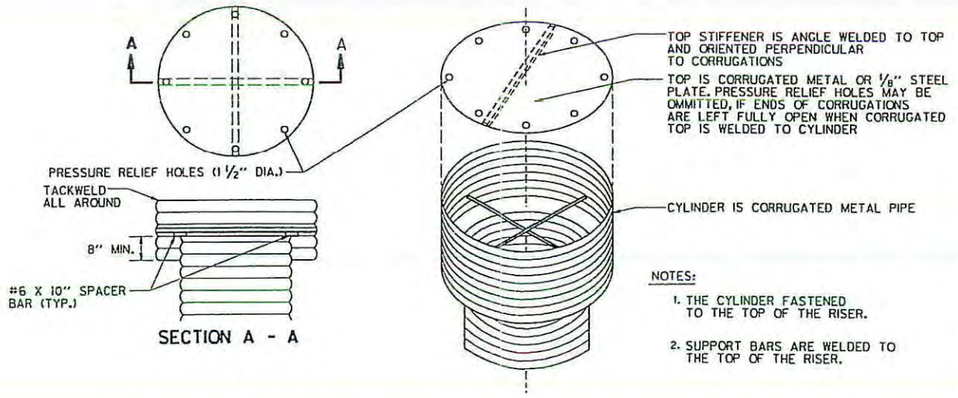
SECTION A - A'

2/7 TYPICAL GAS VENT DETAIL
NOT TO SCALE



NOTE:
ALL CORNER & STRETCHER POST ARE CONCRETE.

3/7 TYPICAL CLYCLONE FENCE
NOT TO SCALE



NOTES:
1. THE CYLINDER FASTENED TO THE TOP OF THE RISER.
2. SUPPORT BARS ARE WELDED TO THE TOP OF THE RISER.

4/7 CONCENTRIC TRASH RACK AND ANTI-VORTEX DEVICE DETAIL
NOT TO SCALE

CADD PROJ CODE: 0M49 | PRF ROAD
DRAWN BY: JOW | DATE: JULY, 2001
SURVEYED BY: N.A. | DATE: N.A.
SURVEY DATA: N.A.

RECORD DRAWINGS OF COMPLETED CONSTRUCTION CONFORMING TO CONTRACTORS AND/OR OWNERS RECORDS.
BY N.A. DATE

REVISIONS / REMARKS

NO.	BY	DATE
△		

NO.	BY	DATE
△		

APPROVED
REVIEWED
DESIGNED

Foth & Van Dyke
consultants - engineers - scientists

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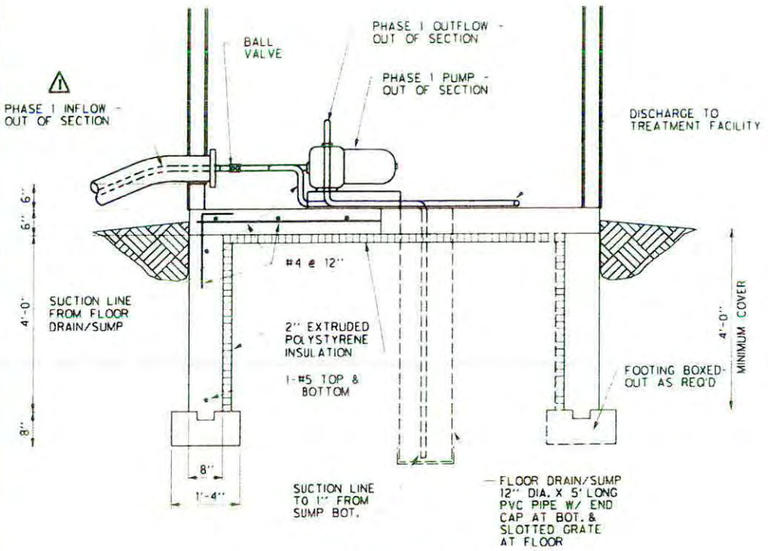
RECORD DRAWINGS FOR THE CLOSURE OF THE CORRECTIVE ACTION MANAGEMENT UNIT (CAMU) AND REMEDIATED UNITS MODERN PLATING CORPORATION FACILITY FREEPORT, ILLINOIS

DETAILS

SCALE: NOT TO SCALE
SCOPE ID: 97M015
DRAWING NO. 7B



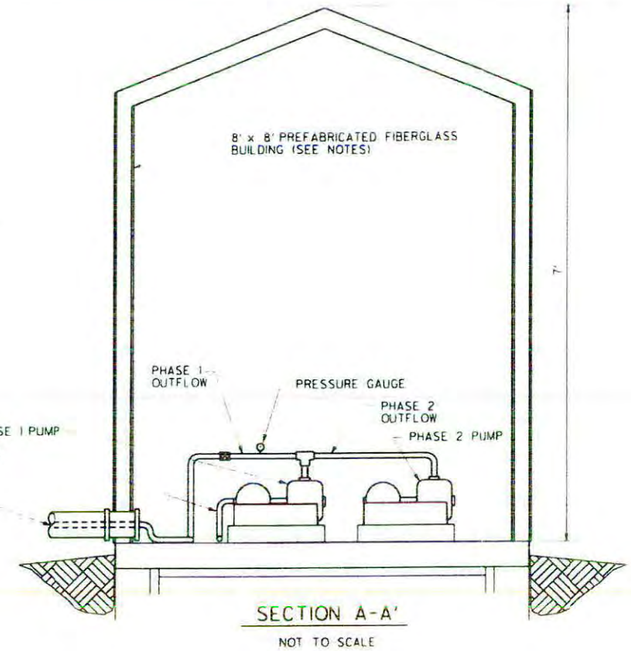
SECTION B-B'

NOT TO SCALE

NOTES:

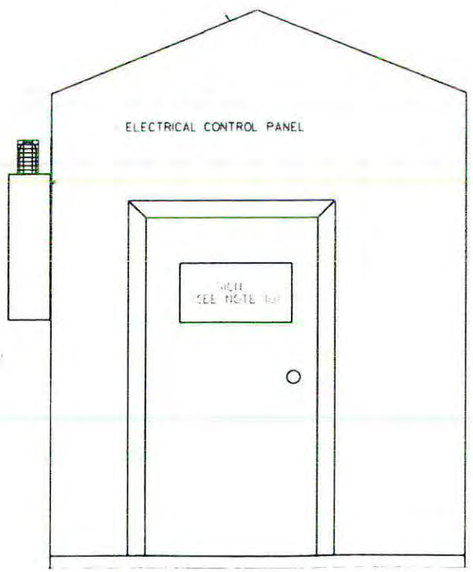
8'x8' PRE-FABRICATED FIBERGLASS BUILDING. (KEN-SHELTER, MODEL ECS.) EQUIPPED AS FOLLOWS:

1. 30" WIDE x 75" HIGH FLUSH FITTING FRP DOOR WITH STAINLESS STEEL HARDWARE.
2. EXHAUST FAN.
3. ONE INTERIOR EXPLOSION-PROOF LIGHT (100 WATT).
4. EXTERIOR SWITCH FOR LIGHTING AND EXHAUST FAN.
5. GRAVITY OPERATED AIR INTAKE VENT.
6. THERMOSTATICALLY CONTROLLED EXPLOSION PROOF HEATER TO MAINTAIN INTERIOR TEMPERATURE ABOVE 40°F.
7. COLOR BY OWNER.
8. ALL EQUIPMENT EXPLOSION-PROOF (CLASS I, DIV 1).
9. ALL WIRING INTRINSICALLY SAFE.
10. PROVIDED FIBERGLASS WARNING SIGN ON DOOR WITH THE FOLLOWING: "POTENTIAL FOR EXPLOSIVE GASES VENTILATE BEFORE ENTERING".
11. ALL CONNECTIONS/PENETRATIONS IN SIDESLOPE RISER PIPE ARE AIRTIGHT.



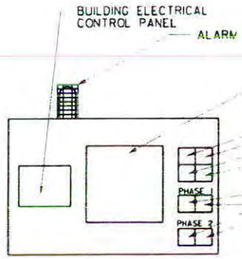
SECTION A-A'

NOT TO SCALE

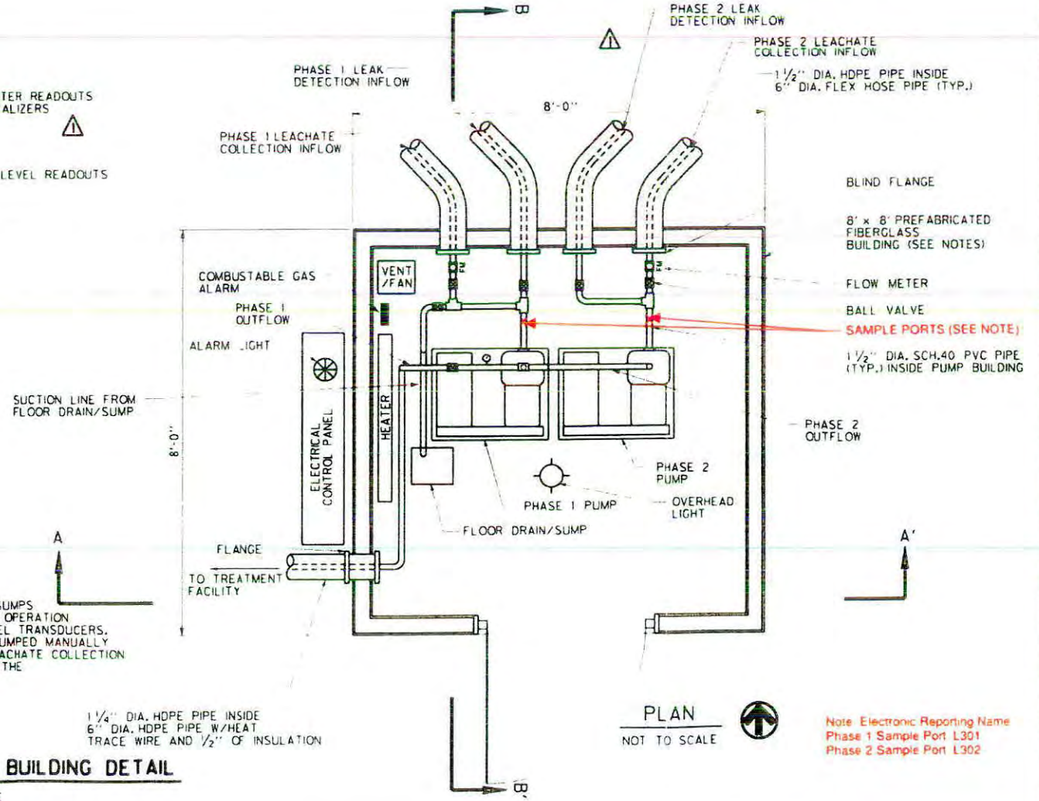


ELEVATION

NOT TO SCALE



FRONT VIEW OF CONTROL PANEL



PLAN

NOT TO SCALE

NOTE: THE LEACHATE COLLECTION SUMPS ARE PUMPED AUTOMATICALLY. PUMP OPERATION IS CONTROLLED BY THE LIQUID LEVEL TRANSDUCERS. THE LEAK DETECTION SUMPS ARE PUMPED MANUALLY BY CLOSING THE VALVE TO THE LEACHATE COLLECTION SUMP AND OPENING THE VALVE TO THE LEAK DETECTION SUMP.

1¼" DIA. HDPE PIPE INSIDE 6" DIA. HDPE PIPE W/HEAT TRACE WIRE AND ½" OF INSULATION

1/11 LEACHATE PUMP BUILDING DETAIL

NOT TO SCALE

Note Electronic Reporting Name
Phase 1 Sample Port L301
Phase 2 Sample Port L302

CADD PROJ CODE: 0M49 | PRF NAME: L:\Projects\Modern Plating\Details\97MD15D.DWG
DRAWN BY: JDW | DATE: JULY, 2001
SURVEYED BY: N.A. | DATE: N.A.
SURVEY DATA: N.A.

RECORD DRAWINGS OF COMPLETED CONSTRUCTION CONFORMING TO CONTRACTORS AND/OR OWNERS RECORDS.

BY: N.A. DATE

NO	BY	DATE	REVISIONS / REMARKS
1	BJS1	10/28/02	ADDED PHASE 2 LEAK DETECTION

APPROVED | REVIEWED | DESIGNED

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consultants - engineers - scientists

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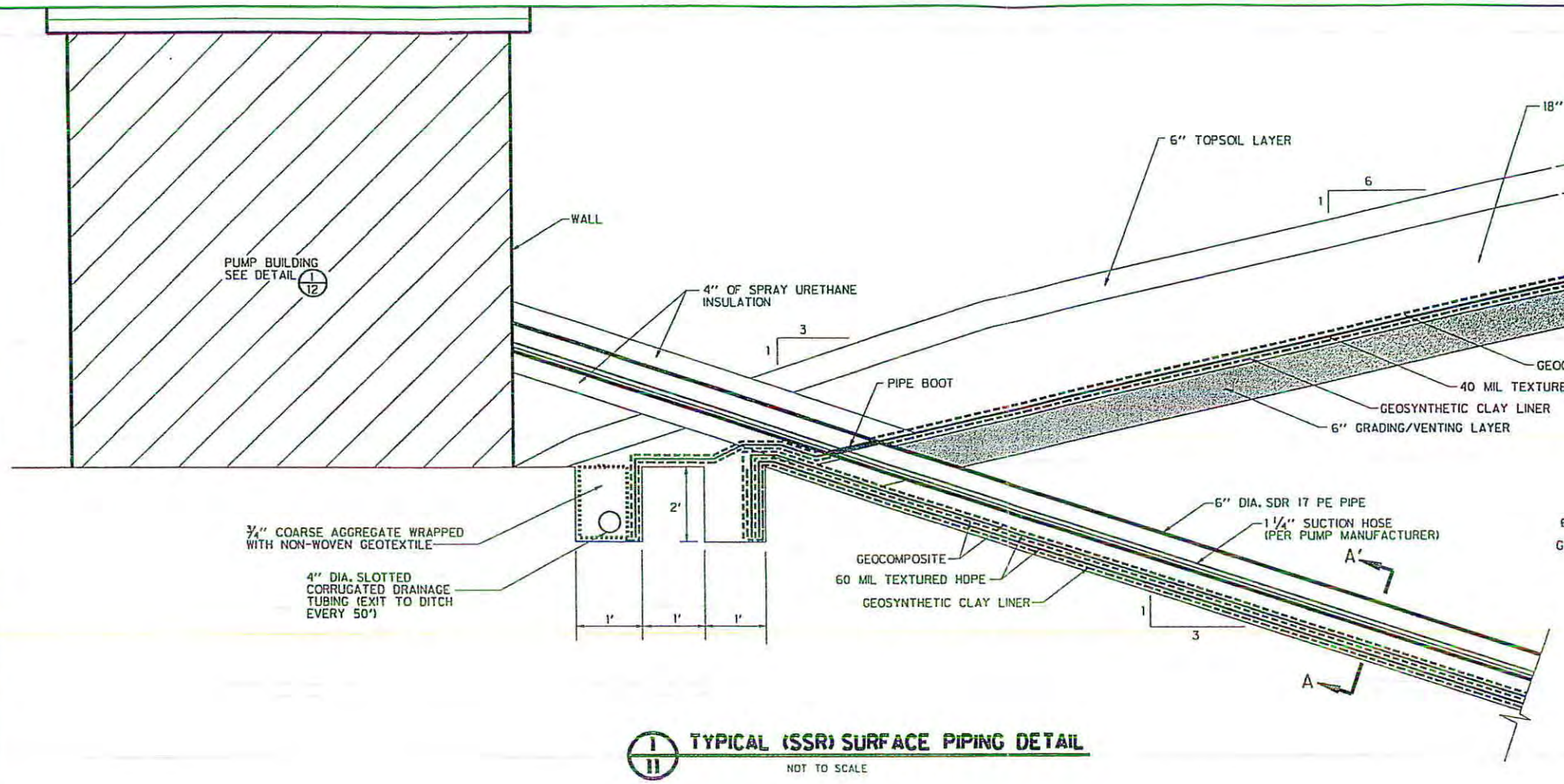
RECORD DRAWINGS FOR THE SITE REMEDIATION INCLUDING CAMU LANDFILL CONSTRUCTION AT THE MODERN PLATING CORPORATION FACILITY FREEPORT, ILLINOIS

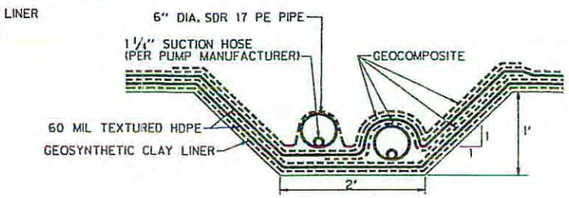
DETAILS

SCALE: NOT TO SCALE
SCOPE ID: 97M015
DRAWING NO. 11R



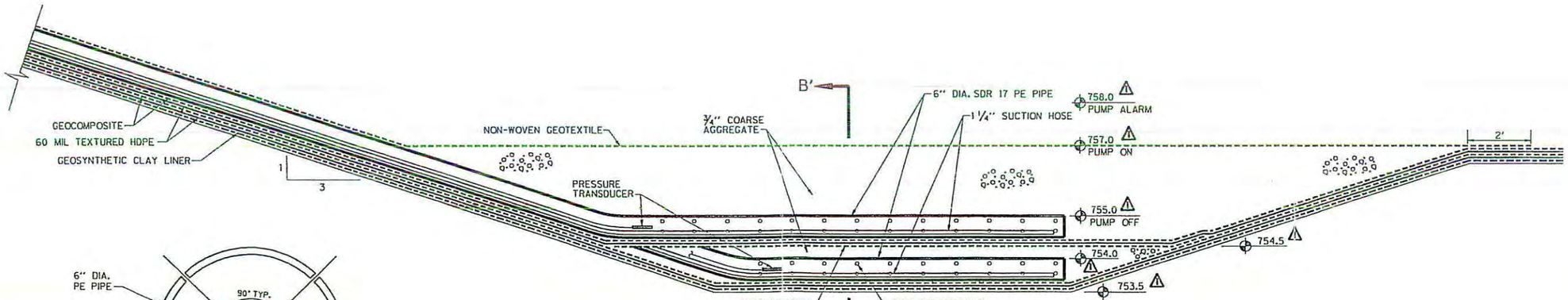
1/11 TYPICAL (SSR) SURFACE PIPING DETAIL

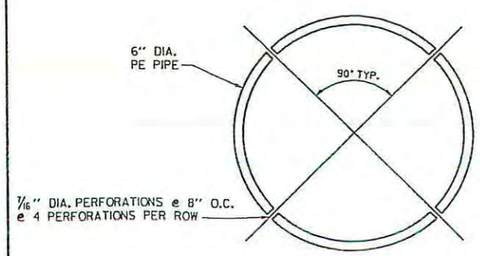
NOT TO SCALE



SECTION A - A'

NOT TO SCALE



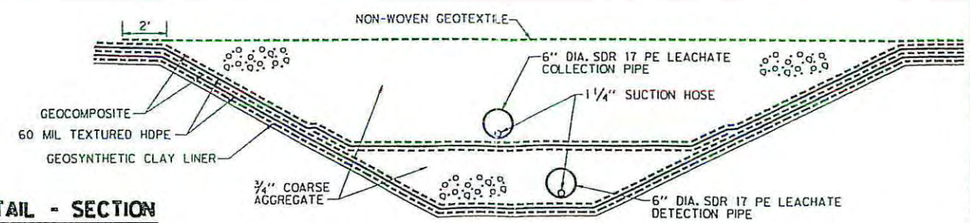


SSR PIPE PERFORATION DETAIL

NOT TO SCALE

2/11 TYPICAL SIDE SLOPE RISER (SSR) SUMP DETAIL - SECTION

NOT TO SCALE



SECTION B - B'

NOT TO SCALE

CADD PROJ CODE: 7M15 | PRF NAME:
DRAWN BY: JCW | DATE: MARCH, 1998
SURVEYED BY: N.A. | DATE: N.A.
SURVEY DATA: N.A.

RECORD DRAWINGS OF COMPLETED CONSTRUCTION CONFORMING TO CONTRACTORS AND/OR OWNERS RECORDS.

BY N.A. DATE

REVISIONS / REMARKS

NO.	BY	DATE	NO.	BY	DATE
1	MRS	05/21/98	1		APPROVED
1	CORRECTED ELEVATIONS		1		REVIEWED
1			1		DESIGNED

Foth & Van Dyke
engineers - architects - scientists

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PLAN OF OPERATION FOR THE CORRECTIVE ACTION MANAGEMENT UNIT AT THE MODERN PLATING CORPORATION FACILITY FREEPORT, ILLINOIS

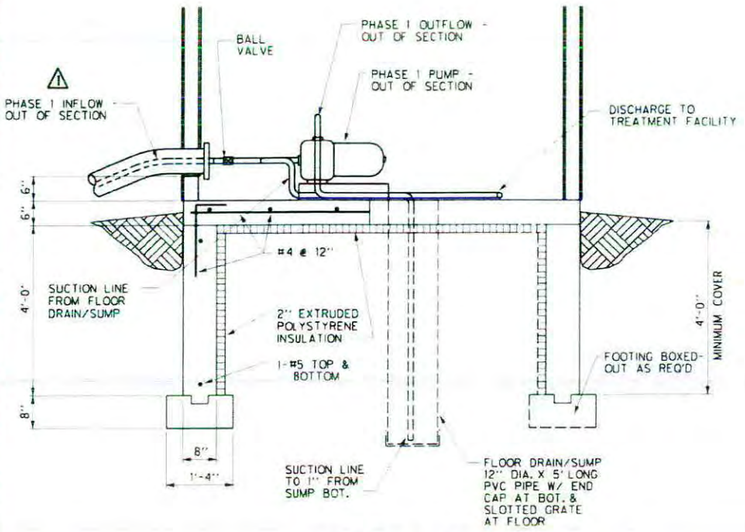
DETAILS

SCALE NOT TO SCALE

SCOPE ID 97M015

DRAWING NO. 11R

R000241



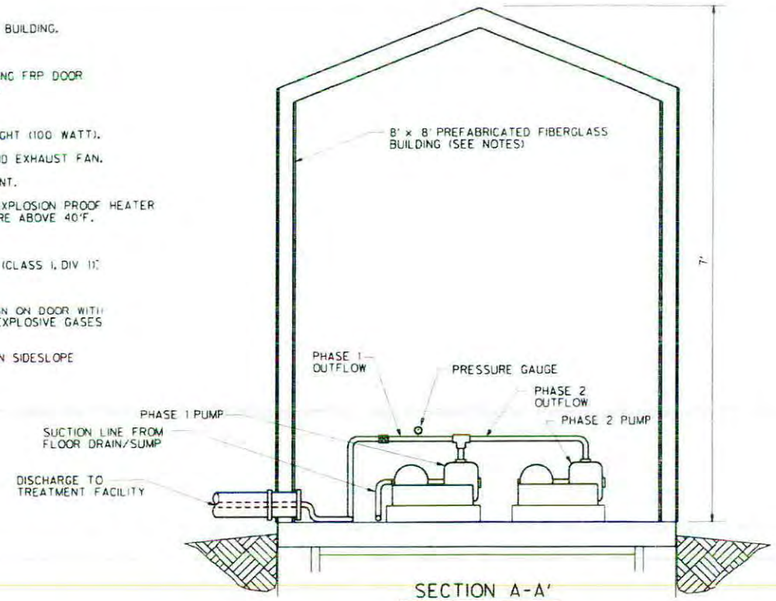
SECTION B-B'

NOT TO SCALE

NOTES:

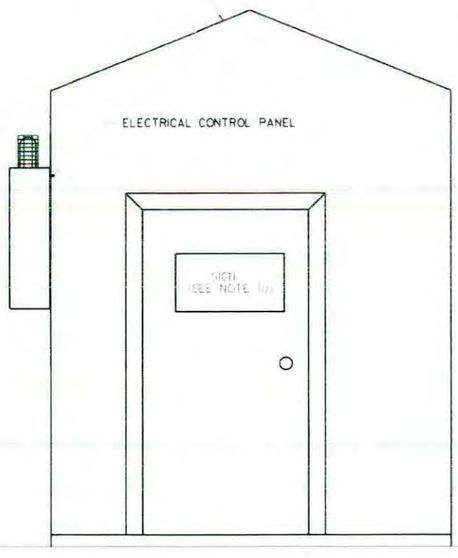
8'x8' PRE-FABRICATED FIBERGLASS BUILDING. (KEN-SHELTER, MODEL ECS.) EQUIPPED AS FOLLOWS:

1. 30" WIDE x 75" HIGH FLUSH FITTING FRP DOOR WITH STAINLESS STEEL HARDWARE.
2. EXHAUST FAN.
3. ONE INTERIOR EXPLOSION-PROOF LIGHT (100 WATT).
4. EXTERIOR SWITCH FOR LIGHTING AND EXHAUST FAN.
5. GRAVITY OPERATED AIR INTAKE VENT.
6. THERMOSTATICALLY CONTROLLED EXPLOSION PROOF HEATER TO MAINTAIN INTERIOR TEMPERATURE ABOVE 40°F.
7. COLOR BY OWNER.
8. ALL EQUIPMENT EXPLOSION-PROOF (CLASS I, DIV II).
9. ALL WIRING INTRINSICALLY SAFE.
10. PROVIDED FIBERGLASS WARNING SIGN ON DOOR WITH THE FOLLOWING: "POTENTIAL FOR EXPLOSIVE GASES VENTILATE BEFORE ENTERING".
11. ALL CONNECTIONS/PENETRATIONS IN SIDESLOPE RISER PIPE ARE AIRTIGHT.



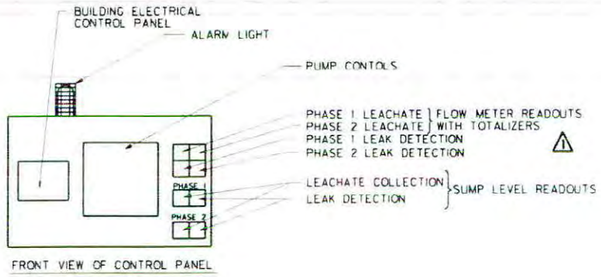
SECTION A-A'

NOT TO SCALE



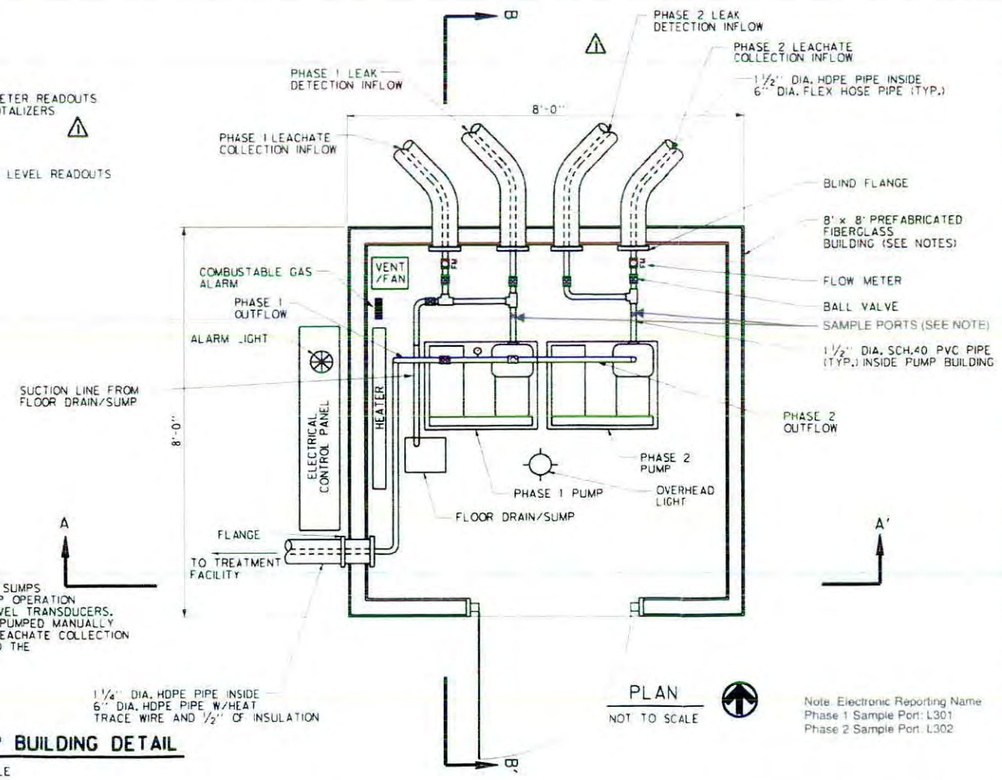
ELEVATION

NOT TO SCALE



FRONT VIEW OF CONTROL PANEL

NOTE: THE LEACHATE COLLECTION SUMPS ARE PUMPED AUTOMATICALLY. PUMP OPERATION IS CONTROLLED BY THE LIQUID LEVEL TRANSDUCERS. THE LEAK DETECTION SUMPS ARE PUMPED MANUALLY BY CLOSING THE VALVE TO THE LEACHATE COLLECTION SUMP AND OPENING THE VALVE TO THE LEAK DETECTION SUMP.



PLAN

NOT TO SCALE

Note: Electronic Reporting Name
Phase 1 Sample Port: L301
Phase 2 Sample Port: L302

1/11 LEACHATE PUMP BUILDING DETAIL

NOT TO SCALE

CADD PROJ CODE: 0449 P&F D.&C.
DRAWN BY: JDW DATE: JULY, 2001
SURVEYED BY: N.A. DATE: N.A.
SURVEY DATA: SURVEY DATA: N.A.

RECORD DRAWINGS OF COMPLETED CONSTRUCTION CONFORMING TO CONTRACTORS AND/OR OWNERS RECORDS.

N.A. DATE

NO.	BY	DATE
1	BJS	10/28/02

REVISIONS / REMARKS
ADD'L BLDG. ELEC. CONTR. PANEL

APPROVED
REVIEWED
DESIGNED

Foth & Van Dyke
consultants - engineers - scientists

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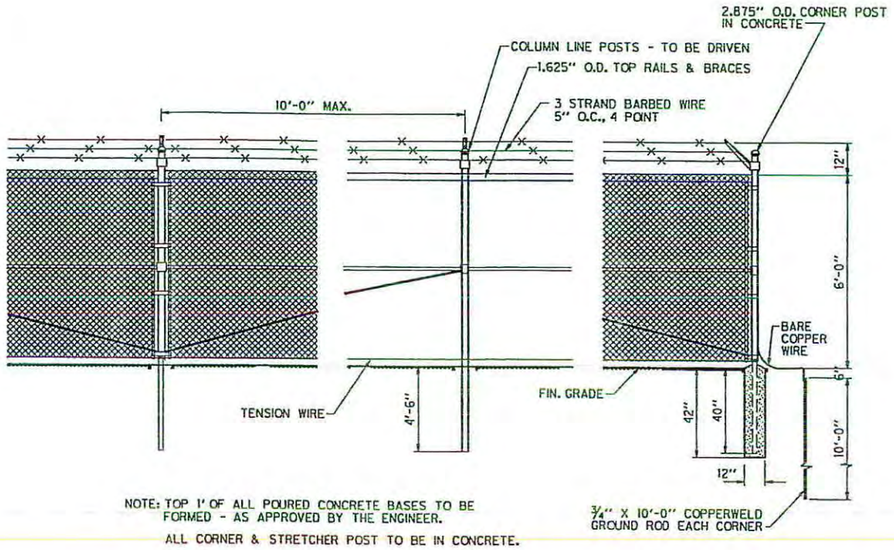
RECORD DRAWINGS FOR THE SITE REMEDIATION INCLUDING CAMU LANDFILL CONSTRUCTION AT THE MODERN PLATING CORPORATION FACILITY FREEPORT, ILLINOIS

DETAILS

SCALE
NOT TO SCALE

SCOPE ID 97M015

DRAWING NO.
12

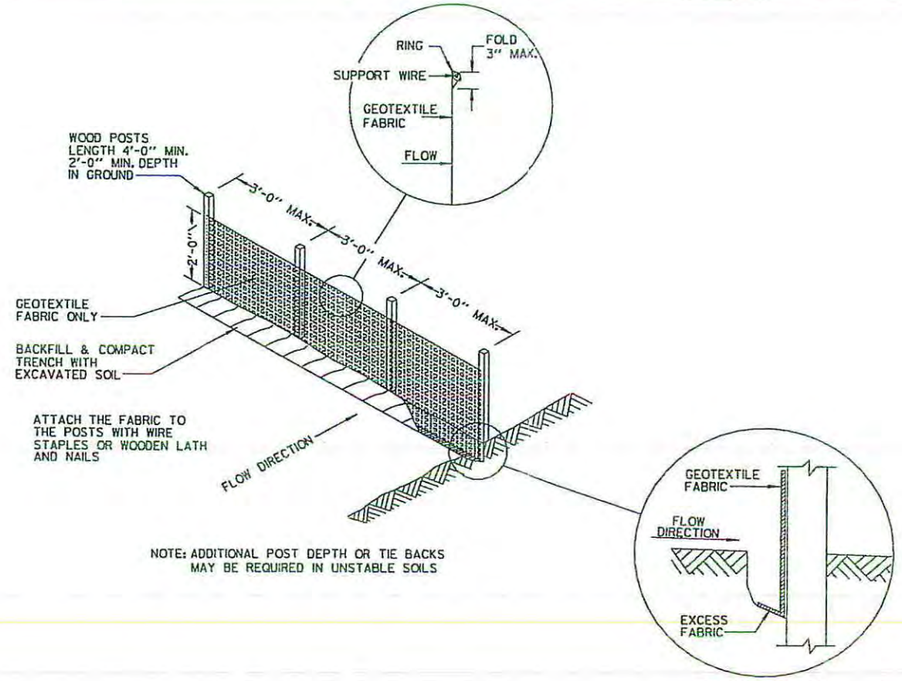


NOTE: TOP 1' OF ALL POURED CONCRETE BASES TO BE FORMED - AS APPROVED BY THE ENGINEER.

ALL CORNER & STRETCHER POST TO BE IN CONCRETE.

1/14 TYPICAL CLYCLONE FENCE GATE

NOT TO SCALE

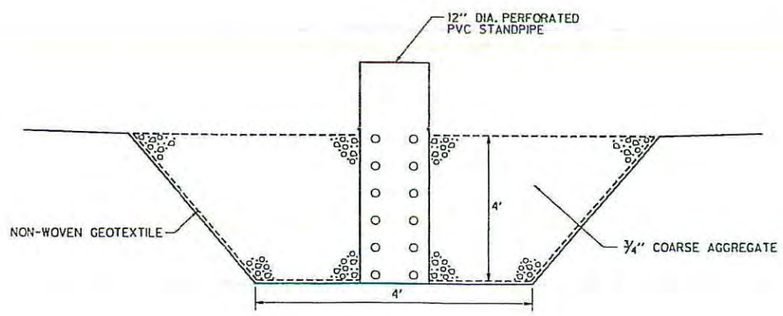


NOTE: ADDITIONAL POST DEPTH OR TIE BACKS MAY BE REQUIRED IN UNSTABLE SOILS

TRENCH DETAIL

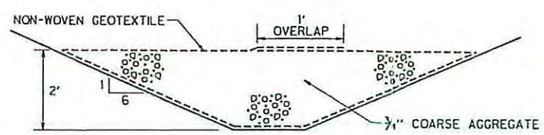
2/14 TYPICAL SEDIMENT FENCE

NOT TO SCALE



3/14 TEMPORARY DEWATERING SUMP

NOT TO SCALE



4/14 TEMPORARY DEWATERING TRENCH

NOT TO SCALE

CADD PROJ CODE: 7M15 | PRF NAME: | MARCH, 1998
DRAWN BY: JCW | DATE: | N.A.
SURVEYED BY: N.A. | DATE: | N.A.
SURVEY DATA: | N.A.

RECORD DRAWINGS OF COMPLETED CONSTRUCTION CONFORMING TO CONTRACTORS AND/OR OWNERS RECORDS.
BY N.A. DATE

REVISIONS / REMARKS

NO	BY	DATE
1		

APPROVED | REVIEWED | DESIGNED

Foth & Van Dyke
engineers - architects - scientists

REUSE OF DOCUMENTS
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PLAN OF OPERATION FOR THE CORRECTIVE ACTION MANAGEMENT UNIT AT THE MODERN PLATING CORPORATION FACILITY FREEPORT, ILLINOIS

DETAILS

SCALE NOT TO SCALE

SCOPE ID 97M015

DRAWING NO. 14

Attachment 2

APPENDIX D

Appendix D

CAMU Location Information

R000245

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

PRELIMINARY MAP OF YOUNG FAULTS IN THE UNITED STATES AS A GUIDE TO POSSIBLE FAULT ACTIVITY

By K.A. Howard, J.M. Aaron, E.E. Brabb, M.R. Brock, H.D. Gower, S.J. Hunt, D.J. Milton, W.R. Muehlberger, J.K. Nakata, G. Plafker, D.C. Prowell, R.E. Wallace, and I.J. Witkind

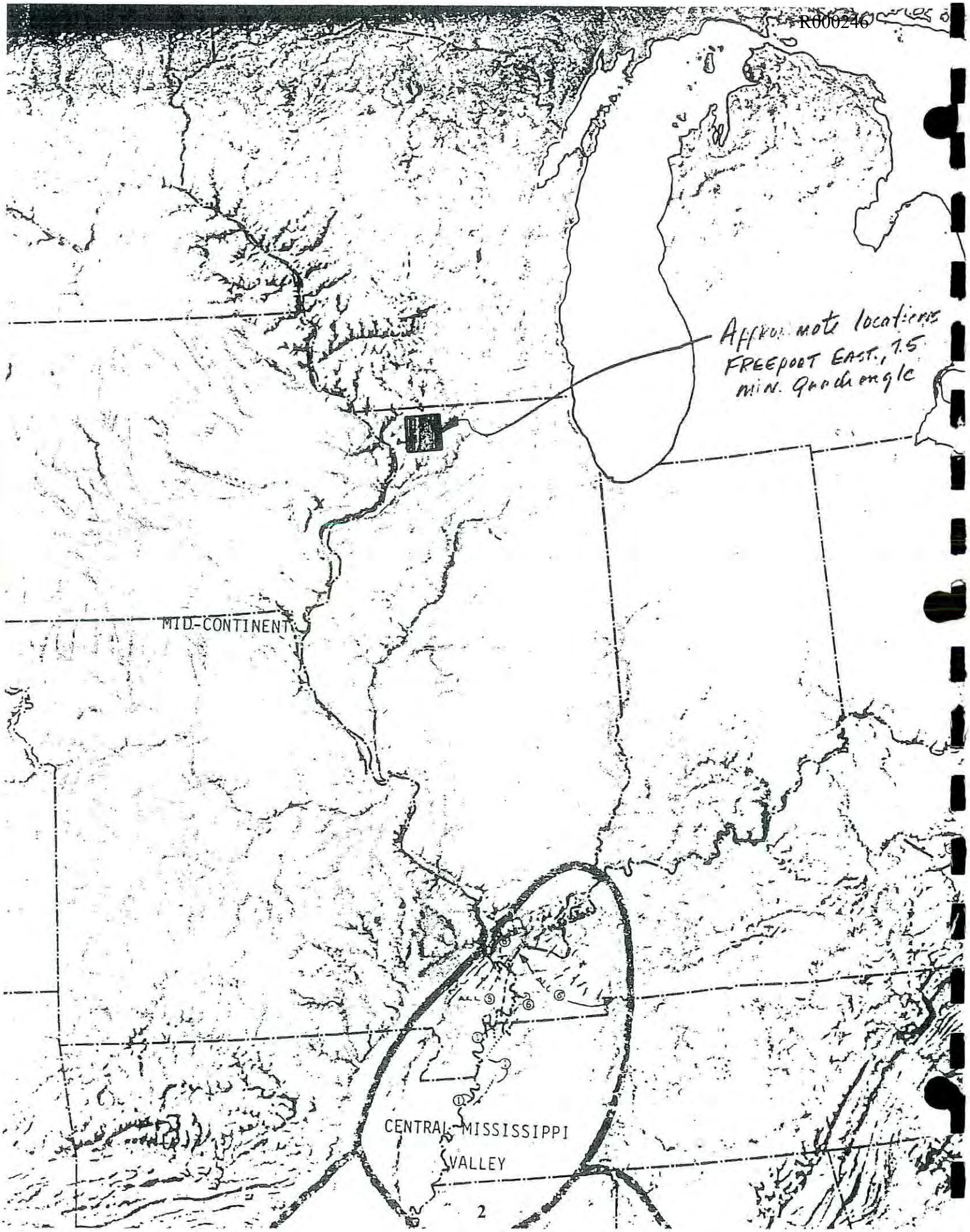
C.1
Howard, K.A.
Preliminary map of
young faults in the
United States as a

NOV 15 1993

LIBRARY
FOTH & VAN DYKE
Green Bay, WI

DEMCO

MISCELLANEOUS FIELD STUDIES MAP
Published by the U.S. Geological Survey, 1978
Reprinted 1979, 1991


Approximate locations
FREEPORT EAST, 7.5
min. Quadrangle
MID-CONTINENT
CENTRAL MISSISSIPPI
VALLEY

R000247

EPARTMENT OF THE INTERIOR
S. GEOLOGICAL SURVEY

ROBABILISTIC EARTHQUAKE ACCELERATION AND VELOCITY TAPS FOR THE UNITED STATES AND PUERTO RICO

y S.T. Algermissen, D.M. Perkins, P.C. Thenhaus,
L. Hanson, and B.L. Bender

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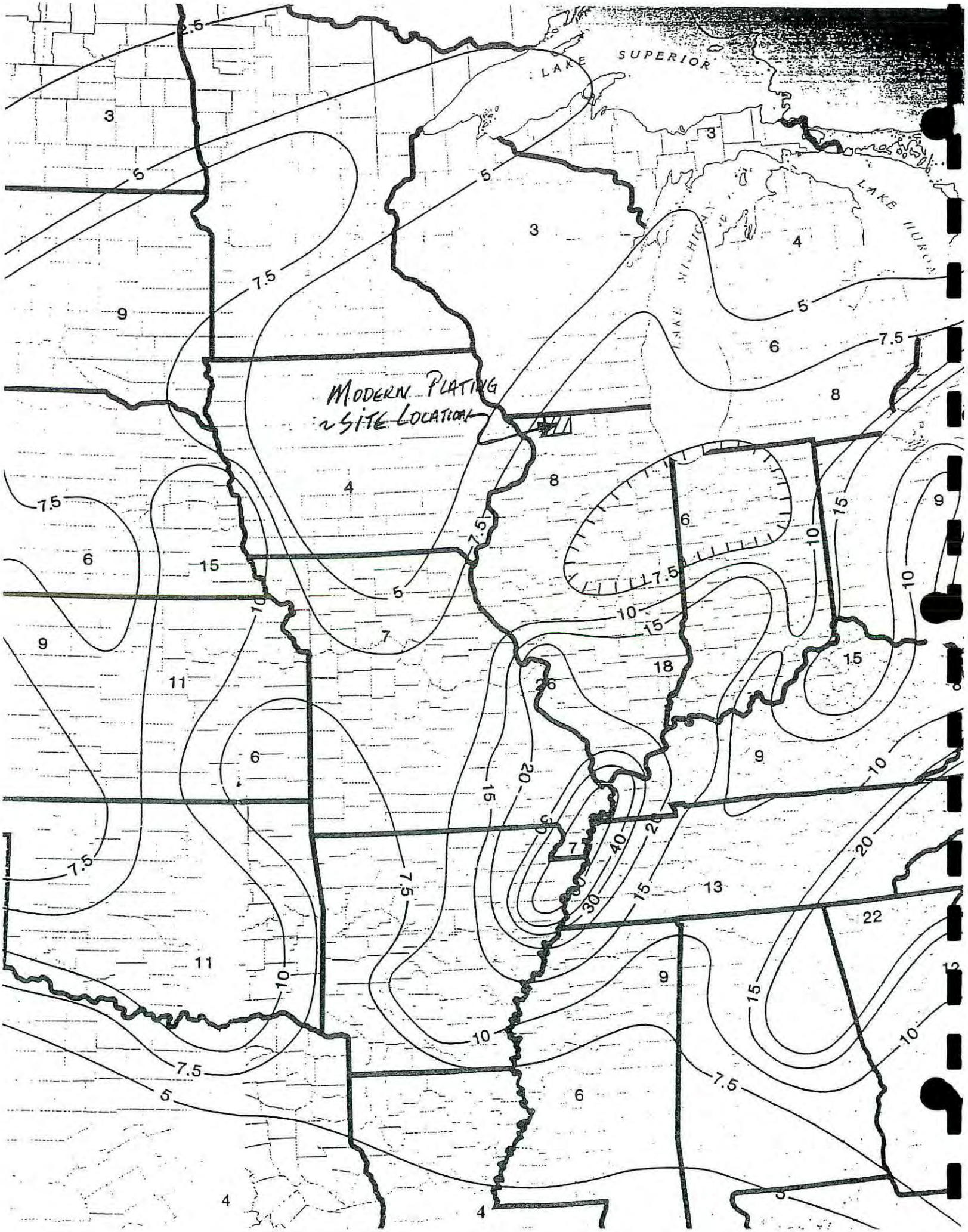
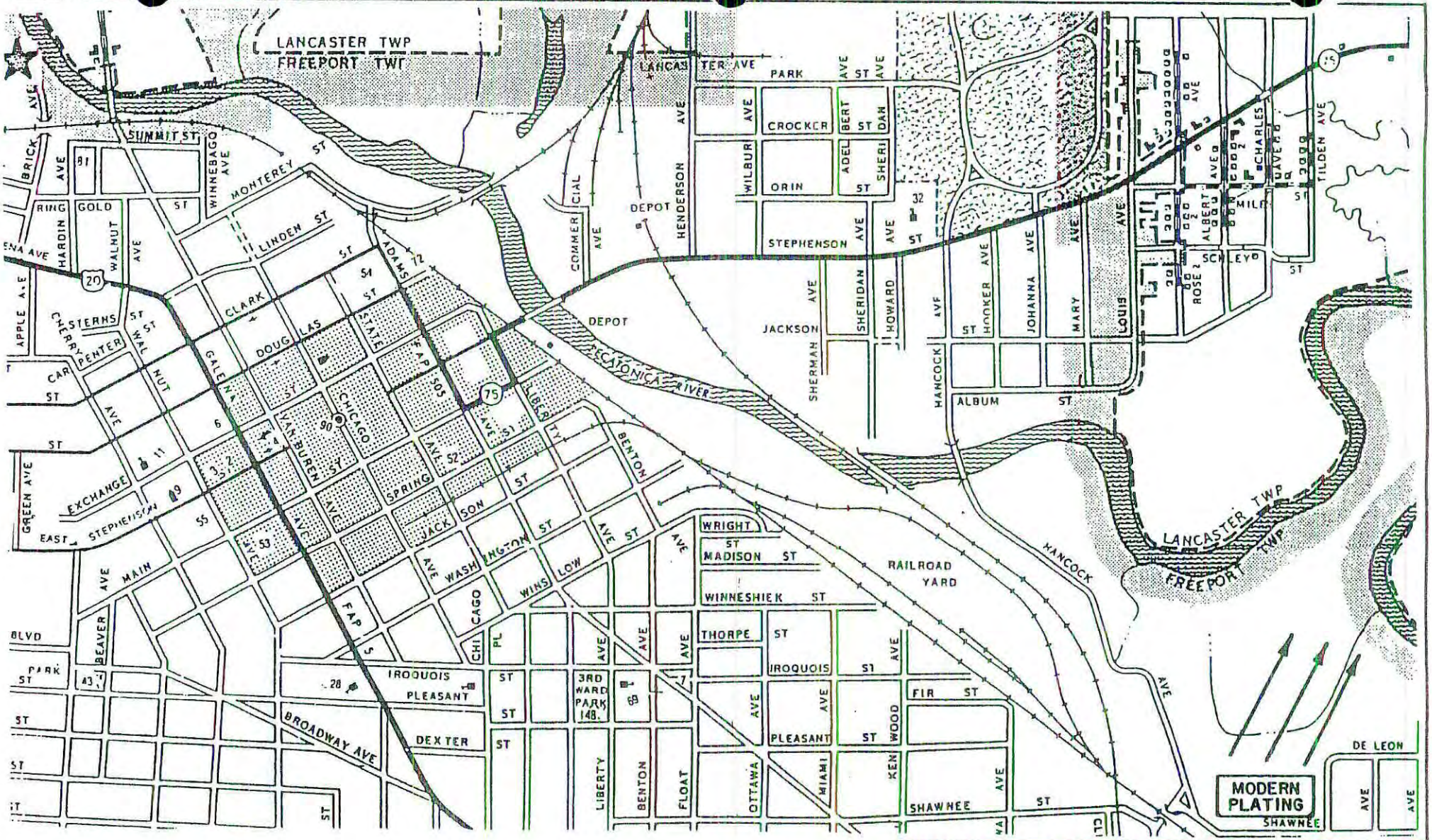
abilistic
arthquake
celeration and

AUG 06 1993

990

BRARY
& VAN DYKE


LAKE SUPERIOR
LAKE MICHIGAN
MODERN PLATING
SITE LOCATION



LEGEND

★ CITY OF FREEPORT MUNICIPAL WELLS (W2, W3, W4, W5, W6 & W7)

DIRECTION OF GROUNDWATER FLOW

N

MODERN PLATING CORPORATION

FIGURE NO. 5-4

MUNICIPAL WELLS LOCATION MAP

Scale: NOT TO SCALE	Date: 11-7-89
Prepared by: Foth & Van Dyke	By: JRB

RTB
SVDI
Master file

Illinois Department of Conservation
life and land together

Manning
Director

John W. Comerio
Deputy Director

Bruce F. Clay
Assistant Director

LINCOLN TOWER PLAZA • 524 SOUTH SECOND STREET • SPRINGFIELD 62701-1787
CHICAGO OFFICE • ROOM 4-300 • 100 WEST RANDOLPH 60601

June 16, 1992

Jon H. Gumtow
Foth & Van Dyke
Two Park Plaza, Suite 950
10850 West Park Place
Milwaukee, WI 53224-3619

RE: Modern Plating Corporation
Freeport, Illinois

Dear Mr. Gumtow:

We have reviewed the information you provided about the above referenced project and have found no records of the occurrence of endangered or threatened species or other sensitive resources within one mile of the project site. Our information on the area is taken from the Illinois Natural Heritage Database, a computer-based system for tracking the occurrence of sensitive resources in Illinois.

Please be aware that the Natural Heritage Database cannot provide a conclusive statement on the presence, absence or condition of significant natural features in any part of Illinois. The reports only summarize the existing information regarding the natural features or locations in question known to the Division of Natural Heritage at the time of the request. The reports should never be regarded as final statements on the site being considered, nor should they be a substitute for field surveys required for environmental assessments.

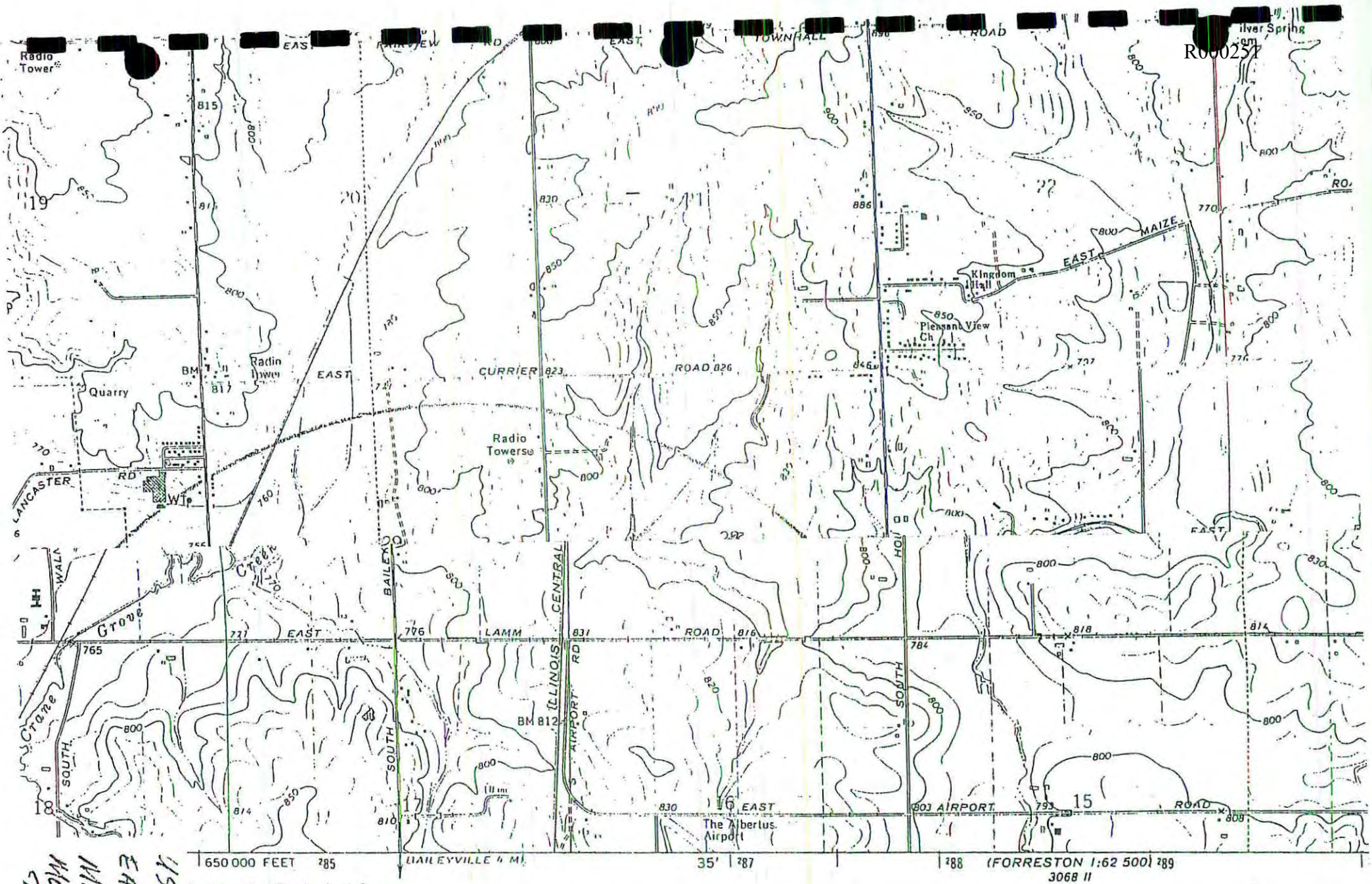
We do not charge for searches of the Database, but we encourage you to support its continued operation with a tax-deductible contribution to the Illinois Nongame Wildlife Conservation Fund. The suggested donation for a simple search as was required in this case is $30. Donations may be sent to the Division of Natural Heritage at the Springfield address on this letterhead.

If you have additional questions, please contact our office at (217)785-8290.

Sincerely,

Glen Kruse

Glen Kruse
Project Manager



hed by the Geological Survey

S

ic methods from aerial
ld checked 1971

d ticks: Illinois coordinate
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se Mercator grid ticks,
North American datum

SCALE 1:24 000

1 0 1/2 1

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

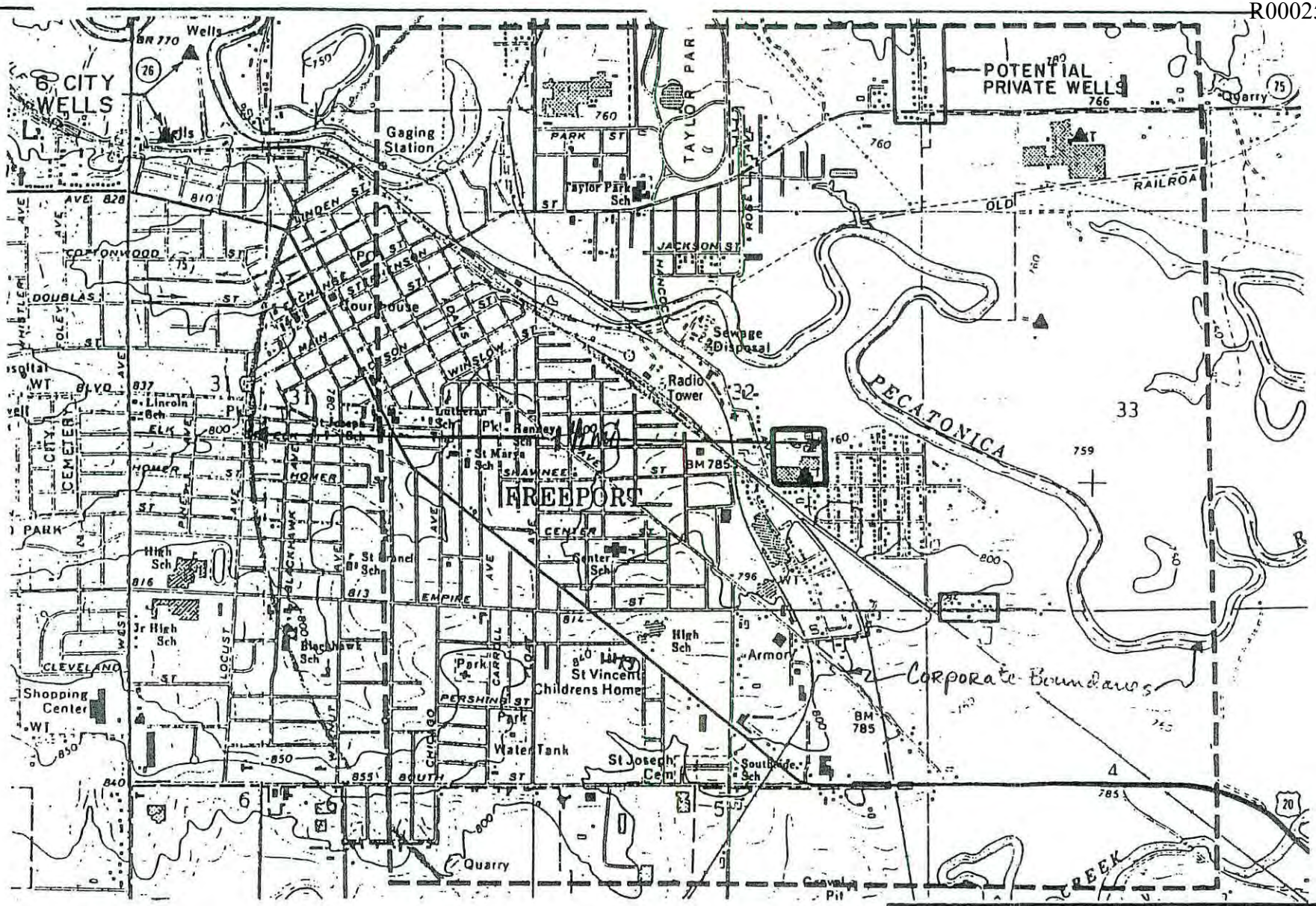
1 .5 0 1 KILOMETER

CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

MN
GN
1°43'
31 MILS
2°
36 MILS

USGS FREEPORT EAST, ILL. 7.5 Minute Quadrangle MAP Showing 1971

R000252



LEGEND

- MODERN PLATING CORPORATION
- WELLS
- APPROX. ONE MILE RADIUS
- Corporate Boundaries

SOURCE: USGS FREEPORT EAST & WEST, IL 7.5 MINUTE QUADRANGLE

88M70

MODERN PLATING CORPORATION

FIGURE NO. 4-1

WELL LOCATIONS

Scale: 1:24000	Date: 2-14-90
Prepared by: Foth & Van Dyke	By: SAG

R000253

cc: MRS

Gage Related Information (Description)

FEEI2 - Pecatonia River nr Freeport,Il

Stream = Pecatonia River

Gage Zero = 743.18 feet MSL (1929)

Flood Stage = 13.00 feet

Record Stage = 19.76 Date 03-16-29

Lat 42 18 13 Long 89 36 57

Drainage Area = 1,326 sq. mi.

River Mile = N/A

Location of Gage = Stephenson County, Freeport, IL; right bank; on property of Commonwealth Edison; 0.3 mi. upstream from Stephenson St. Bridge; 1.1 mi. upsrteam from Bass Creek; 5.0 mi.

- Stages vs Areas Affected - Record Stages - Download Daily Data - Download Current SHEF Data

Water Control Home Page

Tue Nov 25 09:01:58 CST 1997

Stage vs. Areas Affected - FEEI2

10.60 - Rural damage begins **

11.00 - Bankfull at gage site. * Rural flooding of agricultural land begins. * **

13.00 - Flood stage. + Some minor street flooding in Freeport. * Some Some backyards flooded of homes along the river. * Urban damage begins in Freeport. **

14.00 - Alert stage. *** Railroads are affected in Freeport with some tracks under water. * CM St. P&P Railroad inundated at Freeport, ICRR inundated near Ridott. **

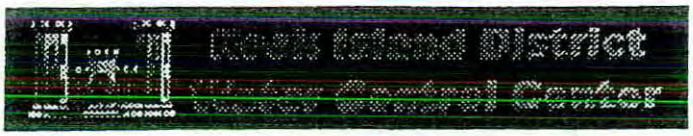
15.00 - Highway 75 inundated at Freeport. Highway 20 east of Freeport affected. * **

16.50 - Major flood stage. *** Highway 75 east of Freeport closed.

17.00 - 25,000 acres flooded. **

*Key: * = Data provided by the NWS, ** = IDOT, *** = MVR, + = all agencies agree*

R000255



FEEI2 - Pecatonia River nr Freeport,Il

Record Highs	DATE	STAGE	FLOW
1	03/16/1929	19.76	18,400
2	02/25/1922	18.82	14,500
3	04/06/1923	18.36	13,100
4	03/16/1919	17.60	10,000
5	04/03/1933	17.41	8,600

note: based on peak annual flow data which may not represent the peak annual stages

FREEPORT, IL FHBM H-01
FIRM I-01 Copy 2

CITY OF FREEPORT, ILLINOIS

STEPHENSON COUNTY

PANEL H&I-01

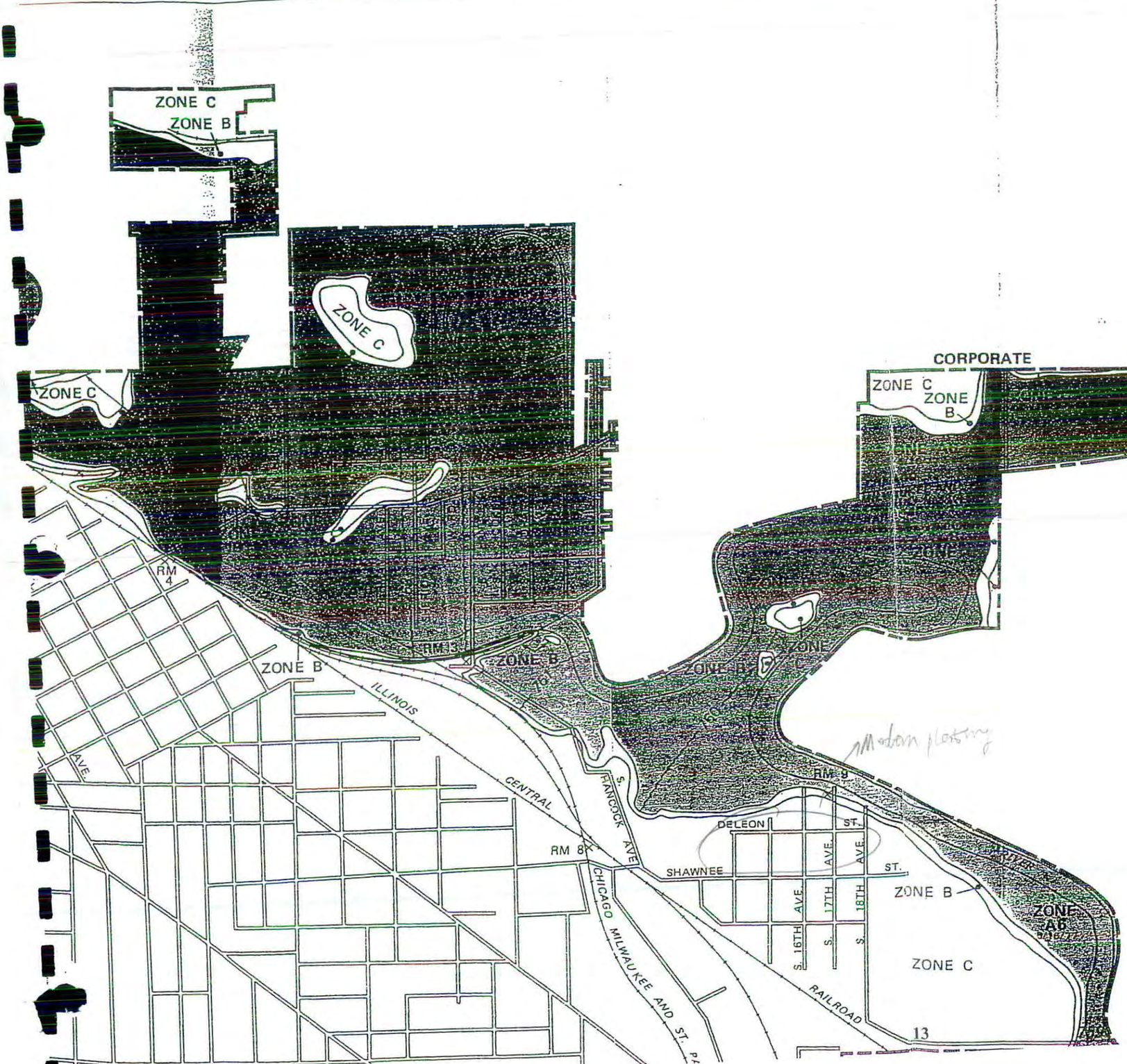
PAGE 1 OF 1 PRINTED

EFFECTIVE DATE:
MAY 16, 1977

COMMUNITY NUMBER:
170640A

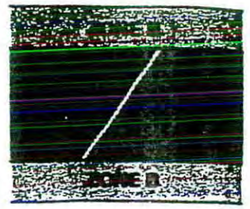
U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
FEDERAL INSURANCE ADMINISTRATION

R000257



KEY TO SYMBOLS

ZONE DESIGNATIONS* WITH DATE OF IDENTIFICATION ie., 12/2/74



Base Flood Elevation Line with elevation in feet — 513

Base Flood Elevation where uniform within zone — EL 987 MSL

Elevation Reference Mark — RM7

River Mile — M1.5

*EXPLANATION OF ZONE DESIGNATIONS

A flood insurance map displays the zone designations for a community according to areas of designated flood hazards. The zone designations used by FIA are:

Zone	Explanation
A	Areas of 100-year flood, base flood elevations and flood hazard factors not determined
AO	Areas of 100-year shallow flooding, flood depth 1 to 3 feet; product of flood depth (feet) and velocity (feet per second) less than 15
A1-A30	Areas of 100-year flood, base flood elevations and flood hazard factors determined
A99	Areas of 100-year flood to be protected by a flood protection system under construction, base flood elevations and flood hazard factors not determined.
B	Area between limits of 100 year flood and 500-year flood; areas of 100 year shallow flooding where depths less than 1 foot
C	Areas outside 500-year flood
D	Areas of undetermined, but possible flood hazards.
V	Areas of 100-year coastal flood with velocity wave action; base flood elevations and flood hazard factors not determined
VO	Areas of 100 year shallow flooding with velocity flood depth 1 to 3 feet, product of depth feet and velocity feet per second more than 15
V1-V30	Areas of 100-year coastal flood with velocity wave action, base flood elevations and flood hazard factors determined

CONSULT NIFA SERVICING COMPANY OR LOCAL INSURANCE AGENT OR BROKER TO DETERMINE IF PROPERTIES IN THIS COMMUNITY ARE ELIGIBLE FOR FLOOD INSURANCE.

INITIAL IDENTIFICATION DATE
NOVEMBER 2, 1973

CONVERSION TO REGULAR PROGRAM
MAY 16 1977

APPROXIMATE SCALE IN FEET

1000 500 0 1000 2000

Attachment 2

APPENDIX E

Appendix E

IEPA May 25, 1999 Groundwater Management Zone (GMZ) Approval Letter

SJL 000280C, REM

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276

THOMAS V. SKINNER, DIRECTOR

217/524-3300

May 25, 1999

CERTIFIED MAIL
P 344 335 381

Mr. Craig Skolrood
Modern Plating Corporation
701 South Hancock Avenue
P.O. Box 838
Freeport, Illinois 61032

Re: 1770200010 - Stephenson County
Modern Plating Corporation
ILD005172325
Log No. C-259-M-7
Response to Letter Reports
RCRA Closure

Dear Mr. Skolrood:

This is in response to several recent letters from Steve Laszewski, Foth & Van Dyke (FVD) submitted on behalf Modern Plating Corporation (MPC) regarding certain RCRA closure and RCRA corrective action activities to be carried out at the MPC facility in Freeport, Illinois. MPC has been addressing soil and groundwater contamination associated with releases from four RCRA hazardous waste management units: Lagoon 1, Lagoon 2, Lagoon 3, the Shawnee Building; and four solid waste management units: Lagoon 0, Lagoon 1A, Cyanide Treatment Vault, and the Wetlands Area. RCRA closure activities address the extent, type and execution of physical remediation to be performed at these units. The RCRA permit will address: (1) MPC's long-term management plan for these units (including groundwater management); and (2) operation/post-closure care of a Corrective Action Management Unit (CAMU) for waste generated from remediation efforts at the aforementioned units.

The Illinois EPA's November 18, 1998 letter provided comments on the "Modification to RCRA Closure Plan and Basis of Design Report (Revision No. 1)" submitted by MPC/FVS. That design report contained a proposal to complete closure of the four hazardous waste management units and four solid waste management units at the MPC facility. The November 18, 1998 from the Illinois EPA identified, in Attachments III thru VI, concerns it had with the proposed RCRA closure activities and the also required that a revised closure plan be submitted addressing the comments/concerns set forth in the letter.

During a December 18, 1998 conference call, Illinois EPA and FVD discussed the Illinois EPA's November 18, 1998 letter to MPC and a proposed method to resolve the issues raised in that letter. The Illinois EPA and MPC/FVD determined a series of letter reports addressing the major issues raised in the November 18, 1998 letter should be developed and submitted to Illinois EPA for review and approval, prior to the submittal of a completely revised closure plan (Revision 2) for the subject units.

A series of "letter reports" have been submitted by FVD since March 19, 1999. The date of these letters and their subject matter are listed below:

Date of Letter	Items from November 18, 1998 Addressed
March 19, 1999	Attachment II - Groundwater Monitoring Program, GMZ Proposal
March 29, 1999	Attachment IV- Lagoons and CN Treatment Vault, Items 1, 2 and 2a
March 31, 1999	Attachment II - Groundwater Monitoring Program, GMZ Errata
April 13, 1999	Attachment III - General Deficiencies, Items 1, 3 and 4
April 13, 1999	Attachment IV - Lagoons and CN Treatment Vault, Items 2b and 3
April 30, 1999	Attachment III - General Deficiencies, Items 2 and 5
May 4, 1999	Attachment V - Shawnee Building, Items 1 thru 5; and Attachment VI - Wetlands, all Items

Attachment A to this letter provides a table summarizing the Illinois EPA evaluation of the above letters with regard to Illinois EPA's comments in Attachments III thru VI of the November 18, 1998 closure plan letter. The table identifies items that have been resolved in concept and the items where additional information is needed.

The proposed Groundwater Management Zone (GMZ), set forth in the March 19, 1999 submittal from FVD is approved, subject to certain conditions and modifications. The proposed GMZ should be incorporated into the approved groundwater monitoring program for the proposed RCRA closure project subject to the conditions and modifications set forth in Attachment B to this letter.

A revised closure plan incorporating Illinois EPA's comments on the above-mentioned letter reports should now be developed by MPC. This revised plan should then be submitted to Illinois EPA for review and approval. Review of this plan will take place on a parallel track relative to issuance of a RCRA permit to MPC. Overall closure and corrective action requirements at this facility must meet the requirements of 35 Ill. Adm. Code 620, 724, 725 and 742.

The revised closure plan should include a detailed cost estimate for closure activities including unit costs and all calculations for: (1) each task to be completed, from initiating closure to placing material in the CAMU; (2) engineered barriers for areas that do not meet TACO remedial objectives; and (3) 30 years post-closure care (including groundwater monitoring).

Within 35 days of the date of mailing of the final decision by Illinois EPA, the applicant may petition for a hearing before the Illinois Pollution Control Board to contest the decision of the Illinois EPA; however, the 35-day period for petitioning for a hearing may be extended for a period of time not to exceed 90 days by written notice provided to the Board from the applicant and the Illinois EPA within the 35-day initial appeal period.

Work required by this letter, your submittal or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989,the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989.This letter does not relieve anyone from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

If you have any questions regarding the groundwater aspects of this project, please contact Terri Blake Myers, L.P.G. at 217/524-3284; questions regarding other aspects of the project should be directed to Karen Nachtwey at 217/524-3273.

Sincerely,

Joyce L. Munie, P.E.
Manager, Permit Section
Bureau of Land

JLM:KEN:bjh\992322S.WPD

Attachment A - Evaluation of Information in Letter Reports
Attachment B - Groundwater Monitoring Program

cc: Mr. Steven J. Laszewski, Ph.D., Foth & Van Dyke

ATTACHMENT A
Modern Plating Corporation
Evaluation of Information in Letter Reports
Log C-259

This document identifies: (1) each item of concern in Attachment III thru VI of Illinois EPA's November 18, 1998 letter; (2) identifies the letter report submitted on behalf of Modern Plating during March - May, 1999 which contained additional information regarding each of these items; and (3) summarizes the response to that information.

Attachment	Item No. Description of Item Date of Response	MP/FVD Response	Resolved/ Need Additional Information
Attachment III - General Deficiencies	**Item No. 1** CAMU design not part of RCRA closure review. April 13, 1999	FVD/MP recognized CAMU review part of Part B review.	Resolved
	Item No. 2 - Site History: a) Where were tunnel, discharge and plating lines?	Diagram provided not depict plating and discharge lines and how they are/were connected with the tunnel.	Need additional information
	b) Where materials removed from Lagoon #1 and #2 placed?	Materials were placed in Lagoon # 3.	Resolved
	c) Underground vault same as CN Treatment Vault? April 30, 1999	Yes	Resolved

ATTACHMENT A
Modern Plating Corporation
Page 2

Attachment	Item No. Description of Item Date of Response	MP/FVD Response	Resolved/ Need Additional Information
	Item No. 3 Property Boundaries with respect to Wetlands and future use April 13, 1999	A revised Property Boundaries shown is on *Drawing 3.* To the NE of the facility, the topography is not shown and a structure within the MP boundary line needs to be identified.	Need additional information
	Item No. 4 Exclusion of Groundwater pathway April 13, 1999	No longer proposed (See Illinois EPA response to Attachment II).	Resolved
	Item No. 5 Characterization effort sufficient? April 30, 1999	Risk assessment and soil characterization has been performed. In addition, Tier I proposed north of lagoons.	Resolved
Attachment IV - Lagoons and CN Treatment Vault	**Item No. 1** Tree, vegetation cleared prior to construction? March 29, 1999	Yes	Resolved
	Item No. 2 Extent of Removal? March 29, 1999	Extent of removal will be 1 foot below base and interior berms.	Resolved (after base elevation of lagoons is clarified and with proposal of confirmation soil samples).

ATTACHMENT A
Modern Plating Corporation
Page 3

Attachment	Item No. Description of Item Date of Response	MP/FVD Response	Resolved/ Need Additional Information
	Item No. 2a Engineered barrier is needed. March 29, 1999	Engineered barrier for all former lagoons shall meeting requirements of 724.328 (a)(2)(c).	Resolved
	Item No. 2b Need assurance majority of hazardous waste constituents shall be removed. April 13, 1999	MPC proposes to collect samples from the sediment liner below the lagoons after over-excavation.	Resolved (after base elevation clarified and with proposal of confirmation soil samples).
	Item No. 3 Extent of soil contamination south of SB-51? April 13, 1999	MPC proposes confirmation sampling.	Resolved (after base elevation clarified and with proposal of confirmation soil samples).
Attachment V-Shawnee Building	**Item No. 1** Summary of RCRA closure and soil data so stand-alone document May 4, 1999.	Summary of Shawnee Building RCRA Closure was provided.	Resolved

ATTACHMENT A
Modern Plating Corporation
Page 4

	Item No. 2 Total Chromium (2.5 mg/l) at MW-5-C and Nickel (4.1 mg/l) at MW-5D are above Class II Groundwater Standards. What is the trend? May 4, 1999	MP states both levels of Chromium and Nickel have decreased however, only VOCs have been required at MW-5C since 1997. Nickel is reported at .850 mg/l at MW-5D.	Resolved however. MW-5C should be monitored to verify level of Chromium is below 1.0 mg/l.
	Item No. 3 All heavy metals must be included in confirmation testing. May 4, 1999	MPC states all heavy metals will be included.	Resolved
	Item No. 4 Tier III Lead acceptable May 4, 1999	No response needed.	Resolved
	Item No. 5 May 4, 1999 Remedial Objectives acceptable subject to: a. Institutional control b. Adding Hex-Chromium c. Demonstrate cis-1,2-dichloroethene value used appropriate for Tier 2 analysis	 MPC will implement a deed restriction. Hex-chromium will be added. Demonstration sufficient	 Resolved Resolved Resolved

ATTACHMENT A
Modern Plating Corporation
Page 5

Attachment VI - Wetlands	Items No. 1 -7 OCS comments regarding Tier III review.	MP proposes an Tier I for off-site soils north of lagoons and using Industrial/ Commercial (I/C) and Construction worker objectives. MP proposes Tier I (I/C) objectives for on-site soils north of the lagoons with a deed restriction preventing future on-site construction work in the wetlands soils; does not include construction worker.	MP/FVD must provide the regulatory basis for the on-site proposal and information demonstrating these regulations will be met.

JLM:KEN:bjh\992323S.WPD

ATTACHMENT B

GROUNDWATER MONITORING PROGRAM
MODERN PLATING CORPORATION
C-259

The proposed Groundwater Management Zone (GMZ) for the Modern Plating facility in Freeport, Illinois, as set forth in the March 19, 1999 submittal is hereby approved, incorporated into the approved groundwater monitoring program, and subject to the following conditions and modifications:

1. At this time, direct groundwater corrective action measures can be deferred until additional information concerning soils and "hot spots" in the wetlands area are addressed by the facility. Once these issues are addressed by the facility, it may be necessary to modify the groundwater monitoring program to include expanding the groundwater program to include additional groundwater monitoring wells, implementation of direct groundwater corrective action measures, and/or an increase in the sampling frequencies of groundwater monitoring wells at the facility.

2. Table 2-28 in the report, containing the annual long-term care costs estimates for the proposed CAMU, must be modified to reflect unit cost and cost/year for the approved number of wells and sampling frequency associated with the current approved groundwater monitoring program.

3. In the September 15, 1997 letter from the Illinois EPA, the Illinois EPA concurred with a reduction in the number of inorganics and VOCs being sampled for, as well as, the number of groundwater monitoring wells being sampled during each sampling event. Condition 3 of the May 23, 1997 letter from the Illinois EPA and 35 Ill. Adm. Code 725.193(d)(7)(A), requires the facility to continue to make quarterly determinations of rate, extent, and concentrations of hazardous wastes and hazardous waste constituents in the groundwater on a quarterly basis. These wells designated as "base wells" will provide consistent monitoring data for constituent concentrations, migration tracking, and hydrology information. In addition, other wells, designated as "additional assessment wells" will be required to provide additional information concerning constituent levels and trends. GMZ wells not previously designated as base wells will be designated as additional assessment wells. These wells will not be considered part of the base wells system and therefore can be monitored semi-annually.

4. Groundwater monitoring wells MW-5D, MW-10A, MW-12A, MW-13A, MW-14A, MW-15A, MW-16C, and MW-20C will be considered base wells for inorganic assessment purposes at the facility and be sampled quarterly in accordance with Condition 10 below. However, due to historical analytical results and/or proximity to the abandoned underground vault groundwater monitoring groundwater monitoring wells MW-9A, MW-21A, and MW-22A must also be sampled for inorganics. These wells have consistently detected inorganics in excess of applicable 35 Ill. Adm. Code 620 groundwater quality standards. In addition, analytical results from wells MW-21A and MW-22A will provide information concerning

contaminant levels immediately downgradient of the abandoned underground vault. Wells MW-9A, MW-21A, and MW-22A are not considered base wells, but rather additional assessment wells. Therefore, sampling of these wells will occur on a semi-annual basis.

5. Groundwater monitoring wells MW-12B, MW-13B, MW-14B, MW-15B, MW-17B, MW-18B, MW-19B, MW-5C, MW-6C, MW-8C, MW-11C, MW-14C, MW-16C, and MW-7D will be considered base wells for VOC assessment purposes at the facility and be sampled quarterly in accordance with Condition 10 below. However, due to historical analytical results wells MW-6A, MW-7A, and MW-8A must also be sampled for VOCs. These wells have consistently detected VOCs in excess of applicable 35 Ill. Adm. Code 620 groundwater quality standards. Wells MW-6A, MW-7A, and MW-8A are not considered base wells, but rather additional assessment wells. Therefore, sampling of these wells will occur on a semi-annual basis.

6. Groundwater monitoring wells MW-15B, MW-17B, MW-18B, MW-19B, MW-15C, MW-16C, MW-17C, MW-19C, MW-23C, MW-17D, MW-18D, MW-19D and the two (2) river sampling locations delineate the boundaries of the GMZ as required by 35 Ill. Adm. Code 620.450. As discussed in Conditions 4 and 5 above, wells MW-15B, MW-17B, MW-18B, MW-19B, and MW-16C are designated as base wells, and as such must be sampled quarterly in accordance with Condition 10 below for both VOCs and inorganics. Wells MW-15C, MW-17C, MW-17D, MW-18D, MW-19C, MW-19D, MW-23C and the river sampling locations are not considered base wells. Therefore, sampling of VOCs and inorganics in these wells and the river sampling locations will occur on a semi-annual basis. In accordance with 35 Ill. Adm. Code 620.250(c), the GMZ will expire upon the Illinois EPA's receipt of appropriate documentation which confirms the completion of the corrective measure taken pursuant to 35 Ill. Adm. Code 620.250(a) and which confirms the attainment of applicable groundwater quality standards as set forth in 35 Ill. Adm. Code 620, Subpart D.

7. Construction of the new groundwater monitoring well(s) must be at a minimum in accordance with the diagram attached and continuously sampled and logged on Illinois EPA boring logs (attached). MPC shall submit boring logs, construction diagrams (attached) and data sheets from the installation and development of any new well(s) to the Illinois EPA at the address below within thirty (30) days of the date that installation of the well(s) is completed.

Illinois Environmental Protection Agency
Bureau of Land
Reporting and Financial Assurance Unit
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

8. The unconsolidated aquifer at the facility meets the definition of Class II: General Resource Groundwater in accordance with 35 Ill. Adm. Code 620.220 and need only meet the groundwater quality standards found in 35 Ill. Adm. Code 620.420. The dolomite aquifer meets the criteria set forth in 35 Ill. Adm. Code 620.210 for designation as a Class I: Potable Resource Groundwater and must meet the groundwater quality standards found in 35 Ill. Adm. Code 620.410.

9. The facility shall determine groundwater quality at each well identified in Conditions 4, 5, and 6 above in accordance with the schedule found in Condition 10. When obtaining and analyzing samples, the facility shall use the techniques and procedures associated with the appropriate analysis method from SW-846 (Third Edition). All analytical results must be reported to the Illinois EPA on Agency Chemical Analysis Forms using the appropriate store number and the minimum units listed below:

Field Parameters	Storet	Units
pH	00400	
Specific Conductance	00094	micromos/cm
Temperature of Water Sample	00011	(°F)
Turbidity	45626	Ntus
Depth to Water (below land surface)	72019	Feet
Depth to Water (below measuring point)	72109	Feet
Elevation of Measuring Point (top of casing)	72110	Ft. MSL
Elevation of Groundwater Surface	71993	Ft. MSL
Elevation of Bottom of Well*	72020	Ft. MSL

*Shall be determined during the second quarter sampling event each year.

Inorganics	Storet	Units
Cadmium (total)	01027	ug/L
Chromium (total)	01034	ug/L
Lead (total)	01051	ug/L
Nickel (total)	01067	ug/L

VOCs	Storet	Units
Cis-1,2-Dichloroethene	77093	ug/L
Tetrachloroethene	34475	ug/L

Trichloroethene	39180	ug/L
Vinyl Chloride	39175	ug/L

NOTE: Detection limits shall not be greater that the applicable Class 35 Ill. Adm. Code 620, Class I groundwater quality standard.

10. Sampling at the base wells and the additional assessment wells to meet the requirements of the groundwater monitoring program shall be collected and reported, as identified in the table below. The results of analyses conducted on the groundwater quality samples shall be submitted in accordance with this schedule:

Samples to be Collected During the Month of	Results Submitted to the Illinois EPA by the Following	Wells to be Sampled
First Quarter	April 15	Base, Additional Assessment
Second Quarter	July 15	Base
Third Quarter	October 15	Base, Additional Assessment
Fourth Quarter	January	Base

11. Groundwater surface elevation data collected each quarter from all of the groundwater monitoring wells located at the facility shall be submitted to the Illinois EPA as identified in the table above.

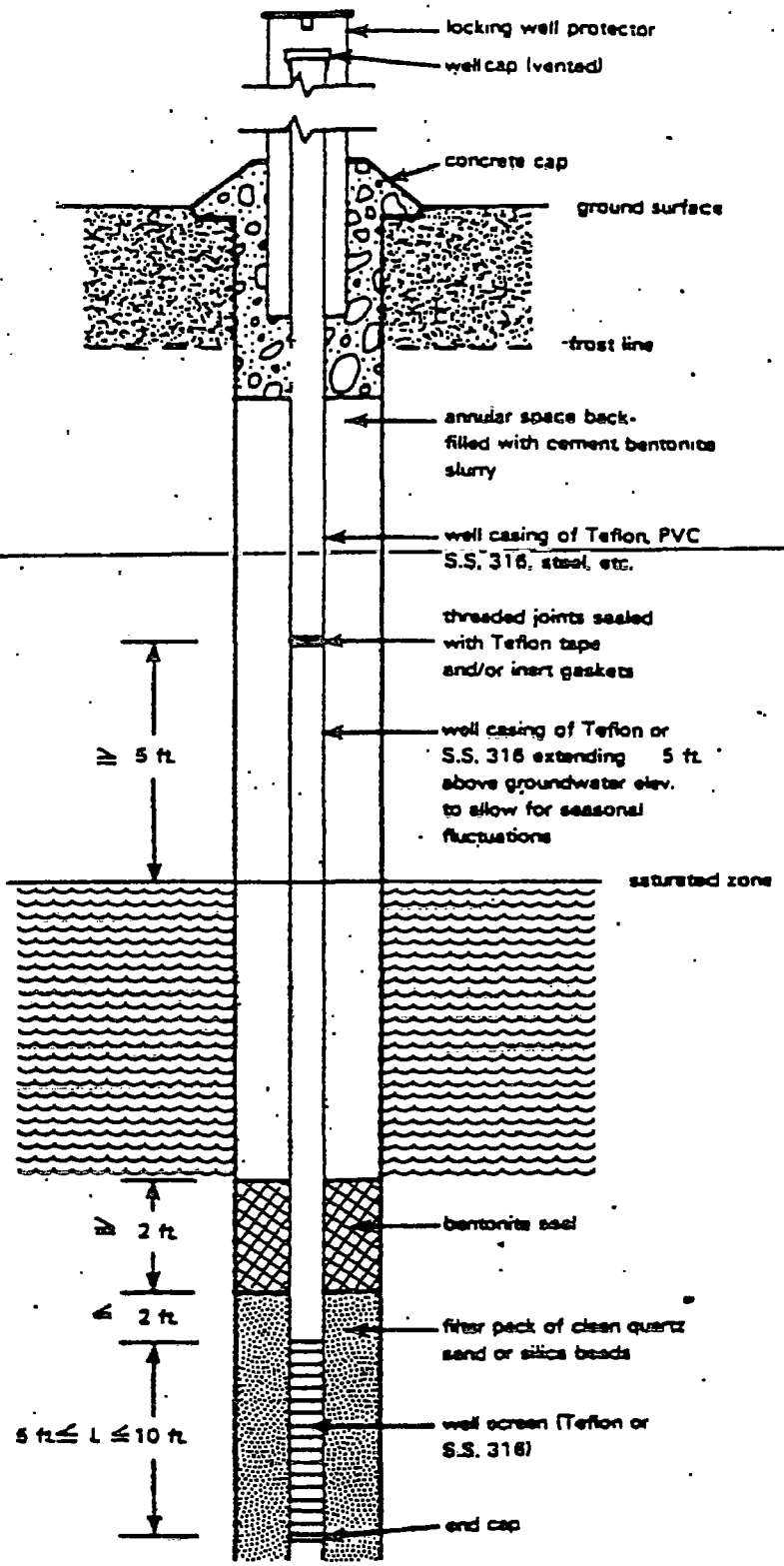
12. If it is determined that the groundwater monitoring program no longer satisfies the requirements of 35 Ill. Adm. Code 725, Subpart F, the facility must submit a closure modification request within 90 days to make any appropriate changes to the program. This includes, but is not limited to, expanding to groundwater monitoring program to include additional groundwater monitoring wells and/or increasing the sampling frequencies.

13. In accordance with Condition 9 of the September 15, 1997 letter from the Illinois EPA, all of the wells not utilized in the modified groundwater monitoring system, but retained by the facility, must be maintained in accordance with 77 Ill. Adm. Code 920 regulation

JLM:KEN:bjh\992324S.WPD

Attachments: Monitoring Well Diagram
IEPA Boring Log Form
IEPA Well Completion Report

Monitoring Well Diagram



Illinois Environmental Protection Agency — Field Boring Log

Page ___ of ___

Site File No.: _____ County: _____ Boring No.: _____ Monitor well No.: _____

Site File Name: _____ Surface Elevation: _____ Completion Depth: _____

Fed. ID. No.: _____ Auger Depth: _____ Rotary Depth: _____

Quadrangle: _____ Sec. ____ T. ____ R. ____ Date Start: _____ Finish: _____

UTM (or State Plane) Coord. N.(X): _____ E.(Y): _____

Latitude ____ ' ____ ' ____ " Longitude ____ ' ____ ' ____ "

Boring Location: _____

Drilling Equipment: _____

Personnel
C -
D -
E -
I -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS

(REVISED)

Illinois Environmental Protection Agency — Well Completion Report

IL 000274

SITE #: _____ COUNTY: _____ WELL #: _____

SITE NAME: _____ BOREHOLE #: _____

STATE PLANE COORDINATE: X _____ Y _____ (or) LATITUDE: ____ ° ____ ' ____ " LONGITUDE: ____ ° ____ ' ____ "

SURVEYED BY: _____ ILL. REGISTRATION #: _____

DRILLING CONTRACTOR: _____ DRILLER: _____

CONSULTING FIRM: _____ GEOLOGIST: _____

DRILLING METHOD: _____ DRILLING FLUIDS (TYPE): _____

LOGGED BY: _____ DATE STARTED: _____ DATE FINISHED: _____

REPORT FORM COMPLETED BY: _____ DATE: _____

ANNULAR SPACE DETAILS

TYPE OF SURFACE SEAL: _____

TYPE OF ANNULAR SEALANT: _____

INSTALLATION METHOD: _____

SETTING TIME: _____

TYPE OF BENTONITE SEAL - GRANULAR, PELLET, SLURRY (CIRCLE ONE)

INSTALLATION METHOD: _____

SETTING TIME: _____

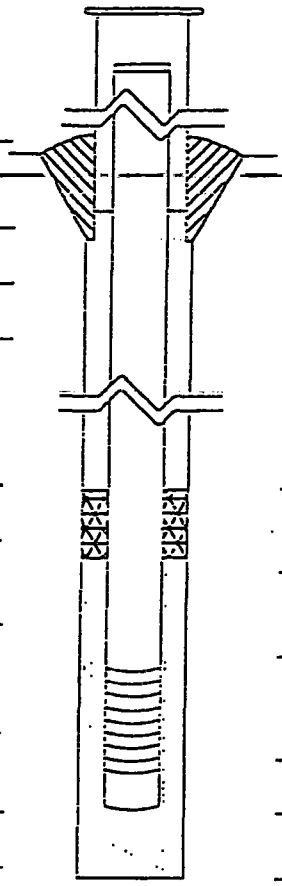
TYPE OF SAND PACK: _____

GRAIN SIZE: _____ (SIEVE SIZE)

INSTALLATION METHOD: _____

TYPE OF BACKFILL MATERIAL: _____ (IF APPLICABLE)

INSTALLATION METHOD: _____



	ELEVATIONS (MSL) *	DEPTHS (BGS) (.01 ft)
TOP OF PROTECTIVE CASING	_____	_____
TOP OF RISER PIPE	_____	_____
GROUND SURFACE	_____	_____
TOP OF ANNULAR SEALANT	_____	_____
STATIC WATER LEVEL (AFTER COMPLETION)	_____	_____
TOP OF SEAL	_____	_____
TOP OF SANDPACK	_____	_____
TOP OF SCREEN	_____	_____
BOTTOM OF SCREEN	_____	_____
BOTTOM OF WELL	_____	_____
BOTTOM OF BOREHOLE	_____	_____

* REFERENCED TO A NATIONAL GEODETIC VERTICAL DATUM

WELL CONSTRUCTION MATERIALS

(CIRCLE ONE)

PROTECTIVE CASING	SS304, SS316, PTFE, PVC OR OTHER:
RISER PIPE ABOVE W.T.	SS304, SS316, PTFE, PVC OR OTHER:
RISER PIPE BELOW W.T.	SS304, SS316, PTFE, PVC OR OTHER:
SCREEN	SS304, SS316, PTFE, PVC OR OTHER:

CASING MEASUREMENTS

DIAMETER OF BOREHOLE (in)	
ID OF RISER PIPE (in)	
PROTECTIVE CASING LENGTH (ft)	
RISER PIPE LENGTH (ft)	
BOTTOM OF SCREEN TO END CAP (ft)	
SCREEN LENGTH (1st SLOT TO LAST SLOT) (ft)	
TOTAL LENGTH OF CASING (ft)	
SCREEN SLOT SIZE **	

** HAND-SLOTTED WELL SCREENS ARE UNACCEPTABLE

(941014)

Attachment 2

APPENDIX F

Appendix F

Soil Testing Summary

Appendix F - Table 1

Soil Test Summary

Sample No.	Depth of Sample	Grain Size Gravel/Sand/ Silt/Clay	Atterberg Limits LL	Atterberg Limits PL	Permeability cm/sec	Percent Moisture	Dry Density lbs/cu ft	Porosity	USCS Classification
MW-9A[2] ST-1	22'-24'	0.8/49.5/35.7/14.0		NP	2.2×10^{-5}	20.6	103.0	39	SM
MW-9A[2] ST-3	26'-28'	0/69.2/18.8/12.0		NP	5.1×10^{-7}	26.9	98.6	42	SM
MW-10A[2] ST-1	20'-22'	0/97.6/2.4/0			2.1×10^{-4}	16.2	Density of this sample was not possible		SP
MW-71C[1] ST #1	4'-6'	0/11.6/65.9/22.5	36.1	15.8	5.9×10^{-6}	23.2	103.8	38	CL
MW-17D[3] ST #2	85'-87'	0/0.1/42.4/57.5	44.2	24.5	1.2×10^{-7}	27.0	94.3	44	CL
MW-18B[1] ST #1	4'-6'	0/13.4/62.2/24.4	39.1	20.0	6.8×10^{-4}	16.3	95.3	53	CL
MW-18D[2] Sa #11	20'-22'	2.5/90.9/-6.6-				17.7			SP-SM
MW-18D[3] ST #2	104'-106'	0/0.6/67.9/31.5	41.4	22.7	5.5×10^{-8}	20.2	110.9	34	CL
MW-18D[4] Sa #52	110'-112'	38.1/52.9/-9-							SP-SM
MW-19D[1] Sa #16	30'-32'	38/51.4/-10.6-							SP-SM
MW-19D[3]	50'-52'	0/0/63.5/36.5	37.5	18.4	5.8×10^{-8}	21.5	105.2	38	CL
MW-19D[4] Sa #45	105'-107'	10/69.5/-20.5-							SC
MW-19D[4] Sa #47	115'-117'	30.3/36.1/19.6/14.0	50.2	31.4					SC

Sample No.	Depth of Sample	Grain Size Gravel/Sand/ Silt/Clay	Atterberg Limits LL	Atterberg Limits PL	Permeability cm/sec	Percent Moisture	Dry Density lbs/cu ft	Porosity	USCS Classification
Lagoon 0[2] LG-10T	12'-14'	38.1/41.4/16.2/3.3		NP	2.8×10^{-5}	35.4	78.0	54	SM
Lagoon 1A[1] LG-7	15'-17'	0.3/9.4/59.8/30.5	38.7	19.0	1.6×10^{-7}	33.3	77.0	54	CL
Lagoon 1[1] LG-2T	9'-11.5'	0/1.1/68.4/30.5	57.5	31.5	3.3×10^{-8}	33.6	93.5	44	CH
Lagoon 2[1] LG-3T	5'-7'	0/2.1/54.9/43.0	49.5	23.9	3.7×10^{-8}	42.7	75.4	55	CL/CH
Lagoon 3[1] LG-6T	12'-14'	0/1.8/72.7/25.5		NP	8.8×10^{-8}	30.7	89.7	47	ML

[1]Surface organic clay unit.
[2]Alluvial sand and gravel unit.
[3]Lacusstrine clay unit.
[4]Weathered dolomite.
Source: Foth & Van Dyke and Associates, Inc., February 1990, RCRA Facility Investigation of the Modern Plating Facility

Appendix F - Table 2

Soil Density

Sample Location	Depth (ft)	Wet Density (lb/cu ft)	Moisture Content (%)	Dry Density (lb/cu ft)	Soil Strata
Lagoon #1 LG-2T	9 - 11.5	125.0	33.6	93.5	Lacustrine Clay
Lagoon #2 LG-3T	5 - 7	107.6	42.7	75.4	Lacustrine Clay
Lagoon #3 LG-6T	12 - 14	117.2	30.7	89.7	Lacustrine Clay
Lagoon #1A LG-7	15 - 17	102.7	33.3	77.0	Lacustrine Clay
Lagoon #0 LG-10T	12 - 14	105.6	35.4	78.0	Lacustrine Clay
MW-9A ST-3	26 - 28	124.2	20.6	103.0	Alluvial Sand & Gravel
MW-9A ST-1	22 - 24	125.1	26.9	98.6	Alluvial Sand & Gravel
MW-17C	4 - 6	119	14.6	103.8	Organic Clay
MW-17D	85 - 87	122.8	30.2	94.3	Lacustrine Clay
MW-18B	4 - 6	111.3	16.8	95.3	Organic Clay
MW-18D	104 - 106	133.3	20.2	110.9	Lacustrine Clay
MW-19D	50 - 52	127.8	21.5	105.2	Lacustrine Clay

Source: Foth & Van Dyke and Associates, Inc., February 1990 "RCRA Facility Investigation of Modern Plating Facility"

Appendix F - Table 3

Summary of Testing on Subbase Soils
CAMU Landfill Construction

Sample No.	USCS Soil Classification (ASTM D2488)	USCS Soil Group Name (ASTM D2488)	Standard Proctor (ASTM D698)
MPC-CIVIL-1	ML	Sandy Silt with Gravel	128.4 pcf @ 9.5%
MPC-CIVIL-2	CL-ML	Silty Clay with Sand	109.0 pcf @ 16.9%
MPC-CIVIL-1-A	CL	Sandy Clay with Gravel	n/a
MPC-CIVIL-1-B	ML	Sandy Silt with Gravel	n/a
MPC-CIVIL-1-C	CL	Sandy Clay with Gravel	n/a
MPC-CIVIL-1-D	ML	Sandy Silt with Gravel	n/a
MPC-CIVIL-1-E	SM	Silty Sand with Gravel	n/a
MPC-CIVIL-1-F	CL	Sandy Clay with Gravel	n/a
MPC-CIVIL-1-H	ML	Sandy Silt with Gravel	n/a
MPC-CIVIL-1-I	ML	Sandy Silt with Gravel	n/a
MPC-WWTF-1	SM	Silty Sand	120.0 pcf @ 11.0%
MPC-WWTF-2	SP	Sand with trace Silt	114.7 pcf @ 9.3%
MPC-WWTF-1-A	SM	Silty Sand	n/a
MPC-WWTF-1-B	SM	Silty Sand with Gravel	n/a
MPC-WWTF-1-C	SM	Silty Sand with Gravel	n/a
MPC-WWTF-1-D	SP-SM	Sand with Silt	n/a
MPC-CIVIL-3	CL	Silty Clay with Gravel	112.2 pcf @ 16.2%
MPC-CIVIL-3-A	CL	Sandy Clay with Gravel	n/a
MPC-CIVIL-3-B	SC	Clayey Sand with Gravel	n/a
MPC-CIVIL-3-C	CL	Sandy Clay with Gravel	n/a
MPC-CIVIL-3-D	CL	Sandy Clay with Gravel	n/a
MPC-CIVIL-3-E	CL	Sandy Clay with Gravel	n/a
MPC-CIVIL-3-F	CL	Sandy Clay with Gravel	n/a
MPC-CIVIL-3-G	CL	Sandy Clay with Gravel	n/a
MPC-CIVIL-3-H	CL	Sandy Lean Clay	n/a

Appendix F - Table 4

Summary of Density/Moisture Tests of Subbase Soils - Phases 1 & 2
CAMU Landfill Construction

Test No.	Location	Approx. Elevation (ft)	Depth of Probe	Wet Density (pcf)	Moisture Content (%)	Optimum Moisture Content (%)	Max. Dry Density (pcf)	Dry Density (pcf)	Percent Compaction
Phase 1									
1	N102+75, E105+70	755	6"	137.3	10.1	9.5	128.4	124.7	97.1
2	N102+75, E105+70	755	12"	137.7	9.9	9.5	128.4	125.3	97.6
3	N103+25, E105+70	755	6"	137.0	11.6	9.5	128.4	122.8	95.6
4	N013+25, E105+70	755	12"	142.6	11.6	9.5	128.4	127.7	99.5
5	N102+40, E105+70	755	6"	136.7	11.3	9.5	128.4	122.8	95.6
6	N102+40, E105+70	755	12"	136.4	11.3	9.5	128.4	122.6	95.5
7	N103+25, E106+00	755	6"	136.1	10.4	9.5	128.4	123.3	96.0
8	N103+25, E106+00	755	12"	137.8	11.1	9.5	128.4	124.0	96.6
9	N102+75, E106+00	755	6"	136.2	11.3	9.5	128.4	122.3	95.3
10	N102+75, E106+00	755	12"	137.4	11.6	9.5	128.4	123.0	95.8
11	N102+40, E106+00	755	6"	138.6	10.5	9.5	128.4	125.4	97.7
12	N102+40, E106+00	755	12"	138.9	10.8	9.5	128.4	125.4	97.7
13	N103+25, E106+50	755	6"	140.9	11.0	9.5	128.4	126.9	98.8
14	N103+25, E106+50	755	12"	141.2	10.7	9.5	128.4	127.6	99.4
15	N102+75, E106+00	755	12"	137.6	12.6	9.5	128.4	122.3	95.2
16	N102+75, E106+00	755	6"	137.6	10.3	9.5	128.4	124.7	97.1
17	N102+75, E106+70	755	6"	143.0	10.2	9.5	128.4	129.7	101.1

Test No.	Location	Approx. Elevation (ft)	Depth of Probe	Wet Density (pcf)	Moisture Content (%)	Optimum Moisture Content (%)	Max. Dry Density (pcf)	Dry Density (pcf)	Percent Compaction
18	N102+75, E106+70	755	12"	140.3	10.2	9.5	128.4	127.3	99.2
19	N103+00, E106+80	755	6"	143.5	8.3	9.5	128.4	132.4	103.1
20	N103+00, E106+80	755	12"	145.3	8.3	9.5	128.4	134.2	104.5
21	N103+25, E106+80	755	6"	139.0	10.6	9.5	128.4	125.7	97.9
22	N103+25, N106+80	755	12"	139.3	10.0	9.5	128.4	126.6	98.6
23	N103+10, E105+80	756	6"	139.9	11.5	9.5	128.4	125.5	97.7
24	N102+60, E105+80	756	6"	135.2	10.7	9.5	128.4	122.1	95.1
25	N102+60, E106+25	756	6"	136.0	11.2	9.5	128.4	122.3	95.3
26	N103+10, E106+25	756	6"	139.2	9.7	9.5	128.4	126.9	98.8
27	N103+10, E106+65	756	6"	135.5	11.1	9.5	128.4	121.9	95.0
28	N102+60, E106+65	756	6"	136.9	11.5	9.5	128.4	122.8	95.7
29	N103+25, E106+00	757	6"	138.4	11.2	9.5	128.4	124.5	97.0
30	N102+75, E106+00	757	6"	140.2	11.2	9.5	128.4	126.1	98.2
31	N102+40, E106+50	757	6"	139.0	10.3	9.5	128.4	125.9	98.1
32	N102+75, E106+50	757	6"	139.3	10.4	9.5	128.4	126.2	98.3
33	N103+25, E106+50	757	6"	139.7	11.1	9.5	128.4	125.8	97.9
34	N103+45, E105+65	758	6"	140.7	10.0	9.5	128.4	127.9	99.6
35	N103+45, E106+05	758	6"	141.8	11.2	9.5	128.4	127.5	99.3
36	N103+45,107+00	758	6"	137.5	10.6	9.5	128.4	124.9	96.9
37	N102+90, E105+15	758	6"	141.7	10.6	9.5	128.4	128.1	99.8
38	N103+35, E105+15	758	6"	136.2	10.6	9.5	128.4	123.1	95.9

Test No.	Location	Approx. Elevation (ft)	Depth of Probe	Wet Density (pcf)	Moisture Content (%)	Optimum Moisture Content (%)	Max. Dry Density (pcf)	Dry Density (pcf)	Percent Compaction
39	N103+25, E105+40	758	6"	137.8	10.2	9.5	128.4	125.0	97.3
40	N103+00, E107+00	758	6"	136.8	11.5	9.5	128.4	122.7	95.5
41	N102+65, E107+00	758	6"	136.0	11.5	9.5	128.4	122.0	95.0
42	N103+40, E106+50	759	6"	137.5	10.6	9.5	128.4	124.9	96.9
43	N103+40, E105+75	759	6"	139.3	10.8	9.5	128.4	125.7	97.9
44	N103+00, E105+50	759	6"	137.1	10.3	9.5	128.4	124.2	96.8
45	N102+75, E106+90	759	6"	136.6	11.2	9.5	128.4	122.8	95.7
46	N103+20, E106+90	759	6"	138.0	11.5	9.5	128.4	123.8	96.4
47	N103+25, E105+10	759	6"	138.9	11.5	9.5	128.4	124.6	97.0
48	N103+50, E105+35	760	6"	137.5	11.1	9.5	128.4	123.8	96.4
49	N103+50, E106+00	760	6"	135.8	11.1	9.5	128.4	122.2	95.2
50	N103+50, E106+80	760	6"	137.4	11.0	9.5	128.4	123.8	96.4
51	N103+50, E105+60	761	6"	136.0	11.3	9.5	128.4	122.2	95.2
52	N103+50, E106+10	761	6"	135.3	10.8	9.5	128.4	122.1	95.1
53	N103+30, E105+30	760	6"	138.2	10.8	9.5	128.4	124.7	97.2
54	N103+00, E105+00	760	6"	140.0	8.5	9.5	128.4	129.0	100.5
55	N102+75, E105+25	760	6"	135.3	10.1	9.5	128.4	122.9	95.7
56	N102+65, E104+40	760	6"	136.3	10.2	9.5	128.4	123.7	96.3
57	N102+30, E106+15	760	6"	135.4	8.8	9.5	128.4	124.4	96.9
58	N102+30, E106+50	760	6"	136.5	10.0	9.5	128.4	124.1	96.6
59	N103+50, E106+90	761	6"	130.2	10.8	11.0	120.0	117.5	97.9

Test No.	Location	Approx. Elevation (ft)	Depth of Probe	Wet Density (pcf)	Moisture Content (%)	Optimum Moisture Content (%)	Max. Dry Density (pcf)	Dry Density (pcf)	Percent Compaction
60	N103+10, E107+00	760	6"	126.8	9.6	11.0	120.0	115.7	96.4
61	N102+75, E107+00	760	6"	124.9	9.5	11.0	120.0	114.2	95.1
62	N102+90, E105+00	761	6"	128.6	10.7	11.0	120.0	116.2	96.9
63	N103+40, E105+15	761	6"	127.0	11.2	11.0	120.0	114.2	95.2
64	N103+00, E105+10	762	6"	118.9	8.2	10.0	115.0	109.9	95.6
65	N103+50, E105+30	762	6"	124.4	8.3	10.0	115.0	114.9	99.9
66	N103+50, E105+70	762	6"	120.7	8.0	10.0	115.0	111.8	97.2
67	N103+60, E106+25	762	6"	120.5	8.2	10.0	115.0	111.4	96.9
68	N103+50, E106+95	762	6"	125.2	10.8	10.0	115.0	113.0	98.3
69	N103+25, E106+95	761	6"	133.0	9.0	10.0	115.0	122.0	106.1
70	N102+90, E106+95	761	6"	122.1	9.6	10.0	115.0	111.4	96.9
71	N102+50, E106+95	761	6"	128.2	9.3	10.0	115.0	117.3	102.0
72	N103+70, E105+50	763	6"	124.0	9.5	10.0	115.0	113.3	98.5
73	N103+70, E106+00	763	6"	120.2	8.0	10.0	115.0	111.3	96.8
74	N103+70, E107+15	763	6"	122.3	8.0	10.0	115.0	113.3	98.5
75	N103+25, E107+00	762	6"	127.5	8.2	10.0	115.0	117.8	102.5
76	N102+75, E107+00	762	6"	126.4	8.1	10.0	115.0	116.9	101.6
77	N103+35, E105+15	763	6"	121.0	10.6	10.0	115.0	109.5	95.2
78	N102+85, E105+10	763	6"	119.6	8.7	10.0	115.0	110.0	95.7
79	N102+50, E107+00	763	6"	127.1	8.8	10.0	115.0	116.8	101.6
80	N103+00, E107+00	763	6"	126.1	8.9	10.0	115.0	115.7	100.6

Test No.	Location	Approx. Elevation (ft)	Depth of Probe	Wet Density (pcf)	Moisture Content (%)	Optimum Moisture Content (%)	Max. Dry Density (pcf)	Dry Density (pcf)	Percent Compaction
81	N103+50, E105+75	764	6"	125.4	9.1	10.0	115.0	115.0	100.0
82	N103+50, E106+25	764	6"	122.3	9.5	10.0	115.0	111.7	97.2
83	N103+50, E106+70	764	6"	127.6	11.5	10.0	115.0	114.4	99.5
84	N102+75, E105+60	762	6"	120.3	8.4	10.0	115.0	111.0	96.5
85	N102+80, E105+40	764	6"	121.5	9.9	10.0	115.0	110.6	96.2
86	N103+00, E105+00	764	6"	125.3	10.2	10.0	115.0	113.7	98.9
87	N103+40, E105+00	764	6"	125.5	10.5	10.0	115.0	113.5	98.7
88	N103+55, E105+60	765	6"	119.6	8.0	10.0	115.0	110.7	96.3
89	N103+55, E106+10	765	6"	123.5	8.6	10.0	115.0	113.7	98.9
90	N103+55, E106+60	765	6"	119.3	8.4	10.0	115.0	110.1	95.7
91	N102+50, E107+00	765	6"	123.9	9.2	10.0	115.0	113.5	98.7
92	N103+00, E107+00	765	6"	123.1	8.9	10.0	115.0	113.0	98.2
93	N102+70, E105+45	765	6"	118.6	8.3	10.0	115.0	109.5	95.2
94	N102+80, E105+00	765	6"	123.6	8.5	10.0	115.0	113.9	99.0
95	N103+35, E105+15	765	6"	118.2	8.0	10.0	115.0	109.4	95.1
96	N103+45, E107+00	765	6"	120.6	8.1	10.0	115.0	111.6	97.0
97	N103+00, E107+00	765	6"	121.5	8.2	10.0	115.0	112.3	97.7
98	N102+50, E107+00	765	6"	118.2	8.2	10.0	115.0	109.2	95.0
99	N103+55, E106+85	766	6"	121.2	9.7	10.0	115.0	110.5	96.1
100	N103+55, E106+00	766	6"	122.9	8.8	10.0	115.0	112.9	98.2
101	N102+30, E105+55	766	6"	119.3	8.9	10.0	115.0	109.5	95.2

Test No.	Location	Approx. Elevation (ft)	Depth of Probe	Wet Density (pcf)	Moisture Content (%)	Optimum Moisture Content (%)	Max. Dry Density (pcf)	Dry Density (pcf)	Percent Compaction
102	N102+80, E105+40	766	6"	125.1	8.6	10.0	115.0	115.2	100.2
103	N103+10, E105+00	766	6"	121.4	8.1	10.0	115.0	112.3	97.7
104	N103+55, E105+10	766	6"	128.3	8.2	10.0	115.0	118.6	103.1
105	N102+75, E105+00	766	6"	126.5	8.4	10.0	115.0	116.7	101.5
106	N102+65, E105+50	766	6"	128.4	8.6	10.0	115.0	118.2	102.8
107	N103+50, E105+30	766	6"	118.9	8.4	10.0	115.0	109.7	95.4
108	N103+25, E107+10	766	6"	118.5	8.2	10.0	115.0	110.5	96.1
109	N102+75, E107+10	766	6"	120.3	8.2	10.0	115.0	111.1	96.6
110	N103+15, E106+50	758	6"	123.1	8.3	10.0	115.0	113.7	98.8
111	N103+15, E106+00	759	6"	124.7	8.8	10.0	115.0	114.7	99.7
112	N103+15, E105+50	759	6"	118.4	8.3	10.0	115.0	109.3	95.1
113	N102+30, E106+00	762	6"	119.9	8.9	10.0	115.0	110.1	95.7
114	N102+80, E106+50	762	6"	122.7	10.1	10.0	115.0	111.4	96.9
115	N102+65, E106+00	758	6"	129.9	10.8	10.0	115.0	117.3	102.0
116	N102+65, E106+45	758	6"	129.1	11.1	10.0	115.0	116.2	101.0
Phase 2									
117	N102+50, E108+00	751	6"	131.0	14.6	16.0	111.0	114.3	103.0
118	N102+50, E108+00	751	12"	129.4	17.0	16.0	111.0	110.6	99.6
119	N103+00, E108+00	751	6"	132.2	15.1	16.0	111.0	114.8	103.4
120	N103+00, E108+00	751	12"	128.3	17.6	16.0	111.0	109.1	98.3
121	N103+00, E107+50	751	6"	131.1	15.2	16.0	111.0	113.8	102.5

Test No.	Location	Approx. Elevation (ft)	Depth of Probe	Wet Density (pcf)	Moisture Content (%)	Optimum Moisture Content (%)	Max. Dry Density (pcf)	Dry Density (pcf)	Percent Compaction
122	N103+00, E107+50	751	12"	125.4	15.8	16.0	111.0	108.3	97.6
123	N102+50, E107+50	751	6"	132.9	15.5	16.0	111.0	115.1	103.7
124	N102+50, E107+50	751	12"	125.0	16.2	16.0	111.0	107.6	96.9
125	N102+75, E108+20	752	6"	136.1	15.2	16.2	112.2	118.1	105.3
126	N103+25, E107+75	752	6"	134.8	15.0	16.2	112.2	117.2	104.5
127	N102+75, E107+40	752	6"	126.6	15.2	16.2	112.2	109.9	98.0
128	N102+75, E107+75	752	6"	135.8	14.9	16.2	112.2	118.2	105.4
129	N102+65, E108+00	753	6"	132.1	14.3	16.2	112.2	115.6	103.1
130	N103+15, E108+00	753	6"	134.1	14.3	16.2	112.2	117.3	104.6
131	N102+65, E107+50	753	6"	135.3	14.5	16.2	112.2	118.2	105.3
132	N103+15, E107+50	753	6"	136.3	14.5	16.2	112.2	119.0	106.1
133	N102+75, E108+20	754	6"	136.3	10.9	9.5	128.4	122.9	95.7
134	N103+35, E107+75	754	6"	140.3	10.5	9.5	128.4	127.0	98.9
135	N102+75, E107+35	754	6"	137.0	11.5	9.5	128.4	122.9	95.7
136	N102+50, E107+75	754	6"	135.8	11.3	9.5	128.4	122.0	95.0
137	N103+25, E108+30	757	6"	134.5	14.6	16.2	112.2	117.4	104.7
138	N103+75, E108+30	757	6"	136.5	11.0	9.5	128.4	123.0	95.8
139	N103+40, E107+75	757	6"	137.7	11.2	9.5	128.4	123.8	96.4
140	N103+00, E107+50	755	6"	137.8	11.5	9.5	128.4	123.6	96.3
141	N102+50, E107+50	755	6"	136.6	11.6	9.5	128.4	122.4	95.3
142	N102+50, E108+00	755	6"	137.1	11.2	9.5	128.4	123.3	96.0

Test No.	Location	Approx. Elevation (ft)	Depth of Probe	Wet Density (pcf)	Moisture Content (%)	Optimum Moisture Content (%)	Max. Dry Density (pcf)	Dry Density (pcf)	Percent Compaction
143	N103+00, E108+00	755	6"	135.9	11.2	9.5	128.4	122.2	95.2
144	N102+00, E107+40	758	6"	137.9	14.5	16.2	112.2	120.4	107.4
145	N102+50, E108+30	758	6"	135.3	14.6	16.2	112.2	118.1	105.3
146	N103+00, E108+00	758	6"	133.5	14.7	16.2	112.2	116.4	103.7
147	N103+45, E108+00	758	6"	139.5	10.8	9.5	128.4	125.9	98.1
148	N103+45, E107+50	758	6"	139.8	11.5	9.5	128.4	125.4	97.7
149	N102+25, E108+30	759	6"	136.9	11.5	9.5	128.4	122.8	95.6
150	N102+75, E108+30	759	6"	136.3	11.7	9.5	128.4	122.0	95.0
151	N103+25, E108+30	759	6"	136.4	11.6	9.5	128.4	122.2	95.2
152	N102+65, E107+75	756	6"	137.4	11.7	9.5	128.4	123.0	95.8
153	N103+00, E108+20	756	6"	133.5	14.2	16.2	112.2	116.9	104.2
154	N103+30, E107+75	756	6"	134.7	14.2	16.2	112.2	117.9	105.1
155	N103+00, E107+35	756	6"	135.8	14.9	16.2	112.2	118.3	105.4
156	N103+40, E107+50	759	6"	134.9	14.9	16.2	112.2	117.4	104.6
157	N103+40, E108+00	759	6"	135.1	14.9	16.2	112.2	117.6	104.8
158	N102+75, E108+30	761	6"	136.0	14.2	16.2	112.2	119.1	106.1
159	N103+25, E108+30	761	6"	134.8	14.3	16.2	112.2	117.9	105.1
160	N103+40, E107+80	760	6"	132.6	15.3	16.2	112.2	115.0	102.3
161	N103+40, E107+35	760	6"	136.1	14.2	16.2	112.2	119.2	106.2
162	N102+00, E107+45	759	6"	135.9	14.5	16.2	112.2	118.7	105.8
163	N103+15, E107+85	757	6"	133.9	14.5	16.2	112.2	116.9	104.2

Test No.	Location	Approx. Elevation (ft)	Depth of Probe	Wet Density (pcf)	Moisture Content (%)	Optimum Moisture Content (%)	Max. Dry Density (pcf)	Dry Density (pcf)	Percent Compaction
164	N102+50, E108+30	761	6"	138.3	14.7	16.2	112.2	120.6	107.4
165	N103+00, E108+30	761	6"	138.8	14.8	16.2	112.2	120.9	107.7
166	N103+40, E108+00	761	6"	133.9	14.5	16.2	112.2	116.9	104.2
167	N103+40, E107+50	761	6"	134.7	14.3	16.2	112.2	117.9	105.0
168	N102+50, E107+50	758	6"	137.3	14.8	16.2	112.2	119.6	106.6
169	N103+00, E107+50	758	6"	138.4	14.2	16.2	112.2	121.2	108.0
170	N103+00, E108+00	757	6"	134.5	14.3	16.2	112.2	117.7	104.9
171	N102+50, E108+00	757	6"	134.9	14.4	16.2	112.2	117.9	105.1
172	N103+40, E107+30	762	6"	128.6	17.8	16.2	112.2	109.2	97.4
173	N103+40, E107+80	762	6"	131.5	15.2	16.2	112.2	114.2	101.8
174	N103+15, E108+30	762	6"	127.6	18.1	16.2	112.2	108.0	96.3
175	N102+65, E108+30	762	6"	126.6	17.6	16.2	112.2	107.6	95.9
176	N102+15, E108+30	762	6"	126.2	17.6	16.2	112.2	107.3	95.6
177	N102+75, E108+30	763	6"	134.2	14.4	16.2	112.2	117.3	104.5
178	N103+25, E108+30	763	6"	136.3	11.5	9.5	128.4	122.2	95.2
179	N103+45, E108+00	763	6"	133.9	14.4	16.2	112.2	117.1	104.3
180	N103+45, E107+50	763	6"	130.7	16.2	16.2	112.2	112.5	100.3
181	N103+25, E107+50	759	6"	135.5	14.3	16.2	112.2	118.5	105.6
182	N103+25, E108+00	759	6"	134.4	14.2	16.2	112.2	117.7	104.9
183	N102+50, E108+30	764	6"	136.5	14.2	16.2	112.2	119.5	106.5
184	N103+00, E108+30	764	6"	133.8	15.4	16.2	112.2	115.9	103.3

Test No.	Location	Approx. Elevation (ft)	Depth of Probe	Wet Density (pcf)	Moisture Content (%)	Optimum Moisture Content (%)	Max. Dry Density (pcf)	Dry Density (pcf)	Percent Compaction
185	N103+40, E107+80	764	6"	136.0	14.2	16.2	112.2	119.1	106.2
186	N103+40, E107+30	764	6"	135.4	14.3	16.2	112.2	118.5	105.6
187	N102+20, E108+45	765	6"	130.0	14.5	16.2	112.2	113.5	101.1
188	N102+70, E108+45	765	6"	130.4	14.6	16.2	112.2	113.8	101.4
189	N103+20, E108+45	765	6"	131.2	14.2	16.2	112.2	114.9	102.4
190	N103+55, E108+00	765	6"	132.9	14.4	16.2	112.2	116.1	103.5
191	N103+55, E107+50	765	6"	137.4	14.2	16.2	112.2	120.3	107.3
192	N102+25, E108+45	766	6"	137.2	11.2	9.5	128.4	123.4	96.1
193	N102+75, E108+45	766	6"	136.8	11.5	9.5	128.4	122.7	95.6
194	N103+25, E108+45	766	6"	136.7	14.2	16.2	112.2	119.7	106.7
195	N103+55, E108+00	766	6"	134.2	15.2	16.2	112.2	116.5	103.8
196	N103+55, E107+50	766	6"	137.6	14.3	16.2	112.2	120.4	107.3

Attachment 2

APPENDIX G

Appendix G

Spring 2020 and Fall 2020
Semi-Annual Groundwater Monitoring Reports

Spring 2020
Semi-Annual Groundwater Monitoring Reports

Green Bay Location

2121 Innovation Court, Suite 300
P.O. Box 5126 • De Pere, WI 54115-5126
(920) 497-2500 • Fax: (920) 497-8516
www.foth.com

July 30, 2020

Mr. Kenn Smith
Illinois Environmental Protection Agency
Bureau of Land
1021 N. Grande Ave. East
P.O. Box 19276
Springfield, IL 62794-9276

Dear Mr. Smith:

RE: Spring 2020 Groundwater/Semiannual Report
Modern Plating Corporation

Introduction

On behalf of Modern Plating Corporation (MPC) of Freeport, Illinois, Foth Infrastructure & Environment, LLC (Foth) is submitting this semiannual report evaluating groundwater quality data at the above referenced site.

Sampling occurred at the MPC site during June 22-25, 2020. Due to extreme spring wetness, the event was pushed back into June. All field sampling activities were conducted by PDC Laboratories of Peoria, Illinois (PDC).

The monitoring wells, which were sampled, are those defined in the monitoring system described in the April 11, 2000 IEPA Resource Conservation and Recovery Act (RCRA) Hazardous Waste Management Post-Closure permit for the Corrective Action Management Unit (CAMU) landfill.

Please note that the raw data used to prepare this letter report has been emailed to epa.bol.gw-data@illinois.gov in the prescribed IEPA format. The *RCRA Facility Groundwater, Leachate, and Gas Reporting Form* follows this cover letter.

The groundwater samples were analyzed by PDC. PDC's laboratory analyses, field assessments of pH, temperature, conductivity, and groundwater elevation are summarized in Table 1 of Attachment 1.

Evaluation of Cleanup Objectives

Table 2 shows the concentration levels measured as a percentage of the cleanup objectives (Class I and Class II Groundwater Quality Standards from Part 620 of 35 Illinois Administrative Code 3031) for the site. An "N.D." in Table 2 of Attachment 2 (409(a)(i)(D), represents a compound which was not detected. A "-" (dash) indicates no sample result. Values exceeding the groundwater cleanup objectives (i.e., greater than 100%) have been shaded on the second page of Table 2. Table 3 is a listing of detected constituents not detected during the previous monitoring event. Table 4 is a listing of constituents exhibiting a progressive increase over two consecutive events. Tables 3 and 4 are included in Attachment 3. Note that Foth has provided historic data on Figures 3-1 through 3-8 going back to 1995 to illustrate trends in the parameter concentrations (see Attachment 4).

The metal constituents exceeding the Class I groundwater standards during the spring 2020 sampling event are chromium (MW-5D and MW-23C), lead (MW-23C), and nickel (MW-5D). The metal constituent exceeding the Class II groundwater standard is cadmium (MW-9A and MW-22A).

The volatile organic compounds (VOC) that exceeded a Class I groundwater standards are tetrachloroethene (PCE) (MW-5C, MW-6C and MW-7D), and vinyl chloride (MW-11C, MW-15C and MW-23C). The VOCs that exceeded Class II groundwater standards are *cis*-1,2dichloroethene (MW-8A), trichchloroethene (TCE) (MW-8A), and vinyl chloride (MW-6A, MW-7A, and MW-8A).

Evaluation of Concentration Trends

Historical concentrations (since 1995) of the primary constituents for this site (four metal constituents and four VOC constituents) are illustrated graphically in the color plots provided in Attachment 4 (see Figures 3-1 through 3-8). The metal constituents included are cadmium, chromium, lead, and nickel; and the VOC constituents included are PCE, TCE, *cis*-1,2dichloroethene, and vinyl chloride. Non-detected results in the plots are represented by a "<".

Work Completed On-Site and Expected Impacts

The construction of the CAMU landfill is completed, and the entire CAMU landfill has received final cover and is closed. It is expected that over time, the CAMU construction will improve groundwater quality.

Conclusion

Classes I and II groundwater exceedances were noted at wells where exceedances have historically occurred.

Eight bedrock wells were reported to be under "artesian" conditions at the time of sampling. These wells included MW-6C, MW-7C, MW-7D, MW-11C, MW-11E, MW-12C, MW-12E, and MW-13C. In addition, wells MW-20C and MW-8C were not sampled. A "kink" obstruction was reported at MW-8C, and MW-20C could not be located. MPC will be following up to determine the status of well MW-20C, and potential repair options for well MW-8C.

If field conditions allow, the next monitoring event will occur in fall 2020 and will be reported on or before October 15, 2020.

If you have any questions or comments concerning this letter report, please call either of the undersigned at (920) 497-2500.

Sincerely,

Foth Infrastructure & Environment, LLC

Daniel A. Tilly, GISP
GIS Specialist/Data Analyst

Richard L. Panosh, P.G.
Lead Environmental Scientist

Attachments

cc: Mr. Dave Servatius, Modern Plating Corporation (via e-mail)

Illinois
Environmental
Protection Agency

Bureau of Land
1021 North Grand Avenue East
Box 19276
Springfield, IL 62794-9276

RCRA FACILITY GROUNDWATER, LEACHATE AND GAS REPORTING FORM

This form must be used as a cover sheet for the notices and reports, identified below as required by: (1) a facility's RCRA interim status closure plan; (2) the RCRA interim status regulations; or (3) a facility's RCRA permit. All reports must be submitted to the Illinois EPA's Bureau of Land Permit Section. This form is for use by Hazardous Waste facilities only. Reporting for Solid Waste facilities should be submitted on a separate form. All reports submitted to the Illinois EPA's Bureau of Land Permit Section must contain an original, plus a minimum of two copies.

Note: This form is not to be used with permit or closure plan modification requests. The facility's approved permit or closure plan will state whether the document you are submitting is required as a report or a modification request.

Facility Name: Modern Plating Corporation Site ID #: 1770200010 – Stephenson Co
Facility Address: 701 South Hancock Ave
Freeport, IL 61032-0838 Fed ID #: ILD 005172325

Check the appropriate heading. Only one heading may be checked for each corresponding submittal. Check the appropriate sub-heading, where applicable. Attach the original and all copies behind this form.

___ LPC-160 Forms

Groundwater
___ Quarterly – Indicate one: 1 2 3 4
✓ Semi-Annual
___ Annual
___ Biennial

Leachate
___ Quarterly – Indicate one: 1 2 3 4
___ Semi-Annual
___ Annual
___ Biennial

___ Groundwater Data (without LPC-160 Forms)
___ Quarterly – Indicate one: 1 2 3 4
___ Annual ___ Semi-Annual ___ Biennial

___ Well Construction Information
___ Well Construction Forms, Boring Logs and/or Abandonment Forms
___ Well Survey Data (e.g., Stick-up Elevation Data)

___ Notice of Statistically Significant Evidence of Groundwater Contamination (35 Ill. Adm. Code 724.198)

___ Notice of Exceedence of Groundwater Concentration Limit (35 Ill. Adm. Code 724.199(h))

___ Notice of Alternate Source or Error in Sampling Analysis or Evaluation of Groundwater (35 Ill. Adm. Code 724.199(i))

___ Gas Monitoring Reports

___ Other (identify) _____

Attachment 1

Groundwater Results

Table 1

Groundwater Quality Results - June 22-25, 2020
Modern Plating Corporation

Parameter	Units	MW-05C G05M	MW-05D G05L	MW-06A G06S	MW-06B G06U	MW-06C G06M	MW-07A G07S	MW-07B G07U	MW-07C G07M	MW-07D G07L	MW-08A G08S	MW-08C G08M	MW-09A G09S	MW-10A G10S	MW-11A G11S	MW-11B G11U	MW-11C G11M
pH (Field)	S.U.	7.06	7.05	6.99	-	7.03	6.95	-	-	7.03	6.93	-	7.19	7.11	-	-	7.15
Conductivity (Field)	umhos/cm	439	1095	1630	-	1103	1444	-	-	1163	1339	-	1220	1261	-	-	994.0
Temperature (Field - Deg F)	Degrees F	55.2	55.8	62.4	-	59.0	64.4	-	-	67.8	60.4	-	68.2	66.7	-	-	63.3
Turbidity (Field - NTU)	NTU	690	295	37.0	-	11.0	303	-	-	32.0	64.9	-	1980	49.4	-	-	9.00
DTW Below Land Surface	Feet	12.03	11.95	-0.41	-0.60	-1.38	0.14	-1.08	-2.39	-2.68	4.34	-	11.42	7.92	-0.28	-0.47	-0.82
DTW Below Measuring Point	Feet	14.32	13.45	3.45	3.40	0.00	2.39	1.22	0.00	0.00	7.56	-	14.34	10.48	1.85	1.62	0.00
Groundwater Elevation	MSL(Feet)	766.53	766.50	755.29	755.51	757.01	753.80	755.10	756.13	756.50	754.65	-	758.30	757.25	755.71	755.78	755.98
Well Bottom Elevation	MSL(Feet)	757.90	739.59	743.15	728.84	711.38	740.64	726.67	719.41	709.93	741.55	-	746.59	743.86	742.04	727.74	688.79
Measuring Point (TOC) Elevation	MSL(Feet)	780.85	779.95	758.74	758.91	757.01	756.19	756.32	756.13	756.50	762.21	760.06	772.64	767.73	757.56	757.40	755.98
Cadmium	ug/l	-	1.1	-	-	-	-	-	-	-	-	-	330	3.0	-	-	-
Chromium	ug/l	-	880	-	-	-	-	-	-	-	-	-	170	110	-	-	-
Lead	ug/l	-	3.8	-	-	-	-	-	-	-	-	-	<1.0	<1.0	-	-	-
Nickel	ug/l	-	490	-	-	-	-	-	-	-	-	-	320	64	-	-	-
cis 1,2-Dichloroethene	ug/l	<5.0	-	<5.0	-	<5.0	<5.0	-	-	<5.0	580	-	-	-	-	-	12
Tetrachloroethene	ug/l	9.7	-	<5.0	-	6.1	<5.0	-	-	8.8	5.2	-	-	-	-	-	<5.0
Trichloroethene	ug/l	<5.0	-	<5.0	-	<5.0	<5.0	-	-	<5.0	58	-	-	-	-	-	<5.0
Vinyl Chloride	ug/l	<2.0	-	16	-	<2.0	12	-	-	<2.0	12	-	-	-	-	-	23

Note: MW-08C was damaged (Kink At 2.49'). MW-20C could not be located.
Inorganics Analyzed by SW 6020A
Volatiles Analyzed by SW 8260B

Table 1 (Cont.)

Groundwater Quality Results - June 22-25, 2020

Modern Plating Corporation

Parameter	Units	MW-11E G11D	MW-12A G12S	MW-12B G12U	MW-12C G12M	MW-12E G12D	MW-13A G13S	MW-13B G13U	MW-13B G13U Dup.	MW-13C G13M	MW-13E G13D	MW-14A G14S	MW-14B G14U	MW-14C G14M	MW-14E G14D	MW-15A G15S	MW-15B G15U
pH (Field)	S.U.	-	7.06	7.16	-	-	6.97	7.02	-	-	-	7.05	7.17	6.94	-	7.24	7.22
Conductivity (Field)	umhos/cm	-	1203	1359	-	-	1208	1208	-	-	-	1619	1306	1098	-	1049	1039
Temperature (Field - Deg F)	Degrees F	-	66.6	68.9	-	-	61.2	64.2	-	-	-	60.8	57.7	60.6	-	61.2	58.1
Turbidity (Field - NTU)	NTU	-	15.0	250	-	-	210	24.0	-	-	-	117	4.76	7.46	-	163	80.0
DTW Below Land Surface	Feet	-0.54	-0.10	-1.38	-2.46	-2.91	-0.62	-1.58	-	-2.89	-0.50	2.55	3.51	2.59	3.09	0.94	1.01
DTW Below Measuring Point	Feet	0.00	2.81	0.48	0.00	0.00	2.52	0.32	-	0.00	1.89	5.21	6.65	4.53	6.31	3.96	3.88
Groundwater Elevation	MSL(Feet)	755.77	753.94	755.12	756.33	756.62	753.76	754.73	-	756.30	753.78	755.37	755.49	756.43	755.21	755.34	755.33
Well Bottom Elevation	MSL(Feet)	655.49	741.13	726.43	700.83	666.27	740.99	725.73	-	669.03	636.24	738.26	736.61	678.35	644.25	743.68	726.36
Measuring Point (TOC) Elevation	MSL(Feet)	755.77	756.75	755.60	756.33	756.62	756.28	755.05	-	756.30	755.67	760.58	762.14	760.96	761.52	759.30	759.21
Cadmium	ug/l	-	5.5	-	-	-	<1.0	-	-	-	-	3.0	-	-	-	1.5	<1.0
Chromium	ug/l	-	30	-	-	-	<4.0	-	-	-	-	110	-	-	-	37	<4.0
Lead	ug/l	-	21	-	-	-	3.4	-	-	-	-	2.0	-	-	-	1.2	<1.0
Nickel	ug/l	-	32	-	-	-	13	-	-	-	-	5.7	-	-	-	94	<5.0
cis 1,2-Dichloroethene	ug/l	-	-	14	-	-	-	<5.0	<5.0	-	-	-	<5.0	<5.0	-	-	<5.0
Tetrachloroethene	ug/l	-	-	<5.0	-	-	-	12	12	-	-	-	17	<5.0	-	-	<5.0
Trichloroethene	ug/l	-	-	<5.0	-	-	-	<5.0	<5.0	-	-	-	9.4	<5.0	-	-	<5.0
Vinyl Chloride	ug/l	-	-	<2.0	-	-	-	<2.0	<2.0	-	-	-	<2.0	<2.0	-	-	<2.0

Note: MW-08C was damaged (Kink At 2.49'). MW-20C could not be located.
Inorganics Analyzed by SW 6020A
Volatiles Analyzed by SW 8260B

Table 1 (Cont.)

Groundwater Quality Results - June 22-25, 2020
Modern Plating Corporation

				MW-16C							MW-18B						
		MW-15C	MW-16C	G16M	MW-17A	MW-17B	MW-17C	MW-17D	MW-18A	MW-18B	G18U	MW-18D	MW-19A	MW-19B	MW-19C	MW-19D	MW-20C
Parameter	Units	G15M	G16M	Dup.	G17S	G17U	G17M	G17L	G18S	G18U	Dup.	G18L	G19S	G19U	G19M	G19L	GA0M
pH (Field)	S.U.	7.38	7.05	-	-	7.24	7.30	7.29	-	7.14	-	7.42	-	7.30	7.40	7.32	-
Conductivity (Field)	umhos/cm	822.0	323.0	-	-	932.0	976.0	1030	-	1250	-	626.0	-	1220	663.0	602.0	-
Temperature (Field - Deg F)	Degrees F	56.5	68.5	-	-	58.8	56.8	56.5	-	59.0	-	55.8	-	56.8	56.1	59.2	-
Turbidity (Field - NTU)	NTU	17.0	11.4	-	-	148	104	58.3	-	19.1	-	29.4	-	42.0	13.0	41.0	-
DTW Below Land Surface	Feet	-0.50	8.26	-	2.57	3.65	2.81	2.77	2.84	2.80	-	1.56	2.72	2.50	1.80	2.17	-
DTW Below Measuring Point	Feet	1.33	7.93	-	4.90	6.09	5.35	5.26	4.99	4.81	-	3.90	4.97	4.04	3.97	4.46	-
Groundwater Elevation	MSL(Feet)	756.61	773.46	-	753.89	752.91	753.67	753.65	752.41	752.38	-	753.43	752.74	752.75	753.80	753.11	-
Well Bottom Elevation	MSL(Feet)	652.29	754.43	-	738.62	719.13	647.87	635.39	738.40	716.89	-	606.93	740.47	717.61	644.11	602.35	-
Measuring Point (TOC) Elevation	MSL(Feet)	757.94	781.39	-	758.79	759.00	759.02	758.91	757.40	757.19	-	757.33	757.71	756.79	757.77	757.57	769.02
Cadmium	ug/l	<1.0	<1.0	<1.0	-	<1.0	1.0	<1.0	-	<1.0	<1.0	<1.0	-	1.2	<1.0	1.1	-
Chromium	ug/l	<4.0	<4.0	<4.0	-	6.9	4.4	<4.0	-	<4.0	<4.0	23	-	5.1	8.4	17	-
Lead	ug/l	1.5	1.5	1.4	-	1.8	<1.0	<1.0	-	1.4	<1.0	2.9	-	2.2	2.4	5.4	-
Nickel	ug/l	<5.0	<5.0	<5.0	-	<5.0	<5.0	<5.0	-	<5.0	<5.0	23	-	5.6	<5.0	8.6	-
cis 1,2-Dichloroethene	ug/l	<5.0	<5.0	<5.0	-	<5.0	<5.0	<5.0	-	36	36	<5.0	-	13	<5.0	<5.0	-
Tetrachloroethene	ug/l	<5.0	<5.0	<5.0	-	<5.0	<5.0	<5.0	-	<5.0	<5.0	<5.0	-	<5.0	<5.0	<5.0	-
Trichloroethene	ug/l	<5.0	<5.0	<5.0	-	<5.0	<5.0	<5.0	-	<5.0	<5.0	<5.0	-	<5.0	<5.0	<5.0	-
Vinyl Chloride	ug/l	16	<2.0	<2.0	-	<2.0	<2.0	<2.0	-	9.3	9.7	<2.0	-	<2.0	<2.0	<2.0	-

Note: MW-08C was damaged (Kink At 2.49'). MW-20C could not be located.
Inorganics Analyzed by SW 6020A
Volatiles Analyzed by SW 8260B

Table 1 (Cont.)

Groundwater Quality Results - June 22-25, 2020
Modern Plating Corporation

Parameter	Units	MW-21A GA1S	MW-21C GA1M	MW-22A GA2S	MW-22C GA2M	MW-23B GA3U	MW-23C GA3M	PR-1 S201	PR-2 S102	Field Blank 1 FB01	Field Blank 2 FB02	Field Blank 3 FB03	Trip Blank 1 TB01
pH (Field)	S.U.	7.07	-	7.96	-	7.00	7.04	7.97	8.01	-	-	-	-
Conductivity (Field)	umhos/cm	2016	-	3259	-	953.0	1002	646.0	640.0	-	-	-	-
Temperature (Field - Deg F)	Degrees F	67.3	-	67.1	-	57.4	54.9	68.4	70.7	-	-	-	-
Turbidity (Field - NTU)	NTU	108	-	90.8	-	136	324	115	156	-	-	-	-
DTW Below Land Surface	Feet	14.41	10.53	15.58	14.70	2.32	2.14	-	-	-	-	-	-
DTW Below Measuring Point	Feet	14.21	10.33	15.21	15.09	4.99	5.01	-	-	-	-	-	-
Groundwater Elevation	MSL(Feet)	758.47	762.35	758.58	758.75	752.69	752.77	-	-	-	-	-	-
Well Bottom Elevation	MSL(Feet)	747.73	719.17	748.72	717.25	734.48	720.22	-	-	-	-	-	-
Measuring Point (TOC) Elevation	MSL(Feet)	772.68	772.68	773.79	773.84	757.68	757.78	-	-	-	-	-	-
Cadmium	ug/l	7.9	-	140	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	ug/l	41	-	22	-	30	120	5.9	5.5	<4.0	<4.0	<4.0	<4.0
Lead	ug/l	8.9	-	8.3	-	5.5	13	6.3	6.2	<1.0	<1.0	<1.0	<1.0
Nickel	ug/l	32	-	110	-	12	65	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
cis 1,2-Dichloroethene	ug/l	-	-	-	-	24	12	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Tetrachloroethene	ug/l	-	-	-	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Trichloroethene	ug/l	-	-	-	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Vinyl Chloride	ug/l	-	-	-	-	<2.0	5.7	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0

Note: MW-08C was damaged (Kink At 2.49'). MW-20C could not be located.
Inorganics Analyzed by SW 6020A
Volatiles Analyzed by SW 8260B

Prepared by: SGL
Checked by: DAT

Attachment 2

Groundwater Results as a Percentage of the Cleanup Objective

Table 2

Groundwater Quality Results (µg/l)
Modern Plating Corporation
June 22-25, 2020

Monitoring Well	Cadmium (Total)	Chromium (Total)	Lead (Total)	Nickel (Total)	cis-1,2-Dichloroethene	Tetra-chloroethene	Trich-chloroethene	Vinyl Chloride
Class II Clean-Up Objective (ug/l)	50	1000	100	2000	200	25	25	10
MW-06A	-	-	-	-	<5	<5	<5	16
MW-07A	-	-	-	-	<5	<5	<5	12
MW-08A	-	-	-	-	580	5.2	58	12
MW-09A	330	170	<1	320	-	-	-	-
MW-10A	3	110	<1	64	-	-	-	-
MW-12A	5.5	30	21	32	-	-	-	-
MW-12B	-	-	-	-	14	<5	<5	<2
MW-13A	<1	<4	3.4	13	-	-	-	-
MW-13B	-	-	-	-	<5	12	<5	<2
MW-14A	3	110	2	5.7	-	-	-	-
MW-14B	-	-	-	-	<5	17	9.4	<2
MW-15A	1.5	37	1.2	94	-	-	-	-
MW-15B	<1	<4	<1	<5	<5	<5	<5	<2
MW-17B	<1	6.9	1.8	<5	<5	<5	<5	<2
MW-18B	<1	<4	1.4	<5	36	<5	<5	9.3
MW-19B	1.2	5.1	2.2	5.6	13	<5	<5	<2
MW-21A	7.9	41	8.9	32	-	-	-	-
MW-22A	140	22	8.3	110	-	-	-	-
MW-23B	<1	30	5.5	12	24	<5	<5	<2
Class I Clean-Up Objective (ug/l)	5	100	7.5	100	70	5	5	2
MW-05C	-	-	-	-	<5	9.7	<5	<2
MW-05D	1.1	880	3.8	490	-	-	-	-
MW-06C	-	-	-	-	<5	6.1	<5	<2
MW-07D	-	-	-	-	<5	8.8	<5	<2
MW-08C	-	-	-	-	-	-	-	-
MW-11C	-	-	-	-	12	<5	<5	23
MW-14C	-	-	-	-	<5	<5	<5	<2
MW-15C	<1	<4	1.5	<5	<5	<5	<5	16
MW-16C	<1	<4	1.5	<5	<5	<5	<5	<2
MW-17C	1	4.4	<1	<5	<5	<5	<5	<2
MW-17D	<1	<4	<1	<5	<5	<5	<5	<2
MW-18D	<1	23	2.9	23	<5	<5	<5	<2
MW-19C	<1	8.4	2.4	<5	<5	<5	<5	<2
MW-19D	1.1	17	5.4	8.6	<5	<5	<5	<2
MW-20C	-	-	-	-	-	-	-	-
MW-23C	<1	120	13	65	12	<5	<5	5.7
Surface Water Quality Standards (ug/L)								
Acute	37.1	4582.4	432.5	224.9	14000	1200	12000	22000
Chronic	2.9	546.2	90.7	13.6	1100	150	940	1700
Human Health	NA	NA	NA	NA	NA	NA	25	2
PR-1	<1	5.9	6.3	<5	<5	<5	<5	<2
PR-2	<1	5.5	6.2	<5	<5	<5	<5	<2

Note: MW-08C was damaged (Kink At 2.49'). MW-20C could not be located.
- : No Sample Result
<: Value Less Than The Reporting Limit

Table 2 (Cont.)

Groundwater Quality Results as a Percentage of the Cleanup Objective
Modern Plating Corporation
June 22-25, 2020

Monitoring Well	Cadmium (Total)	Chromium (Total)	Lead (Total)	Nickel (Total)	cis-1,2-Dichloroethene	Tetra-chloroethene	Trich-chloroethene	Vinyl Chloride
Class II Clean-Up Objective (ug/l)	50	1000	100	2000	200	25	25	10
MW-06A					ND	ND	ND	160%
MW-07A					ND	ND	ND	120%
MW-08A					290%	21%	232%	120%
MW-09A	660%	17%	ND	16%				
MW-10A	6%	11%	ND	3%				
MW-12A	11%	3%	21%	2%				
MW-12B					7%	ND	ND	ND
MW-13A	ND	ND	3%	1%				
MW-13B					ND	48%	ND	ND
MW-14A	6%	11%	2%	0%				
MW-14B					ND	68%	38%	ND
MW-15A	3%	4%	1%	5%				
MW-15B	ND	ND	ND	ND	ND	ND	ND	ND
MW-17B	ND	1%	2%	ND	ND	ND	ND	ND
MW-18B	ND	ND	1%	ND	18%	ND	ND	93%
MW-19B	2%	1%	2%	0%	7%	ND	ND	ND
MW-21A	16%	4%	9%	2%				
MW-22A	280%	2%	8%	6%				
MW-23B	ND	3%	6%	1%	12%	ND	ND	ND
Class I Clean-Up Objective (ug/l)	5	100	7.5	100	70	5	5	2
MW-05C					ND	194%	ND	ND
MW-05D	22%	880%	51%	490%				
MW-06C					ND	122%	ND	ND
MW-07D					ND	176%	ND	ND
MW-08C								
MW-11C					17%	ND	ND	1150%
MW-14C					ND	ND	ND	ND
MW-15C	ND	ND	20%	ND	ND	ND	ND	800%
MW-16C	ND	ND	20%	ND	ND	ND	ND	ND
MW-17C	20%	4%	ND	ND	ND	ND	ND	ND
MW-17D	ND	ND	ND	ND	ND	ND	ND	ND
MW-18D	ND	23%	39%	23%	ND	ND	ND	ND
MW-19C	ND	8%	32%	ND	ND	ND	ND	ND
MW-19D	22%	17%	72%	9%	ND	ND	ND	ND
MW-20C								
MW-23C	ND	120%	173%	65%	17%	ND	ND	285%

Note: MW-08C was damaged (Kink At 2.49'). MW-20C could not be located.
ND : Compound Not Detected

Prepared by: SGL
Checked by: DAT

Attachment 3

Tables 3 and 4

Table 3

Detected Constituents Not Detected During Previous Monitoring Event

June 22-25, 2020

Well	Parameter	µg/L
MW-05D	Cadmium	1.1
MW-05D	Lead	3.8
MW-05C	PCE	9.7
MW-06C	PCE	6.1
MW-06A	Vinyl Chloride	16
MW-08A	PCE	5.2
MW-11C	Vinyl Chloride	23
MW-14A	Cadmium	3
MW-14A	Lead	2
MW-15A	Chromium	37
PR-1	Chromium	5.9
PR-1	Lead	6.3

Prepared by: SGL
Checked by: DAT

Table 4

Constituents Exhibiting a Progressive Increase Over Two Consecutive Events

Well	Parameter	Mar/Jun 2019 (µg/L)	Sep/Dec 2019 (µg/L)	Jun 2020 (µg/L)
MW-09A	Chromium	73	79	170
MW-22A	Cadmium	60	69.5	140
MW-22A	Lead	4	6.55	8.3
MW-22A	Nickel	67	82.5	110

ND - Value not detected.

Prepared by: SGL
Checked by: DAT

Note: If a duplicate sample was collected, value represents average of original and duplicate samples.

Attachment 4

Historical Groundwater Concentration Figures

Unconsolidated Aquifer

MW-6A
MW-7A
MW-8A
MW-9A
MW-10A
MW-11A
MW-12A
MW-13A
MW-14A
MW-15A
MW-17A
MW-18A
MW-19A
MW-21A
MW-22A

MW-6B
MW-7B
MW-12B
MW-13B
MW-14B
MW-15B
MW-17B
MW-18B
MW-19B
MW-23B

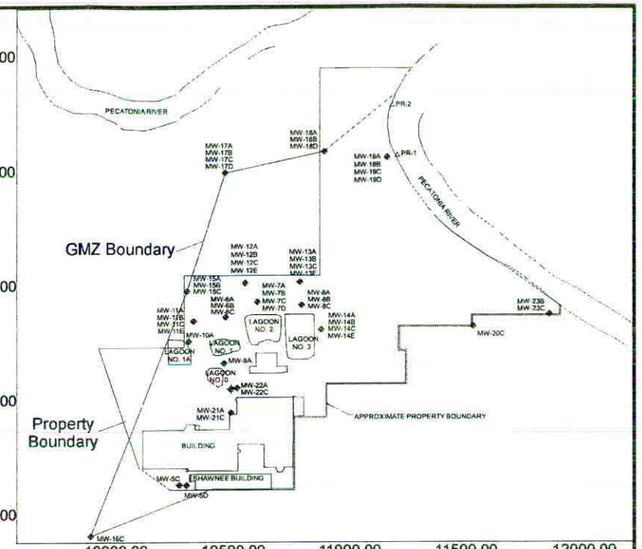
Dolomite Aquifer

MW-5C
MW-6C
MW-7C
MW-8C
MW-11C
MW-12C
MW-13C
MW-14C
MW-15C
MW-16C*
MW-17C
MW-19C
MW-20C
MW-21C
MW-22C
MW-23C

MW-5D
MW-7D
MW-11E
MW-12E
MW-13E
MW-14E
MW-17D
MW-18D
MW-19D

11500.00
11000.00
10500.00
10000.00
9500.00

10000.00 10500.00 11000.00 11500.00 12000.00



5000
2500
1000
500
250
100
50
25
10
5
0

Class II Groundwater Standard

Unconsolidated Aquifer (ug/L)

5000
250
100
50
25
10
5
2.5
1
0.5
0

Class I Groundwater Standard

Dolomite Aquifer (ug/L)

< Implies No Detect

* Denotes Background Well

Modern Plating Facility

Figure 3-1

Historical Groundwater Concentrations Cadmium

Scale: As Shown	Date: July 2020
Prepared By: Foth I&E	By: DAT

/PW_IE/Documents/Clients/Modern Plating/0017M003.00/12000 Design Data and Calculations/Graphs/Spring2020/cd0420.srf

Unconsolidated Aquifer

MW-6A
MW-7A
MW-8A
MW-9A
MW-10A
MW-11A
MW-12A
MW-13A
MW-14A
MW-15A
MW-17A
MW-18A
MW-19A
MW-21A
MW-22A

MW-6B
MW-7B
MW-12B
MW-13B
MW-14B
MW-15B
MW-17B
MW-18B
MW-19B
MW-23B

Dolomite Aquifer

MW-5C
MW-6C
MW-7C
MW-8C
MW-11C
MW-12C
MW-13C
MW-14C
MW-15C
MW-16C*
MW-17C
MW-19C
MW-20C
MW-21C
MW-22C
MW-23C

MW-5D
MW-7D
MW-11E
MW-12E
MW-13E
MW-14E
MW-17D
MW-18D
MW-19D

11500.00
11000.00
10500.00
10000.00
9500.00

10000.00
10500.00
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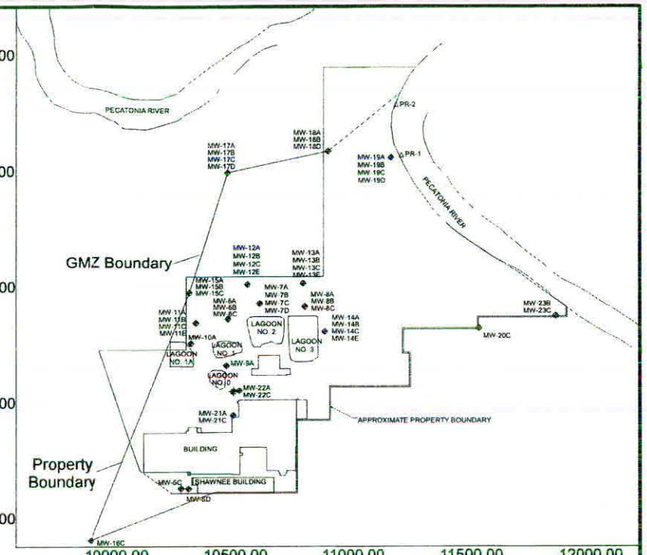
11500.00
12000.00



40000
20000
15000
10000
5000
2500
1000
500
250
100
0

Class II Groundwater Standard

Unconsolidated Aquifer (ug/L)

40000
2000
1500
1000
500
250
100
50
25
10
0

Class I Groundwater Standard

Dolomite Aquifer (ug/L)

< Implies No Detect

* Denotes Background Well

Modern Plating Facility

Figure 3-2

Historical Groundwater Concentrations Chromium

Scale: As Shown	Date: July 2020
Prepared By: Foth I&E	By: DAT

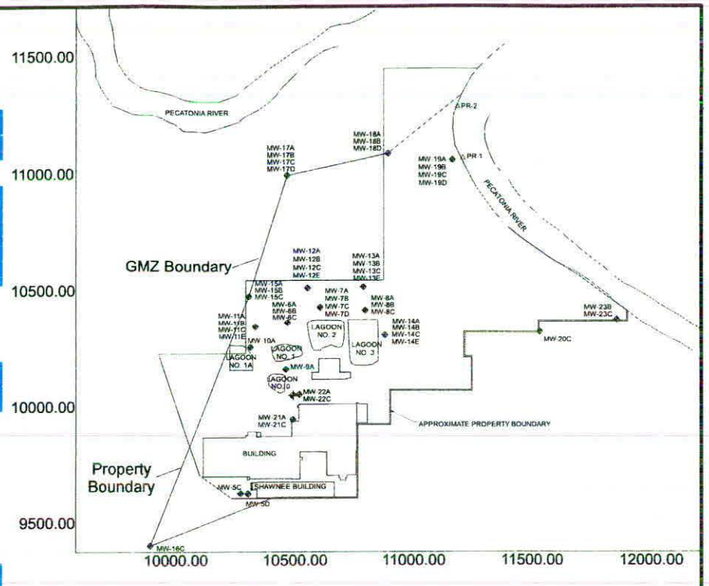
/PW_IE/Documents/Clients/Modern Plating/0017N003.00/12000 Design Data and Calculations/Graphs/Spring2020/cr0420.srf

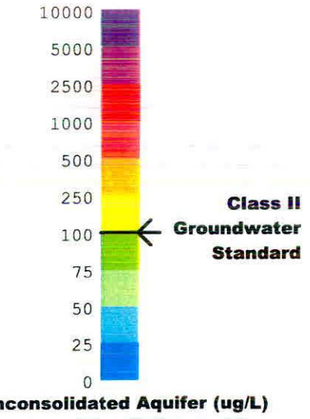
Unconsolidated Aquifer

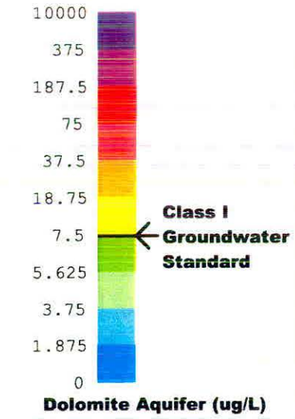
MW-6A
MW-7A
MW-8A
MW-9A
MW-10A
MW-11A
MW-12A
MW-13A
MW-14A
MW-15A
MW-17A
MW-18A
MW-19A
MW-21A
MW-22A
MW-6B
MW-7B
MW-12B
MW-13B
MW-14B
MW-15B
MW-17B
MW-18B
MW-19B
MW-23B
MW-5C
MW-6C
MW-7C
MW-8C
MW-11C
MW-12C
MW-13C
MW-14C
MW-15C
MW-16C*
MW-17C
MW-19C
MW-20C
MW-21C
MW-22C
MW-23C
MW-5D
MW-7D
MW-11E
MW-12E
MW-13E
MW-14E
MW-17D
MW-18D
MW-19D

Dolomite Aquifer

Jan-87 Jul-87 Jan-88 Jul-88 Jan-89 Jul-89 Jan-90 Jul-90 Jan-91 Jul-91 Jan-92 Jul-92 Jan-93 Jul-93 Jan-94 Jul-94 Jan-95 Jul-95 Jan-96 Jul-96 Jan-97 Jul-97 Jan-98 Jul-98 Jan-99 Jul-99 Jan-00 Jul-00 Jan-01 Jul-01 Jan-02 Jul-02 Jan-03 Jul-03 Jan-04 Jul-04 Jan-05 Jul-05 Jan-06 Jul-06 Jan-07 Jul-07 Jan-08 Jul-08 Jan-09 Jul-09 Jan-10 Jul-10 Jan-11 Jul-11 Jan-12 Jul-12 Jan-13 Jul-13 Jan-14 Jul-14 Jan-15 Jul-15 Jan-16 Jul-16 Jan-17 Jul-17 Jan-18 Jul-18 Jan-19 Jul-19 Jan-20







< Implies No Detect

* Denotes Background Well

Modern Plating Facility

Figure 3-3

Historical Groundwater Concentrations Lead

Scale: As Shown	Date: July 2020
Prepared By: Foth I&E	By: DAT

/PW_IE/Documents/Clients/Modern Plating/0017M003.00/12000 Design Data and Calculations/Graphs/Spring2020/pb0420.srf

Unconsolidated Aquifer

MW-6A
MW-7A
MW-8A
MW-9A
MW-10A
MW-11A
MW-12A
MW-13A
MW-14A
MW-15A
MW-17A
MW-18A
MW-19A
MW-21A
MW-22A

MW-6B
MW-7B
MW-12B
MW-13B
MW-14B
MW-15B
MW-17B
MW-18B
MW-19B
MW-23B

Dolomite Aquifer

MW-5C
MW-6C
MW-7C
MW-8C
MW-11C
MW-12C
MW-13C
MW-14C
MW-15C
MW-16C*
MW-17C
MW-19C
MW-20C
MW-21C
MW-22C
MW-23C
MW-5D
MW-7D
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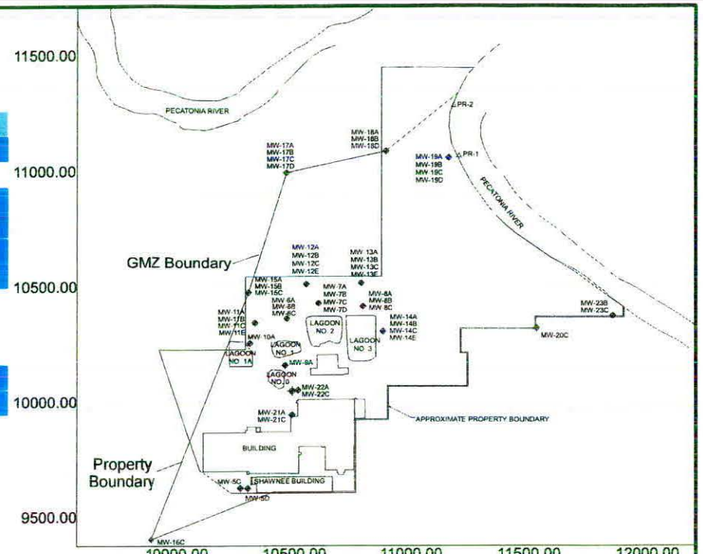
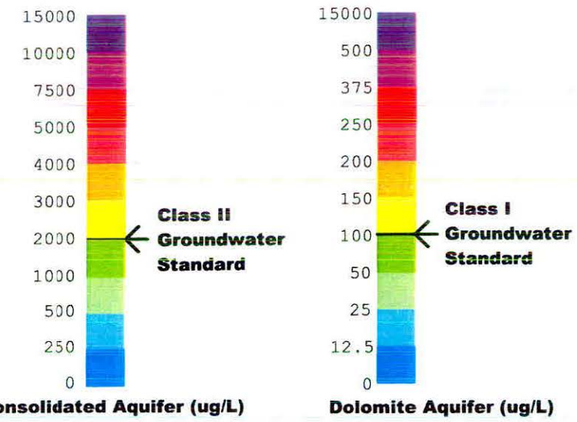
MW-18D
MW-19D





< Implies No Detect

* Denotes Background Well

Modern Plating Facility

Figure 3-4

Historical Groundwater Concentrations Nickel

Scale: As Shown	Date: July 2020
Prepared By: Foth I&E	By: DAT

/PW_IE/Documents/Clients/Modern Plating/0017M003.00/12000 Design Data and Calculations/Graphs/Spring2020/ni0420.srf

Unconsolidated Aquifer

MW-6A
MW-7A
MW-8A
MW-9A
MW-10A
MW-11A
MW-12A
MW-13A
MW-14A
MW-15A
MW-17A
MW-18A
MW-19A
MW-21A
MW-22A

MW-6B
MW-7B
MW-12B
MW-13B
MW-14B
MW-15B
MW-17B
MW-18B
MW-19B
MW-23B

Dolomite Aquifer

MW-5C
MW-6C
MW-7C
MW-8C
MW-11C
MW-12C
MW-13C
MW-14C
MW-15C
MW-16C*
MW-17C
MW-19C
MW-20C
MW-21C
MW-22C
MW-23C
MW-5D
MW-7D
MW-11E
MW-12E
MW-13E
MW-14E
MW-17D
MW-18D
MW-19D

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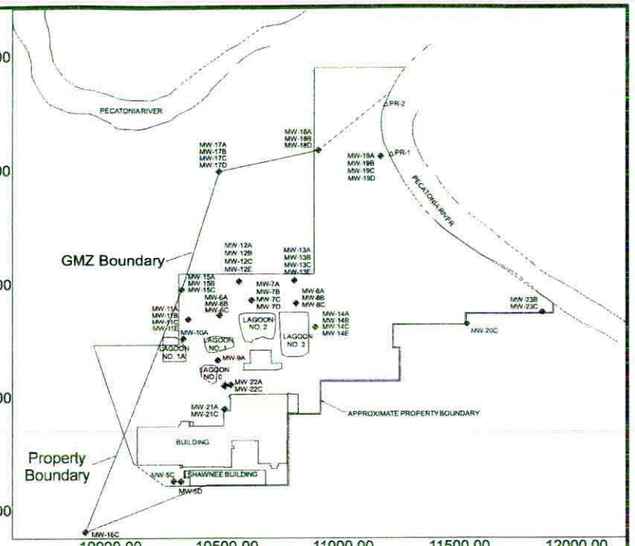
11000.00
10500.00
10000.00
9500.00

10000.00 10500.00 11000.00 11500.00 12000.00



600
400
200
100
75
50
25
15
10
5
0

Class II Groundwater Standard

Unconsolidated Aquifer (ug/L)

600
80
40
20
15
10
5
3
2
1
0

Class I Groundwater Standard

Dolomite Aquifer (ug/L)

< Implies No Detect

* Denotes Background Well

Modern Plating Facility

Figure 3-5

Historical Groundwater Concentrations Tetrachloroethene

Scale: As Shown	Date: July 2020
Prepared By: Foth I&E	By: DAT

/FW_IE/Documents/Clients/Modern Plating/0017M003.00/12000 Design Data and Calculations/Graphs/Spring2020/pce0420.srf

Unconsolidated Aquifer

MW-6A
MW-7A
MW-8A
MW-9A
MW-10A
MW-11A
MW-12A
MW-13A
MW-14A
MW-15A
MW-17A
MW-18A
MW-19A
MW-21A
MW-22A

MW-6B
MW-7B
MW-12B
MW-13B
MW-14B
MW-15B
MW-17B
MW-18B
MW-19B
MW-23B

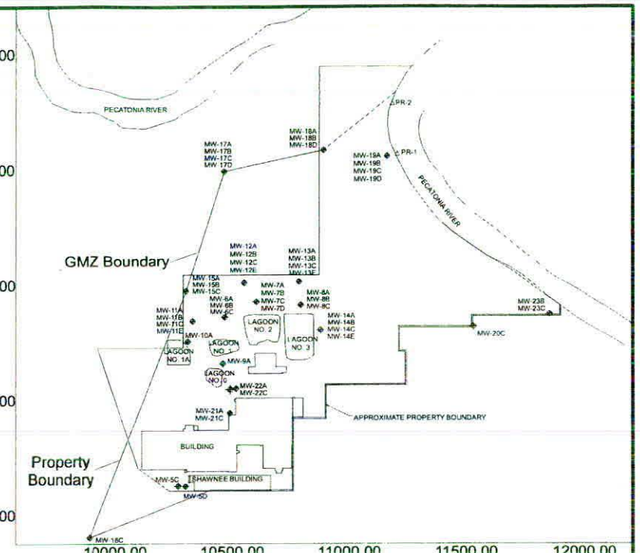
Dolomite Aquifer

MW-5C
MW-6C
MW-7C
MW-8C
MW-11C
MW-12C
MW-13C
MW-14C
MW-15C
MW-16C*
MW-17C
MW-19C
MW-20C
MW-21C
MW-22C
MW-23C

MW-5D
MW-7D
MW-11E
MW-12E
MW-13E
MW-14E
MW-17D
MW-18D
MW-19D

11500.00
11000.00
10500.00
10000.00
9500.00

10000.00 10500.00 11000.00 11500.00 12000.00



10000
1000
500
250
100
50
25
15
10
5
0

Class II Groundwater Standard

Unconsolidated Aquifer (ug/L)

10000
200
100
50
20
10
5
3
2
1
0

Class I Groundwater Standard

Dolomite Aquifer (ug/L)

< Implies No Detect

* Denotes Background Well

Modern Plating Facility

Figure 3-6

Historical Groundwater Concentrations Trichloroethene

Scale: As Shown	Date: July 2020
Prepared By: Foth I&E	By: DAT

/PW_IE/Documents/Clients/Modern Plating/00017M003.00/12000 Design Data and Calculations/Graphs/Spring2020/tce0420.srf

Unconsolidated Aquifer

MW-6A
MW-7A
MW-8A
MW-9A
MW-10A
MW-11A
MW-12A
MW-13A
MW-14A
MW-15A
MW-17A
MW-18A
MW-19A
MW-21A
MW-22A

MW-6B
MW-7B
MW-12B
MW-13B
MW-14B
MW-15B
MW-17B
MW-18B
MW-19B
MW-23B

Dolomite Aquifer

MW-5C
MW-6C
MW-7C
MW-8C
MW-11C
MW-12C
MW-13C
MW-14C
MW-15C
MW-16C*
MW-17C
MW-19C
MW-20C
MW-21C
MW-22C
MW-23C

MW-5D
MW-7D
MW-11E
MW-12E
MW-13E
MW-14E
MW-17D
MW-18D
MW-19D

Jan-13 Apr-13 Jul-13 Oct-13 Jan-14 Apr-14 Jul-14 Oct-14 Jan-15 Apr-15 Jul-15 Oct-15 Jan-16 Apr-16 Jul-16 Oct-16 Jan-17 Apr-17 Jul-17 Oct-17 Jan-18 Apr-18 Jul-18 Oct-18 Jan-19 Apr-19 Jul-19 Oct-19 Jan-20 Apr-20 Jul-20

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11000.00
10500.00
10000.00
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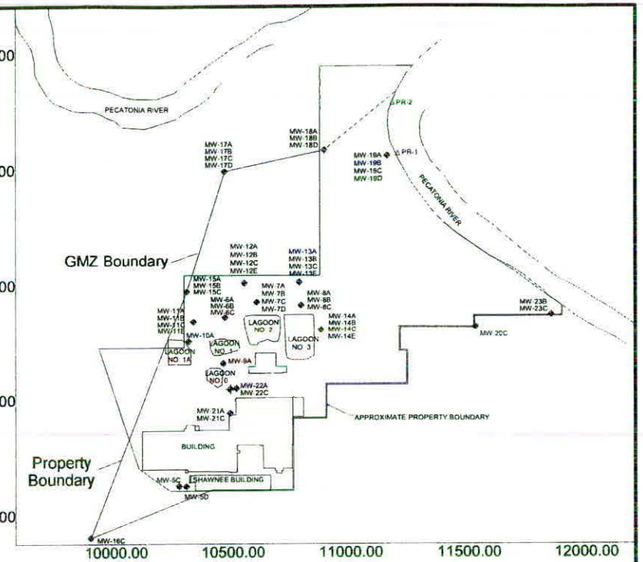


5000
2500
1000
800
600
400
200
100
50
25
0

Class II Groundwater Standard

Unconsolidated Aquifer (ug/L)

5000
875
350
280
210
140
70
35
17.5
8.75
0

Class I Groundwater Standard

Dolomite Aquifer (ug/L)

< Implies No Detect

* Denotes Background Well

Modern Plating Facility

Figure 3-7

Historical Groundwater Concentrations cis-1,2-Dichloroethene

Scale: As Shown	Date: July 2020
Prepared By: Foth I&E	By: DAT

/PW_IE/Documents/Clients/Modern Plating/0017M003.00/12000 Design Data and Calculations/Graphs/Spring2020/c12d0420.SRF

Unconsolidated Aquifer

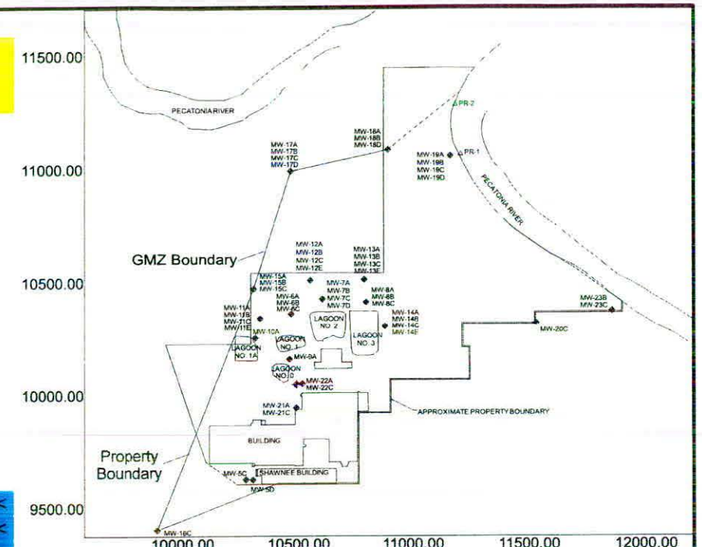
MW-6A
MW-7A
MW-8A
MW-9A
MW-10A
MW-11A
MW-12A
MW-13A
MW-14A
MW-15A
MW-17A
MW-18A
MW-19A
MW-21A
MW-22A

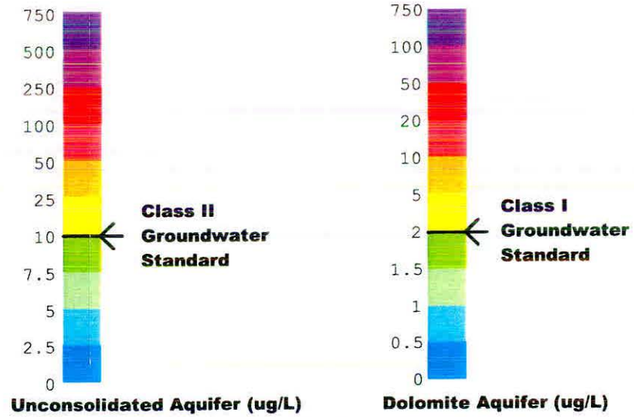
MW-6B
MW-7B
MW-12B
MW-13B
MW-14B
MW-15B
MW-17B
MW-18B
MW-19B
MW-23B

Dolomite Aquifer

MW-5C
MW-6C
MW-7C
MW-8C
MW-11C
MW-12C
MW-13C
MW-14C
MW-15C
MW-16C*
MW-17C
MW-19C
MW-20C
MW-21C
MW-22C
MW-23C

MW-5D
MW-7D
MW-11E
MW-12E
MW-13E
MW-14E
MW-17D
MW-18D
MW-19D





< Implies No Detect

* Denotes Background Well

Modern Plating Facility	
Figure 3-8	
Historical Groundwater Concentrations Vinyl Chloride	
Scale: As Shown	Date: July 2020
Prepared By: Foth I&E	By: DAT

I:\PW_IE\Documents\Clients\Modern Plating\0017M003.00\12000 Design Data and Calculations\Graphs\Spring2020\vc0420.srf

Fall 2020
Semi-Annual Groundwater Monitoring Reports

Green Bay Location

2121 Innovation Court, Suite 300
P.O. Box 5126 • De Pere, WI 54115-5126
(920) 497-2500 • Fax: (920) 497-8516
www.foth.com

October 21, 2020

Mr. Kenn Smith
Illinois Environmental Protection Agency
Bureau of Land
1021 N. Grande Ave. East
P.O. Box 19276
Springfield, IL 62794-9276

Dear Mr. Smith:

RE: Fall 2020 Groundwater/Semiannual Report
Modern Plating Corporation

Introduction

On behalf of Modern Plating Corporation (MPC) of Freeport, Illinois, Foth Infrastructure & Environment, LLC (Foth) is submitting this semiannual report evaluating groundwater quality data at the above referenced site.

Sampling occurred at the MPC site during the period of September 14-16, 2020. All field sampling activities were conducted by PDC Laboratories (PDC) of Peoria, Illinois.

The monitoring wells, which were sampled, are those defined in the monitoring system described in the April 11, 2000 IEPA Resource Conservation and Recovery Act (RCRA) Hazardous Waste Management Post-Closure permit for the Corrective Action Management Unit (CAMU) landfill.

Please note that the raw data used to prepare this letter report has been emailed to epa.bol.gw-data@illinois.gov in the prescribed IEPA format. The *RCRA Facility Groundwater, Leachate, and Gas Reporting Form* follows this cover letter.

The groundwater samples were analyzed by PDC. PDC's laboratory analyses, field assessments of pH, temperature, conductivity, and groundwater elevation are summarized in Table 1 of Attachment 1.

Evaluation of Cleanup Objectives

Table 2 shows the concentration levels measured as a percentage of the cleanup objectives (Class I and Class II Groundwater Quality Standards from Part 620 of 35 Illinois Administrative Code 3031) for the site. An "N.D." in Table 2 of Attachment 2 (409(a)(i)(D), represents a compound which was not detected. A "-" (dash) indicates no sample result. Values exceeding the groundwater cleanup objectives (i.e., greater than 100%) have been shaded on the second page of Table 2. Table 3 is a listing of detected constituents not detected during the previous monitoring event. Table 4 is a listing of constituents exhibiting a progressive increase over two consecutive events. Tables 3 and 4 are included in Attachment 3. Note that Foth has provided historic data on Figures 3-1 through 3-8 going back to 1995 to illustrate trends in the parameter concentrations (see Attachment 4).

The metal constituents exceeding the Class I groundwater standards during the fall 2020 sampling event are chromium (MW-5D and MW-20C), lead (MW-16C and MW-20C), and nickel (MW-5D and MW-20C). The metal constituent exceeding the Class II groundwater standard is cadmium (MW-9A and MW-22A).

The volatile organic compounds (VOC) that exceeded a Class I groundwater standard are tetrachloroethene (PCE) (MW-6C and MW-7D), and vinyl chloride (MW-11C, MW-15C, MW-17D, and MW-23C). The VOCs that exceeded Class II groundwater standards are *cis*-1,2dichloroethene (DCE) (MW-8A), trichloroethene (TCE) (MW-8A), and vinyl chloride (MW-6A, MW-7A, MW-8A, and MW-19B).

Evaluation of Concentration Trends

Historical concentrations (since 1995) of the primary constituents for this site (four metal constituents and four VOC constituents) are illustrated graphically in the color plots provided in Attachment 4 (see Figures 3-1 through 3-8). The metal constituents included are cadmium, chromium, lead, and nickel; and the VOC constituents included are PCE, TCE, DCE, and vinyl chloride. Non-detected results in the plots are represented by a "<".

Work Completed On-Site and Expected Impacts

The construction of the CAMU landfill is completed, and the entire CAMU landfill has received final cover and is closed. It is expected that over time the CAMU construction will improve groundwater quality.

Groundwater Flow and Transport

Since this is the second semiannual sampling event, the groundwater flow and direction are reported as required by permit condition Section III., I, 3, and 4. Groundwater elevations were measured at the Modern Plating Facility site during the September 14-16, 2020 period. Attachment 5, Figures 4-1, 4-2, 4-3, and 4-4 show contours of the potentiometric surface of the unconsolidated and dolomite aquifers during

this sampling event. The potentiometric surface maps are generally consistent with the previous approximations.

Flow in the upper unconsolidated aquifer ("A" wells) is generally to the north and northeast towards the Pecatonica River (Figure 4-1). Similarily, the lower unconsolidated aquifer ("B" wells) exhibits relatively uniform flow generally northeasterly towards the Pecatonica River consistent with previous flow approximations (Figure 4-2).

Approximations of the groundwater flow in the dolomite aquifer (Figures 4-3 and 4-4) suggest flow which is generally similar to the lower unconsolidated aquifer flow pattern. However, during the September 14-16, 2020 measurement period some "C" & "D/E" wells in the vicinity of the former lagoons had groundwater levels at, and presumably exceeding, the top of the well casing making it difficult to assess the actual static water level at those wells. Nonetheless, reliable up and downgradient groundwater level measurements provide boundaries for the less reliable middle area measurements.

Conclusion

Most reported concentrations were near or below the spring 2020 levels with Class I and II groundwater exceedances at wells where exceedances have historically occurred. The exceedences were reported near the former lagoons, and at or near GMZ boundary locations including: lead at background well MW-16C; chromium, nickel and lead at MW-20C; chromium and nickel at MW-5D; and vinyl chloride at MW-15C, MW-17D, MW-19B, and MW-23C. Concentration fluctuations have been noted historically at these locations. Changes in turbidity may account for some of the (total) metals concentration fluctuations.

If field conditions allow, the next monitoring event will occur in spring 2021 and will be reported on or before April 15, 2021.

If you have any questions or comments concerning this letter report, please call either of the undersigned at (920) 497-2500.

Sincerely,

Foth Infrastructure & Environment, LLC

Daniel A. Tilly, GISP
GIS Specialist/Data Analyst

Richard L. Panosh, P.G.
Lead Environmental Scientist

Attachments

cc: Mr. Dave Servatius, Modern Plating Corporation (via e-mail)

Illinois
Environmental
Protection Agency

Bureau of Land
1021 North Grand Avenue East
Box 19276
Springfield, IL 62794-9276

RCRA FACILITY GROUNDWATER, LEACHATE AND GAS REPORTING FORM

This form must be used as a cover sheet for the notices and reports, identified below as required by: (1) a facility's RCRA interim status closure plan; (2) the RCRA interim status regulations; or (3) a facility's RCRA permit. All reports must be submitted to the Illinois EPA's Bureau of Land Permit Section. This form is for use by Hazardous Waste facilities only. Reporting for Solid Waste facilities should be submitted on a separate form. All reports submitted to the Illinois EPA's Bureau of Land Permit Section must contain an original, plus a minimum of two copies.

Note: This form is not to be used with permit or closure plan modification requests. The facility's approved permit or closure plan will state whether the document you are submitting is required as a report or a modification request

Facility Name: Modern Plating Corporation Site ID #: 1770200010 – Stephenson Co
Facility Address: 701 South Hancock Ave
Freeport, IL 61032-0838 Fed ID #: ILD 005172325

Check the appropriate heading. Only one heading may be checked for each corresponding submittal. Check the appropriate sub-heading, where applicable. Attach the original and all copies behind this form.

___ LPC-160 Forms

Groundwater
___ Quarterly – Indicate one: 1 2 3 4
✓ Semi-Annual
___ Annual
___ Biennial

Leachate
___ Quarterly – Indicate one: 1 2 3 4
___ Semi-Annual
___ Annual
___ Biennial

___ Groundwater Data (without LPC-160 Forms)
___ Quarterly – Indicate one: 1 2 3 4
___ Annual ___ Semi-Annual ___ Biennial

___ Well Construction Information
___ Well Construction Forms, Boring Logs and/or Abandonment Forms
___ Well Survey Data (e.g., Stick-up Elevation Data)

___ Notice of Statistically Significant Evidence of Groundwater Contamination (35 Ill. Adm. Code 724.198)

___ Notice of Exceedence of Groundwater Concentration Limit (35 Ill. Adm. Code 724.199(h))

___ Notice of Alternate Source or Error in Sampling Analysis or Evaluation of Groundwater (35 Ill. Adm. Code 724.199(i))

___ Gas Monitoring Reports

___ Other (identify) _____

Attachment 1

Groundwater Results

Table 1

Groundwater Quality Results - Sep. 14-16, 2020
Modern Plating Corporation

Parameter	Units	MW-05C G05M	MW-05D G05L	MW-06A G06S	MW-06B G06U	MW-06C G06M	MW-07A G07S	MW-07B G07U	MW-07C G07M	MW-07D G07L	MW-08A G08S	MW-08C G08M	MW-09A G09S	MW-10A G10S	MW-11A G11S	MW-11B G11U	MW-11C G11M
pH (Field)	S.U.	7.52	7.01	6.97	-	7.02	7.12	-	-	7.14	7.11	-	7.21	7.14	-	-	7.15
Conductivity (Field)	umhos/cm	394.4	116.3	1736	-	1139	1486	-	-	1153	1302	-	1669	1431	-	-	1004
Temperature (Field - Deg F)	Degrees F	60.8	56.5	76.8	-	61.0	61.7	-	-	62.4	65.2	-	63.7	60.6	-	-	59.3
Turbidity (Field - NTU)	NTU	3.94	343	24.9	-	3.03	204	-	-	5.06	16.1	-	155	30.8	-	-	2.24
DTW Below Land Surface	Feet	13.35	13.26	-0.53	-0.78	-1.38	0.06	-1.55	-2.39	-2.68	3.83	-	11.72	8.45	-0.58	-0.63	-0.82
DTW Below Measuring Point	Feet	15.64	14.76	3.33	3.22	0.00	2.31	0.75	0.00	0.00	7.05	-	14.64	11.01	1.55	1.46	0.00
Groundwater Elevation	MSL(Feet)	765.21	765.19	755.41	755.69	757.01	753.88	755.57	756.13	756.50	755.16	-	758.00	756.72	756.01	755.94	755.98
Well Bottom Elevation	MSL(Feet)	757.30	739.55	743.20	728.84	711.38	740.64	726.47	719.90	712.30	741.55	-	746.62	743.86	741.94	727.70	689.46
Measuring Point (TOC) Elevation	MSL(Feet)	780.85	779.95	758.74	758.91	757.01	756.19	756.32	756.13	756.50	762.21	-	772.64	767.73	757.56	757.40	755.98
Cadmium	ug/l	-	<1.0	-	-	-	-	-	-	-	-	-	510	1.2	-	-	-
Chromium	ug/l	-	2100	-	-	-	-	-	-	-	-	-	290	33	-	-	-
Lead	ug/l	-	4.2	-	-	-	-	-	-	-	-	-	<1.0	<1.0	-	-	-
Nickel	ug/l	-	640	-	-	-	-	-	-	-	-	-	330	31	-	-	-
cis 1,2-Dichloroethene	ug/l	<5.0	-	<5.0	-	<5.0	<5.0	-	-	<5.0	540	-	-	-	-	-	12
Tetrachloroethene	ug/l	<5.0	-	<5.0	-	6.1	<5.0	-	-	9.4	<5.0	-	-	-	-	-	<5.0
Trichloroethene	ug/l	<5.0	-	<5.0	-	<5.0	<5.0	-	-	<5.0	43	-	-	-	-	-	<5.0
Vinyl Chloride	ug/l	<2.0	-	23	-	<2.0	11	-	-	<2.0	15	-	-	-	-	-	19

Note: MW-08C was obstructed at 2.61'
Inorganics Analyzed by SW 6020A
Volatiles Analyzed by SW 8260B

Table 1 (Cont.)

Groundwater Quality Results - Sep. 14-16, 2020

Modern Plating Corporation

Parameter	Units	MW-11E G11D	MW-12A G12S	MW-12B G12U	MW-12C G12M	MW-12E G12D	MW-13A G13S	MW-13B G13U	MW-13C G13M	MW-13E G13D	MW-14A G14S	MW-14B G14U	MW-14C G14M	MW-14E G14D	MW-15A G15S	MW-15B G15U	MW-15C G15M
pH (Field)	S.U.	-	7.06	7.21	-	-	6.92	6.92	-	-	7.20	7.48	7.22	-	7.22	7.13	7.31
Conductivity (Field)	umhos/cm	-	1400	1066	-	-	1249	1224	-	-	1594	1234	1075	-	1072	1048	854.1
Temperature (Field - Deg F)	Degrees F	-	67.7	64.0	-	-	58.7	59.5	-	-	64.6	63.9	61.1	-	66.0	61.2	58.7
Turbidity (Field - NTU)	NTU	-	93.9	22.8	-	-	145	<0.00	-	-	37.0	0.770	10.2	-	76.8	75.6	12.8
DTW Below Land Surface	Feet	-0.54	-0.08	-1.61	-2.46	-2.91	-1.12	-1.90	-2.89	-0.95	1.82	3.15	2.35	2.69	0.85	0.93	-0.72
DTW Below Measuring Point	Feet	0.00	2.83	0.25	0.00	0.00	2.02	0.00	0.00	1.44	4.48	6.29	4.29	5.91	3.87	3.80	1.11
Groundwater Elevation	MSL(Feet)	755.77	753.92	755.35	756.33	756.62	754.26	755.05	756.30	754.23	756.10	755.85	756.67	755.61	755.43	755.41	756.83
Well Bottom Elevation	MSL(Feet)	755.77	741.10	726.35	756.33	666.42	740.99	725.55	669.06	636.11	738.27	736.58	678.36	644.17	743.65	726.59	652.27
Measuring Point (TOC) Elevation	MSL(Feet)	755.77	756.75	755.60	756.33	756.62	756.28	755.05	756.30	755.67	760.58	762.14	760.96	761.52	759.30	759.21	757.94
Cadmium	ug/l	-	1.4	-	-	-	<1.0	-	-	-	<1.0	-	-	-	2.1	<1.0	<1.0
Chromium	ug/l	-	10	-	-	-	<4.0	-	-	-	140	-	-	-	44	<4.0	<4.0
Lead	ug/l	-	6.1	-	-	-	2.0	-	-	-	1.4	-	-	-	1.7	<1.0	<1.0
Nickel	ug/l	-	16	-	-	-	12	-	-	-	16	-	-	-	360	<5.0	<5.0
cis 1,2-Dichloroethene	ug/l	-	-	8.5	-	-	-	<5.0	-	-	-	<5.0	<5.0	-	-	<5.0	<5.0
Tetrachloroethene	ug/l	-	-	<5.0	-	-	-	12	-	-	-	11	<5.0	-	-	<5.0	<5.0
Trichloroethene	ug/l	-	-	8.1	-	-	-	<5.0	-	-	-	7.3	<5.0	-	-	<5.0	<5.0
Vinyl Chloride	ug/l	-	-	<2.0	-	-	-	<2.0	-	-	-	<2.0	<2.0	-	-	<2.0	17

Note: MW-08C was obstructed at 2.61'
Inorganics Analyzed by SW 6020A
Volatiles Analyzed by SW 8260B

Table 1 (Cont.)

Groundwater Quality Results - Sep. 14-16, 2020

Modern Plating Corporation

		MW-16C								MW-18D							
Parameter	Units	MW-16C G16M	G16M Dup.	MW-17A G17S	MW-17B G17U	MW-17C G17M	MW-17D G17L	MW-18A G18S	MW-18B G18U	MW-18D G18L	G18L Dup.	MW-19A G19S	MW-19B G19U	MW-19C G19M	MW-19D G19L	MW-20C GA0M	MW-21A GA1S
pH (Field)	S.U.	7.39	-	-	7.19	7.34	7.16	-	7.05	7.49	-	-	7.10	7.54	7.39	7.05	7.23
Conductivity (Field)	umhos/cm	464.2	-	-	1173	1003	1090	-	1246	621.3	-	-	1269	675.8	619.0	1108	1477
Temperature (Field - Deg F)	Degrees F	58.8	-	-	58.4	62.0	59.5	-	63.6	57.6	-	-	64.4	64.8	59.5	58.2	63.7
Turbidity (Field - NTU)	NTU	239	-	-	62.4	16.1	7.88	-	<0.00	26.7	-	-	0.420	<0.00	17.3	820	172
DTW Below Land Surface	Feet	6.93	-	2.26	2.44	1.37	1.32	1.51	1.45	1.80	-	1.87	1.71	1.07	1.49	13.53	14.80
DTW Below Measuring Point	Feet	6.60	-	4.59	4.88	3.91	3.81	3.66	3.46	4.14	-	4.12	3.25	3.24	3.78	15.71	14.60
Groundwater Elevation	MSL(Feet)	774.79	-	754.20	754.12	755.11	755.10	753.74	753.73	753.19	-	753.59	753.54	754.53	753.79	753.31	758.08
Well Bottom Elevation	MSL(Feet)	754.37	-	738.63	719.13	647.87	635.29	738.41	716.92	606.96	-	740.44	717.59	644.07	604.22	741.38	747.77
Measuring Point (TOC) Elevation	MSL(Feet)	781.39	-	758.79	759.00	759.02	758.91	757.40	757.19	757.33	-	757.71	756.79	757.77	757.57	769.02	772.68
Cadmium	ug/l	<1.0	<1.0	-	<1.0	<1.0	<1.0	-	<1.0	<1.0	<1.0	-	<1.0	<1.0	<1.0	<1.0	8.4
Chromium	ug/l	38	34	-	<4.0	<4.0	<4.0	-	<4.0	26	36	-	<4.0	<4.0	5.6	7200	43
Lead	ug/l	15	13	-	1.2	1.1	<1.0	-	<1.0	2.3	2.2	-	<1.0	<1.0	1.6	7.9	16
Nickel	ug/l	18	16	-	<5.0	<5.0	<5.0	-	<5.0	32	35	-	<5.0	<5.0	<5.0	430	35
cis 1.2-Dichloroethene	ug/l	<5.0	<5.0	-	<5.0	<5.0	<5.0	-	37	<5.0	<5.0	-	21	<5.0	<5.0	-	-
Tetrachloroethene	ug/l	<5.0	<5.0	-	<5.0	<5.0	<5.0	-	<5.0	<5.0	<5.0	-	<5.0	<5.0	<5.0	-	-
Trichloroethene	ug/l	<5.0	<5.0	-	<5.0	<5.0	<5.0	-	<5.0	<5.0	<5.0	-	<5.0	<5.0	<5.0	-	-
Vinyl Chloride	ug/l	<2.0	<2.0	-	<2.0	<2.0	3.2	-	9.1	<2.0	<2.0	-	20	<2.0	<2.0	-	-

Note: MW-08C was obstructed at 2.61'
Inorganics Analyzed by SW 6020A
Volatiles Analyzed by SW 8260B

Table 1 (Cont.)

Groundwater Quality Results - Sep. 14-16, 2020

Modern Plating Corporation

Parameter	Units	MW-21C GA1M	MW-22A GA2S	MW-22C GA2M	MW-23B GA3U	MW-23B GA3U Dup.	MW-23C GA3M	PR-1 S201	PR-2 S102	Field Blank 1 FB01	Field Blank 2 FB02	Field Blank 3 FB03	Trip Blank 1 TB01
pH (Field)	S.U.	-	8.00	-	7.24	-	7.04	8.08	8.11	-	-	-	-
Conductivity (Field)	umhos/cm	-	3459	-	970.2	-	1142	593.6	588.2	-	-	-	-
Temperature (Field - Deg F)	Degrees F	-	71.4	-	63.4	-	61.3	66.2	65.7	-	-	-	-
Turbidity (Field - NTU)	NTU	-	25.9	-	49.3	-	70.2	68.8	73.5	-	-	-	-
DTW Below Land Surface	Feet	11.29	15.66	15.74	1.90	-	1.75	-	-	-	-	-	-
DTW Below Measuring Point	Feet	11.09	15.29	15.35	4.57	-	4.62	-	-	-	-	-	-
Groundwater Elevation	MSL(Feet)	761.59	758.50	758.49	753.11	-	753.16	-	-	-	-	-	-
Well Bottom Elevation	MSL(Feet)	718.92	748.70	717.25	734.34	-	720.26	-	-	-	-	-	-
Measuring Point (TOC) Elevation	MSL(Feet)	772.68	773.79	773.84	757.68	-	757.78	-	-	-	-	-	-
Cadmium	ug/l	-	61	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	ug/l	-	9.6	-	44	43	25	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Lead	ug/l	-	3.3	-	3.1	3.4	2.1	4.3	4.6	<1.0	<1.0	<1.0	<1.0
Nickel	ug/l	-	53	-	9.1	9.5	12	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
cis 1,2-Dichloroethene	ug/l	-	-	-	17	16	27	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Tetrachloroethene	ug/l	-	-	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Trichloroethene	ug/l	-	-	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Vinyl Chloride	ug/l	-	-	-	<2.0	<2.0	4	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0

Note: MW-08C was obstructed at 2.61'
Inorganics Analyzed by SW 6020A
Volatiles Analyzed by SW 8260B

Prepared by: SGL
Checked by: DAT

Attachment 2

Groundwater Results as a Percentage of the Cleanup Objective

Table 2

Groundwater Quality Results (µg/l)
Modern Plating Corporation
Sep. 14-16, 2020

Monitoring Well	Cadmium (Total)	Chromium (Total)	Lead (Total)	Nickel (Total)	cis-1,2-Dichloroethene	Tetra-chloroethene	Trich-chloroethene	Vinyl Chloride
Class II Clean-Up Objective (ug/l)	50	1000	100	2000	200	25	25	10
MW-06A	-	-	-	-	<5	<5	<5	23
MW-07A	-	-	-	-	<5	<5	<5	11
MW-08A	-	-	-	-	540	<5	43	15
MW-09A	510	290	<1	330	-	-	-	-
MW-10A	1.2	33	<1	31	-	-	-	-
MW-12A	1.4	10	6.1	16	-	-	-	-
MW-12B	-	-	-	-	8.5	<5	8.1	<2
MW-13A	<1	<4	2	12	-	-	-	-
MW-13B	-	-	-	-	<5	12	<5	<2
MW-14A	<1	140	1.4	16	-	-	-	-
MW-14B	-	-	-	-	<5	11	7.3	<2
MW-15A	2.1	44	1.7	360	-	-	-	-
MW-15B	<1	<4	<1	<5	<5	<5	<5	<2
MW-17B	<1	<4	1.2	<5	<5	<5	<5	<2
MW-18B	<1	<4	<1	<5	37	<5	<5	9.1
MW-19B	<1	<4	<1	<5	21	<5	<5	20
MW-21A	8.4	43	16	35	-	-	-	-
MW-22A	61	9.6	3.3	53	-	-	-	-
MW-23B	<1	44	3.1	9.1	17	<5	<5	<2
Class I Clean-Up Objective (ug/l)	5	100	7.5	100	70	5	5	2
MW-05C	-	-	-	-	<5	<5	<5	<2
MW-05D	<1	2100	4.2	640	-	-	-	-
MW-06C	-	-	-	-	<5	6.1	<5	<2
MW-07D	-	-	-	-	<5	9.4	<5	<2
MW-08C	-	-	-	-	-	-	-	-
MW-11C	-	-	-	-	12	<5	<5	19
MW-14C	-	-	-	-	<5	<5	<5	<2
MW-15C	<1	<4	<1	<5	<5	<5	<5	17
MW-16C	<1	38	15	18	<5	<5	<5	<2
MW-17C	<1	<4	1.1	<5	<5	<5	<5	<2
MW-17D	<1	<4	<1	<5	<5	<5	<5	3.2
MW-18D	<1	26	2.3	32	<5	<5	<5	<2
MW-19C	<1	<4	<1	<5	<5	<5	<5	<2
MW-19D	<1	5.6	1.6	<5	<5	<5	<5	<2
MW-20C	<1	7200	7.9	430	-	-	-	-
MW-23C	<1	25	2.1	12	27	<5	<5	4
Surface Water Quality Standards (ug/L)								
Acute	37.1	4582.4	432.5	224.9	14000	1200	12000	22000
Chronic	2.9	546.2	90.7	13.6	1100	150	940	1700
Human Health	NA	NA	NA	NA	NA	NA	25	2
PR-1	<1	<4	4.3	<5	<5	<5	<5	<2
PR-2	<1	<4	4.6	<5	<5	<5	<5	<2

Note: MW-08C was obstructed at 2.61'
- : No Sample Result
<: Value Less Than The Reporting Limit

Table 2 (Cont.)

Groundwater Quality Results as a Percentage of the Cleanup Objective
Modern Plating Corporation
Sep. 14-16, 2020

Monitoring Well	Cadmium (Total)	Chromium (Total)	Lead (Total)	Nickel (Total)	cis-1,2-Dichloroethene	Tetra-chloroethene	Trich-chloroethene	Vinyl Chloride
Class II Clean-Up Objective (ug/l)	50	1000	100	2000	200	25	25	10
MW-06A					ND	ND	ND	230%
MW-07A					ND	ND	ND	110%
MW-08A					270%	ND	172%	150%
MW-09A	1020%	29%	ND	17%				
MW-10A	2%	3%	ND	2%				
MW-12A	3%	1%	6%	1%				
MW-12B					4%	ND	32%	ND
MW-13A	ND	ND	2%	1%				
MW-13B					ND	48%	ND	ND
MW-14A	ND	14%	1%	1%				
MW-14B					ND	44%	29%	ND
MW-15A	4%	4%	2%	18%				
MW-15B	ND	ND	ND	ND	ND	ND	ND	ND
MW-17B	ND	ND	1%	ND	ND	ND	ND	ND
MW-18B	ND	ND	ND	ND	19%	ND	ND	91%
MW-19B	ND	ND	ND	ND	11%	ND	ND	200%
MW-21A	17%	4%	16%	2%				
MW-22A	122%	1%	3%	3%				
MW-23B	ND	4%	3%	0%	9%	ND	ND	ND
Class I Clean-Up Objective (ug/l)	5	100	7.5	100	70	5	5	2
MW-05C					ND	ND	ND	ND
MW-05D	ND	2100%	56%	640%				
MW-06C					ND	122%	ND	ND
MW-07D					ND	188%	ND	ND
MW-08C								
MW-11C					17%	ND	ND	950%
MW-14C					ND	ND	ND	ND
MW-15C	ND	ND	ND	ND	ND	ND	ND	850%
MW-16C	ND	38%	200%	18%	ND	ND	ND	ND
MW-17C	ND	ND	15%	ND	ND	ND	ND	ND
MW-17D	ND	ND	ND	ND	ND	ND	ND	160%
MW-18D	ND	26%	31%	32%	ND	ND	ND	ND
MW-19C	ND	ND	ND	ND	ND	ND	ND	ND
MW-19D	ND	6%	21%	ND	ND	ND	ND	ND
MW-20C	ND	7200%	105%	430%				
MW-23C	ND	25%	28%	12%	39%	ND	ND	200%

Note: MW-08C was obstructed at 2.61'
ND : Compound Not Detected

Prepared by: SGL
Checked by: DAT

Attachment 3

Tables 3 and 4

Table 3

Detected Constituents Not Detected During Previous Monitoring Event

Sep. 14-16, 2020

Well	Parameter	µg/L
MW-12B	TCE	8.1
MW-16C	Chromium	38
MW-16C Dup.	Chromium	34
MW-16C Dup.	Nickel	16
MW-16C	Nickel	18
MW-17D	Vinyl Chloride	3.2
MW-17C	Lead	1.1
MW-19B	Vinyl Chloride	20

Prepared by: SGL
Checked by: DAT

Table 4

Constituents Exhibiting a Progressive Increase Over Two Consecutive Events

Well	Parameter	Sep/Dec 2019 (µg/L)	Jun 2020 (µg/L)	Sep 2020 (µg/L)
MW-05D	Chromium	63	880	2100
MW-05D	Lead	ND	3.8	4.2
MW-06A	Vinyl Chloride	ND	16	23
MW-09A	Cadmium	170	330	510
MW-09A	Chromium	79	170	290
MW-09A	Nickel	270	320	330
MW-14A	Chromium	50	110	140
MW-15A	Chromium	ND	37	44
MW-15A	Lead	0.6	1.2	1.7
MW-15A	Nickel	64	94	360
MW-15C	Vinyl Chloride	6.3	16	17
MW-16C	Lead	1.1	1.45	14

ND - Value not detected.

Prepared by: SGL
Checked by: DAT

Note: If a duplicate sample was collected, value represents average of original and duplicate samples.

Attachment 4

Historical Groundwater Concentration Figures

Unconsolidated Aquifer

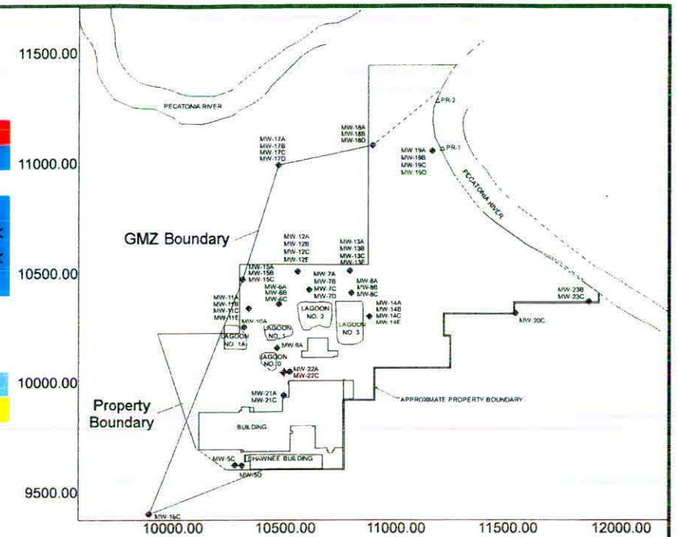
MW-6A
MW-7A
MW-8A
MW-9A
MW-10A
MW-11A
MW-12A
MW-13A
MW-14A
MW-15A
MW-17A
MW-18A
MW-19A
MW-21A
MW-22A

MW-6B
MW-7B
MW-12B
MW-13B
MW-14B
MW-15B
MW-17B
MW-18B
MW-19B
MW-23B

Dolomite Aquifer

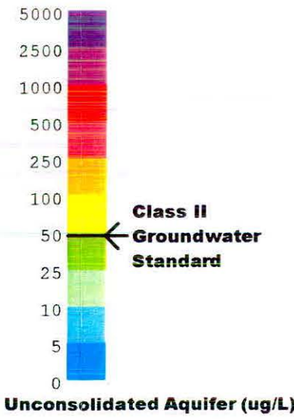
MW-5C
MW-6C
MW-7C
MW-8C
MW-11C
MW-12C
MW-13C
MW-14C
MW-15C
MW-16C*
MW-17C
MW-19C
MW-20C
MW-21C
MW-22C
MW-23C
MW-5D
MW-7D
MW-11E
MW-12E
MW-13E
MW-14E
MW-17D
MW-18D
MW-19D

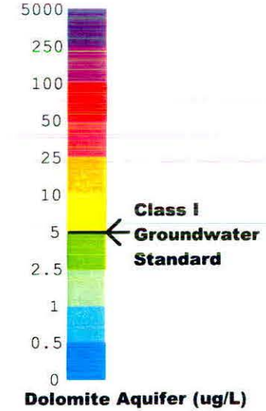
25/95 25/95 8/9/95 11/9/96 25/96 8/9/96 11/9/96 25/97 5/9/97 10/9/97 11/9/97 25/98 5/9/98 8/9/98 11/9/98 25/99 5/9/99 8/9/99 11/9/99 18/00 3/1/01 10/1/01 3/1/02 10/1/02 3/1/03 10/1/03 3/1/04 10/1/04 3/1/05 10/1/05 3/1/06 10/1/06 3/1/07 10/1/07 3/1/08 10/1/08 3/1/09 10/1/09 3/1/10 10/1/10 3/1/11 10/1/11 3/1/12 10/1/12 3/1/13 10/1/13 3/1/14 10/1/14 3/1/15 10/1/15 3/1/16 10/1/16 3/1/17 10/1/17 3/1/18 10/1/18 3/1/19 9/1/19 6/1/20 9/1/20



< Implies No Detect

* Denotes Background Well





/PW_IE/Documents/Clients/Modern Plating/0017M003.00/12000 Design Data and Calculations/Graphs/Fall2020/cd1020.srf

Modern Plating Facility

Figure 3-1

Historical Groundwater Concentrations Cadmium

Scale: As Shown	Date: October 2020
Prepared By: Foth I&E	By: DAT

Unconsolidated Aquifer

MW-6A
MW-7A
MW-8A
MW-9A
MW-10A
MW-11A
MW-12A
MW-13A
MW-14A
MW-15A
MW-17A
MW-18A
MW-19A
MW-21A
MW-22A

MW-6B
MW-7B
MW-12B
MW-13B
MW-14B
MW-15B
MW-17B
MW-18B
MW-19B
MW-23B

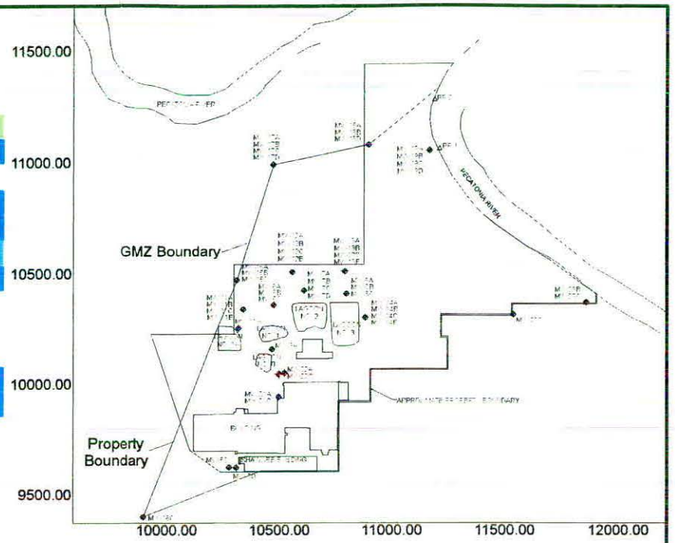
Dolomite Aquifer

MW-5C
MW-6C
MW-7C
MW-8C
MW-11C
MW-12C
MW-13C
MW-14C
MW-15C
MW-16C*
MW-17C
MW-19C
MW-20C
MW-21C
MW-22C
MW-23C

MW-5D
MW-7D
MW-11E
MW-12E
MW-13E
MW-14E
MW-17D
MW-18D
MW-19D

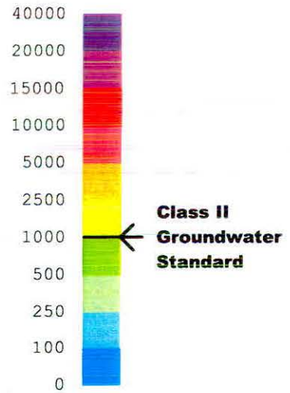
25/95 25/95 81/95 12/96 25/96 58/96 11/97 25/97 51/97 10/97 11/97 12/98 25/98 58/98 11/98 12/98 25/99 58/99 81/99 18/00 31/00 10/01 13/02 10/02 13/03 31/03 10/04 13/04 10/05 13/05 31/05 10/06 13/06 31/06 10/07 13/07 31/07 10/08 14/08 10/09 13/09 10/10 13/10 11/11 13/11 10/11 12/11 13/11 10/11 13/11 15/11 10/14 13/14 10/15 14/15 10/16 14/16 10/17 14/17 10/18 14/18 10/19 13/19 9/19 6/20 9/20

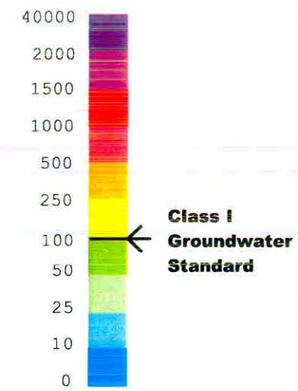
/PW_IE/Documents/Clients/Modern Plating/0017M003.00/12000 Design Data and Calculations/Graphs/Fall2020/cr1020.srf



< Implies No Detect

* Denotes Background Well



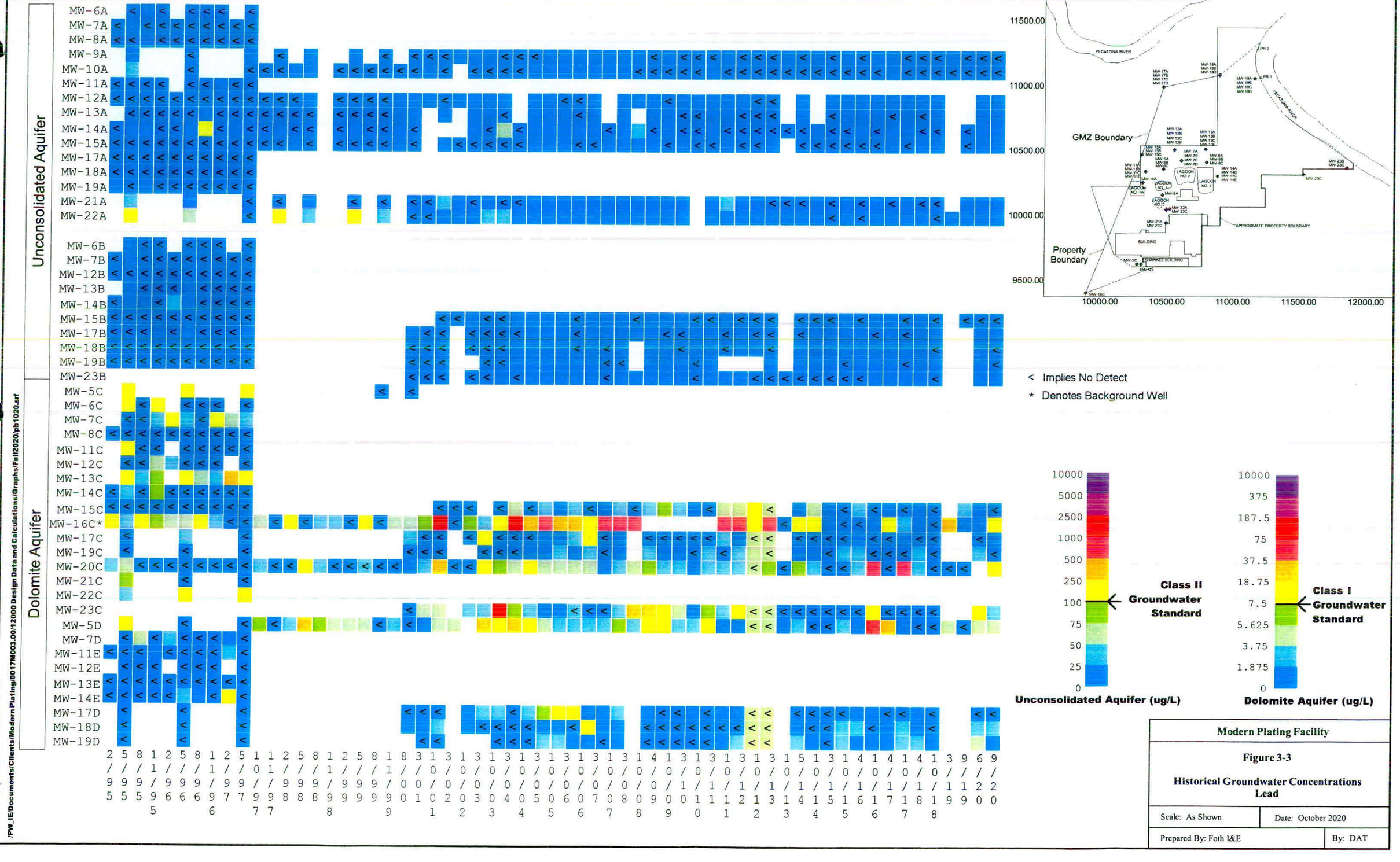


Modern Plating Facility

Figure 3-2

Historical Groundwater Concentrations Chromium

Scale: As Shown	Date: October 2020
Prepared By: Foth I&E	By: DAT



/PW_IE/Documents/Clients/Modern Plating/0017M003.00/12000 Design Data and Calculations/Graphs/Fall2020/pb1020.srf

Modern Plating Facility

Figure 3-3

Historical Groundwater Concentrations Lead

Scale: As Shown	Date: October 2020
Prepared By: Foth I&E	By: DAT

Unconsolidated Aquifer

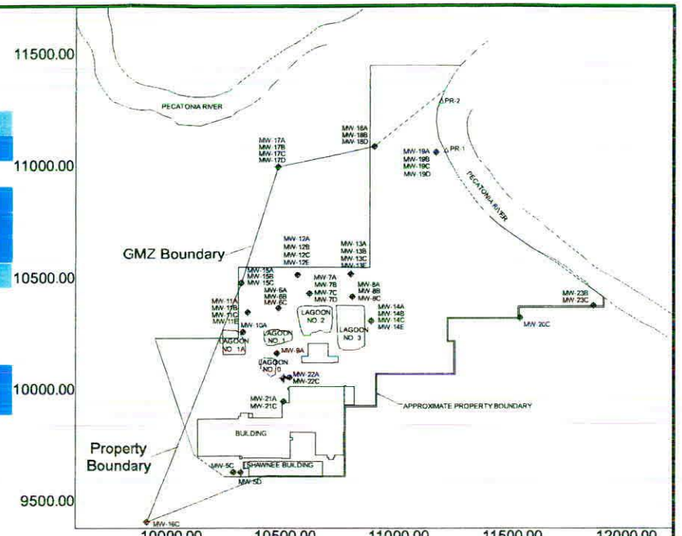
MW-6A
MW-7A
MW-8A
MW-9A
MW-10A
MW-11A
MW-12A
MW-13A
MW-14A
MW-15A
MW-17A
MW-18A
MW-19A
MW-21A
MW-22A

MW-6B
MW-7B
MW-12B
MW-13B
MW-14B
MW-15B
MW-17B
MW-18B
MW-19B
MW-23B

Dolomite Aquifer

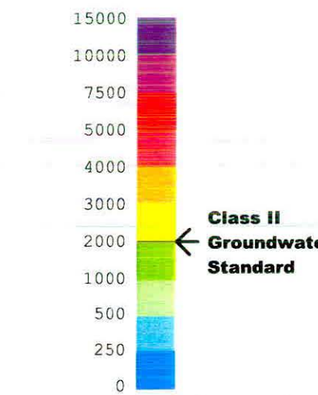
MW-5C
MW-6C
MW-7C
MW-8C
MW-11C
MW-12C
MW-13C
MW-14C
MW-15C
MW-16C*
MW-17C
MW-19C
MW-20C
MW-21C
MW-22C
MW-23C
MW-5D
MW-7D
MW-11E
MW-12E
MW-13E
MW-14E
MW-17D
MW-18D
MW-19D

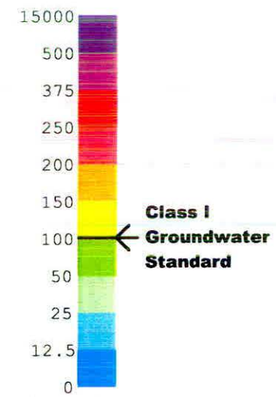
25/9/95 5/8/95 11/1/96 25/2/96 5/6/96 8/8/96 1/11/96 25/12/96 5/5/97 1/10/97 17/1/98 25/2/98 5/8/98 1/11/98 12/1/99 25/5/99 8/8/99 1/11/99 18/1/00 3/3/00 31/10/00 13/12/00 13/3/01 30/3/01 13/6/01 30/7/01 13/10/01 30/10/01 13/1/02 14/4/02 13/7/02 30/10/02 13/1/03 13/4/03 13/7/03 30/10/03 13/1/04 14/4/04 14/7/04 13/10/04 13/1/05 15/3/05 13/6/05 14/9/05 14/12/05 14/3/06 14/6/06 14/9/06 13/12/06 13/3/07 16/5/07 19/9/07 20/12/07



< Implies No Detect

* Denotes Background Well





Modern Plating Facility

Figure 3-4

Historical Groundwater Concentrations Nickel

Scale: As Shown	Date: October 2020
Prepared By: Foth I&E	By: DAT

/FW_IE/Documents/Clients/Modern Plating/0017M003.00/12000 Design Data and Calculations/Graphs/Fall2020/ni1020.srf

Unconsolidated Aquifer

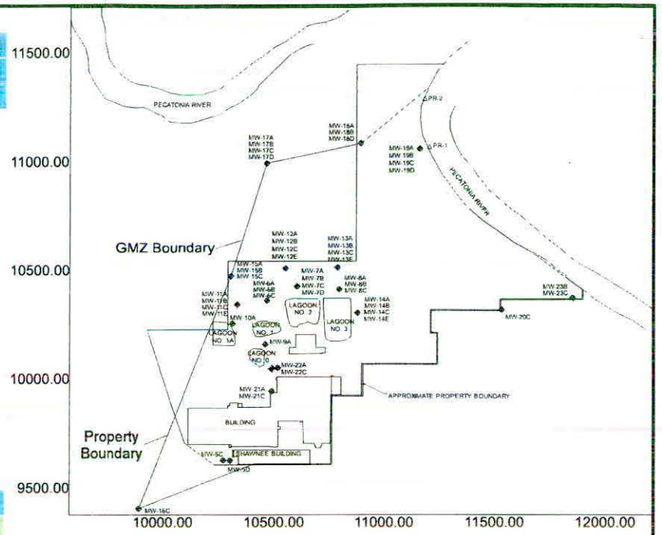
MW-6A
MW-7A
MW-8A
MW-9A
MW-10A
MW-11A
MW-12A
MW-13A
MW-14A
MW-15A
MW-17A
MW-18A
MW-19A
MW-21A
MW-22A

MW-6B
MW-7B
MW-12B
MW-13B
MW-14B
MW-15B
MW-17B
MW-18B
MW-19B
MW-23B

Dolomite Aquifer

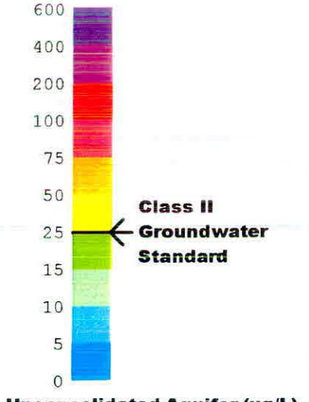
MW-5C
MW-6C
MW-7C
MW-8C
MW-11C
MW-12C
MW-13C
MW-14C
MW-15C
MW-16C*
MW-17C
MW-19C
MW-20C
MW-21C
MW-22C
MW-23C
MW-5D
MW-7D
MW-11E
MW-12E
MW-13E
MW-14E
MW-17D
MW-18D
MW-19D

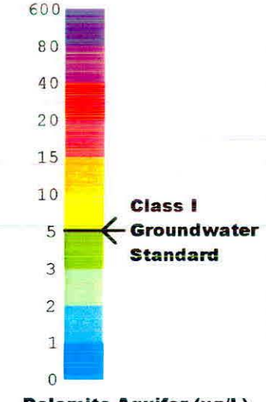
25/9/95 25/5/95 8/11/95 25/5/96 8/9/96 1/11/96 12/9/97 5/9/97 1/10/97 11/7/98 25/8/98 8/8/98 1/11/98 25/9/99 8/9/99 1/11/99 18/9/00 3/10/01 13/10/02 13/10/03 13/10/04 13/10/05 13/10/06 13/10/07 13/10/08 14/10/09 13/10/10 13/11/11 13/11/12 13/11/13 15/10/14 13/10/15 14/10/16 14/10/17 14/10/18 13/9/19 9/12/20 9/9/20



< Implies No Detect

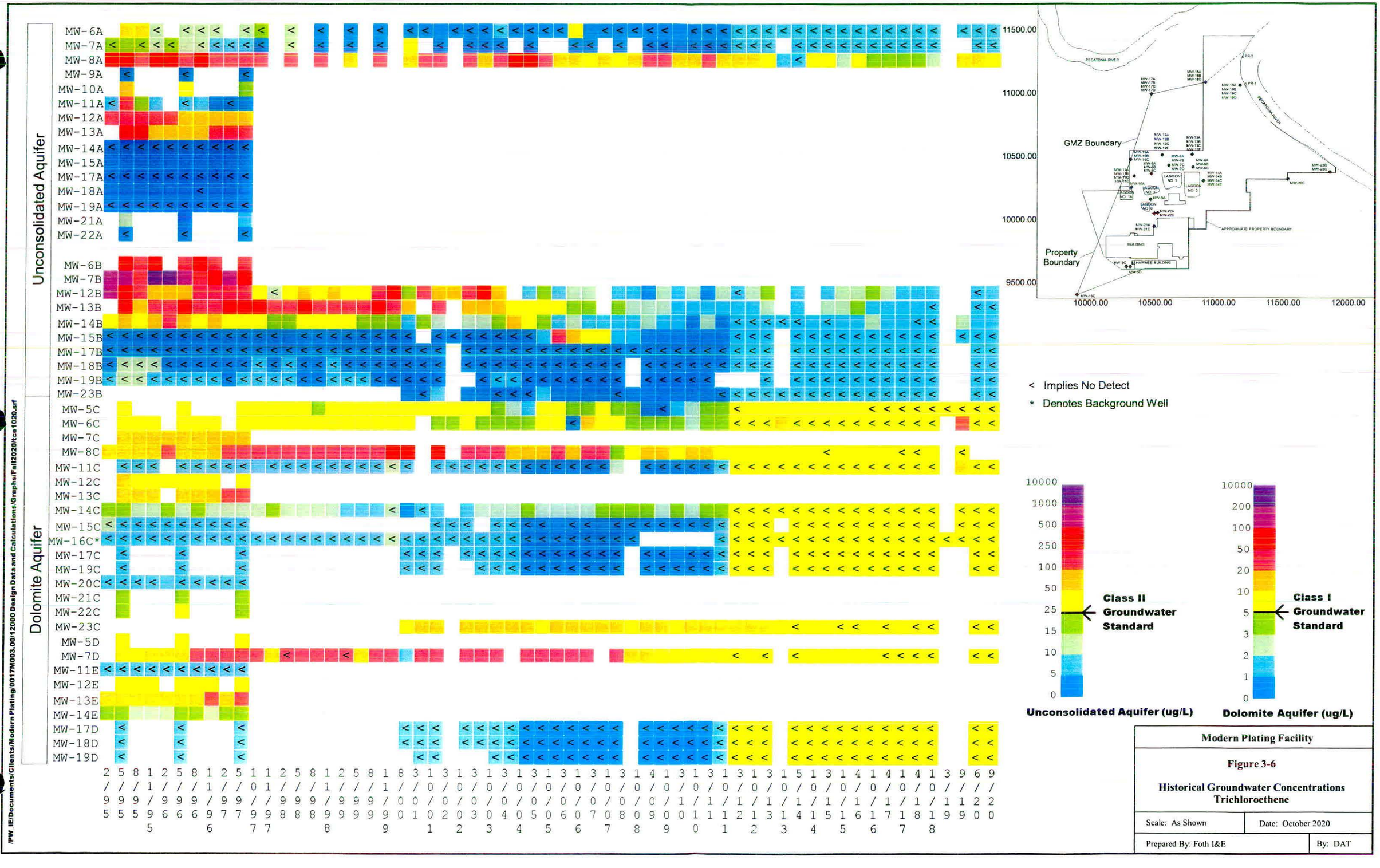
* Denotes Background Well





/PW_IE/Documents/Clients/Modern Plating/0017M003.00/12000 Design Data and Calculations/Graphs/Fall2020/pce1020.srf

Modern Plating Facility	
Figure 3-5 **Historical Groundwater Concentrations Tetrachloroethene**	
Scale: As Shown	Date: October 2020
Prepared By: Foth I&E	By: DAT



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Modern Plating Facility

Figure 3-6

Historical Groundwater Concentrations Trichloroethene

Scale: As Shown	Date: October 2020
Prepared By: Foth I&E	By: DAT

Unconsolidated Aquifer

MW-6A
MW-7A
MW-8A
MW-9A
MW-10A
MW-11A
MW-12A
MW-13A
MW-14A
MW-15A
MW-17A
MW-18A
MW-19A
MW-21A
MW-22A

MW-6B
MW-7B
MW-12B
MW-13B
MW-14B
MW-15B
MW-17B
MW-18B
MW-19B
MW-23B
MW-5C
MW-6C
MW-7C
MW-8C
MW-11C
MW-12C
MW-13C
MW-14C
MW-15C
MW-16C*
MW-17C
MW-19C
MW-20C
MW-21C
MW-22C
MW-23C
MW-5D
MW-7D
MW-11E
MW-12E
MW-13E
MW-14E
MW-17D
MW-18D
MW-19D

Dolomite Aquifer

25/95 25/95 8/15/95 11/29/96 25/96 8/29/96 11/6/97 25/97 10/1/97 11/7/98 25/98 8/18/98 11/29/99 25/99 8/11/99 11/1/00 8/30/01 10/2/02 10/3/03 10/4/04 10/5/05 10/6/06 10/7/07 10/8/08 10/9/09 10/11/10 10/11/11 10/12/12 10/13/13 10/14/14 10/15/14 10/16/14 10/17/14 10/18/16 10/19/18 9/19/19 9/20/20 9/20/20

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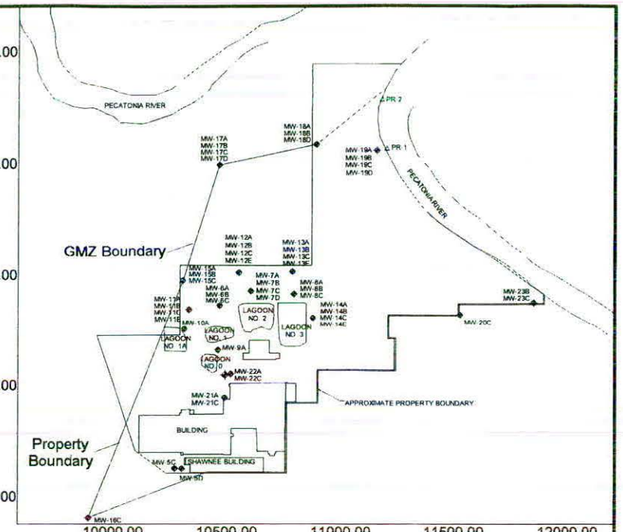


< Implies No Detect

* Denotes Background Well

5000
2500
1000
800
600
400
200
100
50
25
0

Class II Groundwater Standard

Unconsolidated Aquifer (ug/L)

5000
875
350
280
210
140
70
35
17.5
8.75
0

Class I Groundwater Standard

Dolomite Aquifer (ug/L)

/PW_IE/Documents/Clients/Modern Plating/0017M003.00/12000 Design Data and Calculations/Graphs/Fall2020/c12a1020.SRF

Modern Plating Facility	
Figure 3-7 Historical Groundwater Concentrations cis-1,2-Dichloroethene	
Scale: As Shown	Date: October 2020
Prepared By: Foth I&E	By: DAT

Unconsolidated Aquifer

MW-6A
MW-7A
MW-8A
MW-9A
MW-10A
MW-11A
MW-12A
MW-13A
MW-14A
MW-15A
MW-17A
MW-18A
MW-19A
MW-21A
MW-22A
MW-6B
MW-7B
MW-12B
MW-13B
MW-14B
MW-15B
MW-17B
MW-18B
MW-19B
MW-23B

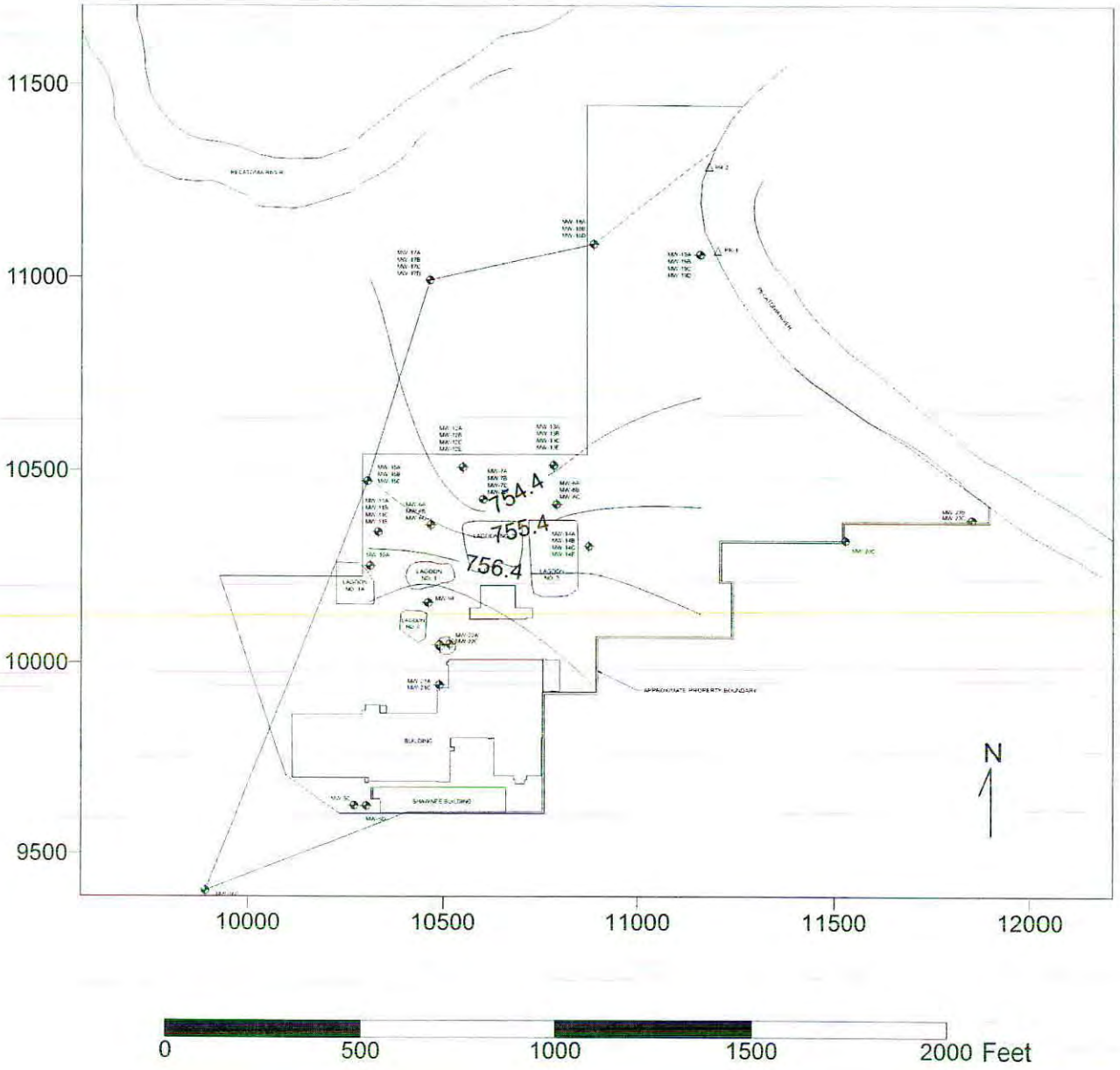
Dolomite Aquifer

MW-5C
MW-6C
MW-7C
MW-8C
MW-11C
MW-12C
MW-13C
MW-14C
MW-15C
MW-16C*
MW-17C
MW-19C
MW-20C
MW-21C
MW-22C
MW-23C
MW-5D
MW-7D
MW-11E
MW-12E
MW-13E
MW-14E
MW-17D
MW-18D
MW-19D

25/95 25/95 25/95 25/96 25/96 25/96 25/96 25/97 25/97 25/97 25/97 11/97 11/97 12/98 25/98 25/98 25/98 25/98 1/99 1/99 25/99 25/99 25/99 25/99 25/99 1/00 8/30/01 8/30/01 8/30/01 8/30/02 8/30/03 8/30/04 8/30/05 8/30/06 8/30/06 8/30/07 8/30/08 8/30/08 8/30/09 8/30/09 8/30/10 8/30/11 8/30/12 8/30/13 8/30/13 8/30/13

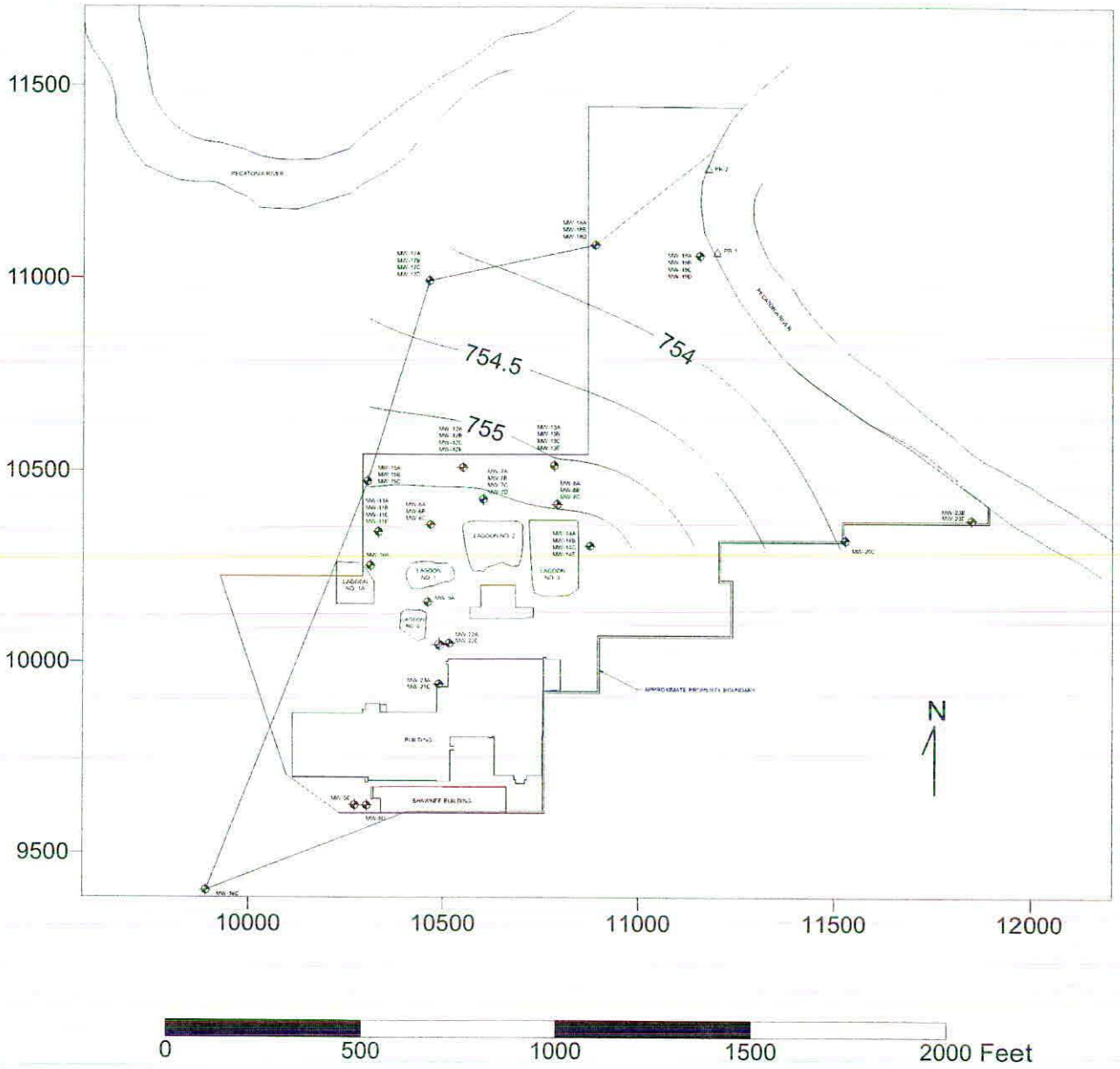
Attachment 5

Groundwater Potentiometric Surface Maps



/PW_IE/Documents/Modern Plating/0017M003.00/12000 Design Data and Calculations/GWMaps/Oct2020/oct...t..grd..srf..basemap2.bln

Modern Plating Facility	
Figure 4-1 **Upper Unconsolidated Aquifer** **Water Level Contour Map (A Wells),** **September 15, 2020**	
Scale: As Shown	**Date: October, 2020**
Prepared By: Foth I & E	**By: DAT**

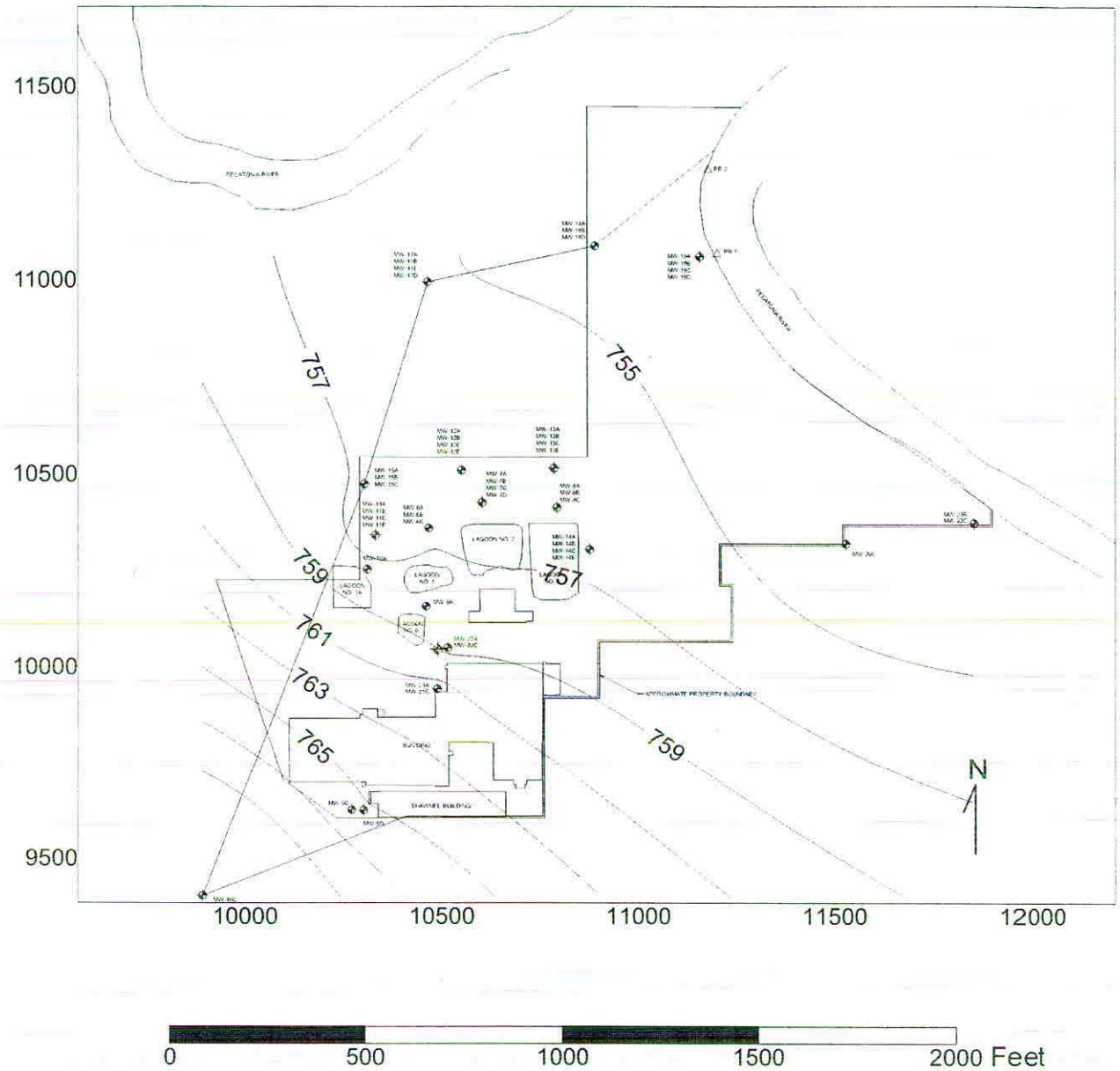


/PW_IE/Documents/Clients/Modern Plating/0017M003.00/12000 Design Data and Calculations/GWMaps/Oct2020/oct2020dat_grd_srf basemap2.bln

Modern Plating Facility

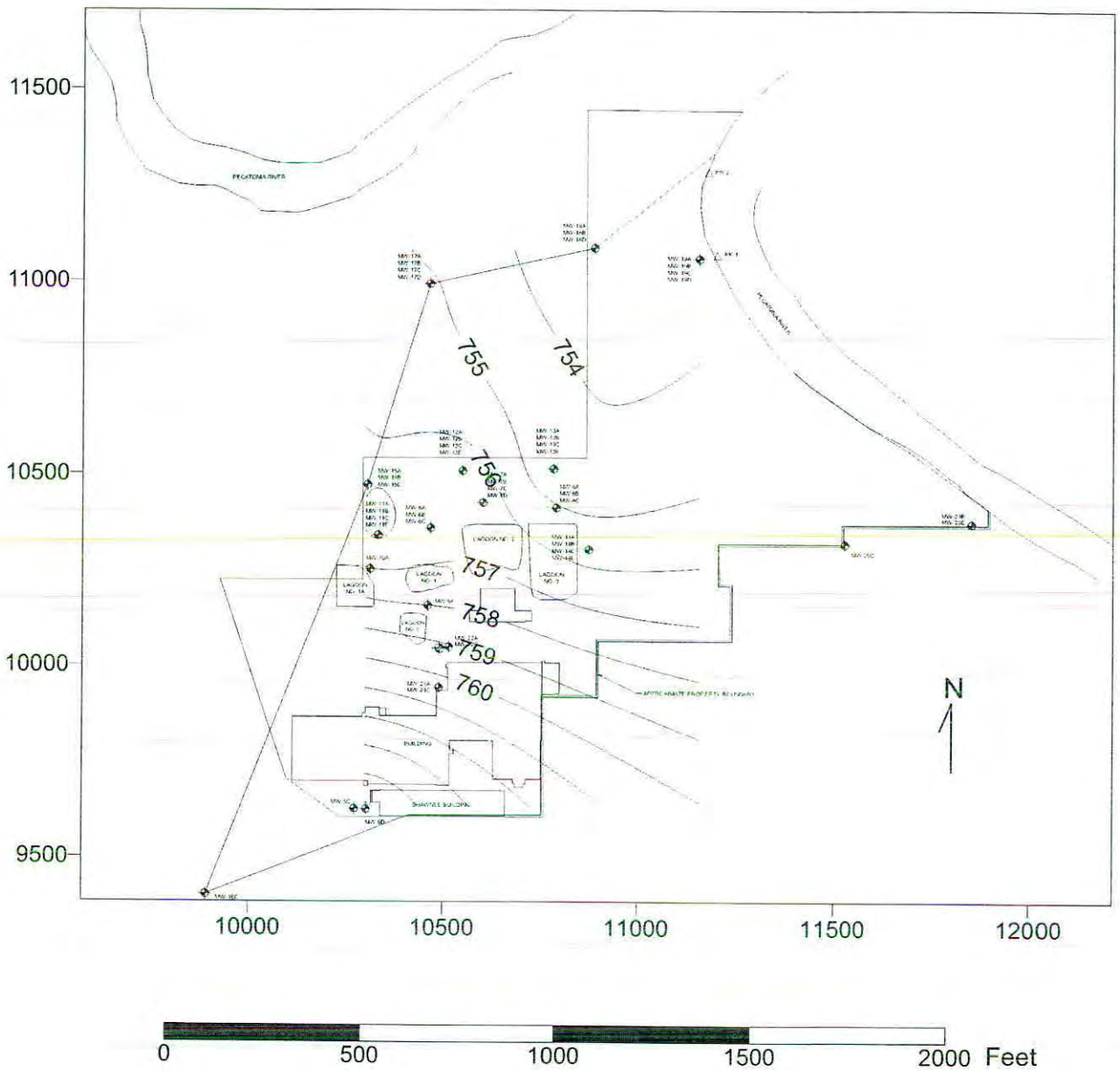
Figure 4-2
Lower Unconsolidated Aquifer
Water Level Contour Map (B Wells)
September 15, 2020

Scale: As Shown	**Date: October, 2020**
Prepared By: Foth I & E	**By: DAT**



/PW_IE/Documents/Clients/Modern Plating/0017M003.00/12000 Design Data and Calculations/GWMaps/Oct2020/oct2020dat..grd,.srf,basemap2.bln

Modern Plating Facility	
Figure 4-3 **Upper Dolomite Aquifer** **Water Level Contour Map (C Wells),** **September 15, 2020**	
Scale: As Shown	**Date: October, 2020**
Prepared By: Foth I & E	**By: DAT**



/PW_IE/Documents/Modern Plating/0017M003.00/12000 Design Data and Calculations/GWMaps/Oct2020/oct2020_dat_grd_srf_basemap2.bln

Modern Plating Facility	
Figure 4-4 Lower Dolomite Aquifer Water Level Contour Map (D & E Wells) September 15, 2020	
Scale: As Shown	Date: October, 2020
Prepared By: Foth I & E	By: DAT

Attachment 2

APPENDIX H

Appendix H

Monitoring Well Construction Information and Boring Logs

Summary of Well Construction Data

TABLE NO. 4-3

Summary of Well Construction Data

Well Designation	Coordinates North	Coordinates East	Ground	Top of Casing	Top of Well Screen	Bottom of Well Screen	Top of Sand Pack	Bottom of Sand Pack
5C	9631.2	10292.7	778.1	779.78	760.1	755.1	762.1	755.1
5D	9631.3	10298.9	778.2	780.40	749.5	739.5	752.2	738.2
6A	10366.0	10471.4	754.6	758.17	747.1	742.1	748.6	742.1
6B	10362.3	10468.1	754.5	758.22	737.5	727.5	740.5	727.5
6C	10358.6	10464.9	754.4	756.54	715.9	710.9	717.4	710.9
7A	10430.9	10609.5	753.2	756.22	745.7	740.7	747.7	740.7
7B	10429.9	10603.7	753.2	756.92	736.2	726.2	739.2	726.2
7C	10427.7	10594.5	753.3	758.97	718.3	713.3	719.3	713.3
7D	10428.9	10599.6	753.3	759.92	713.3	703.3	715.3	703.3
8A	10413.4	10787.7	754.4	757.02	746.4	741.4	747.9	741.4
8B	10412.0	10792.3	754.6	757.90	737.6	727.6	740.1	727.6
8C	10410.2	10797.0	754.7	757.45	687.7	682.7	691.7	682.7
9A	10330.0	10475.0	768.8	771.75	755.8	745.8	758.8	745.8
10A	10235.0	10322.0	765.3	767.80	753.8	743.8	757.3	743.8
11A	10334.7	10331.9	754.4	757.47	747.7	742.7	749.4	742.4
11B	10340.1	10332.1	754.3	757.49	737.3	727.3	739.3	726.3
11C	10346.2	10334.4	754.3	756.06	693.8	688.8	695.8	688.0
11E	10351.0	10336.4	754.3	755.73	665.8	655.8	670.3	653.3
12A	10505.5	10545.6	753.6	756.61	746.6	741.6	748.4	741.6
12B	10507.1	10548.6	753.6	755.64	735.6	725.6	737.4	725.6
12C	10512.0	10552.3	753.6	756.10	705.6	700.6	707.8	700.6
12E	10513.9	10555.4	753.5	756.55	676.3	666.3	678.3	666.3
13A	10518.5	10788.6	752.8	756.27	745.9	740.9	748.0	740.6
13B	10515.2	10786.6	752.8	754.94	734.8	724.8	737.0	724.8
13C	10512.3	10783.4	753.0	756.25	674.0	669.0	676.0	669.0
13E	10508.2	10780.2	752.8	755.59	645.8	635.8	647.8	634.9
14A	10312.9	10877.1	758.6	761.84	751.6	741.6	753.6	740.1
14B	10309.8	10875.9	758.6	762.20	741.6	736.6	743.6	736.2
14C	10303.6	10876.9	758.8	760.99	683.3	678.3	685.3	678.3
14E	10297.8	10880.7	758.7	761.50	654.7	644.7	657.0	644.7
15A	10477.5	10306.4	755.8	759.00	749.1	744.1	750.8	743.8
15B	10474.2	10306.4	755.8	758.88	734.6	724.6	736.8	724.6
15C	10470.9	10306.4	755.7	758.26	657.7	652.7	660.2	651.2
16C	9403.3	9890.9	781.6	784.78	764.6	754.6	766.6	752.6
17A	10993.8	10470.3	755.8	758.71	743.8	738.8	646.1	737.9
17B	10995.1	10465.1	756.0	758.91	729.3	719.3	731.3	718.8
17C	10994.1	10459.0	756.0	758.94	653.0	648.0	655.0	648.0
17D	10991.5	10464.3	755.9	758.84	644.8	634.8	646.4	634.8
18A	11089.6	10887.5	754.6	757.34	743.6	738.6	745.6	738.6
18B	11086.1	10892.2	754.7	757.13	727.3	717.3	729.7	717.3
18D	11081.6	10888.9	754.6	757.26	618.0	608.0	620.2	608.0
19A	11056.4	11159.9	754.7	757.68	745.7	740.7	747.4	740.7
19B	11058.4	11155.4	754.8	757.57	727.9	717.9	730.1	717.9
19C	11063.7	11153.4	754.9	757.70	650.6	644.6	653.2	644.6
19D	11051.10	11158.5	754.6	757.50	615.7	604.7	617.6	604.7
MW-21A	9943.3	10459.9	773.0	772.59	757.19	747.19	759.19	747.19
MW-21C	9943	10489	773.11	772.80	772.50	717.50	724.50	715.80
MW-22A	10050.1	10516.2	774.14	773.75	758.35	748.35	761.35	748.35
MW-22C	10052.7	10521.0	774.24	773.80	718.50	713.50	721.50	711.75

Boring Logs

Foth & Van Dyke & Associates, Inc.

LOG OF TEST BORING NO.: 5D

CLIENT: Modern Plating Corp.
PROJECT: Assessment Monitoring Program
PROJECT NUMBER: 86M55
LOCATION: Freeport, IL

SURFACE ELEVATION: 778.2
BORING DEPTH: 40'
DATE: 09/22/86

MSL ELEV	DEPTH FR LND SURF	SAMP DEPTH INTERVAL	TYPE	#	N	REC (ft)	DESCRIPTION OF MATERIAL	CLASS	LABORATORY TESTS	DRILLING AND SAMPLING NOTES
778.2	--0	0-2	ss	1	6	1.7	Yellow brown silty sand w/ gravel	SM		3 1/4" Hollow Stem Auger
		2-4	ss	2	7	1.7	Brown lean clay	CL		
		4-6	st	3	P	2.0				
773.2	--5									
		6-8	ss	4	14	1.5	Yellow brown silt	ML		
		8-10	ss	5	9	2.0				
768.2	--10	10-12	ss	6	8	2.0	Gray brown silt	ML		
		12-14	ss	7	13	2.0	Yellow brown silty sand, fine	SM		
		14-16	ss	8	26	2.0				
763.2	--15									
		16-18	ss	9	22	1.5				
		18-20	ss	10	64	1.8	Buff to Dark Brown weathered dolomite			
758.2	--20	20-21	ss	11	20	0.8				
		22-22.5	ss	12	17	0.5				NX Core
							Buff to Dark Brown weathered (pitted to vuggy) dolomite highly fractured			Run #1 23.5-25.5 Rec.-2.0' RQD=0%
733.2	--25									
748.2	--30									Run #2 25.5-27.0 Rec. 1.5' RQD=0%
743.2	--35									Run #3 27.0-30.0 Rec. 3.0' RQD=0%
738.2	--40						Bottom of hole 40.0'			Run #4 30.0-35.0 Rec. 5.0 RQD=15%
733.2	--45									Run #5 35.0-40.0 Rec. 5.0 RQD=32%
728.2	--50									
723.2	--55									

DRILLING DATA

START DATE:	09/22/86
COMPLETION DATE:	09/22/86
LOGGED BY:	RTB
DRILLING METHOD:	Hollow Stem and Coring
DRILLING CONTRACTOR:	Testing Service Corp.

WATER LEVEL INFORMATION

DEPTH AT COMPLETION:	
LATER TIME/DEPTH:	
LATER TIME/DEPTH:	
CAVE IN DEPTH:	
DRILLING LOSSES:	

Foth & Van Dyke & Associates, Inc.

LOG OF TEST BORING NO.: 6C

CLIENT: Modern Plating Corp.
PROJECT: Assessment Monitoring Program
PROJECT NUMBER: 86M55
LOCATION: Freeport, IL

SURFACE ELEVATION: 754.4
BORING DEPTH: 43.50
DATE: 09/24/86

MSL ELEV	DEPTH FR LND SURF	SAMP DEPTH INTERVAL	TYPE	#	N	REC (ft)	DESCRIPTION OF MATERIAL	CLASS	LABORATORY TESTS	DRILLING AND SAMPLING NOTES
754.4	--0	0-2	ss	1	5	2.0	Black to very dark brown organic clay	OL		3 15/16" Roller Bit & Water
	-	2-4	ss	2	5	2.0				
	-	4-6	st	3	P	1.0				
749.4	--5									
	-	6-8	ss	4	1	1.5				
	-						Dark gray sandy lean clay	CL-SM		Set 6" Surface Casing
	-	8-10	ss	5	0	2.0				
744.4	--10	10-12	ss	6	1	2.0				
	-	12-14	ss	7	3	2.0	Gray brown sand, fine to medium	SP		
	-	14-16	ss	8	3	2.0				
739.4	--15									
	-	16-18	ss	9	5	2.0				
	-	18-20	ss	10	10	2.0				
	-						Brown sand with clay,	SP-SC		
734.4	--20	20-22	ss	11	9	2.0	fine to coarse			
	-	22-24	ss	12a 12b	28	2.0				
	-						Yellow brown sand with silt,	SP-SM		Used bentonite drilling mud due to caving sand
	-	24-26	ss	13	28	2.0	fine to medium			
729.4	--25									
	-	26-28	ss	14	57	2.0				
	-	28-30	ss	15	37	2.0	Gray brown fat to lean clay with trace of dark organics	CH-CL		
724.4	--30	30-32	st	16	P	1.5				
	-	32-34	ss	17	27	2.0				
	-	34-36	ss	18	27	2.0				
719.4	--35									
	-	36-38	ss	19	63	1.5	Gray brown fat to lean clay with gravel	CH-CL		
	-	38-40	ss	20	55	1.3				
	-						Brown weathered dolomite			
714.4	--40									Reamed hole with 5 3/4" Roller Bit & Bentonite
	-									
	-						Bottom of hole 43.5			
709.4	--45									
	-									
704.4	--50									
	-									
699.4	--55									

DRILLING DATA

START DATE:	09/24/86
COMPLETION DATE:	09/25/86
LOGGED BY:	RTB
DRILLING METHOD:	Rotary
DRILLING CONTRACTOR:	Testing Service Corp.

WATER LEVEL INFORMATION

DEPTH AT COMPLETION:	43.5
LATER TIME/DEPTH:	
LATER TIME/DEPTH:	
CAVE IN DEPTH:	
DRILLING LOSSES:	

Foth & Van Dyke & Associates, Inc.

LOG OF TEST BORING NO.: 7D

CLIENT: Modern Plating Corp.
PROJECT: Assessment Monitoring Program
PROJECT NUMBER: 86M55
LOCATION: Freeport, IL

SURFACE ELEVATION: 753.3
BORING DEPTH: 50.00
DATE: 09/29/86

MSL ELEV	DEPTH FR LND SURF	SAMP DEPTH INTERVAL	TYPE	#	N	REC (ft)	DESCRIPTION OF MATERIAL	CLASS	LABORATORY TESTS	DRILLING AND SAMPLING NOTES
753.3	--0	0-2	ss	1	2	1.0	Black organic clay	OL		3 15/16" Roller Bit and Bentonite
		2-4	ss	2	1	1.5				
		4-6	st	3	P	2.0				
748.3	--5	6-8	ss	4	3	1.8	Very dark brown gray organic clay with interbedded silty clay	OL, CL-ML		
		8-10	ss	5	3	1.8				
743.3	--10	10-12	ss	6	4	2.0	Gray brown silty sand, fine	SM		
		12-14	ss	7	1	1.5	Light brown sand with gravel, fine to medium	SP		
		14-16	ss	8	25	1.5				
738.3	--15	16-18	ss	9	21	1.7				
		18-20	ss	10	97	1.5				
733.3	--20	20-22	ss	11	32	1.5				
		22-24	ss	12	32	0.8	Light yellow brown gravel with silt and sand	GP-GM		
		24-26	ss	13	19	1.3				
728.3	--25	26-28	ss	14	50	1.7	Dark gray brown lean clay	CL		
		28-30	ss	15	34	1.7				
723.3	--30	30-32	st	16	P	1.3				
		32-33.5	ss	17	82	1.4	Brown to Buff weathered Dolomite	DOL		
		34-34.5	ss	18	600	0.6				
718.3	--35	36-36.5	ss	19	600	0.7				
		38-38.5	ss	20	220	0.3				
713.3	--40	40	ss	21		0.0				NX Core with water RQD=0% Rec. Core 43.5-45.0
708.3	--45									
703.3	--50						Bottom of hole 50.0'			
698.3	--55									

DRILLING DATA

START DATE:	09/29/86
COMPLETION DATE:	09/29/86
LOGGED BY:	JET
DRILLING METHOD:	Rotary
DRILLING CONTRACTOR:	Testing Service Corp.

WATER LEVEL INFORMATION

DEPTH AT COMPLETION:	50'
LATER TIME/DEPTH:	
LATER TIME/DEPTH:	
CAVE IN DEPTH:	
DRILLING LOSSES:	

Foth & Van Dyke & Associates, Inc.

LOG OF TEST BORING NO.: 8C

CLIENT: Modern Plating Corp.
PROJECT: Assessment Monitoring Program
PROJECT NUMBER: 86M55
LOCATION: Freeport, IL

SURFACE ELEVATION: 754.7
BORING DEPTH: 72'
DATE: 10/08/86

MSL ELEV	DEPTH FR LND SURF	SAMP DEPTH INTERVAL	TYPE	#	N	REC (ft)	DESCRIPTION OF MATERIAL	CLASS	LABORATORY TESTS	DRILLING AND SAMPLING NOTES
754.7	--0	0-2	ss	1	4	1.0	Very dark gray brown organic clay	OL		3 15/16" Roller Bit & Drilling Mud
	-	2-4	ss	2	1	1.2				
	-	4-6	st	3	P	1.3				
749.7	--5						Dark gray silty sand	SM		
	-	6-8	ss	4	1	1.5	fine			
	-	8-10	ss	5	1	1.3				
744.7	--10	10-12	ss	6	1	1.2				
	-	12-14	ss	7	4	1.0				
	-	14-16	ss	8	12	1.2				
739.7	--15						Brown poorly graded sand	SP		
	-	16-18	ss	9	24	0.5	with gravel, fine to coarse			
	-	18-20	ss	10	18	1.2				
734.7	--20	20-22	ss	11	27	1.3				
	-	22-24	ss	12	47	1.5				
	-	24-26	ss	13	37	1.5				
729.7	--25									
	-	26-28	ss	14	32	1.8	Gray lean clay	CL		
	-	28-30	ss	15	13	1.5				
724.7	--30	30-32	st	16	P	1.5				
	-	32-34	ss	17	19	1.5				
	-	34-36	ss	18	14	1.5				
719.7	--35									
	-	36-38	ss	19	12	1.5				
	-	38-40	ss	20	13	1.5				
714.7	--40	40-42	ss	21	27	2.0				
	-	42-44	ss	22	18	2.0				
	-	44-46	ss	23	44	2.0				
709.7	--45									
	-	46-48	ss	24	17	2.0	Dark gray silty clay	CL-ML		
	-	48-50	ss	25	29	2.0				
704.7	--50	50-52	ss	26	14	2.0				
	-	52-54	ss	27	22	2.0	Gray lean clay	CL		
	-	54-56	ss	28	37	2.0				
699.7	--55									

DRILLING DATA

START DATE:	10/08/86
COMPLETION DATE:	10/10/86
LOGGED BY:	JET
DRILLING METHOD:	Rotary
DRILLING CONTRACTOR:	Testing Service Corp.

WATER LEVEL INFORMATION

DEPTH AT COMPLETION:	72'
LATER TIME/DEPTH:	
LATER TIME/DEPTH:	
CAVE IN DEPTH:	
DRILLING LOSSES:	

Foth & Van Dyke & Associates, Inc.

LOG OF TEST BORING NO.: 8C

CLIENT: Modern Plating Corp.
PROJECT: Assessment Monitoring Program
PROJECT NUMBER: 86M55
LOCATION: Freeport, IL

SURFACE ELEVATION: 754.7
BORING DEPTH: 72'
DATE: 10/09/86

MSL ELEV	DEPTH FR LND SURF	SAMP DEPTH INTERVAL	TYPE	#	N	REC (ft)	DESCRIPTION OF MATERIAL	CLASS	LABORATORY TESTS	DRILLING AND SAMPLING NOTES
699.7	--55.0	56-58	ss	29	39	1.8	Gray lean clay	CL		
		58-60	ss	30	23	1.7				
694.7	--60.0	60-62	ss	31	45	2.0				
		62-64	ss	32	39	2.0				
		64-66	ss	33	65	2.0				
689.7	--65.0	66-67	ss	34	133	1.0	Yellow to Brown weathered dolomite			
684.7	--70.0						End of boring 72'			
679.7	--75.0									
674.7	--80.0									
669.7	--85.0									
664.7	--90.0									
659.7	--95.0									

DRILLING DATA

START DATE:
COMPLETION DATE:
LOGGED BY:
DRILLING METHOD:
DRILLING CONTRACTOR:

WATER LEVEL INFORMATION

DEPTH AT COMPLETION:
LATER TIME/DEPTH:
LATER TIME/DEPTH:
CAVE IN DEPTH:
DRILLING LOSSES:

Foth & Van Dyke & Associates, Inc.

LOG OF TEST BORING NO.: MW-9A

CLIENT: Modern Plating Corp.
PROJECT: RFI Investigation
PROJECT NUMBER: 68R70
LOCATION: 103+30N 104+75 E

SURFACE ELEVATION: 769.02
BORING DEPTH: 54.0'
DATE: 05/11/89

MSL ELEV	DEPTH FR LND SURF	DEPTH INTERVAL	TYPE	#	W	REC (FT)	DESCRIPTION OF MATERIAL	CLASS	LABORATORY TESTS	DRILLING AND SAMPLING NOTES
769.0	0									
							Brown silty CLAY fill			
		2-4	ss	1			Brown silty CLAY fill			
764.0	5	4-5	ss	2			Brown silty CLAY fill			
		5-7	ss	3			Brown silty CLAY fill			
		7-8	ss	4			0.5' Brown silty CLAY fill 0.5' rust colored cinders	CL-ML fill		
759.0	10	8-10	ss	5			Blue CLAY mixed with cinders			
		10-11	ss	6			Light brown CLAY fill with wood			
		11-12	ss	7			Blue silty CLAY with wood & cinder			
		12-13	ss	8			Brown silty CLAY fill with cinders			
		13-14	ss	9			No recovery, water at 13.5'			
754.0	15	14-15	ss	10			No recovery			
		16-17	ss	11			Brown silty CLAY with gravel			
		18-20	ss	12			Blue gray CLAY, native			
749.0	20	20-22	ss	13			1.8' Blue gray CLAY, native 0.2' Sandy CLAY with silt	CL		
		22-24	st	1						
744.0	25	24-26	st	2						
		26-28	st	3						
		28-30	ss	14			1.5' Grey silty SAND			
739.0	30						0.5' Grey SAND with some silt	SM		
		30-32	ss	15			Grey fine clean SAND			
		32-34	ss	16			Grey fine clean SAND	SP		
734.0	35	34-36	ss	17			1.8' Grey fine clean SAND 0.2' gold fine clean SAND			
		36-38	ss	18			Grey & gold layered silty SAND	SM		
		38-40	ss	19			Gold fine clean SAND			
729.0	40	40-42	ss	20			Gold fine clean SAND	SP		
		42-44	ss	21			Gold fine clean SAND			
724.0	45	44-46	ss	22			Gold fine clean SAND w/ dolomite fragments			
		46-48	ss	23			Weathered DOLOMITE with sand			
		48-50	ss	24			no recovery			
719.0	50							DOL		
		52-54		25			DOLOMITE			
							EOB-54'			Note: A new boring was drilled to set well MW-9A
714.0	55									

DRILLING DATA

START DATE: 05-11-89
COMPLETION DATE: 05-11-89
LOGGED BY: PBL
DRILLING METHOD: 4 1/4" Hollow Stem Augers
DRILLING CONTRACTOR: Wisconsin Test Drilling, Inc.

WATER LEVEL INFORMATION

DEPTH AT COMPLETION:
LATER TIME/DEPTH:
LATER TIME/DEPTH:
CAVE IN DEPTH:
DRILLING LOSSES:

Foth & Van Dyke & Associates, Inc.

LOG OF TEST BORING NO.: MW-10A

CLIENT: Modern Plating Corp.
PROJECT: RFI Investigation
PROJECT NUMBER: 88M70
LOCATION: 102+35N 103+22E

SURFACE ELEVATION: 767.80
BORING DEPTH: 46.0'
DATE: 05/17/89

MSL ELEV	DEPTH FM LND SURF	SAMP DEPTH INTERVAL	TYPE	#	N	REC (FT)	DESCRIPTION OF MATERIAL	CLASS	LABORATORY TESTS	DRILLING AND SAMPLING NOTES
0.0	--0	0-1					Light brown silty CLAY fill			
		2-4	ss	1			Light brown silty CLAY fill			
		4-5	ss	2			Light brown silty CLAY fill			
-5.0	--5	5-7	ss	3			Brown silty CLAY fill with bricks	CL-ML fill		
		8-10	ss	4			Brown silty CLAY fill			
-10.0	--10	10-12	ss	5			Brown silty CLAY fill			
		12-14	ss	6			1.5' Brown silty CLAY fill 0.5' Blue grey CLAY, native			
-15.0	--15	14-16	ss	7			Blue grey CLAY, native	CL		
		17-18	ss	8			Grey sandy CLAY			
-20.0	--20	20-22	st	1						
		22-24	ss	9			Grey silty SAND			
-25.0	--25	24-26	ss	10			Light brown fine SAND, with silt			
		26-28	ss	11			Light brown fine SAND, with silt	SP-SM		
		28-30	ss	12			Light brown fine SAND, with silt			
-30.0	--30	30-32	ss	13			Grey silty SAND	SM		
		32-34	ss	14			Grey silty SAND			
-35.0	--35	34-36	ss	15			Light brown fine SAND, with silt			
		36-38	ss	16			Light brown fine SAND, with silt	SP-SM		
		38-40	ss	17			Light brown fine SAND, with silt			
-40.0	--40	40-42	ss	18			Light brown fine SAND, with silt and DOLOMITE fragaments			
		42-44	ss	19			Light brown fine SAND, with silt and DOLOMITE fragaments			
-45.0	--45	44-46	ss	20			DOLOMITE	DOL		
							EOB-46'			
-50.0	--50									
-55.0	--55									Note: A new boring was drilled to set well MW-10A

DRILLING DATA

START DATE: 05/17/89
COMPLETION DATE: 05/17/89
LOGGED BY: PBL
DRILLING METHOD: 4 1/4" Hollow Stem Augers
DRILLING CONTRACTOR: Wisconsin Test Drilling, Inc.

WATER LEVEL INFORMATION

DEPTH AT COMPLETION:
LATER TIME/DEPTH:
LATER TIME/DEPTH:
CAVE IN DEPTH:
DRILLING LOSSES:

Foth & Van Dyke & Associates, Inc.

LOG OF TEST BORING NO.: MW-11E

CLIENT: Modern Plating Corportation
PROJECT: Phase II-Groundwater Assessment
PROJECT NUMBER: 87M77
LOCATION: Freeport, Illinois

SURFACE ELEVATION: 754.3
BORING DEPTH: 101.0
DATE: 08-11-87

MSL ELEV	DEPTH FR LND SURF	SAMP DEPTH INTERVAL	TYPE	#	N	REC (ft)	DESCRIPTION OF MATERIAL	CLASS	LABORATORY TESTS	DRILLING AND SAMPLING NOTES
754.3	--0									
	-	0.0-2.0	ss	1	1	0.5	Very dark gray organic CLAY w/wood & rootlets	OL		
	-	2.0-4.0	st	2						
749.3	--5	4.0-6.0	ss	3	5	1.5	Gray organic silty CLAY	OL/CL-ML		
	-						Gray organic silty CLAY	OL/CL-ML		
	-	6.0-8.0	ss	4	0	2.0	w/sand seams	SP-SM		
	-	8.0-10.0	ss	5	0	2.0				
744.3	--10						Gray silty SAND, fine	SM		
	-	10.0-12.0	ss	6	2	0.5				
	-	12.0-14.0	ss	7	2	2.0	Brown SAND, fine w/silt	SP-SM		
	-						Gray silty SAND, fine	SM		
739.3	--15	14.0-16.0	ss	8	6	2.0	Tan SAND, fine w/silt	SP-SM		
	-	16.0-18.0	ss	9	4	1.5				
	-	18.0-20.0	ss	10	7	1.0	Has a few SM lenses, fn-med			
734.3	--20						Gray SAND, fine w/silt	SP-SM		
	-	20.0-22.0	ss	11	7	1.0				
	-						Red brown gravelly SAND, fn-cse	SP-SM,		
	-	22.0-24.0	ss	12	17	2.0	w/silt & clay lenses	CL		
	-						Gray SAND, fine-med w/silt	SP-SM		
729.3	--25	24.0-26.0	ss	13	42	2.0	Gray sandy SILT	ML		
	-	26.0-28.0	ss	14	40	1.5	Gray silty SAND, fine	SM		
	-						Gry brn lean CLAY w/trc sand & gvl	CL		
	-	28.0-30.0	ss	15	62	1.5	Gray sandy SILT, 29-29.3'	ML		
724.3	--30						Gray lean CLAY, 29.3-29.6'	CL		
	-	30.0-32.0	ss	16	32	1.5	Gray sandy GRAVEL w/silt	GP-GM		
	-						Gray silty clayey SAND, fn-cse	SC-SM		
	-	32.0-34.0	ss	17	39	1.5				
	-						Gray lean CLAY w/trace of	CL		
719.3	--35	34.0-36.0	ss	18	39	0.5	gravel & wood			
	-	36.0-38.0	ss	19	36	2.0	One sand parting @ 37'			
	-	38.0-40.0	st	20						
714.3	--40									
	-	40.0-42.0	ss	21	30	2.0				
	-	42.0-44.0	ss	22	22	2.0				
709.3	--45	44.0-46.0	ss	23	23	2.0				
	-	46.0-48.0	ss	24	35	2.0	Gray lean CLAY w/dk gray organic clay lenses (plant remains)	CL, OL		
	-	48.0-50.0	ss	25	25	2.0	Gray lean CLAY	CL		
704.3	--50						Gray lean CLAY w/dark gray organic	CL, OL		
	-	50.0-52.0	ss	26	27	2.0	clay lenses (plant remains)			
	-	52.0-54.0	ss	27	25	2.0	Gray lean CLAY, 2" gray silty clay 52.5-52.7'	CL, CL-ML		
699.3	--55									

DRILLING DATA

START DATE: 08/11/87
COMPLETION DATE: 08/12/87
LOGGED BY: RTB & MJC
DRILLING METHOD: 6" tricone and mud rotary
DRILLING CONTRACTOR: Wisconsin Test Drilling, Inc.

WATER LEVEL INFORMATION

DEPTH AT COMPLETION:
LATER TIME/DEPTH:
LATER TIME/DEPTH:
CAVE IN DEPTH:
DRILLING LOSS:

Fotr & Van Dyke & Associates, Inc.

LOG OF TEST BORING NO.: MW-11E

CLIENT: Modern Plating Corporation
PROJECT: Phase II-Groundwater Assessment
PROJECT NUMBER: 87M77
LOCATION: Freeport, Illinois

SURFACE ELEVATION: 754.3
BORING DEPTH: 101.0
DATE: 08-11-87

MSL ELEV	DEPTH FR LND SURF	SAMP DEPTH INTERVAL	TYPE	#	N	REC (ft)	DESCRIPTION OF MATERIAL	CLASS	LABORATORY TESTS	DRILLING AND SAMPLING NOTES
699.3	--55	54.0-56.0	ss	28	33	1.5	Gray lean CLAY	CL		
		56.0-58.0	ss	29	80	1.5				
		58.0-60.0	ss	30			Highly fractured & weathered			
694.3	--60						DOLOMITE			
689.3	--65									Began rock coring 66.5 feet
		66.5-69.0	*	RUN #1		2.1	DOLOMITE, tan to buff, slightly weathered, occas. shale partings, occas. vertical fractures highly fractured from 68-69'			RQD = 20%
684.3	--70	69.0-74.0	*	RUN #2		4.7	DOLOMITE, tan to buff, highly fractured, 2-3" pieces, some orange staining on some frac. sur.			RQD = 0%
679.3	--75	74.0-79.0	*	RUN #3		3.8	DOLOMITE, tan to buff, mod. frac. 2-3" pieces throughout 76-78'-some horz. frac. evident Vert. frac. (2)-1/16", 78-79', vugular & pitted; fossils			RQD = 7%
674.3	--80	79.0-84.0	*	RUN #4		3.0	Tan-buff DOLOMITE, horz. frac. 79-81' w/some vugular porosity 81-84'-gray & tan, broken rock (mechanical?)			RQD = 0%
669.3	--85	84.0-86.5	*	RUN #5			Tan-buff DOLOMITE, broken up last 0.2' gray w/2-30 degree healed frac. w/dark brn. filling			RQD = 0%
		86.5-87.5	*	RUN #6			Gray DOLOMITE w/some brown, shale parting @ 86.7', some chert filled			
		87.5-89.0	*	RUN #7			vugs (white). Brown filled disltn.			RQD = 60%
664.3	--90	89.0-94.0	*	RUN #8			joints, horz. & undulating from 87-88', rock is sound Tan-brown DOLOMITE, some pitting, vert. frac. 89.5-90.2', part. broke Shale filled healed frac. 91-92' Increase fossils & pitted @ bottom			RQD = 13%
659.3	--95	94.0-99.0	*	RUN #9			Lt. gray DOLOMITE, pitted-vugular Most vugs filled with calcite or chert. Rock broken near bottom Drilled out to 101'			RQD = 0%
654.3	--100						101.0'-End of Boring			* - Rock Core (NW) Diamond
649.3	--105									
644.3	--110									

DRILLING DATA

START DATE: 08/11/87
COMPLETION DATE: 08/12/87
LOGGED BY: RTB & MJC
DRILLING METHOD: 6" tricone and mud rotary, conventional rock coring
DRILLING CONTRACTOR: Wisconsin Test Drilling, Inc.

WATER LEVEL INFORMATION

DEPTH AT COMPLETION:
LATER TIME/DEPTH:
LATER TIME/DEPTH:
CAVE IN DEPTH:
DRILLING LOSSES:

Foth & Van Dyke & Associates, Inc.

LOG OF TEST BORING NO.: MW-12E

CLIENT: Modern Plating Corportation
PROJECT: Phase II-Groundwater Assessment
PROJECT NUMBER: 87M77
LOCATION: Freeport, Illinois

SURFACE ELEVATION: 753.5
BORING DEPTH: 86.0
DATE: 08-19-87

MSL ELEV	DEPTH FR LND SURF	SAMP DEPTH INTERVAL	TYPE	#	N	REC (ft)	DESCRIPTION OF MATERIAL	CLASS	LABORATORY TESTS	DRILLING AND SAMPLING NOTES
753.5	--0						Dk brown organic CLAY w/rootlets	OL		
		0.0-2.0	ss	1	2	0.5				
		2.0-4.0	st	2		1.2				
748.5	--5	4.0-6.0	ss	3	1	2.0	Same, except gray brown			
		6.0-8.0	ss	4	0	2.0				
		8.0-10.0	ss	5	2	2.0				
743.5	--10						Dk gray organic CLAY, w/some wood	OL,SM		
		10.0-12.0	ss	6	1	1.0	w/silty sand seams approx. 1-2"			
		12.0-14.0	ss	7	1	1.5				
738.5	--15	14.0-16.0	ss	8	3	1.5	Lt. brn. SAND, fine w/silt & gvl.	SP-SM		
		16.0-18.0	ss	9	34	1.5	Brn. sandy GRAVEL, w/silt	GP-GM		
		18.0-20.0	ss	10	17	1.5				
733.5	--20						Brn SAND, fine-cse, w/silt & gvl.	SP-SM		
		20.0-22.0	ss	11	22	1.5				
		22.0-24.0	ss	12	18	1.0				
728.5	--25	24.0-26.0	ss	13	28	1.0	Lt. brown SAND, fine, w/silt	SP-SM		
		26.0-28.0	ss	14	28	1.5				
		28.0-30.0	ss	15	28	1.5	Gray brn. lean CLAY	CL		
723.5	--30									
		30.0-32.0	ss	16	23	2.0				
		32.0-34.0	ss	17	25					
718.5	--35									
		36.0-38.0	ss	18	18	2.0				
		38.0-40.0	st	19		1.8				
713.5	--40									
		40.0-42.0	ss	20	48	2.0				
		42.0-44.0	ss	21	23	2.0				
708.5	--45	44.0-46.0	ss	22	19	2.0	Highly weathered gray DOLOMITE			
		46.0-48.0	ss	23		0.6				
										Blind drill to 55' then begin coring
703.5	--50									
698.5	--55									

DRILLING DATA

START DATE: 08/19/87
COMPLETION DATE: 08/21/87
LOGGED BY: MJC
DRILLING METHOD: 6" tricone and mud rotary
DRILLING CONTRACTOR: Wisconsin Test Drilling, Inc.

WATER LEVEL INFORMATION

DEPTH AT COMPLETION:
LATER TIME/DEPTH:
LATER TIME/DEPTH:
CAVE IN DEPTH:
DRILLING LOSSES:

Foth & Van Dyke & Associates, Inc.

LOG OF TEST BORING NO.: MW-12E

CLIENT: Modern Plating Corporation
PROJECT: Phase II-Groundwater Assessment
PROJECT NUMBER: 87M77
LOCATION: Freeport, Illinois

SURFACE ELEVATION: 753.5
BORING DEPTH: 86.0
DATE: 08-19-87

MSL ELEV	DEPTH FR LND SURF	SAMP DEPTH INTERVAL	TYPE	#	N	REC (ft)	DESCRIPTION OF MATERIAL	CLASS	LABORATORY TESTS	DRILLING AND SAMPLING NOTES
698.5	--55			R			Yellow to lt gray DOLOMITE,			
		55.0-59.0	*	U		0.9	highly weathered & fractured			RQD = 0%
				N						
				#1						
693.5	--60	59.0-64.0	*	R		3.5	Tan-gray DOLOMITE, sltly weathered			RQD = 22%
				U			60.5-64', vert. frac. w/dk brn stn			
				N			on frac. surf. 60.5-63', sev. vugs			
				#2			@ 63.65', sltly pitted 63-64'			
688.5	--65	64.0-69.0	*	R		1.9	DOLOMITE; 0.7'-orange staining,			RQD = 0%
				U			pitted, weathered, partially			
				N			filled w/calcite			
				#3			Bottom 1.2'-gray, broken			
683.5	--70									
		70.0-74.0	*	R		1.9	DOLOMITE, gray, top 0.5' pitted			RQD = 0%
				U			w/chert nodules approx. 1" thick			
				N			horz. fractures, part. stained brn			
				#4			0.9'-1.6' broken frac. rock			
678.5	--75	74.0-79.0	*	R		3.1	DOLOMITE, gray-brown (stained)			RQD = 8%
				U			part. healed vert. frac. 0.4-0.8'			
				N			0.8-1.8'-4 horz. breaks w/occas.			
				#5			chert nodule & vert. frac. (sm brn			
673.5	--80	79.0-84.0	*	R		4.9	stain), 1.8-2.0'-frac. w/brn stain			RQD = 0%
				U			2.0-3.1'-vert. frac. unhealed			
				N			DOLOMITE, brn. w/chert nod. 79-80'			
				#6			Lt. gray w/horz frac. filled w/brn			
				R			filling & staining, occas. vert.			
668.5	--85	84.0-86.0	*	U		1.4	frac. 80-83.3', Dk gray w/shale			RQD = 0%
				N			filled partings (sound), 3" vert.			
				#7			frac. 83.4-83.7' no stain on surf.			
							Gray DOLOMITE w/brn filled dissol.			
							joints-top 6" (horz.), bottom 1'			
							broken rock w/brown staining			
663.5	--90						86.0'-End of Boring			
										* - Rock Core (NW) Diamond
658.5	--95									
653.5	--100									
648.5	--105									
643.5	--110									

DRILLING DATA

START DATE: 8/19/87
COMPLETION DATE: 8/21/87
LOGGED BY: MJC
DRILLING METHOD: 6" tricone and mud rotary, conventional rock coring
DRILLING CONTRACTOR: Wisconsin Test Drilling, Inc.

WATER LEVEL INFORMATION

DEPTH AT COMPLETION:
LATER TIME/DEPTH:
LATER TIME/DEPTH:
CAVE IN DEPTH:
DRILLING LOSSES:

Foth & Van Dyke & Associates, Inc.

LOG OF TEST BORING NO.: MW-13E

CLIENT: Modern Plating Corportation
PROJECT: Phase II-Groundwater Assessment
PROJECT NUMBER: 87M77
LOCATION: Freeport, Illinois

SURFACE ELEVATION: 752.8
BORING DEPTH: 117.0
DATE: 08-19-87

MSL ELEV	DEPTH FR LND SURF	SAMP DEPTH INTERVAL	TYPE	#	N	REC (ft)	DESCRIPTION OF MATERIAL	CLASS	LABORATORY TESTS	DRILLING AND SAMPLING NOTES
752.8	--0									
		0.0-2.0	ss	1	2	0.9	Black organic CLAY, w/rootlets	OL		
		2.0-4.0	st	2		1.6	Dk gray brn organic CLAY w/sand & rootlets			
747.8	--5	4.0-6.0	ss	3	7	2.0				
		6.0-8.0	ss	4	1	2.0				
		8.0-10.0	ss	5	2	2.0				
742.8	--10						Gray silty SAND, fine	SM		
		10.0-12.0	ss	6	2	2.0				
		12.0-14.0	ss	7	2	0.9	Light brn gravelly SAND, fine-med. w/silt	SP-SM		
737.8	--15	14.0-16.0	ss	8	9	1.2				
		16.0-18.0	ss	9	5	1.3				
		18.0-20.0	ss	10	8	1.3				
732.8	--20									
		20.0-22.0	ss	11	8	1.6	Light brn. sandy GRAVEL	GP-GM		
		22.0-24.0	ss	12	26	1.0				
727.8	--25	24.0-26.0	ss	13	46	0.5				
		26.0-28.0	ss	14	30	1.2				
		28.0-30.0	ss	15	61	1.3	Light brn. SILT	ML		
722.8	--30						Gray brn. silty CLAY	CL-ML		
		30.0-32.0	ss	16		2.0				
		32.0-34.0	ss	17		2.0	Gray brn. lean CLAY	CL		
717.8	--35	34.0-36.0	st	18		2.0				
		36.0-38.0	ss	19		1.4				
		38.0-40.0	ss	20		2.0				
712.8	--40									
		40.0-42.0	ss	21		0.0				
		42.0-44.0	ss	22		0.0				
707.8	--45	44.0-46.0	ss	23		2.0				
		46.0-48.0	ss	24		2.0	46-48'-w/plant fragments			
		48.0-50.0	ss	25		2.0	49-50'-w/shells			
702.8	--50									
		50.0-52.0	ss	26		2.0				
		52.0-54.0	ss	27		1.8				
697.8	--55									

DRILLING DATA

START DATE: 8/19/87
COMPLETION DATE: 8/19/87
LOGGED BY: MJC
DRILLING METHOD: 6" tricone and mud rotary
DRILLING CONTRACTOR: Wisconsin Test Drilling, Inc.

WATER LEVEL INFORMATION

DEPTH AT COMPLETION:
LATER TIME/DEPTH:
LATER TIME/DEPTH:
CAVE IN DEPTH:
DRILLING LOSSES:

Foth & Van Dyke & Associates, Inc.

LOG OF TEST BORING NO.: MW-13E

CLIENT: Modern Plating Corporation
PROJECT: Phase II-Groundwater Assessment
PROJECT NUMBER: 87M77
LOCATION: Freeport, Illinois

SURFACE ELEVATION: 752.8
BORING DEPTH: 117.0
DATE: 08-20-87

MSL ELEV	DEPTH FR LND SURF	SAMP DEPTH INTERVAL	TYPE	#	N	REC (ft)	DESCRIPTION OF MATERIAL	CLASS	LABORATORY TESTS	DRILLING AND SAMPLING NOTES
697.8	--55	54.0-56.0	ss	28	28	1.8	Gray brn-Dark brn lean CLAY w/plant frag., 2" org. wood layer at 55'	CL		
	-	56.0-58.0	ss	29	19	2.0				
	-	58.0-60.0	ss	30	36	0.0				
692.8	--60									
	-	60.0-62.0	ss	31	63	2.0				
	-	62.0-64.0	ss	32	43	2.0				
687.8	--65	64.0-66.0	ss	33	30	1.6				
	-	66.0-68.0	ss	34	26	1.8				
	-						Dark brn.-black organic silty CLAY	OL		
	-	68.0-70.0	ss	35	32	2.0				
682.8	--70						Gray brn. lean CLAY	CL		
	-	70.0-72.0	ss	36	32	1.0				
	-	72.0-74.0	ss	37	35	1.4	Gray brn. lean CLAY w/fn-med gravel	CL		
677.8	--75	74.0-76.0	ss	38	43	1.4				
	-	76.0-78.0	ss	39	136	1.0	Weathered gray DOLOMITE			
	-						Blind drilled to 84'			
672.8	--80									
	-			R						
	-	84.0-87.0	*	U		4.7	Lt-med gray DOLOMITE, sltly weath. some chert nod., vert. frac. at 84.3', 85.2-85.6', & 87.2', brown			RQD = 9%
667.8	--85			N						
	-			#1			stain along horz. dissolution 85.3-86.5'			RQD = 48%
	-			R						
	-	87.0-92.0	*	U		3.7	Med. gray DOLOMITE, 1" chert nod. @ 88.7', dk brn filling of disln.			
	-			N						
662.8	--90			#2			joints along bedding planes. Bedding planes & disln. joints			
	-			R			are filled & sound			RQD = 26%
	-	92.0-97.0	*	U		4.9	Lt-med gray DOLOMITE, some pitting 93-93.5', horz. filled frac. &			
	-			N						
657.8	--95			#3			dis. joints 93-93.7', vert. frac. 94.1-94.4' (No staining). Chert			
	-			R			nodules sound & filled from 94-97'			RQD = 0%
	-	97.0-102.0	*	U		4.6	Med. gray DOLOMITE, pitted w/some vugs 0.5" @ 98-99', occ. filled			
	-			N						
652.8	--100			#4			horz. frac., 0.5" chert nod. at 99.5' w/some horz. filled, healed			
	-			R			frac., some clay @ bedding planes			RQD = 31%
	-	102-107	*	U		5.0	Med. gray DOLOMITE, w/some brn.			
	-			N			102-103'. Frac. 102-103.5'			
647.8	--105			#5			104-105.5'-horz. disln. joints healed or complty filled (brn.)			
	-			R			Horz. frac. @ 106.5' (no stain)			RQD = 38%
	-	107-112	*	U		4.7	Gray DOLOMITE, 107-107.7' some horz. frac., filled			* - Rock Core (NW) Diamond
	-			N						
642.8	--110			#6			107.7-109.8', brn. part. filled horz. frac., pitted, some vugs			

DRILLING DATA

START DATE: 8/19/87
COMPLETION DATE: 8/25/87
LOGGED BY: MJC
DRILLING METHOD: 6" tricone and mud rotary, conventional rock coring
DRILLING CONTRACTOR: Wisconsin Test Drilling, Inc.

WATER LEVEL INFORMATION

DEPTH AT COMPLETION:
LATER TIME/DEPTH:
LATER TIME/DEPTH:
CAVE IN DEPTH:
DRILLING LOSSES:

Foth & Van Dyke & Associates, Inc.

LOG OF TEST BORING NO.: MW-13E

CLIENT: Modern Plating Corporation
PROJECT: Phase II-Groundwater Assessment
PROJECT NUMBER: 87M77
LOCATION: Freeport, Illinois

SURFACE ELEVATION: 752.8
BORING DEPTH: 117.0
DATE: 08-19-87

MSL ELEV	DEPTH FR LND SURF	SAMP DEPTH INTERVAL	TYPE	#	N	REC (ft)	DESCRIPTION OF MATERIAL	CLASS	LABORATORY TESTS	DRILLING AND SAMPLING NOTES
642.8	--110	107-112	*	RUN #6		4.7	109.8-112' med-dk. gray, fossiliferous, slightly pitted, 109.8-110'-fn bedded & shaley some horz. frac. complty filled w/dark brown filling			RQD = 38%
		112-117	*	RUN #7		3.7				RQD = 35%
637.8	--115						Lt-med. gray DOLOMITE-112-117' fossiliferous, some chert nodules slightly pitted, some horz. frac. healed & complty filled w/brown filling. Occas. partially filled (calcite) 0.5" vug			
632.8	--120						117'-End of Boring			
627.8	--125									
622.8	--130									* - Rock Core (NW) Diamond
617.8	--135									
612.8	--140									
607.8	--145									
602.8	--150									
597.8	--155									
592.8	--160									
587.8	--165									

DRILLING DATA

START DATE: 8/19/87
COMPLETION DATE: 8/25/87
LOGGED BY: MJC
DRILLING METHOD: 6" tricone and mud rotary, conventional rock coring
DRILLING CONTRACTOR: Wisconsin Test Drilling, Inc.

WATER LEVEL INFORMATION

DEPTH AT COMPLETION:
LATER TIME/DEPTH:
LATER TIME/DEPTH:
CAVE IN DEPTH:
DRILLING LOSSES:

Foth & Van Dyke & Associates, Inc.

LOG OF TEST BORING NO.: MW-14E

CLIENT: Modern Plating Corportation
PROJECT: Phase II-Groundwater Assessment
PROJECT NUMBER: 87M77
LOCATION: Freeport, Illinois

SURFACE ELEVATION: 758.7
BORING DEPTH: 113.7
DATE: 08-25-87

MSL ELEV	DEPTH FR LND SURF	SAMP DEPTH INTERVAL	TYPE	#	N	REC (ft)	DESCRIPTION OF MATERIAL	CLASS	LABORATORY TESTS	DRILLING AND SAMPLING NOTES
758.7	--0						Dark brown lean CLAY w/roots	CL		
	-	0.0-2.0	ss	1	2	0.8				
	-	2.0-4.0	st	1A						
	-						Dark brown organic CLAY	OL		
753.7	--5	4.0-6.0	ss	2	0	0.6	w/orange stain			
	-	6.0-8.0	ss	3	0	2.0				
	-	8.0-10.0	ss	4	0	2.0				
748.7	--10									
	-	10.0-12.0	ss	5	1	2.0				
	-	12.0-14.0	ss	6	0	2.0				
	-						Dark gray orange CLAY w/wood and	OL		
743.7	--15	14.0-16.0	ss	7	0	1.7	shells			
	-	16.0-16.5	ss	8			Tan SAND, fine-med. w/gravel and	SP-SM		
	-	16.5-18.0	ss	8A	11	2.0	silt			
	-	18.0-20.0	ss	9	14	2.0				
738.7	--20									
	-	20.0-22.0	ss	10	27	0.0				
	-						Brown silty CLAY w/gray lean clay	CL-ML		
	-	22.0-24.0	ss	11	15	2.0	& trace of plant fragments	CL		
733.7	--25	24.0-26.0	ss	12	17	2.0				
	-	26.0-28.0	ss	13	13	2.0				
	-						Brown lean CLAY w/trace of plant	CL		
	-	28.0-30.0	ss	14	13	2.0	fragments			
728.7	--30									
	-	30.0-32.0	st	14A						
	-	32.0-34.0	ss	15	11	2.0				
723.7	--35	34.0-36.0	ss	16	13	2.0				
	-	36.0-38.0	ss	17	13	2.0				
	-	38.0-40.0	ss	18	13	2.0				
718.7	--40									
	-	40.0-42.0	ss	19	13	2.0	Becoming "fatter"	CL		
	-	42.0-44.0	ss	20	13	2.0				
713.7	--45	44.0-46.0	ss	21	24	0.0				
	-	46.0-48.0	ss	22	11	2.0				
	-						Becoming "leaner" with silt layers	CL, ML		
	-	48.0-50.0	ss	23	11	2.0				
708.7	--50									
	-	50.0-52.0	ss	24	13	2.0	Brown gray sandy SILT	ML		
	-						Gray brown lean CLAY w/occas. silt	CL, ML		
	-	52.0-54.0	ss	25	12	2.0	seams, trc. plant fragments			
703.7	--55									

DRILLING DATA

START DATE: 8/25/87
COMPLETION DATE: 8/25/87
LOGGED BY: MJC
DRILLING METHOD: 6" tricone and mud rotary
DRILLING CONTRACTOR: Wisconsin Test Drilling, Inc.

WATER LEVEL INFORMATION

DEPTH AT COMPLETION:
LATER TIME/DEPTH:
LATER TIME/DEPTH:
CAVE IN DEPTH:
DRILLING LOSSES:

Foth & Van Dyke & Associates, Inc.

LOG OF TEST BORING NO.: MW-14E

CLIENT: Modern Plating Corporation
PROJECT: Phase II-Groundwater Assessment
PROJECT NUMBER: 87M77
LOCATION: Freeport, Illinois

SURFACE ELEVATION: 758.7
BORING DEPTH: 113.7
DATE: 08-25-87

MSL ELEV	DEPTH FR LND SURF	SAMP DEPTH INTERVAL	TYPE	#	N	REC (ft)	DESCRIPTION OF MATERIAL	CLASS	LABORATORY TESTS	DRILLING AND SAMPLING NOTES
703.7	--55	54.0-56.0	ss	26	12	2.0	Dark brown lean CLAY, w/silt seams	CL, ML		
	-	56.0-58.0	ss	27	10	2.0				
	-						Brown lean CLAY	CL		
	-	58.0-60.0	ss	28	18	2.0				
698.7	--60									
	-	60.0-62.0	ss	29	28	2.0				
	-	62.0-64.0	ss	30	26	2.0				
693.7	--65	64.0-66.0	ss	31	18	2.0	2"-Black organic lean CLAY (OL)			
	-	66.0-68.0	ss	32	25	2.0				
	-	68.0-70.0	ss	33	29	2.0				
688.7	--70									
	-	70.0-72.0	ss	34	24	2.0				
	-	72.0-74.0	ss	35	22	2.0	73.5'-Weathered DOLOMITE			
683.7	--75						Blind Drilled to 81'			
	-									Began rock coring 81.0 feet
678.7	--80						Gray DOLOMITE, vert. frac. (0.2')			RQD = 21%
	-	81.0-84.7	*	R		3.3	@ 82.5'-no stain, 83-83.2'-dk. brn			
	-			U			chert nodule (sound), occ. horz.			
	-			N			frac. complty filled w/brn filling			
	-			#1			Gray DOLOMITE, slty. pitted; many			RQD = 62%
673.7	--85						chert (white) nodules, 0.15' chert			
	-	84.7-89.7	*	R		4.9	nodule w/horz. frac. unfilled at			
	-			U			84.9'; 0.2'-70 degree frac.			
	-			N			unfilled wo/stain @ 85.2'			
	-			#2			Gray DOLOMITE, 89-90'-pitted w/sev			RQD =76%
668.7	--90						vert. frac., unhealed & no stain.			
	-	89.7-94.7	*	R		5.0	Rock is pitted throughout w/occas.			
	-			U			0.5" vug part. filled w/calcite.			
	-			N			Occas. white chert nod. Frac. horz			
	-			#3			w/brn. filling. 93.5-94.5'-occas.			
663.7	--95						vert. frac. w/limited extent.			
	-	94.7-99.7	*	R		2.8	Gray DOLOMITE, many chert (white)			RQD = 16%
	-			U			nodules, 0.5-1", w/brn. filling			
	-			N			Bottom 1'-pitted to vugular, part.			
	-			#4			filled w/calcite. Occ. horz. frac.			
658.7	--100						around chert nod., part. filled;			
	-	99.7-104.7	*	R		0.5	some unhealed, some brown staining			RQD = 0%
	-			U						
	-			N			RUN #5 - only recovered 0.5'			
	-			#5			Gray DOLOMITE, some brown staining			
653.7	--105	104.7-109.7	*	R		4.7	108-109.7, pitted-part. filled			RQD = 65%
	-			U			w/brn. stained calcite; 0.5-1"			
	-			N			chert nod. 106-107', rock becomes			
	-			#6			more pitted w/0.5" vugs 109-109.7'			* - Rock Core (NW) Diamond
	-						Horz. frac.-unhealed w/dark brown			
648.7	--110						stain at 109.5'			

DRILLING DATA

START DATE: 08/25/87
COMPLETION DATE: 08/31/87
LOGGED BY: MJC
DRILLING METHOD: 6" tricone and mud rotary
DRILLING CONTRACTOR: Wisconsin Test Drilling, Inc.

WATER LEVEL INFORMATION

DEPTH AT COMPLETION:
LATER TIME/DEPTH:
LATER TIME/DEPTH:
CAVE IN DEPTH:
DRILLING LOSSES:

Foth & Van Dyke & Associates, Inc.

LOG OF TEST BORING NO.: MW-14E

CLIENT: Modern Plating Corporation
PROJECT: Phase II-Groundwater Assessment
PROJECT NUMBER: 87M77
LOCATION: Freeport, Illinois

SURFACE ELEVATION: 758.7
BORING DEPTH: 113.7
DATE: 08-31-87

MSL ELEV	DEPTH FR LND SURF	SAMP DEPTH INTERVAL	TYPE	#	N	REC (ft)	DESCRIPTION OF MATERIAL	CLASS	LABORATORY TESTS	DRILLING AND SAMPLING NOTES
648.7	--110	109.7-113.7	*	RUN #7		4.0	DOLOMITE-brn. 109.7-110.8' w/horz. frac. part. to cmplty. brn filled Slightly pitted 1" chert nodules at 110.1'			RQD = 53%
643.7	--115						110.8-113.7'-gray w/occas. horz. frac. cmplty. filled w/dark brown filling. At 113' one frac. at 30 degrees w/dark brown filling			
638.7	--120						113.7'-End of Boring			
633.7	--125									
628.7	--130									
623.7	--135									
618.7	--140									
613.7	--145									
608.7	--150									
603.7	--155									* - Rock Core (NW) Diamond
598.7	--160									
593.7	--165									

DRILLING DATA

START DATE: 08/25/87
COMPLETION DATE: 08/31/87
LOGGED BY: MJC
DRILLING METHOD: 6" tricone and mud rotary
DRILLING CONTRACTOR: Wisconsin Test Drilling, Inc.

WATER LEVEL INFORMATION

DEPTH AT COMPLETION:
LATER TIME/DEPTH:
LATER TIME/DEPTH:
CAVE IN DEPTH:
DRILLING LOSSES:

Foth & Van Dyke & Associates, Inc.

LOG OF TEST BORING NO.: MW-15C

CLIENT: Modern Plating Corportation
PROJECT: Phase II-Groundwater Assessment
PROJECT NUMBER: 87M77
LOCATION: Freeport, Illinois

SURFACE ELEVATION: 755.7
BORING DEPTH: 103.5
DATE: 08-10-87

MSL ELEV	DEPTH FR LND SURF	SAMP DEPTH INTERVAL	TYPE	#	N	REC (ft)	DESCRIPTION OF MATERIAL	CLASS	LABORATORY TESTS	DRILLING AND SAMPLING NOTES
755.7	--0						Dark gray organic CLAY w/rootlets	OL		
	-	0.0-2.0	ss	1	6	1.2	& wood			
	-						Brown lean CLAY	CL		
	-	2.0-4.0	st	2		1.1				
	-						Brown silty SAND, fine	SM		
750.7	--5	4.0-6.0	ss	3	2	1.4	Brown SAND w/silt, fine	SP-SM		
	-	6.0-8.0	ss	4	2	1.0				
	-						Brown SAND w/silt & silt lenses,	SP-SM		
	-	8.0-10.0	ss	5	2	1.2	fine	ML		
745.7	--10						Gray SAND w/silt & silt lenses, fn			
	-	10.0-12.0	ss	6	0	1.4				
	-						Gray SAND w/silt & clay lenses,	SP-SM		
	-	12.0-14.0	ss	7	3	0.9	fine	CL		
	-						0.5" wood at 15.5'			
740.7	--15	14.0-16.0	ss	8	2	0.7				
	-						Gray SAND w/silt, fine-med w/trace	SP-SM		
	-	16.0-18.0	ss	9	6	1.0	gravel & clay lense	CL		
	-						Gray SAND w/silt, fine-cse, w/trc	SP-SM		
	-	18.0-20.0	ss	10	8	0.8	gravel			
735.7	--20						Gray silty SAND w/gravel, fine-med	SM,		
	-	20.0-22.0	ss	11	14	1.0	3" brown fine sand w/silt	SP-SM		
	-									
	-	22.0-24.0	ss	12	11	1.2	Wood	Pt		
	-						Gray SAND, fine-med. w/wood	SM		
730.7	--25	24.0-26.0	ss	13	4	1.0	(SM due to organics)			
	-						Gray silty SAND, fine	SM		
	-	26.0-28.0	ss	14	46	1.2				
	-						Gray SAND, fine-med., w/silt	SP-SM		
	-	28.0-30.0	ss	15	44	1.2				
725.7	--30									
	-	30.0-32.0	ss	16	56	1.1				
	-									
	-	32.0-34.0	ss	17	43	1.2	Brown gray lean CLAY w/trace of	CL		
	-						sand & gravel			
720.7	--35	34.0-36.0	ss	18	53	1.3				
	-	36.0-38.0	st	19		0.0				
	-									
	-	38.0-40.0	ss	20	56	0.0				
715.7	--40									
	-	40.0-42.0	ss	21	75	0.6				
	-						Brown gray lean CLAY w/few silty	CL,		
	-	42.0-44.0	ss	22	41	1.4	fine sand seams	SM		
	-									
710.7	--45	44.0-46.0	ss	23	71	0.0				
	-						Brown gray lean CLAY, 4" silty	CL,		
	-	46.0-48.0	ss	24	33	1.4	clay @ 47-47.5'	CL-ML		
	-									
	-	48.0-50.0	ss	25	35	1.4	Brown gray lean CLAY	CL		
705.7	--50									
	-	50.0-52.0	ss	26	26	2.0				
	-									
	-	52.0-54.0	ss	27	24	0.5				
	-									
700.7	--55									

DRILLING DATA

START DATE: 08/10/87
COMPLETION DATE: 08/10/87
LOGGED BY: RTB & MJC
DRILLING METHOD: 6" tricone and mud rotary
DRILLING CONTRACTOR: Wisconsin Test Drilling, Inc.

WATER LEVEL INFORMATION

DEPTH AT COMPLETION:
LATER TIME/DEPTH:
LATER TIME/DEPTH:
CAVE IN DEPTH:
DRILLING LOSSES:

Foth & Van Dyke & Associates, Inc.

LOG OF TEST BORING NO.: MW-15C

CLIENT: Modern Plating Corporation
PROJECT: Phase II-Groundwater Assessment
PROJECT NUMBER: 87M77
LOCATION: Freeport, Illinois

SURFACE ELEVATION: 755.7
BORING DEPTH: 103.5
DATE: 08-10-87

MSL ELEV	DEPTH FR LND SURF	SAMP DEPTH INTERVAL	TYPE	#	N	REC (ft)	DESCRIPTION OF MATERIAL	CLASS	LABORATORY TESTS	DRILLING AND SAMPLING NOTES
700.7	--55	54.0-56.0	ss	28	27	1.8	Brown gray lean CLAY	CL		
		56.0-58.0	ss	29	30	2.0				
		58.0-60.0	ss	30	19	2.0				
695.7	--60	60.0-62.0	ss	31	23	1.4	62.0-62.5'-Brown silty CLAY (CL-ML)			
		62.0-64.0	ss	32	24	2.0				
690.7	--65	64.0-66.0	ss	33	58	1.8				
		66.0-68.0	ss	34	52	0.0				
		68.0-70.0	ss	35	33	1.8				
685.7	--70	70.0-72.0	ss	36	26	0.6	Brown lean CLAY			
		72.0-74.0	ss	37	29	1.8				
680.7	--75	74.0-76.0	ss	38	25	2.0	75.0-75.5'-Brown silty CLAY (CL-ML)			
		76.0-78.0	ss	39	42	2.0				
		78.0-80.0	ss	40	41	1.8				
675.7	--80	80.0-82.0	ss	41	27	0.0				
		82.0-84.0	ss	42	37	2.0				
670.7	--85	84.0-86.0	ss	43	58	2.0	Gray brown silty CLAY	CL-ML		
		86.0-88.0	ss	44	36	2.0				
		88.0-90.0	ss	45	39	2.0				
665.7	--90	90.0-92.0	ss	46	47	2.0				
		92.0-94.0	ss	47	43	2.0	Gray brown lean CLAY	CL		
660.7	--95	94.0-96.0	ss	48	46	0.0				
		96.0-98.0	ss	49	97	2.0	Highly weathered DOLOMITE			Drill out to 103.5 w/tricone bit
655.7	--100									
							103.5'-End of Boring			
650.7	--105									
645.7	--110									

DRILLING DATA

START DATE: 08/10/87
COMPLETION DATE: 08/10/87
LOGGED BY: RTB & MJC
DRILLING METHOD: 6" tricone and mud rotary
DRILLING CONTRACTOR: Wisconsin Test Drilling, Inc.

WATER LEVEL INFORMATION

DEPTH AT COMPLETION:
LATER TIME/DEPTH:
LATER TIME/DEPTH:
CAVE IN DEPTH:
DRILLING LOSSES:

Foth & Van Dyke & Associates, Inc.

LOG OF TEST BORING NO.: MW-16C

CLIENT: Modern Plating Corportation
PROJECT: Phase II-Groundwater Assessment
PROJECT NUMBER: 87M77
LOCATION: Freeport, Illinois

SURFACE ELEVATION: 781.6
BORING DEPTH: 27.0
DATE: 08-28-87

MSL ELEV	DEPTH FR LND SURF	SAMP DEPTH INTERVAL	TYPE	#	N	REC (ft)	DESCRIPTION OF MATERIAL	CLASS	LABORATORY TESTS	DRILLING AND SAMPLING NOTES
781.6	--0						Brown lean CLAY w/roots	CL		
		0.0-2.0	ss	1	3	0.5				
							Light brown lean CLAY, gray	CL		
		2.0-4.0	ss	2	8	1.0	mottling			
776.6	--5	4.0-6.0	ss	3	9	2.0				
		6.0-8.0	ss	4	3	2.0				
							Light brown silty CLAY	CL-ML		
		8.0-10.0	ss	5	14	2.0				
771.6	--10									
		10.0-12.0	ss	6	20	1.5				
							Gray-brown silty CLAY	CL-ML		
		12.0-14.0	ss	7	20	1.0				
766.6	--15	14.0-16.0	ss	8	40	2.0	Orange brown silty SAND	SM		
							Dolomite gravel			
		16.0-18.0	ss	9	19	0.1				
							Gray lean CLAY	CL,		
		18.0-20.0	ss	10	22	2.0	layered w/silty clay	CL-ML		
761.6	--20									
		20.0-22.0	ss	11	19	2.0				
		22.0-24.0	ss	12	23	2.0	Gray lean CLAY	CL,		
							layered w/silty SAND, fine-med.	SM		
756.6	--25	24.0-26.0	ss	13	42	2.0				
							27.0'-End of Boring			
751.6	--30									
746.6	--35									
741.6	--40									
736.6	--45									
731.6	--50									
726.6	--55									

DRILLING DATA

START DATE: 8/28/87
COMPLETION DATE: 8/28/87
LOGGED BY: MJC
DRILLING METHOD: 6" tricone and mud rotary
DRILLING CONTRACTOR: Wisconsin Test Drilling, Inc.

WATER LEVEL INFORMATION

DEPTH AT COMPLETION:
LATER TIME/DEPTH:
LATER TIME/DEPTH:
CAVE IN DEPTH:
DRILLING LOSSES:

Foth & Van Dyke & Associates, Inc.

LOG OF TEST BORING NO.: MW-17D

CLIENT: Moder Plating
PROJECT: RFI Hydro Investigation
PROJECT NUMBER: 88M70
LOCATION: Grassy fence row between soybean fields

SURFACE ELEVATION: 756'
BORING DEPTH: 128.0
DATE: 11/2/88

MSL ELEV	DEPTH FR LND SURF	SAMP DEPTH INTERVAL	TYPE	#	N	REC (ft)	DESCRIPTION OF MATERIAL	CLASS	LABORATORY TESTS	DRILLING AND SAMPLING NOTES
0.0	0	0-2	ss	1	23	0.8	Soft to med stiff, dk brown org silt, some fine sand, moist to dry root & litter in upper most zone.	OL		
		2-4	ss	2	17	1.0	Lt & dk brown mottled organic silt, tr clay, slightly moist.			
-5.0	5	4-6	ss	3	10	1.0	M stiff, brown SILT, tr of sand & clay, dry to slightly moist.	CL	11.6/65.9/22.5 36.1,15.8 5.9 x 10 -2	
		6-8	ss	4	12	1.5	V soft, mottled dk gray to brown SILT, tr of clay, v. moist.			
		8-10	ss	5	5	0.5	M. stiff, dk brown, f sandy SILT, dry to slightly moist.	ML		
-10.0	10	10-12	ss	6	2	2.0	V. soft, dk brown SILT, some ylw-brown motling, v. moist, tr clay.		CEC=17	Switch form hollow stem auger to 8" tricone bit (mud rotary) at 10 feet
		12-14	ss	7	4	2.0	Soft, v. dk gray silty f. SAND to F. sandy SILT, v. moist to wet.	SM/ML		
-15.0	15	14-16	ss	8	9	0.8	Loose, brown & gray silty f. SAND w/some silt, wet, tr shell frags.	SM		
		16-18	ss	9	9	1.0	Loose brn SAND, tr silt and gravel bottom 0.7' = f. sandy SILT, wet.		CEC=10	
		18-20	ss	10	19	0.5	M dense, gray, gravelly f. SAND, tr silt, wet.	SP		
-20.0	20	20-22	ss	11	32	1.0	Dense, gray f to c SAND, some f gravel & silt, wet, shell frags.	SW		
		22-24	ss	12	21	1.0	Layered med. dense brn SAND, tr gravel, some SILT & f SAND layers.	SP		
-25.0	25	24-26	ss	13	14	1.0	Soft to med. stiff, green-gray SILT, tr of snad; moist.			
		26-28	ss	14	27	2.0	Same as above w/f sand lense at 27.1'.	ML		
-30.0	30	28-30	ss	15	79	1.8	Same as above w/some sand.			
		30-32	ss	16	80	0.9	Alternating layers of poorly and well graded SANDS, dense to very dense, moist to wet, some gravel & traces of silts.	SW,SP		
		32-34	ss	17	110	1.5				
-35.0	35	34-36	ss	18	57	1.5				
		36-38	ss	19	91	1.5	Hard, dk green-gray clayer SILT, moist.			
-40.0	40	38-40	ss	20	87	1.0		ML		
		40-42	ss	21	84	1.8	Same as above except silt has becose harder, also sand lense at 41.5'(SM).			Swith to 5-7/8" tricone bit at 42'
		42-44	ss	22	51	1.3				
-45.0	45	44-46	ss	23	29	1.5	Sample soae as above except w/ more clay content.	ML/CL		
		46-48	st	1	N/A	1.8				
		48-50	ss	24	37	1.5	V. stiff, dk green-gray, silty CLAY, moist.	CL		
-50.0	50	50-52	ss	25	41	2.0				
		52-54	ss	26	36	2.0	Same as above			
-55.0	55	54-56	ss	27	22	2.0	Same as above.			

DRILLING DATA

START DATE: 11/2/88
COMPLETION DATE: 11/9/88
LOGGED BY: RLP
DRILLING METHOD: 4-1/4" HSA to 10'mud rotary to 107', then NX rock core to water.
DRILLING CONTRACTOR: Wisconsin Test Drilling, Inc. (FD)

WATER LEVEL INFORMATION
DEPTH AT COMPLETION:
LATER TIME/DEPTH:
LATER TIME/DEPTH:
CAVE IN DEPTH:

DRILLING LOSSES:

Foth & Van Dyke & Associates, Inc.

LOG OF TEST BORING NO.: MW-17D

CLIENT: Modern Plating Corporation
PROJECT: RFI Hydro Investigation
PROJECT NUMBER: 88M70
LOCATION: Grassy fence row between soybean fields

SURFACE ELEVATION: 756'
BORING DEPTH: 128.0'
DATE: 11/2/89

MSL ELEV	DEPTH FR LND SURF	SAMP DEPTH INTERVAL	TYPE	#	N	REC (ft)	DESCRIPTION OF MATERIAL	CLASS	LABORATORY TESTS	DRILLING AND SAMPLING NOTES
-55.0	--55	54-56	ss	27	22	2.0	Stiff to v. stiff dk green-gray silty CLAY, moist.			
		56-58	ss	28	43	2.0	Same as above except w/ a little less silt.			
		58-60	ss	29	41	0.6	Same as above.			
-60.0	--60	60-62	ss	30	40	0.4	Same as above.			
								CL		
-65.0	--65	65-67	ss	31	45	2.0	Same as above except clay has become brn-gray.		CEC=17	
-70.0	--70	70-72	ss	32	60	2.0	Same as above except clay is non brown.			
-75.0	--75	75-77	ss	33	45	2.0	V. stiff, layered brown CLAY w/ tr. of silt; and brown f. sandy CLAY, moist, black organic mottling lower 0.4'			
-80.0	--80	80-82	ss	34	32	2.0	Stiff brn CLAY, tr silt, moist.			
-85.0	--85	85-87	ST	2	na	2.0	V. stiff brn CLAY, tr silt, moist.		0.1/42.4/57.5 44.2 24.5 1.2 x 10 -7	
-90.0	--90	90-92	ss	35	72	2.0	Dk green silty CLAY, tr f. sand sandstone frags in bottom.			drilling rate change noticed between 92.5-93.3'
-95.0	--95	93.5-95.5	ss	36	107	1.2	Clayey, fgr sandy fine GRAVEL, dense, sub rnd - angular.	GP		
		95.5-97.5	ss	37	88	1.0	Sandy-silty CLAY matrix w/ dolomite frags, clay is dk grn-gray w/ traces of yellow staining.	CL		
-100.0	--100	100-102	ss	38	86	1.3	Same as above.			
-105.0	--105	105-105.5	ss	39	130/6"	0.5	Silty SAND matrix w/ weathered dolomite frags.	SM (Dol)		drilling rate change noticed at 103.5'
-110.0	--110	109-115				2.2	See following page.	Dol		changed to NX rock coring at 107'

DRILLING DATA

START DATE: 11/2/88
COMPLETION DATE: 11/9/88
LOGGED BY: RLP
DRILLING METHOD: 4-1/4" HSA to 10'; mud rotary to 107', then NX rock core w/water.
DRILLING CONTRACTOR: Wisconsin Test Drilling, Inc. (PD)

WATER LEVEL INFORMATION

DEPTH AT COMPLETION:
LATER TIME/DEPTH:
LATER TIME/DEPTH:
CAVE IN DEPTH:

DRILLING LOSSES:

Foth & Van Dyke & Associates, Inc.

LOG OF TEST BORING NO.: MW-17D

CLIENT: Modern Plating Corporation
PROJECT: RFI Hydro Investigation
PROJECT NUMBER: 88M70
LOCATION: Grassy fence row between soybean fields

SURFACE ELEVATION: 0.00
BORING DEPTH: 128.0'
DATE: 11/2/89

MSL ELEV	DEPTH FR LND SURF	SAMP DEPTH INTERVAL	TYPE	#	N	REC (ft)	DESCRIPTION OF MATERIAL	CLASS	LABORATORY TESTS	DRILLING AND SAMPLING NOTES
-110.0	--110			RUN						
		109-115		#		2.2	V. broken, lt gray DOLOMITE, ylw mottling throughout.			lost approx. 1050 gallons of water while coring from 110-128'.
				1						
-115.0	--115			---						
				RUN						
		115-122.5		#		7.3	Same as above, occasional vugs noticed (2-20mm) throughout.	DOL		
-120.0	--120			2						

				RUN						
-125.0	--125	122.5-128		#		5.3	Same as above; some clay infilling in fractures.			
				3						
				---			---	---		
							E.O.B. = 128.0'			
-130.0	--130									
-135.0	--135									
-140.0	--140									
-145.0	--145									
-150.0	--150									
-155.0	--155									
-160.0	--160									
-165.0	--165									

DRILLING DATA

START DATE: 11/2/88
COMPLETION DATE: 11/2/88
LOGGED BY: RLP
DRILLING METHOD: 4-1/4" HSA to 10'; mud rotary to 107', then NX rock core w/water.
DRILLING CONTRACTOR: Wisconsin Test Drilling, Inc. (WI)

WATER LEVEL INFORMATION

DEPTH AT COMPLETION:
LATER TIME/DEPTH:
LATER TIME/DEPTH:
CAVE IN DEPTH:

DRILLING LOSSES:

Foth & Van Dyke & Associates, Inc.

LOG OF TEST BORING NO.: MW-18D

CLIENT: Modern Plating Corporation
PROJECT: RFI Hydro Investigation
PROJECT NUMBER: 88M70
LOCATION: Next to intersection of tree lines

SURFACE ELEVATION: 754.6'
BORING DEPTH: 148.0
DATE: 10/18/88

MSL ELEV	DEPTH FR LND SURF	SAMP DEPTH: INTERVAL	TYPE	#	N	REC (ft)	DESCRIPTION OF MATERIAL	CLASS	LABORATORY TESTS	DRILLING AND SAMPLING NOTES
0.0	0									
		0-2	ss	1	10	1.0	TOPSOIL-Blk silt,some clay,organic moist			
		2-4	ss	2	15	1.5	TOPSOIL-Blk silt,some clay,organic moist	OL		
-5.0	5	4-6	ss	3	16	1.5	Blk SILT,w/clay,organics,moist		CEC=55 0/13.4/62.2/24	
		6-8	ss	4	6	1.5	Dk brn CLAY, w/silt		39.1 20.0 6.8 X 10.4	
		8-10	ss	5	4	1.5	Dk brn CLAY,tr fine sand, moist	CL		
-10.0	10									
		10-12	ss	6	4	1.1	Brn fine SAND, wet	SP-SM		
		12-14	ss	7	7	1.0	Brn SAND,fine-med,w/silty sand layers, wet	SM		
-15.0	15	14-16	ss	8	7	0.8	Brn SAND,fine-med,w/silt layer,wet	SP-SM		
		16-18	ss	9	9	0.7	Brn SAND,fine-coarse,tr gravel			
		18-20	ss	10	25	0.9	Brn grey SAND,w/fine sand,silt layer at 18.6-18.8	SP-SM	2.5/90.9/6.6/0	
-20.0	20	20-22	ss	11	10	2.0	Brn grey fine SAND			
		22-24	ss	12	18	1.2	Blk silty SAND.	SM		
-25.0	25	24-26	ss	13	35	1.2	Blk fine SAND.			
		26-28	ss	14	121	1.1	Brn-lt brn SAND, med-coarse,w/grav	GP		
		28-30	ss	15	83	1.3	Lt brn med-coarse SAND & gravel			
-30.0	30	30-32	ss	16	47	1.5	Grey brn fine SAND, trace silt			
		32-34	ss	17	56	1.5	Grey brn fine SAND, trace silt,wet	SM	CEC=11	
-35.0	35	34-36	ss	18	71	1.5	Grey brn fine SAND, trace silt,wet			
		36-38	ss	19	46	1.5	Grey SILT,w/clay, trace grav,moist			
		38-40	ss	20	67	1.7	Grey SILT,w/clay, trace grav,moist			
-40.0	40	40-42	ss	21	59	2.0	Grey clayey SILT			
		42-44	ss	22	47	2.0	Grey SILT, w/clay & sand lenses	ML		(set 6" PVC casing at 44')
-45.0	45	44-46	ss	23	39	2.0	Grey SILT, w/clay & snad lenses			
		46-48	ss	24	42	2.0	Firm,brn clayey SILT,tr fine sand moist			
		48-50	ss	25	40	0.0				
-50.0	50	50-52	ss	26	49	2.0	Firm to hard dk green brn silty CLAY, moist	CL-ML	CEC=24	
		52-54	ss	27	48	2.0				
-55.0	55	54-56	ss	28	45	2.0	Hard,dk green brn silty CLAY,moist			

DRILLING DATA

START DATE: 10/18/88
COMPLETION DATE: 10/25/88
LOGGED BY: JSK, RLP
DRILLING METHOD: 4 1/4" HSA to 5'8" Auger to 5'8" Tricone w/mud to 46.0;then NX core w/water.
DRILLING CONTRACTOR: Wisconsin Test Drilling, Inc. - D50 (DZ)

WATER LEVEL INFORMATION

DEPTH AT COMPLETION:
LATER TIME/DEPTH:
LATER TIME/DEPTH:
CAVE IN DEPTH:

DRILLING LOSSES:

Foth & Van Dyke & Associates, Inc.

LOG OF TEST BORING NO.: MW-18D

CLIENT: Modern Plating Corporation
PROJECT: RFI Hydro Investigation
PROJECT NUMBER: 88H70
LOCATION: 100 yds from Pecatonic River

SURFACE ELEVATION: 754.6'
BORING DEPTH: 148.0'
DATE: 10-19-88

MSL ELEV	DEPTH FR LND SURF	SAMP DEPTH INTERVAL	TYPE	#	N	REC (ft)	DESCRIPTION OF MATERIAL	CLASS	LABORATORY TESTS	DRILLING AND SAMPLING NOTES
-55.0	--55	54-56	ss	28	45	2.0	Hard ,dk grn silty CLAY, moist	CL-ML		
		56-58	ss	29	61	2.0	Hard, dk grn brn lean CLAY, tr silty, moist			
		58-60	ss	30	59	2.0				
-60.0	--60	60-62	ss	31	58	2.0		CL		
		62-64	S.T.	1	n/a	2.0				
-65.0	--65	64-66	ss	32	71	2.0	Hard dk grn brn lean CLAY, tr silt, moist			
		66-68	ss	33	76	2.0				
		68-70	ss	34	65	2.0				
-70.0	--70	70-72	ss	35	71	1.5	sl-fm,dk grn brn clayey SILT,moist	ML		
		72-74	ss	36	114	2.0	Hard, brn lean CLAY, trace silt, moist			
-75.0	--75	74-76	ss	37	58	1.5				
		76-78	ss	38	65	1.7		CL		
		78-80	ss	39	62	1.7				
-80.0	--80	80-82	ss	40	62	2.0	Hard,brn CLAY tr silt-81.7',dk brn dry peat layer to org clayey silt	OL		
		82-84	ss	41	91	1.5				
-85.0	--85	84-86	ss	42	78	2.0	Hard brn lean CLAY, trace silt, moist			
		86-88	ss	43	73	2.0				
		88-90	ss	44	48	2.0	firm-hard, dk grn brn CLAY,tr silt moist,v fine sandy silty clay			
-90.0	--90	90-92	ss	45	66	1.8	lense at interface hard,dk grn brn clay, tr silt, moist			
		92-94	ss	46	76	2.0	firm-hard,dk grn brn CLAY,tr silt tr fine sand, moist			
-95.0	--95	94-96	ss	47	60	2.0	firm-hard,dk grn brn CLAY,tr silt tr fine sand, moist	CL		
		96-98	ss	48	67	2.0				
		98-100	ss	49	65	2.0	Hard,dk grn brn CLAY,tr silt,moist			
-100.0	--100	100-102	ss	50	56	2.0				
		102-104	ss	51	72	2.0				
-105.0	--105	104-106	S.T.	2	n/a	1.0	Tube crimped in		0.6/67.9/31.5 41.4 22.7	
		106-108	S.T.	3	n/a	1.0	Tube crimped in Drilled no/sampling to 110!		5.5 x 10 -8	
-110.0	--110									

DRILLING DATA

START DATE: 10/18/88
COMPLETION DATE: 10/25/88
LOGGED BY: RLP
DRILLING METHOD: 5 3/4" Mud Tricone to sed rock, NX rock core w/water
DRILLING CONTRACTOR: Wisconsin Test Drilling, Inc. - D50 (DZ)

WATER LEVEL INFORMATION

DEPTH AT COMPLETION:
LATER TIME/DEPTH:
LATER TIME/DEPTH:
CAVE IN DEPTH:
DRILLING LOSSES:

Foth & Van Dyke & Associates, Inc.

LOG OF TEST BORING NO.: MW-18D

CLIENT: Modern Plating Corporation
PROJECT: RFI Hydro Investigation
PROJECT NUMBER: 88M70
LOCATION: 100 yds from Pecatonic River

SURFACE ELEVATION: 754.6'
BORING DEPTH: 148.0
DATE: 10/20/88

MSL ELEV	DEPTH FR LND SURF	SAMP DEPTH INTERVAL	TYPE	#	N	REC (ft)	DESCRIPTION OF MATERIAL	CLASS	LABORATORY TESTS	DRILLING AND SAMPLING NOTES
-110.0	--110									
		110-112	ss	52	120	1.5	V dense,brn sandy GRAVEL, fresh br angular & subrnd fine-coarse gravel, tn-grey dolomite pebbles, tr silt,ywl(Fe)staining in lower 0.2'	SP-SM	38.1/52.9/0.0	
-115.0	--115									
		118-120	ss	53	60	1.7	Dk grn brn fine sandy gravelly CLAY,tr silt,moist,yel(Fe) stain around some dolomite pebbles	CL		
-120.0	--120									
		123-125	ss	54	100	1.0	v dense brn med SAND,tr silt	SP		
-125.0	--125						v dense lt tan gravelly med SAND, chert & dolomite pebbles			
		128-138	NX	R		10.0	Hard broken,lt-med grey DOLOMITE			
-130.0	--130			U			a/occasional 2-30mm irregular br	DOL		
				N			staining from 128-130.5, v hard,			
				#			slightly broken ato massive lt-med			
				1			gray dolomite to 137.6, numerous			
-135.0	--135						dk grn grey infillings of joint & bedding planes, v slight w/ea of fracture faces, pits & vugs, 60% RQD			
		138-148	NX	R		10.0	V hard slightly broken tan			
-140.0	--140			U			DOLOMITE 137.6-138.8, v hard			
				N			massive lt to med grey dolomite			
				#			138.8-148.0, horizontal facture			
				2			face slightly weathered, fractures			
-145.0	--145						at 140.1,141.5,143.5,146.5,147.0, numerous dk grn grey joint & bedding plane infillings, pits & vugs 2-20mm throughout 85% RQD			
							148.0'- End of Boring			
-150.0	--150									
-155.0	--155									
-160.0	--160									
-165.0	--165									

DRILLING DATA

START DATE: 10/16/88
COMPLETION DATE: 10/25/88
LOGGED BY: RLP
DRILLING METHOD: 5 3/4" Mud Tricone to sed rock, NX rock core w/water
DRILLING CONTRACTOR: Wisconsin Test Drilling, Inc. - D50 (DZ)

WATER LEVEL INFORMATION

DEPTH AT COMPLETION:
LATER TIME/DEPTH:
LATER TIME/DEPTH:
CAVE IN DEPTH:
DRILLING LOSSES:

Foth & Van Dyke & Associates, Inc.

LOG OF TEST BORING NO.: MW-19D

CLIENT: Modern Plating
PROJECT: RFI Hydro Investigation
PROJECT NUMBER: 88M70
LOCATION: Next to Pecatonic River

SURFACE ELEVATION: 754.6'
BORING DEPTH: 149.0
DATE: 10/18/88

MSL ELEV	DEPTH FR LND SURF	SAMP DEPTH INTERVAL	TYPE	#	N	REC (ft)	DESCRIPTION OF MATERIAL	CLASS	LABORATORY TESTS	DRILLING AND SAMPLING NOTES
0.0	0									
		0-2	ss	1	12	1.1	Bld SILT,some clay,roots,organics TOPSOIL	OL		
		2-4	ss	2	11	1.5	Dk brn SILT, tr clay, organics			
-5.0	5	4-6	ss	3	7	0.6	Dk brn CLAY, w/silt	CL		
		6-8	ss	4	3	0.3	Dk brn CLAY, w/silt		CEC=22	
		8-10	ss	5	1	2.0	Dk brn fine SAND, w/silt, wet			
-10.0	10	10-12	ss	6	2	2.0	Dk brn fine SAND, w/silt, wet			
		12-14	ss	7	2	1.5	Dk brn SAND,fine,w/silt & clay,wet	SM		
-15.0	15	14-16	ss	8	9	1.1	Dk brn SAND,fine-med,wet,tr silt			
		16-18	ss	9	6	0.9	Dk brn fine-coarse SAND, wet trace gravel, trace silt	SP-SM		
		18-20	ss	10	26	1.0	Dk brn Sand, med-coarse,w/grav,wet			
-20.0	20	20-22	ss	11	71	1.2	Grey brn SAND,fine-coarse,w/grav wet	GP	CEC=10	
		22-24	ss	12	47	4.0	Gry brn SAND,fine-coarse,w/grav wet			
-25.0	25	24-26	ss	13	36	0.6	Lt brn SAND,fine-coarse,w/grav,wet			
							Grey green SILT, w/clay 26-26.4'	ML		
		26-28	ss	14	21	1.5	Grey SAND, fine-med			
		28-30	ss	15	91	1.0	Lt brn SAND,fine-coarse,w/grav,wet			
-30.0	30	30-32	ss	16	103	1.2	Lt brn SAND,fine-coarse,w/grav (rock in spoon),wet	SP	38/51.4/10.6	
		32-34	ss	17	78	1.3	Lt brn SAND,fine-coarse,w/grav (hard drilling),wet			
-35.0	35	34-36	ss	18	91	1.0	Lt brn SAND,fine-coarse,w/grav,wet			
		36-38	ss	19	51	1.0	Grey SILT,trace gravel, trace clay w/some sand seams			
		38-40	ss	20	44	2.0	Grey silty CLAY, trace gravel			
-40.0	40	40-42	ss	21	50	1.7	Gry silty CLAY, tr grl.	ML		
		42-44	ss	22	14	1.6	Grey SILT, w/clay, trace gravel			set casing at 44' (6" PVC).
-45.0	45	44-46	ss	23	57	0.0				
		46-48	ss	24	73	2.0	Firm,dk green brn clayey SILT, moist			
		48-50	ss	25	79	2.0				
-50.0	50	50-52	st	26	n/a	2.0		CL	0/0/71.5/28.5 37.5 18.4 5.8 X 10 -8	
		52-54	ss	27	62	1.5				
-55.0	55	54-56	ss	28	63	1.8	Firm-hard,dk green brn silty CLAY	CL		

DRILLING DATA

START DATE: 10/18/88
COMPLETION DATE: 10/27/88
LOGGED BY: JSK
DRILLING METHOD: 4 1/4" HSA to 10' 8" mud tricone to 44'
DRILLING CONTRACTOR: Wisconsin Test Drilling, Inc.-Bomb (PD)

WATER LEVEL INFORMATION

DEPTH AT COMPLETION:
LATER TIME/DEPTH:
LATER TIME/DEPTH:
CAVE IN DEPTH:
DRILLING LOSSES:

Foth & Van Dyke & Associates, Inc.

LOG OF TEST BORING NO.: MW-19D

CLIENT: Modern Plating Corporation
PROJECT: RFI Hydro Investigation
PROJECT NUMBER: 68M70
LOCATION: 10 yds from Tecatonica River

SURFACE ELEVATION: 754.6'
BORING DEPTH: 149.0
DATE: 10/20/88

MSL ELEV	DEPTH FR LND SURF	SAMP DEPTH INTERVAL	TYPE	#	N	REC (ft)	DESCRIPTION OF MATERIAL	CLASS	LABORATORY TESTS	DRILLING AND SAMPLING NOTES
-55.0	--55	54-56	ss	28	63	1.8	Firm-hard,dk grn brn clayey SILT	CL		
		56-58	ss	29	64	1.5	Firm-hard,dk grn brn clayey SILT moist			
		58-60	ss	30	69	2.0				
-60.0	--60									
		60-62	ss	31	65	1.8	Firm-hard,dk grn brn silty CLAY moist	CL-ML		
		62-64	ss	32	64	1.6				
-65.0	--65	64-66	ss	33	72	1.6	FRM-hd, dk grn brn lean CLAY, silt, moist			
		66-68	ss	34	77	2.0	Hard, dk grn brn lean CLAY, tr silt, moist, tr wood chips			
		68-70	ss	35	78	1.8	tr wood chips	CL		
-70.0	--70									
		70-72	ss	36	80	2.0				
		72-74	ss	37	78	2.0				
-75.0	--75	74-76	ss	38	78	1.9				
		77-79	ss	39	72	1.1				
-80.0	--80									
		80-82	ss	40	72	2.0	Firm,dk grn brn clay SILT to red brn silty clay, moist	ML/ CL-ML		
-85.0	--85	85-87	ss	41	60	2.0	Hard, dk grn brn lean CLAY, tr silt, moist		CEC=19	
-90.0	--90									
		90-92	ss	42	93	0.0		CL		
-95.0	--95									
		95-97	st	43	n/a	1.8	Hard, brn lean CLAY, moist			
-100.0	--100	100-102	ss	44	103	1.7	Firm-hard,dk grn brn silty CLAY to clayey SILT, moist	CL-ML /ML		
-105.0	--105	105-107	ss	45	39	1.1	Dense,dk grn brn gravelly fine SAND, trace silt	SC	10/69.5/20.5	
-110.0	--110									

DRILLING DATA

START DATE: 10/18/88
COMPLETION DATE: 10/27/88
LOGGED BY: RLP
DRILLING METHOD: 5 3/4" tricone w/water, NX rock core w/water
DRILLING CONTRACTOR: Wisconsin Test Drilling, Inc.-Boeb (PD)

WATER LEVEL INFORMATION

DEPTH AT COMPLETION:
LATER TIME/DEPTH:
LATER TIME/DEPTH:
CAVE IN DEPTH:
DRILLING LOSSES:

Foth & Van Dyke & Associates, Inc.

LOG OF TEST BORING NO.: MW-19D

CLIENT: Modern Plating Corporation
PROJECT: RFI Hydro Investigation
PROJECT NUMBER: 88M70
LOCATION: 10 yds from Pecatonic River

SURFACE ELEVATION: 754.6'
BORING DEPTH: 149.0
DATE: 10/24/88

MSL ELEV	DEPTH FR LND SURF	SAMP DEPTH INTERVAL	TYPE	#	N	REC (ft)	DESCRIPTION OF MATERIAL	CLASS	LABORATORY TESTS	DRILLING AND SAMPLING NOTES
110.0	--110									
		110-112	ss	46	108	1.4	Stratified hard,dk grn brn CLAY, moist,v dense gravelly fine sand, and clayey sand,chert & dol grav	CL, SP,SC		
115.0	--115						V dense clayey sandy gravel			
		115-117	ss	47	74	0.8	angular to subrnd dolomite & chert fragments,yel(Fe) staining around frag (weathered dolomite)	GP-GC	30.3/36.1/19.6 14 50.2 31.4	
120.0	--120						Fine sandy grav dk grn brn CLAY	CL		
		120-122	ss	48	46	1.5	subangular-subrnd dol frg @120.5'. At 120.7 ft hard dk grn brn v.f. sandy silty CLAY to hard dk grn br CLAY, tr to some silt, moist.			
125.0	--125									
		125-127	ss	49	100	1.4	V den lt tan m sand to 126.0', v den lt tan m sand w/dk grn brn clay,-moist-to-126.7',-broken	SP		
130.0	--130	129-139	NX	R U N # 1		10.0	weathered bdrk, sandy matrix w/dol & chert frags. Med-v hard, broken interbedded m grey & tan DOLOMITE, irregular 2-20mm pits, dk grn grey joint infillings, fresh to weathered fract faces, some irreg 2-15mm brn staining 129.5-131.5', med hard, v broken tan zone 131.5-132.1 27% RQD	DOL		
140.0	--140	139-149	NX	R U N # 2		10.0	V hard, massive, interbedded med grey & tan DOLOMITE, numerous dk grn grey wavy joint infillings, fresh to weathered fract faces,tan zones 139.0-139.8' & 140.3-140.7' 69% RQD			
150.0	--150						149.0'- End of Boring			
155.0	--155									
160.0	--160									
165.0	--165									

DRILLING DATA

START DATE: 10/18/88
COMPLETION DATE: 10/27/88
LOGGED BY: RLP
DRILLING METHOD: 5 3/4" Tricone w/water, NX rock core w/water
DRILLING CONTRACTOR: Wisconsin Test Drilling, Inc. - Bomb (PD)

WATER LEVEL INFORMATION

DEPTH AT COMPLETION:
LATER TIME/DEPTH:
LATER TIME/DEPTH:
CAVE IN DEPTH:
DRILLING LOSSES:

Foth & Van Dyke & Associates, Inc.

LOG OF TEST BORING NO.: MW-21A Page 1 of 1

CLIENT: Modern Plating Corporation
PROJECT: CMS Well Installations
PROJECT NUMBER: 93N020
LOCATION: Freeport, Illinois
COORDINATES: N9943.3 E10489.9

SURFACE ELEVATION: 773.0 (in feet MSL)
BORING DEPTH: 25.0 (in FEET)
DATE: 02/21/94

MSL ELEV	DEPTH FR LND SURF	SAMP DEPTH INTERVAL	TYPE	#	N	REC (in)	DESCRIPTION OF MATERIAL	CLASS	UNCONFN. STRENGTH	MOISTURE	DRILLING AND SAMPLING NOTES
773.0	0						See Log of Test Boring No. MW-21C				
748.0	25						END OF BORING AT 25'				

DRILLING DATA
START DATE: 02/21/94
COMPLETION DATE: 02/21/94
LOGGED BY: KAD
DRILLING METHOD: 4-1/4-inch I.D. HSA
DRILLING CONTRACTOR: Rock & Soil Drilling Corporation

WATER LEVEL INFORMATION
DEPTH AT COMPLETION:
LATER TIME/DEPTH:
LATER TIME/DEPTH:
CAVE IN DEPTH:
DRILLING LOSSES:

Foth & Van Dyke & Associates, Inc.

LOG OF TEST BORING NO.: MW-21C Page 1 of 3

CLIENT: Modern Plating Corporation
PROJECT: CMS Well Installations
PROJECT NUMBER: 93M020
LOCATION: Freeport, Illinois
COORDINATES: N9943.4 E10494.4

SURFACE ELEVATION: 773.1 (in feet MSL)
BORING DEPTH: 55.0 (in FEET)
DATE: 02/21/94

MSL ELEV	DEPTH FR LND SURF	SAMP DEPTH INTERVAL	TYPE	#	N	REC (in)	DESCRIPTION OF MATERIAL	CLASS	UNCONFN. STRENGTH	MOISTURE	DRILLING AND SAMPLING NOTES
773.1	-- 0	0'-1'					ASPHALT (0"-2") GRAVEL, light yellowish brown (10yr6/4)	GP		Damp	0'-2" Asphalt 2"-11" Gravel
771.1	-- 2.0	1'-3'	ss	1	65	8	CLAY, yellowish brown (10yr5/4)	CL	Hard	Moist	
769.1	-- 4.0	3'-5'	ss	2	5	4	Same as above	CL	Med. Stiff	Moist	
767.1	-- 6.0	5'-7'	ss	3	5	0	Same as above	CL	Med. Stiff		
765.1	-- 8.0	7'-9'	ss	4		0	Same as above	CL			
763.1	-- 10.0	9'-11'	ss	5		7	SILTY SAND, dark brown (10yr3/3), fine-grained	SM	Loose	Moist	
761.1	-- 12.0	11'-13'	ss	6	6	6	Same as above	SM	Loose	Moist	
759.1	-- 14.0	13'-15'	ss	7	11	6	Same as above with brick fragments	SM	Med. Dense	Moist	
757.1	-- 16.0	15'-17'	ss	8	12	9	SILTY CLAY, organic, light olive brown (2.5y5/4) with gray (2.5y5/1) mottles	OL	Stiff	Moist	Fine Organics 15'-26
755.1	-- 18.0	17'-19'	ss	9	6	12	Same as above	OL	Med. Stiff	Moist	
753.1	-- 20.0	19'-21'	ss	10	7	9	Same as above	OL	Med. Stiff	Moist	
751.1	-- 22.0										

DRILLING DATA
START DATE: 02/21/94
COMPLETION DATE: 02/22/94
LOGGED BY: KAD
DRILLING METHOD: 4-1/4-inch I.D. HSA and 5-7/8-inch Tricone Rotary
DRILLING CONTRACTOR: Rock & Soil Drilling Corporation

WATER LEVEL INFORMATION
DEPTH AT COMPLETION:
LATER TIME/DEPTH:
LATER TIME/DEPTH:
CAVE IN DEPTH:
DRILLING LOSSES:

Foth & Van Dyke & Associates, Inc.

LOG OF TEST BORING NO.: MW-21C — Page 2 of 3

CLIENT: Modern Plating Corporation
PROJECT: CMS Well Installations
PROJECT NUMBER: 93N020
LOCATION: Freeport, Illinois
COORDINATES: N9943.4 E10494.4

SURFACE ELEVATION: 773.1 (in feet MSL)
BORING DEPTH: 55.0 (in FEET)
DATE: 02/21/94

MSL ELEV	DEPTH FR LND SURF	SAMP DEPTH INTERVAL	TYPE	#	N	REC (in)	DESCRIPTION OF MATERIAL	CLASS	UNCONFN. STRENGTH	MOISTURE	DRILLING AND SAMPLING NOTES
751.1	-- 22.0	21'-23'	ss	12	7	24.0	CLAY, organic, dark grayish brown (2.6y4/2)	OL	Med. Stiff	Wet	
749.1	-- 24.0	23'-25'	ss	13	7	24.0	Same as above	OL	Med. Stiff	Wet	
747.1	-- 26.0	25'-27'	ss	14	9	24.0	Same as above to 26', then SILTY SAND, olive brown (2.5y4/3), fine-grained	OL SM	Med. Stiff Med. Dense	Wet	Coarse Alluvium 26' - 46'
745.1	-- 28.0	27'-29'	ss	15	2	24.0	SAND, light olive brown (2.5y5/6), fine to medium-grained, trace silt	SP/SM	Very Loose	Wet	
743.1	-- 30.0	29'-31'	ss	16	8	24.0	Same as above	SP/SM	Loose	Wet	
741.1	-- 32.0	31'-33'	ss	17	2	24.0	Same as above	SP/SM	Very Loose	Wet	
739.1	-- 34.0	33'-35'	ss	18	11	24.0	SAND, light olive brown (2.5y5/3) fine to medium-grained, with silt	SP-SM	Med. Dense	Wet	
737.1	-- 36.0	35'-37'	ss	19	12		Same as above	SP-SM	Med. Dense	Wet	
735.1	-- 38.0	37'-39'	ss	20	28		Same as above	SP-SM	Med. Dense	Wet	
733.1	-- 40.0	39'-41'	ss	21	29		Same as above	SP-SM	Med. Dense	Wet	
731.1	-- 42.0	41'-43'	ss	22	20		Same as above	SP-SM	Med. Dense	Wet	
729.1	-- 44.0										

DRILLING DATA
START DATE:
COMPLETION DATE: See page 1
LOGGED BY:
DRILLING METHOD:
DRILLING CONTRACTOR:

WATER LEVEL INFORMATION
DEPTH AT COMPLETION:
LATER TIME/DEPTH: See page 1
LATER TIME/DEPTH:
CAVE IN DEPTH:
DRILLING LOSSES:

Foth & Van Dyke & Associates, Inc.

LOG OF TEST BORING NO.: MW-21C Page 3 of 3

CLIENT: Modern Plating Corportion
PROJECT: CNS Well Installations
PROJECT NUMBER: 93N020
LOCATION: Freeport, Illinois
COORDINATES: N9943.4 E10494.4

SURFACE ELEVATION (in feet MSL): 773.1
BORING DEPTH (in FEET): 55.0
DATE: 02/21/94

MSL ELEV	DEPTH FR LND SURF	SAMP DEPTH INTERVAL	TYPE	#	N	REC (in)	DESCRIPTION OF MATERIAL	CLASS	UNCONFN. STRENGTH	MOISTURE	DRILLING AND SAMPLING NOTES
729.1	-- 44.0	43'-45'	ss	23	7		Same as above			Wet	
727.1	-- 46.0	45'-47'	ss	24			CLAY, fat, dark gray (2.5y3/1)			Moist	Residuum 46' - 48'
725.1	-- 48.0						DOLOMITE 48'-55'				Bedrock 48' - 55'
723.1	-- 50.0										
721.1	-- 52.0										
719.1	-- 54.0										
717.1	-- 56.0						End of Boring 55'				

DRILLING DATA
START DATE:
COMPLETION DATE: See page 1
LOGGED BY:
DRILLING METHOD:
DRILLING CONTRACTOR:

WATER LEVEL INFORMATION
DEPTH AT COMPLETION:
LATER TIME/DEPTH: See page 1
LATER TIME/DEPTH:
CAVE IN DEPTH:
DRILLING LOSSES:

Foth & Van Dyke & Associates, Inc.

LOG OF TEST BORING NO.: MW-22A Page 1 of 1

CLIENT: Modern Plating Corporation
PROJECT: CMS Well Installations
PROJECT NUMBER: 93M020
LOCATION: Freeport, Illinois
COORDINATES: N10050.1 E10516.2

SURFACE ELEVATION: 774.1 (in feet MSL)
BORING DEPTH: 25.0 (in FEET)
DATE: 03/03/94

MSL ELEV	DEPTH FR LND SURF	SAMP DEPTH INTERVAL	TYPE	#	N	REC (in)	DESCRIPTION OF MATERIAL	CLASS	UNCONFN. STRENGTH	MOISTURE	DRILLING AND SAMPLING NOTES
774.1	0						See Log of Test Boring No. MW-22C				
749.1	25						END OF BORING AT 25'				

DRILLING DATA
START DATE: 03/03/94
COMPLETION DATE: 03/03/94
LOGGED BY: KAD
DRILLING METHOD: 4-1/4-inch I.D. HSA
DRILLING CONTRACTOR: Rock & Soil Drilling Corporation

WATER LEVEL INFORMATION
DEPTH AT COMPLETION:
LATER TIME/DEPTH:
LATER TIME/DEPTH:
CAVE IN DEPTH:
DRILLING LOSSES:

Foth & Van Dyke & Associates, Inc.

LOG OF TEST BORING NO.: MW-22C Page 1 of 3

CLIENT: Modern Plating Corporation
PROJECT: CMS Well Installations
PROJECT NUMBER: 93M020
LOCATION: Freeport, Illinois
COORDINATES: N10052.7 E10521.0

SURFACE ELEVATION: 774.3 (in feet MSL)
BORING DEPTH: 60.0 (in FEET)
DATE: 02/23/94

MSL ELEV	DEPTH FR LND SURF	SAMP DEPTH INTERVAL	TYPE	#	N	REC (in)	DESCRIPTION OF MATERIAL	CLASS	UNCONFN. STRENGTH	MOISTURE	DRILLING AND SAMPLING NOTES
774.3	0	0'-1'									
772.3	2.0	1'-3'	ss	1	50/	3	SLAG, brick fragments, cinders, dark brown (7.5yr3/2) and orange dicoloration	FILL		Moist	Fill 0' - 19'
770.3	4.0	3'-5'	ss	2	8	6	Same as above	FILL		Moist	
768.3	6.0	5'-7'	ss	3	8	3	Same as above	FILL		Moist	
766.3	8.0	7'-9'	ss	4	9	6	Same as above	FILL		Moist	
764.3	10.0	9'-11'	ss	5	8	6	Same as above	FILL		Moist	
762.3	12.0	11'-13'	ss	6	16	2	Same as above	FILL		Moist	
760.3	14.0	13'-15'	ss	7	41	6	Same as above	FILL		Moist	
758.3	16.0	15'-17'	ss	8	20	2	Same as above	FILL		Moist	
756.3	18.0	17'-19'	ss	9	27	3	Same as above	FILL		Moist	
754.3	20.0	19'-21'	ss	10	44	6	SILT, black (7.5yr2.5/1), oily, stained	ML		Moist	Fine Organics 19' -31'
752.3	22.0			11							

DRILLING DATA
START DATE: 02/23/94
COMPLETION DATE: 03/02/94
LOGGED BY: KAD
DRILLING METHOD: 41/4-inch I.D. HSA and 5-7/8-inch Tricone Rotary
DRILLING CONTRACTOR: Rock & Soil Drilling Corporation

WATER LEVEL INFORMATION
DEPTH AT COMPLETION:
LATER TIME/DEPTH:
LATER TIME/DEPTH:
CAVE IN DEPTH:
DRILLING LOSSES:

Foth & Van Dyke & Associates, Inc.

LOG OF TEST BORING NO.: MW-22C Page 2 of 3

CLIENT: Modern Plating Corporation
PROJECT: CMS Well Installations
PROJECT NUMBER: 93M020
LOCATION: Freeport, Illinois
COORDINATES: N10052.7 E10421.0

SURFACE ELEVATION: 774.3 (in feet MSL)
BORING DEPTH: 60.0 (in FEET)
DATE: 02/23/93

MSL ELEV	DEPTH FR LND SURF	SAMP DEPTH INTERVAL	TYPE	#	N	REC (ft)	DESCRIPTION OF MATERIAL	CLASS	UNCONFN. STRENGTH	MOISTURE	DRILLING AND SAMPLING NOTES
752.3	-- 22.0	21'-23'	ss		24	3.0	SILT, black (7.5yr2.5/1)	ML	Very Stiff	Wet	
750.3	-- 24.0	23'-25'	ss	12	6	1.0	Same as above	ML	Med. Stiff	Wet	
748.3	-- 26.0	25'-27'	ss	13	20	9.0	CLAY, organic, fat, black (2.5y2.5/1)	OH	Very Stiff	Moist	
746.3	-- 28.0	27'-29'	ss	14	6	6.0	Same as above to 28' then SILT, black (2.5y2.5/1)	OH ML	Med. Stiff	Wet Wet	
744.3	-- 30.0	29'-31'	ss	15	5	6.0	Same as above	ML	Med. Stiff	Wet	
742.3	-- 32.0	31'-33'	ss	16	2	0.0	SAND, olive brown (2.5y5/3)	SP	Very Loose	Wet	
740.3	-- 34.0	33'-35'	ss	17	2	24.0	SAND, olive brown (2.5y5/3) fine to medium-grained	SP	Very Loose	Wet	Coarse Alluvium 31' - 45'
738.3	-- 36.0	35'-37'	ss	18	9	24.0	SILTY SAND, olive brown (2.5y5/3) fine to medium-grained	SM	Loose	Wet	
736.3	-- 38.0	37'-39'	ss	19	14	24.0	SILTY SAND, dark greyish brown (2.5y4/2), fine to medium-grained	SM	Med. Dense	Wet	
734.3	-- 40.0	39'-41'	ss	20	27	24.0	SAND, olive brown (2.5y5/3), fine to medium-grained	SP	Med. Dense	Wet	
732.3	-- 42.0	41'-43'	ss	21	16	24.0	Same as above	SP	Med. Dense	Wet	
730.3	-- 44.0			22							

DRILLING DATA
START DATE:
COMPLETION DATE: See page 1
LOGGED BY:
DRILLING METHOD:
DRILLING CONTRACTOR:

WATER LEVEL INFORMATION
DEPTH AT COMPLETION:
LATER TIME/DEPTH: See page 1
LATER TIME/DEPTH:
CAVE IN DEPTH:
DRILLING LOSSES:

Foth & Van Dyke & Associates, Inc.

LOG OF TEST BORING NO.: MW-22C — Page 3 of 3

CLIENT: Modern Plating Corporation
PROJECT: CMS Well Installations
PROJECT NUMBER: 93N020
LOCATION: Freeport, Illinois
COORDINATES: N10052.7 E10521.0

SURFACE ELEVATION: 774.3 (in feet MSL)
BORING DEPTH: 60.0 (in FEET)
DATE: 02/23/94

MSL ELEV	DEPTH FR LND SURF	SAMP DEPTH INTERVAL	TYPE	#	N	REC (ft)	DESCRIPTION OF MATERIAL	CLASS	UNCONFN. STRENGTH	MOISTURE	DRILLING AND SAMPLING NOTES
730.3	-- 44.0	43'-45'	ss		7	0.0	Same as above	SP		Wet	
728.3	-- 46.0	45'-47'	ss	23	68	0	CLAY	CH	Hard		Residuum 45' - 53'
726.3	-- 48.0	47'-49'	ss	24	65	24	CLAY, fat, dark grey (2.5y3/1)	CH	Hard	Moist	
724.3	-- 50.0						CLAY 49' to 53' (no samples)				
722.3	-- 52.0						DOLOMITE 53' TO 60'				
720.3	-- 54.0										Bedrock 53' - 60'/pr
718.3	-- 56.0										
716.3	-- 58.0						END OF BORING AT 60'				
714.3	-- 60.0										

DRILLING DATA
START DATE:
COMPLETION DATE:
LOGGED BY:
DRILLING METHOD:
DRILLING CONTRACTOR:
See page 1

WATER LEVEL INFORMATION
DEPTH AT COMPLETION:
LATER TIME/DEPTH:
LATER TIME/DEPTH:
CAVE IN DEPTH:
DRILLING LOSSES:
See page 1

Illinois Environmental Protection Agency — Field Boring Log — 1 of 1

Site File No.: | County: Stephenson | Boring No.: B-23B | Monitor well No.: MW-23B

Site File Name: Modern Plating Corporation | Surface Elevation: | Completion Depth: 21'

Fed. ID. No.: | Auger Depth: 21' | Rotary Depth: NA

Quadrangle: | Sec. 32 T. 27N R. 8E | Date: Start 03/14/00 | Finish 03/14/00

UTM (or State Plane) Coord. N.(X): | E.(Y):

Latitude: | Longitude:

Boring Location: Freeport, IL

Drilling Equipment: Mobile-57 6RV & Boart-Longyear

Personnel: G - EAS; D - Larry Erdman; H - Jeff Flamidio; H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: Sample No.	Sample Type	Sample Recovery (%)	Penetrometer	N Values (Blow Counts)	OVA or HNU Readings	REMARKS
	0-21 Blind drill, see boring log B-23C(MW-23C)		2, 4, 6, 8, 10, 12, 14, 16, 18, 20							Borehole for Monitoring well in sands over dolomite
	E.O.B 21									

Illinois Environmental Protection Agency — Field Boring Log — 1 of 2

Site File No.: ____ County: Stephenson
Site File Name: Modern Plating Corporation
Fed. ID. No.: ____
Quadrangle: ____ Sec. 32 T. 27N R. 8E
UTM (or State Plane) Coord. N.(X): ____ E.(Y): ____
Latitude: ____ Longitude: ____
Boring Location: Freeport, IL
Drilling Equipment: Mobile-57 / GRV: Boart Longyear

Boring No.: B-23C
Surface Elevation: ____
Auger Depth: 35.5'
Date: Start: 03/14/00 Finish: 03/14/00

Monitor well No.: MW-23C
Completion Depth: 35.5
Rotary Depth: NA

Personnel: E - EAS; C - Larry Eckman; H - Jeff Flamidio; H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETRATION/TIR	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
	0-2 Auger - Dark gray (10YR 2/2) clayey, organic topsoil, weak, fine, subangular blocky structure, damp, firm	OH								0-2 Log from cuttings
	2-4 Dark gray brown (10YR 3/2) silty clay with organic mtl., weak, coarse subangular blocky structure, damp, firm, no mottles (Alluvium)	CL	2	1	S.S.	11"		4/4 3/3	0	
	4-6 (4-4.2) as above	CL	4	2	S.S.	12"		1/1 2/2	0	
	(4.2-6) Gray brown (10YR 4/2) clayey silt, weak, medium, subangular blocky structure, damp, soft, sl. plastic, common, prominent (7.5YR 6/6) mottles (Alluvium)	CL-ML								
	6-8 Gray brown (2.5Y 4/2) silty clay, massive, damp, firm, common, prominent (7.5YR 6/6) mottles (Alluvium)	CL	6	3	S.S.	24"		2/2 1/1	0.5	Highest value * Moisture
	8-10 as above, sl increase in silt minor fine sand laminae.		8	4	S.S.	21"		1/1 1/1	2.8	Highest value * Moisture
	10-12 (10-11.8) as above sand laminae increase w. depth and are saturated		10	5	S.S.	20"		1/0 1/0	2.1	Highest value * Moisture
	(11.8-12) Gray (2.5Y 5/1) fine sand, structureless, wet, loose	SP	12	6	S.S.	22"		1/1 1/1	1.1	Highest value * Moisture
	12-14 Brown (10YR 5/4) fine sand with minor silt, structureless, loose, wet, locally oxidized (outwash)	SP								
	14-16 (14-15.2) as above		14	7	S.S.	23"		2/2 4/5	0.8	Highest value * Moisture
	(15.2-16) Brown (10YR 5/4) medium-coarse sand, structureless, wet, loose, locally oxidized	SP	16	8	S.S.	20"		3/5 7/8	1.1	Highest value * Moisture
	16-18 Brown (10YR 5/5) fine-med. sand, structureless, wet, loose, weakly stratified (outwash)	SP								
	18-20 as above with coarse sand lenses	SP	18	9	S.S.	18"		2/3 3/4	0.9	Highest value * Moisture
	20-22 as above with coarse sand lenses	SP	20	10	S.S.	20"		3/4 4/4	1.0	Highest value * Moisture

Illinois Environmental Protection Agency — Field Boring Log — 2 of 2

Site File No.: _____ County: Stephenson — Boring No.: B-23C Cont. — Monitor well No.: MW-23C

Site File Name: Modern Plating Corporation — Surface Elevation: _____ — Completion Depth: 35.5

Fed. ID. No.: _____ — Auger Depth: 35.5' — Rotary Depth: NA

Quadrangle: _____ Sec. 32 T. 27N R. 8E — Date Start: 03/14/00 — Finish: 03/14/00

UTM (or State Plane) Coord. N.(X): _____ E.(Y): _____

Latitude: _____ Longitude: _____

Boring Location: Freeport, IL

Drilling Equipment: Mobil-57/GRV; Boart Longyear

Personnel: E - EAS; D - Larry Erdman; H - Jeff Flamidio; K -

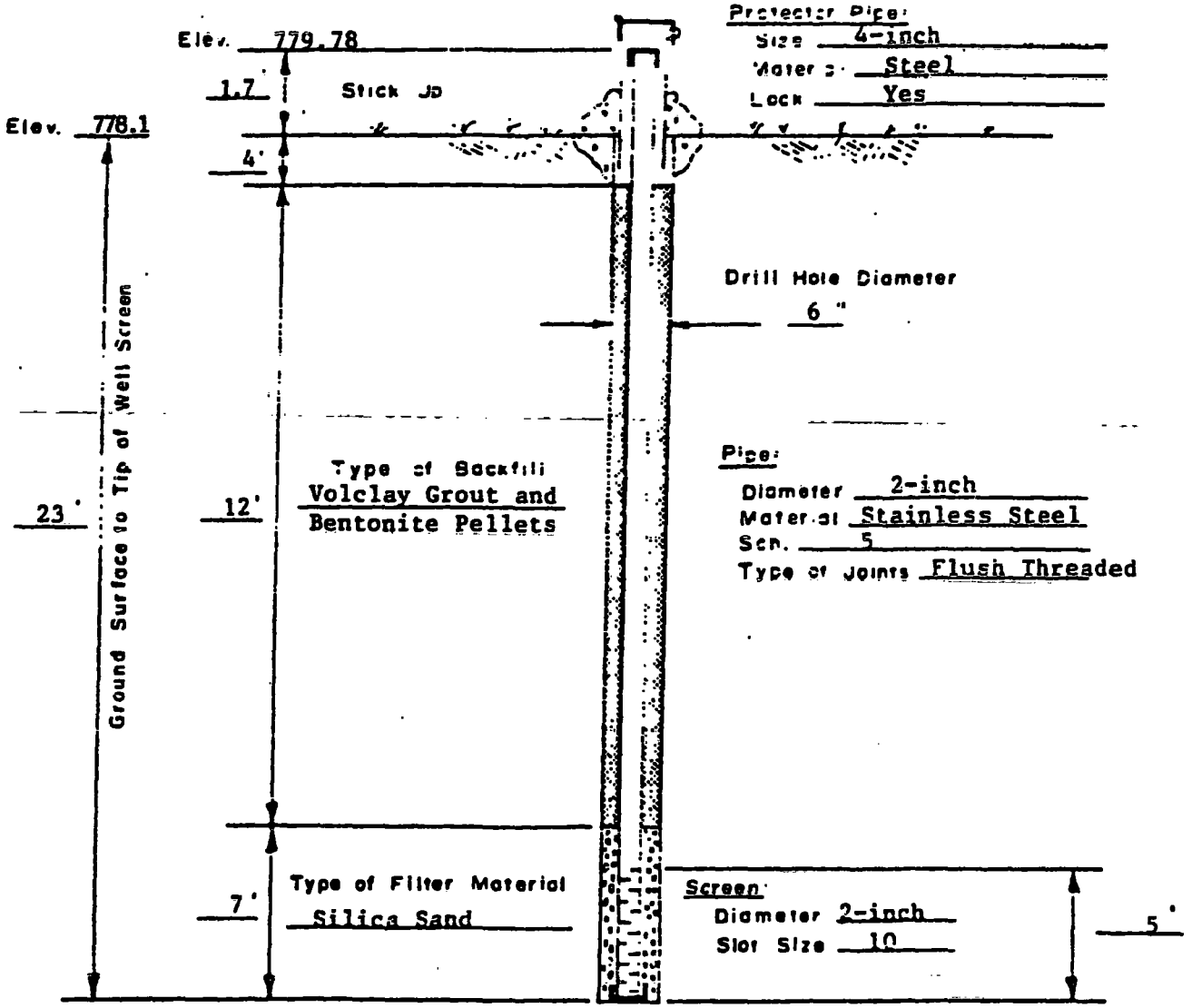
Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
	22-24 as above	SP	22	11	S.S.	22"		4/5 6/6	1.0	Highest value of Moisture
	24-26 Brown (10YR4/4) fine-med. sand, structureless, wet, loose, weakly stratified (outwash)	SP	24	12	S.S.	24"		8/9 8/10	0.5	Highest value of Moisture
	26-28 2' Blow up in augers, Sand as above	SP	26	13	S.S.	~5" (22)		10/12 15/20	0.8	Highest value of Moisture
	28-30 (28-28.2) as above 28.2+ Weathered white-light gray brown dolomite w minor sand, highly fractured.	SP-DOL	28	14	S.S.	5"		15/18 23/27		Augered into rock to set well as MW-20C
	Auger Refusal 35.5 E.O.B. 35.5		30							
			32							
			34							
			36							
			38							
			40							

Well Construction Records

MONITORING WELL INSTALLATION DIAGRAM

WELL NO: 5C
DATE INSTALLED: 9/23/86
DRILLER: Testing Service Corp.
DRILLING METHOD: Rotary Wash

CLIENT Modern Plating Corp.
PROJECT: Assessment Monitoring Program
SCOPE I.D.: 86M55
BY: RTB

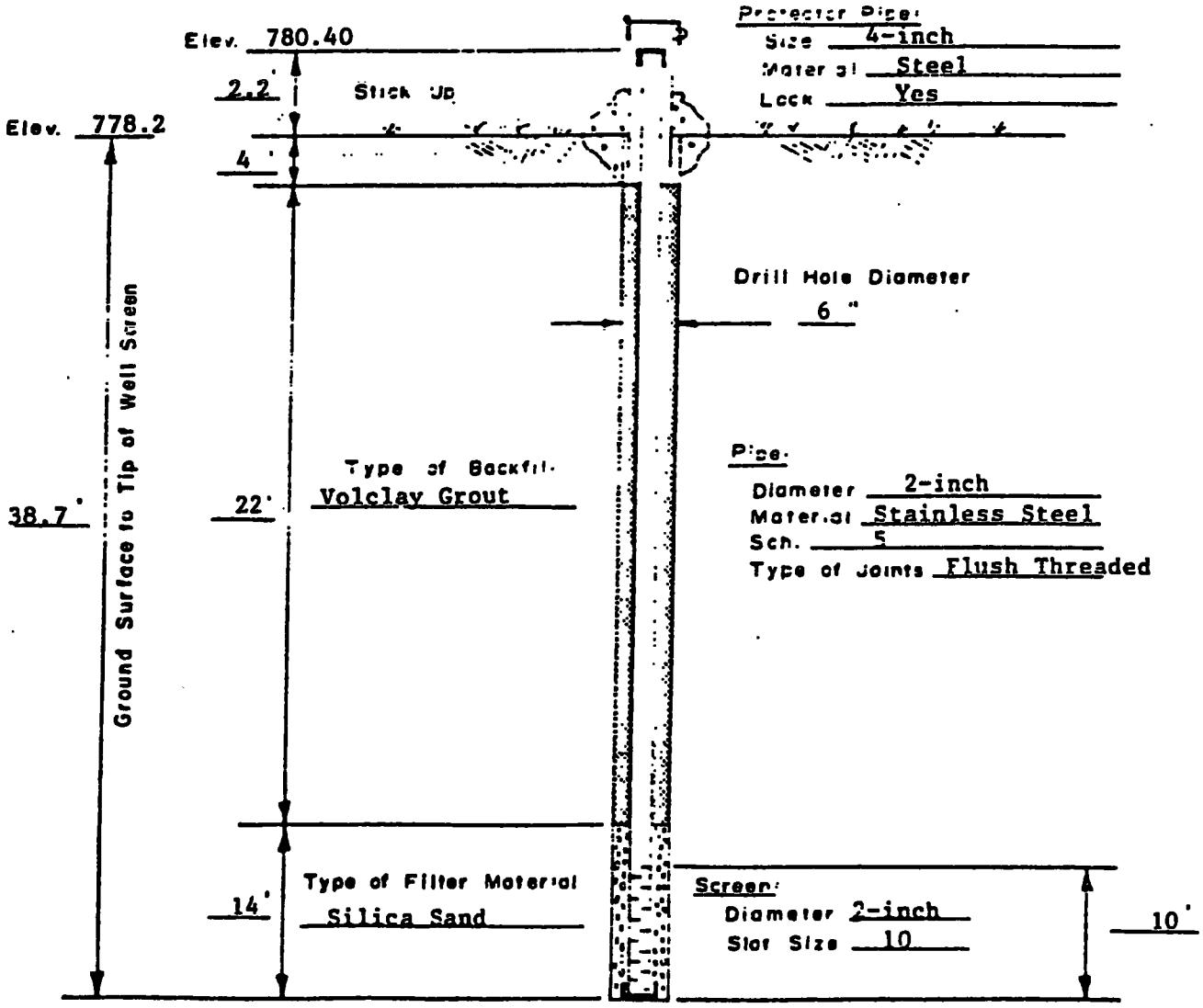


Foth & Van Dyke
Waste/Energy Division

MONITORING WELL INSTALLATION DIAGRAM

WELL NO: 5D
DATE INSTALLED: 9/24/86
DRILLER: Testing Service Corp.
DRILLING METHOD: Rotary Wash

CLIENT: Modern Plating Corp.
PROJECT: Assessment Monitoring Program
SCOPE I.D.: 86M55
BY: RTB

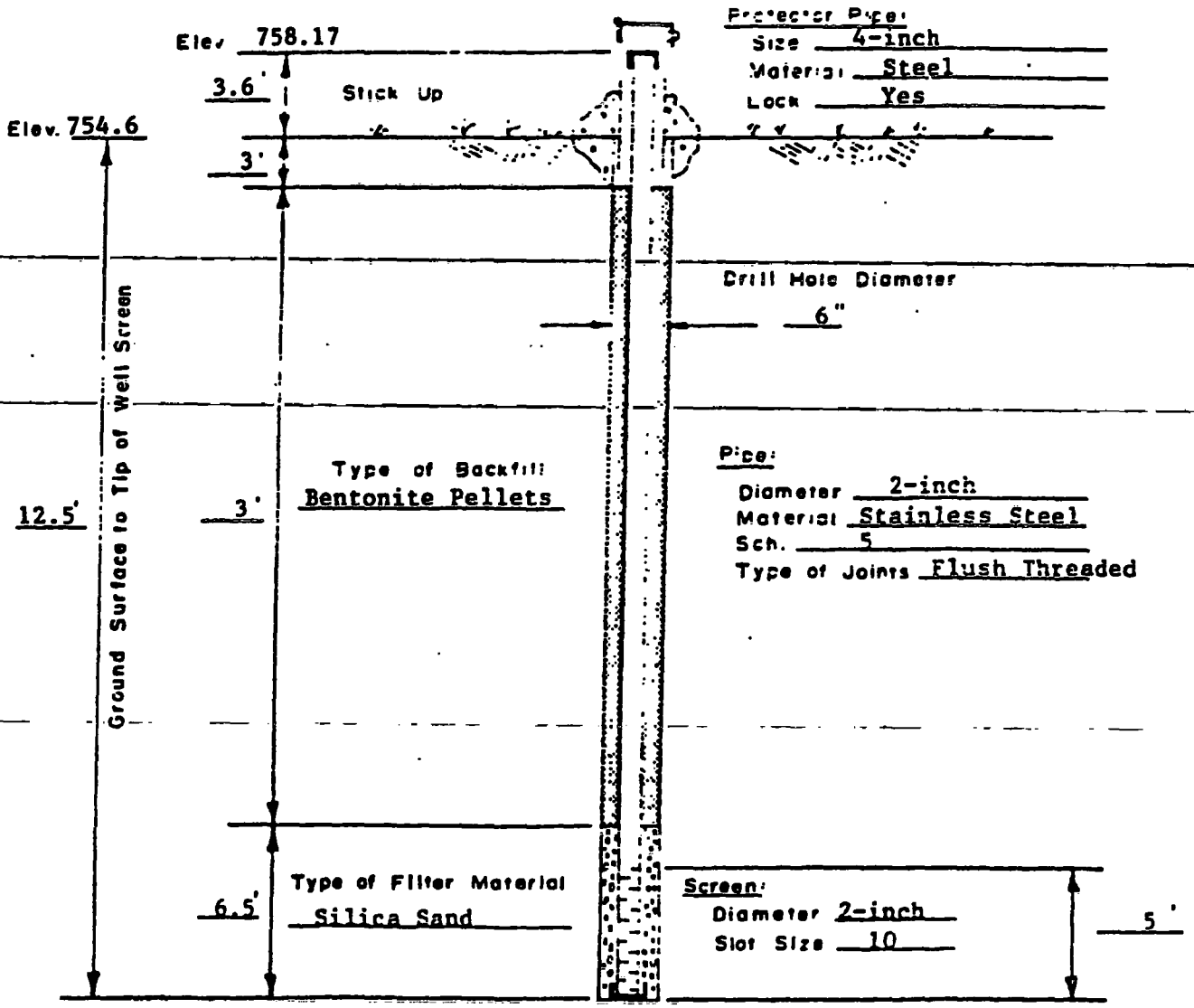


Foth & Van Dyke
Waste/Energy Division

MONITORING WELL INSTALLATION DIAGRAM

WELL NO: 6A
DATE INSTALLED: 9/26/86
DRILLER: Testing Service Corp.
DRILLING METHOD: Rotary Wash

CLIENT: Modern Plating Corp.
PROJECT: Assessment Monitoring Program
SCOPE I.D.: 86M55
BY: RTB

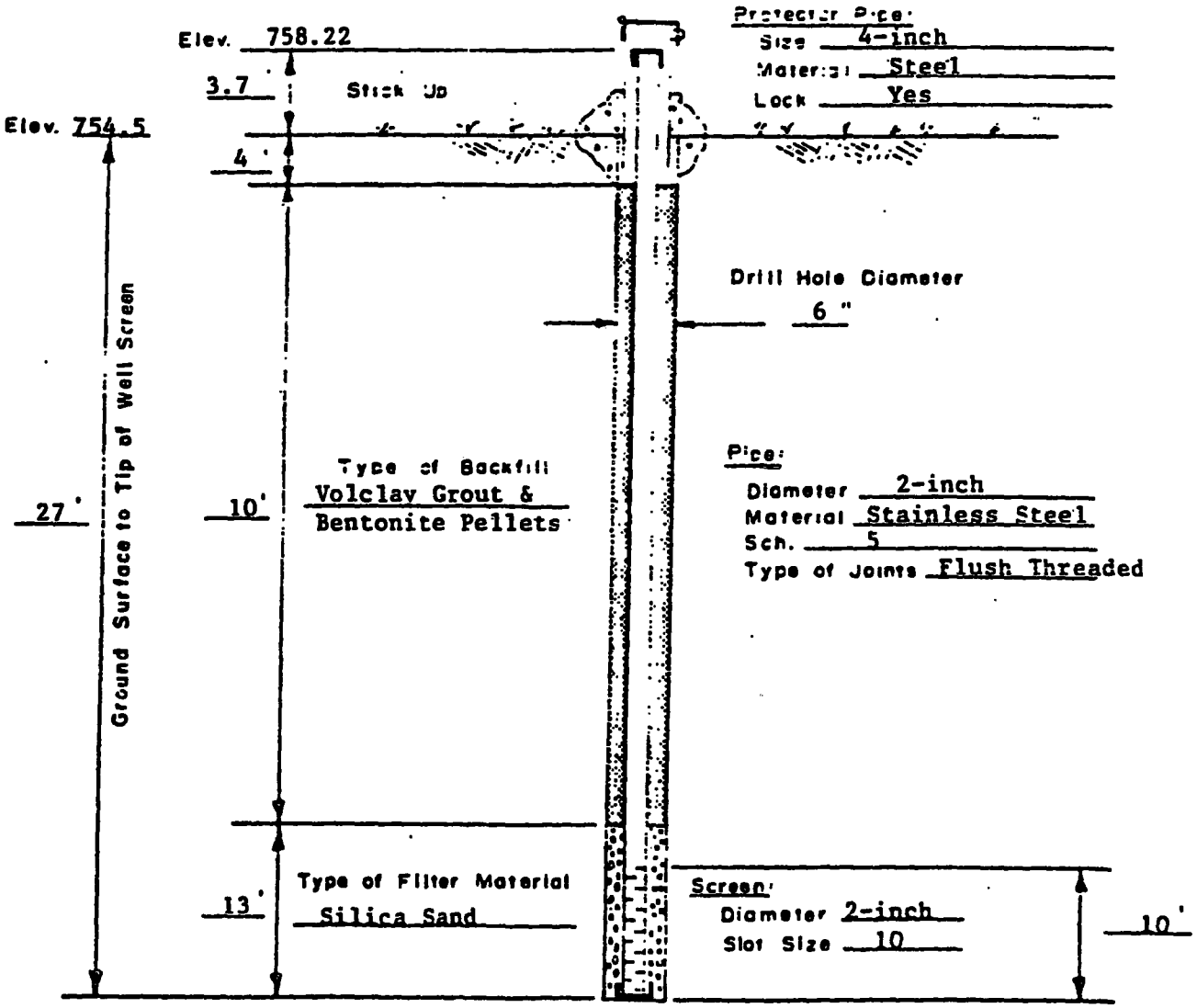


Foth & Van Dyke
Waste/Energy Division

MONITORING WELL INSTALLATION DIAGRAM

WELL NO: 6B
DATE INSTALLED: 9/26/86
DRILLER: Testing Service Corp.
DRILLING METHOD: Rotary Wash

CLIENT: Modern Plating Corp.
PROJECT: Assessment Monitoring Program
SCOPE I.D.: 86M55
BY: RTB



Foth & Van Dyke
Waste/Energy Division

MONITORING WELL INSTALLATION DIAGRAM

WELL NO: 6C

DATE INSTALLED: 9/25/86

DRILLER: Testing Service Corp.

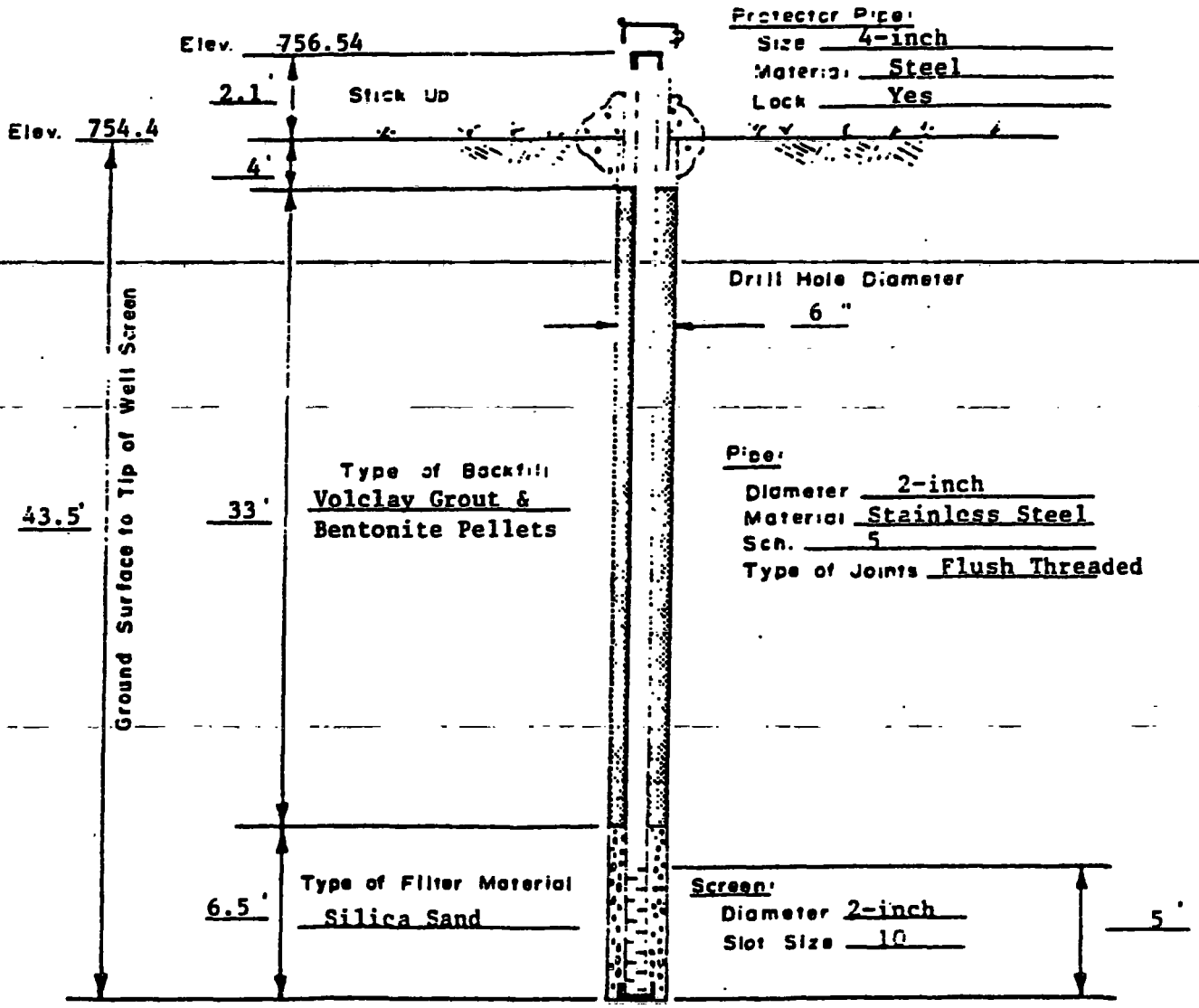
DRILLING METHOD: Rotary Wash

CLIENT: Modern Plating Corp.

PROJECT: Assessment Monitoring Program

SCOPE I.D.: 86M55

BY: RTB

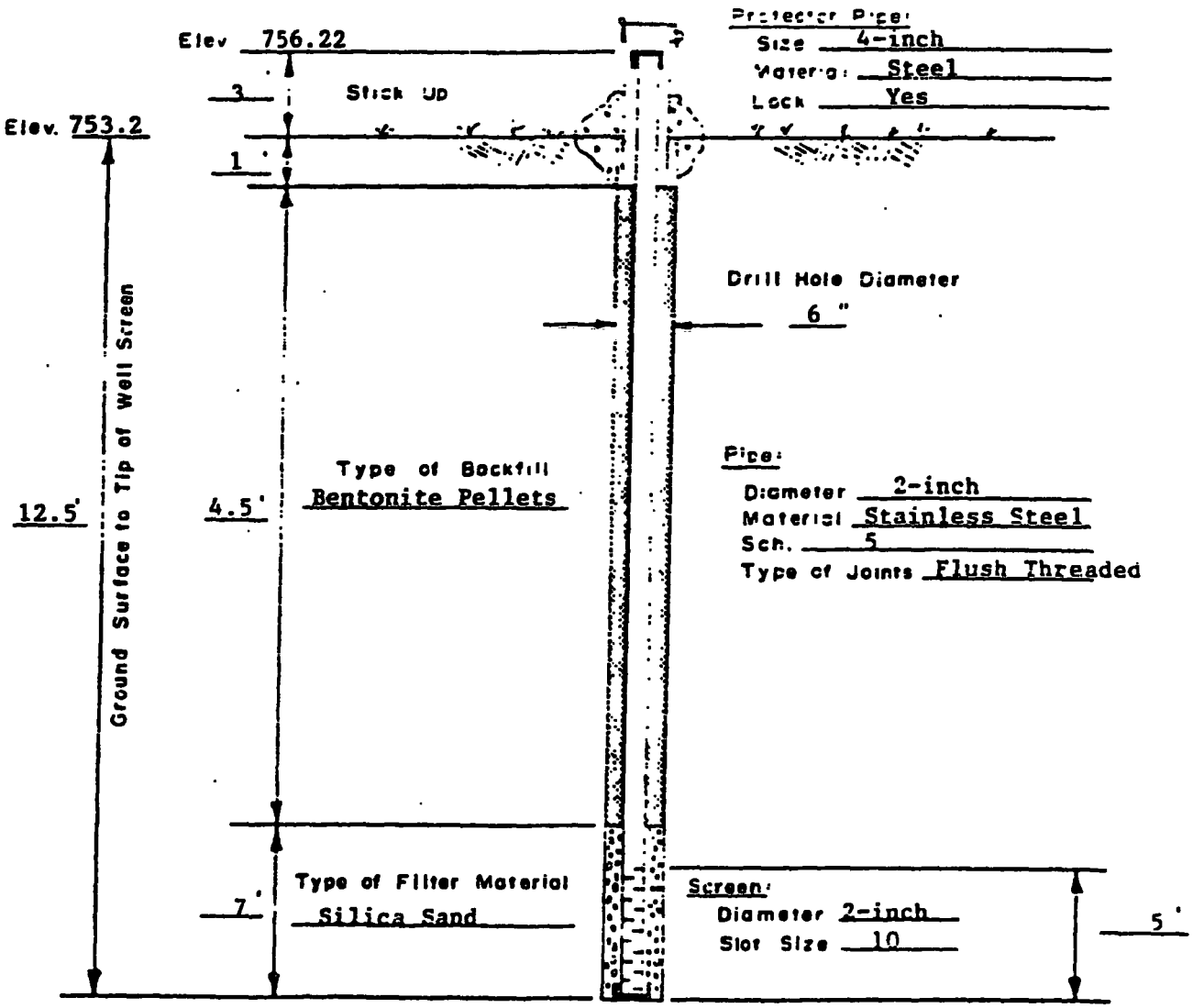


Foth & Van Dyke
Waste/Energy Division

MONITORING WELL INSTALLATION DIAGRAM

WELL NO: 7A
DATE INSTALLED: 10/7/86
DRILLER: Testing Service Corp.
DRILLING METHOD: Rotary Wash

CLIENT Modern Plating Corp.
PROJECT: Assessment Monitoring Program
SCOPE I.D.: 86M55
BY: RTB

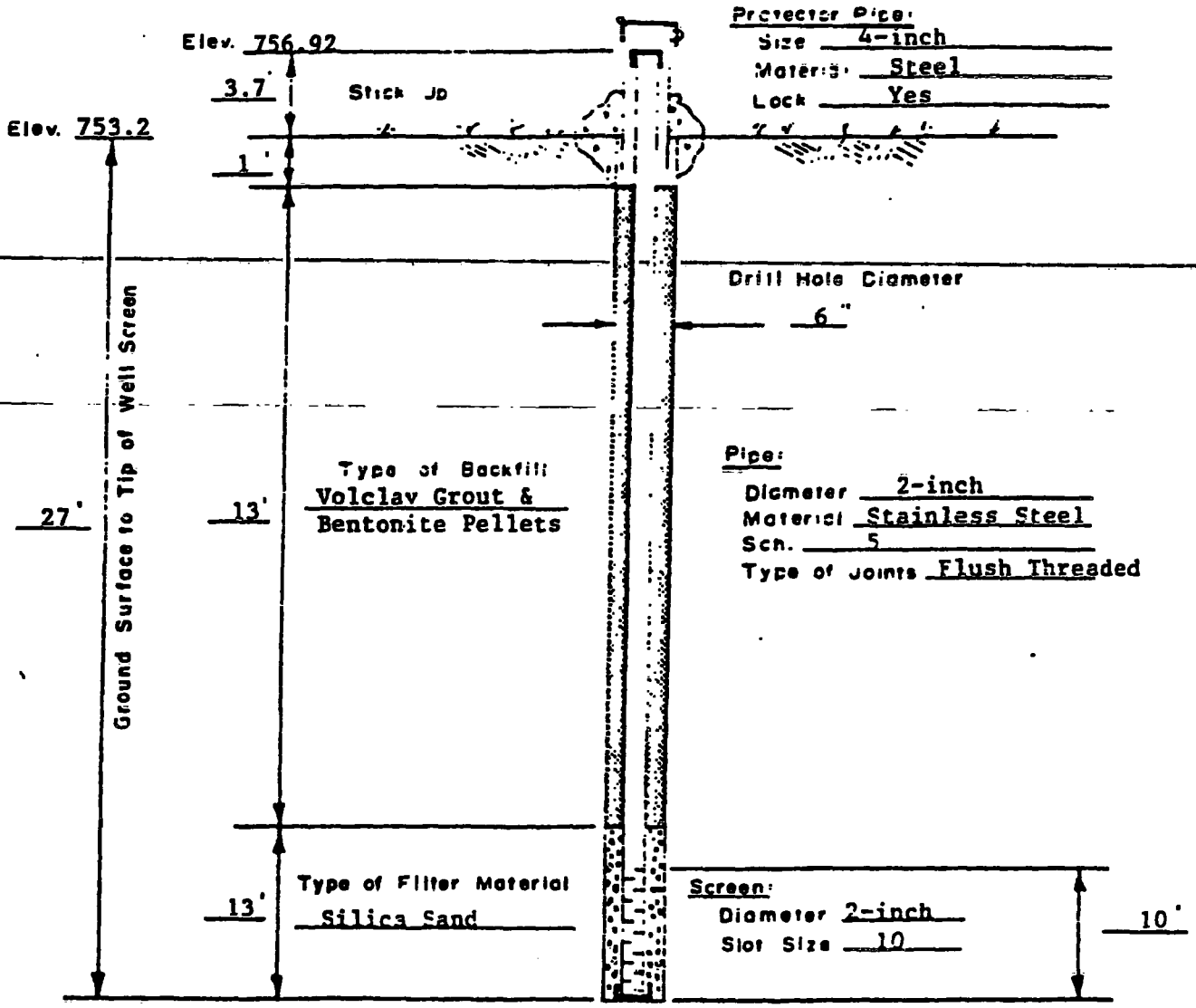


Foth & Van Dyke
Waste/Energy Division

MONITORING WELL INSTALLATION DIAGRAM

WELL NO: 7B
DATE INSTALLED: 10/7/86
DRILLER: Testing Service Corp.
DRILLING METHOD: Rotary Wash

CLIENT: Modern Plating Corp.
PROJECT: Assessment Monitoring Program
SCOPE I.D.: 86M55
BY: RTB

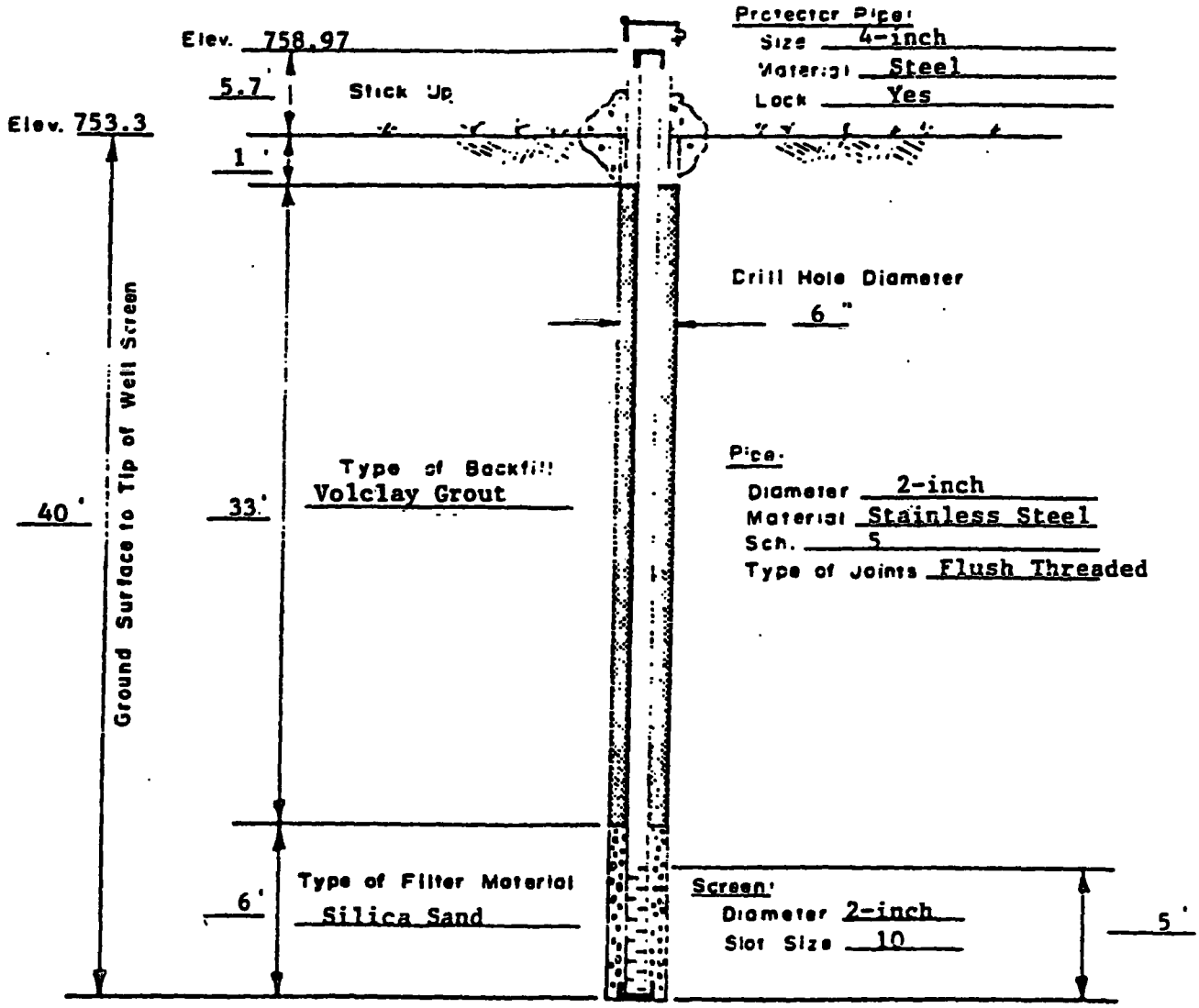


Foth & Van Dyke
Water/Energy Division

MONITORING WELL INSTALLATION DIAGRAM

WELL NO: 7C
DATE INSTALLED: 10/3/86
DRILLER: Testing Service Corp.
DRILLING METHOD: Rotary Wash

CLIENT Modern Plating Corp.
PROJECT: Assessment Monitoring Program
SCOPE I.D.: 86M55
BY: RTB

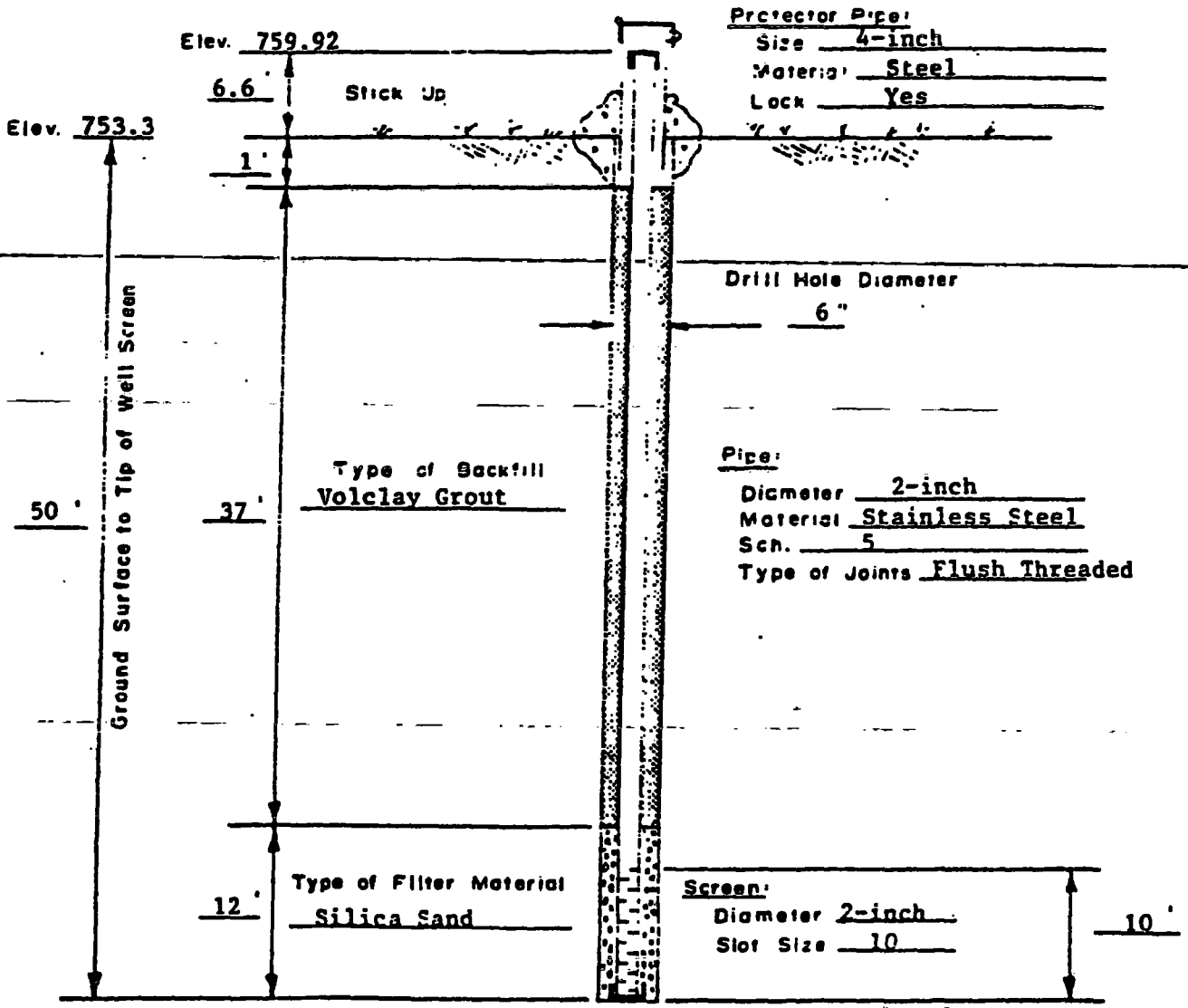


Foth & Van Dyke
Waste/Energy Division

MONITORING WELL INSTALLATION DIAGRAM

WELL NO: 7D
DATE INSTALLED: 10/6/86
DRILLER: Testing Service Corp.
DRILLING METHOD: Rotary Wash

CLIENT: Modern Plating Corp.
PROJECT: Assessment Monitoring Program
SCOPE I.D.: 86M55
BY: RTB

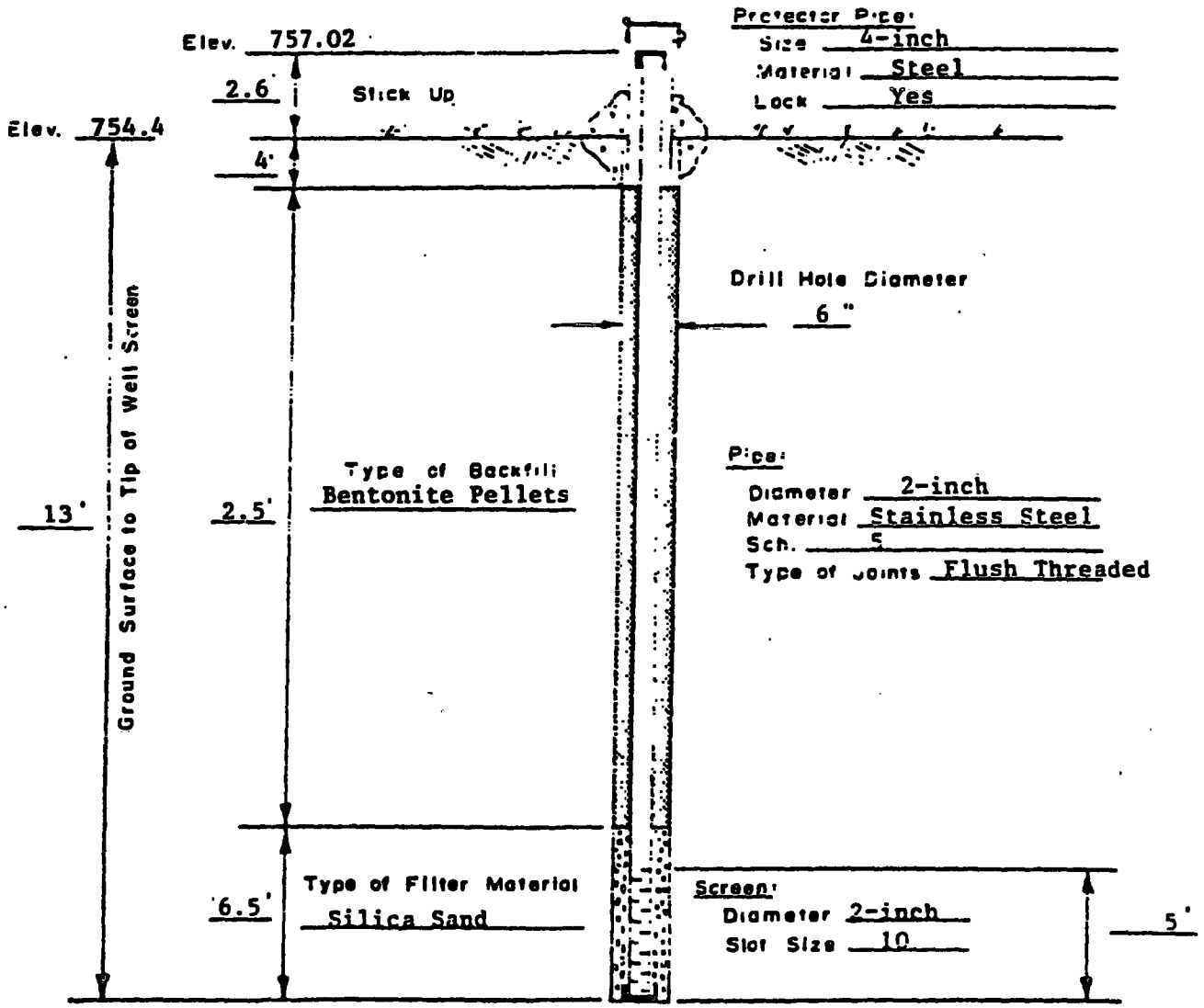


Foth & Van Dyke
Water/Energy Division

MONITORING WELL INSTALLATION DIAGRAM

WELL NO: 8A
DATE INSTALLED: 10/14/86
DRILLER: Testing Service Corp.
DRILLING METHOD: Rotary Wash

CLIENT Modern Plating Corp.
PROJECT: Assessment Monitoring Program
SCOPE I.D.: 86M55
BY: RTB

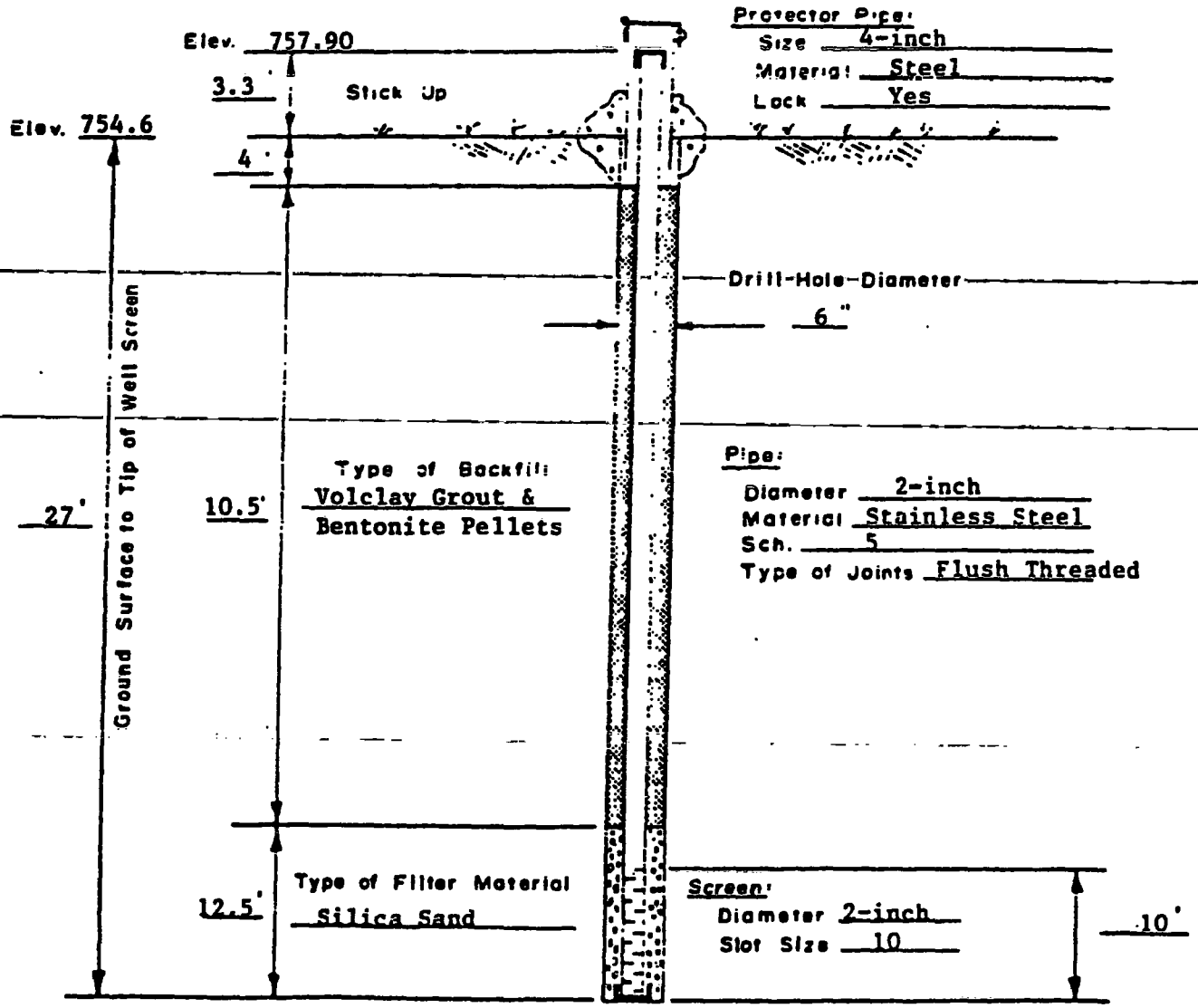


Foth & Van Dyke
Waste/Energy Division

MONITORING WELL INSTALLATION DIAGRAM

WELL NO: 8B
DATE INSTALLED: 10/14/86
DRILLER: Testing Service Corp.
DRILLING METHOD: Rotary Wash

CLIENT: Modern Plating Corp.
PROJECT: Assessment Monitoring Program
SCOPE I.D.: 86M55
BY: RTB

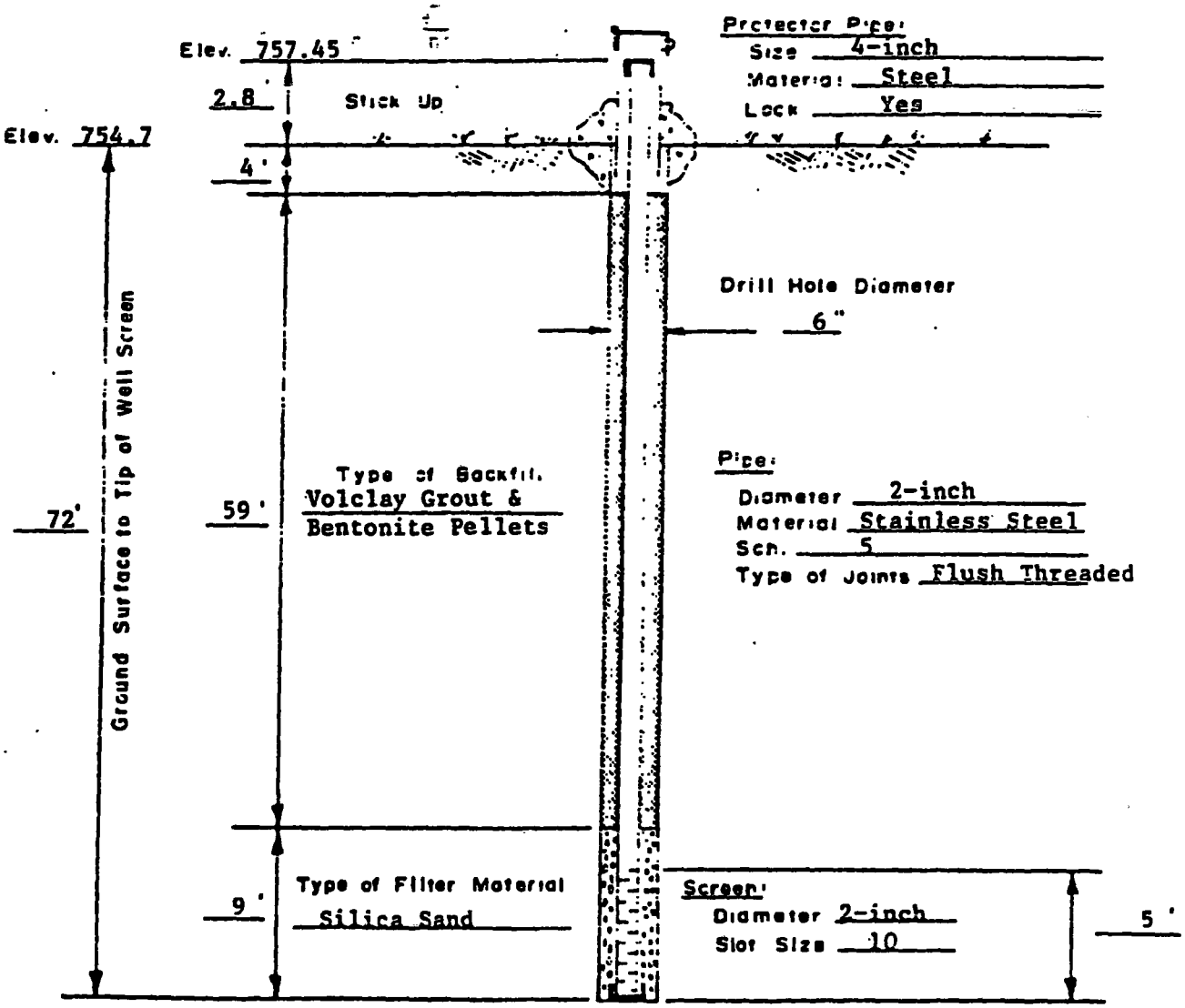


Foth & Van Dyke
Waste/Energy Division

MONITORING WELL INSTALLATION DIAGRAM

WELL NO: 8C
DATE INSTALLED: 10/13/86
DRILLER: Testing Service Corp.
DRILLING METHOD: Rotary Wash

CLIENT: Modern Plating Corp.
PROJECT: Assessment Monitoring Program
SCOPE I.D.: 86M55
BY: RTB



Foth & Van Dyke
Waste/Energy Division

Illinois Environmental Protection Agency — **Well Completion Report**

Site #: _____ County Stephenson Well # MW-9A

Site Name: Modern Plating Corporation Grid Coordinate: Northing 10,330 Easting 10,475

Drilling Contractor: Wisconsin Test Drilling, Inc. Date Drilled Start: 5/16/89

Driller: H. Mueller Geologist: P. B. Lee Date Completed: 5/16/89

Drilling Method: 4¼" Hollow Stem Augers Drilling Fluids (type): None

Annular Space Details

Type of Surface Seal: Concrete

Type of Annular Sealant: Bentonite

Amount of cement: # of bags _____ lbs. per bag _____

Amount of bentonite: # of bags 6 lbs. per bag 50

Type of Bentonite Seal (Granular, Pellet): Pellets

Amount of bentonite: # of Buckets 1/2 lbs. per bag _____

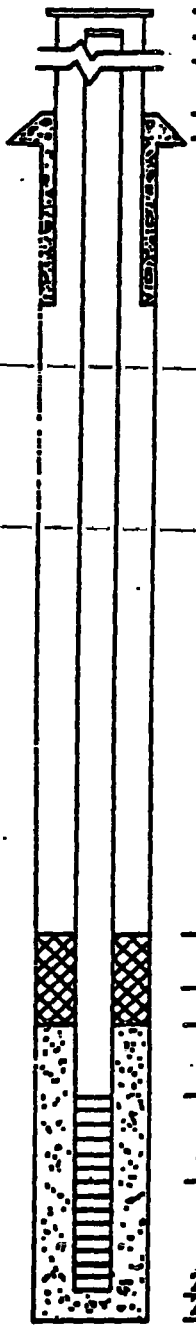
Type of Sand Pack: #30 Red Flint Filter Sand

Source of Sand: Bag

Amount of Sand: # of bags 3 lbs. per bag 50

Elevations — .01 ft.

___ . ___	MSL Top of Protective Casing
771 . 75	MSL Top of Riser Pipe
3 . 0	ft. Casing Stickup
768 . 75	MSL Ground Surface
___ . ___	ft. Top of annular sealant



9 . 0	ft. Top of Seal
1 . 0	ft. Total Seal Interval
10 . 0	ft. Top of Sand
13 . 0	ft. Top of Screen
10 . 0	ft. Total Screen Interval
23 . 0	ft. Bottom of Screen
23 . 0	ft. Bottom of Borehole

Well Construction Materials

	Stainless Steel Specify Type	Teflon Specify Type	PVC Specify Type	Other Specify Type
Riser coupling joint	Flush Threaded			
Riser pipe above w.t.	316			
Riser pipe below w.t.	316			
Screen	316			
Coupling joint screen to riser	Flush Threaded			
Protective casing	Steel			

Measurements

to .01 ft. (where applicable)

Riser pipe length	16.0
Protective casing length	5.0
Screen length	10.0
Bottom of screen to end cap	--
Top of screen to first joint	--
Total length of casing	26.0
Screen slot size	0.01
# of openings in screen	6.8 in^2/ft
Diameter of borehole (in)	8
ID of riser pipe (in)	2.0

Completed by: JSK - Foth & Van Dyke Surveyed by: Foth & Van Dyke Ill. registration # _____

Illinois Environmental Protection Agency — **Well Completion Report**

Site #: _____ County Stephenson Well # MW-10A

Site Name: Modern Plating Corporation Grid Coordinates: Northing 10,235 Easting 10,322

Drilling Contractor: Wisconsin Test Drilling, Inc. Date Drilled Start: 5/17/89

Driller: M. Mueller Geologist: P. B. Lee Date Completed: 5/17/89

Drilling Method: 4¼" Hollow Stem Augers Drilling Fluids (type): None

Annular Space Details

Type of Surface Seal: Concrete

Type of Annular Sealant: Bentonite

Amount of cement: # of bags _____ lbs. per bag _____

Amount of bentonite: # of bags 6 lbs. per bag 50

Type of Bentonite Seal (Granular, Pellet): Pellets

Amount of bentonite: # of Buckets 1/2 lbs. per bag _____

Type of Sand Pack: #30 Red Flint Filter Sand

Source of Sand: Bag

Amount of Sand: # of bags 3 lbs. per bag 50

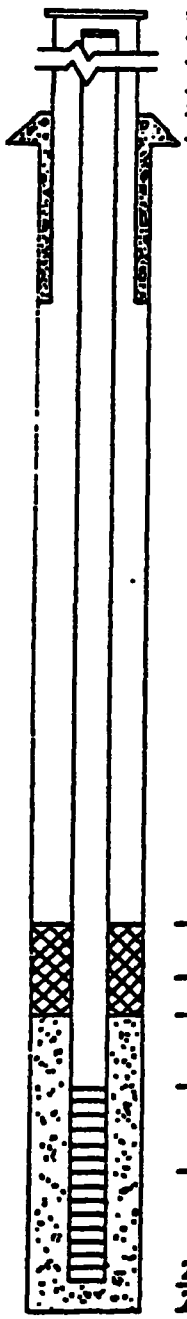
Well Construction Materials

	Stainless Steel Specify Type	Teflon Specify Type	PVC Specify Type	Other Specify Type
Riser coupling joint	Flush Threaded			
Riser pipe above w.t.	316			
Riser pipe below w.t.	316			
Screen	316			
Coupling joint screen to riser	Flush Threaded			
Protective casing	Steel			

Measurements

to .01 ft. (where applicable)

Riser pipe length	14.0
Protective casing length	5.0
Screen length	10.0
Bottom of screen to end cap	---
Top of screen to first joint	---
Total length of casing	24.0
Screen slot size	0.01
# of openings in screen	6.8 in^2/ft
Diameter of borehole (in)	8
ID of riser pipe (in)	2.0



Elevations — .01 ft.

___	___	MSL Top of Protective Casing
767	80	MSL Top of Riser Pipe
2	5	ft. Casing Stickup
765	30	MSL Ground Surface
___	___	ft. Top of annular sealant
7	0	ft. Top of Seal
1	0	ft. Total Seal Interval
8	0	ft. Top of Sand
11	5	ft. Top of Screen
10	0	ft. Total Screen Interval
21	5	ft. Bottom of Screen
21	5	ft. Bottom of Borehole

Completed by: JSK - Foth & Van Dyke Surveyed by: Foth & Van Dyke Ill. registration # _____

DRAFT

WELL COMPLETION REPORT

Site #: _____ County: Stephenson Well #: 11A

Name: Modern Plating Corporation Northing 10,334.7

Date Drilled: Start 6/18/87 Driller: L. Erdman Easting 10,331.9

Finish 6/19/87 Geologist: M. Carney

Drilling Contractor: Wisconsin Test Drilling

WELL CONSTRUCTION DETAILS

Lock: Master 2121
Cap: Cover Type
Type of Surface Casing: Steel

____ . __ MSL Surface Casing Collar Elevation
757 . 47 MSL Riser Pipe Collar Elevation
3 . 1 Ft. Riser Pipe Height Above Ground Elevation (Stick-up)
2 . 1 Ft. Depth of Surface Seal-Below-Ground
Type of Surface Seal: Concrete
Quan. Used: 3 bags
2 . 1 Ft. Depth of Surface Casing Below Ground

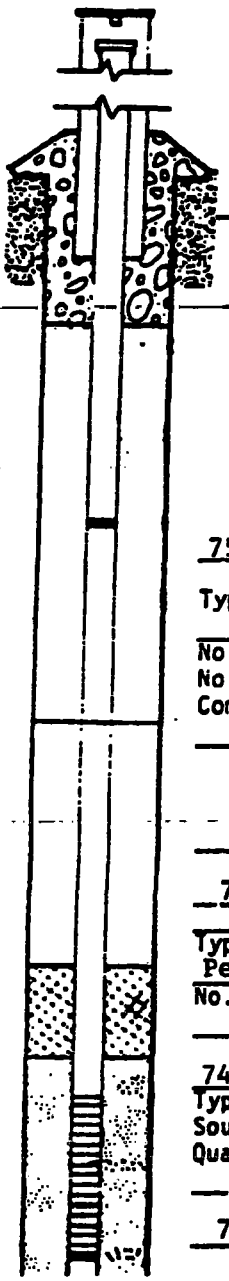
3.75 Inches - ID of Surface Casing
6 Inches - Diameter of Borehole
Type of Riser Pipe: (material) Stainless Steel 316
2 Inches - ID of Riser Pipe
2.375 Inches - OD of Riser Ripe
Type of Riser Joint/Coupling: Flush Thread

747 . 7 MSL Top of Screen Elevation
Type of Coupling/Joint - Screen to Riser Pipe: Flush Thread
Type of Screen: (material) Stainless Steel 316
Opening Size: (width) .010 inches
Opening Space: 6.8 sq. in/ft
% Openings in Screen
742 . 7 MSL Bottom Screen Elevation

Drilling method Rotary Wash

Lubricants Water

ANNULAR SPACE DETAILS



754 . 4 MSL Ground Surface Elevation

754 . 4 MSL Top of Backfill Elevation
Type of Backfill: Bentonite Slurry
No. of Bags of Cement:
No. of Bags of Bentonite:
Comments:

2 . 9 Ft. Depth to Top of Seal
751 . 5 MSL Top of Seal Elev.
2 . 1 Ft. Total Seal Interval
Type of Bentonite (granular, pellet): Pellet
No. of Bags of Bentonite:
5 . 0 Ft. Depth to Top of Sand Pack
749 . 4 MSL Elev. of Top of Sand
Type of Sand Pack: Red Flint #30
Source of Sand: Bag
Quantity of Sand Used: 1 Bag
7 . 0 Ft. Total Sand Pack Interval
742 . 4 MSL Bottom of Sand Pack Elevation
12 . 0 Ft. Total Borehole Depth
742 . 4 MSL Elev. of Bottom of Borehole

CSD:tk:2/15/2-1(7/6/87)

DRAFT

WELL COMPLETION REPORT

Site #: _____ County: Stephenson Well #: 11B

Name: Modern Plating Corporation Northing 10,340.1

Date Drilled: Start 6/18/87 Driller: L. Erdman Easting 10,332.1

Finish 6/19/87 Geologist: M. Carney

Drilling Contractor: Wisconsin Test Drilling

WELL CONSTRUCTION DETAILS

Lock Master 2121
Cap Cover Type
Type of Surface Casing: Steel

_____ . _ _ MSL Surface Casing Collar Elevation
757 . 49 MSL Riser Pipe Collar Elevation
3 . 2 Ft. Riser Pipe Height Above Ground Elevation (Stick-up)
1 . 9 Ft. Depth of Surface Seal Below Ground
Type of Surface Seal: Concrete
Quan. Used: 3 Bags
1 . 9 Ft. Depth of Surface Casing Below Ground

3.75 Inches - ID of Surface Casing
6 Inches - Diameter of Borehole
Type of Riser Pipe: (material) Stainless Steel 316
2 Inches - ID of Riser Pipe
2.375 Inches - OD of Riser Ripe
Type of Riser Joint/Coupling: Flush Thread

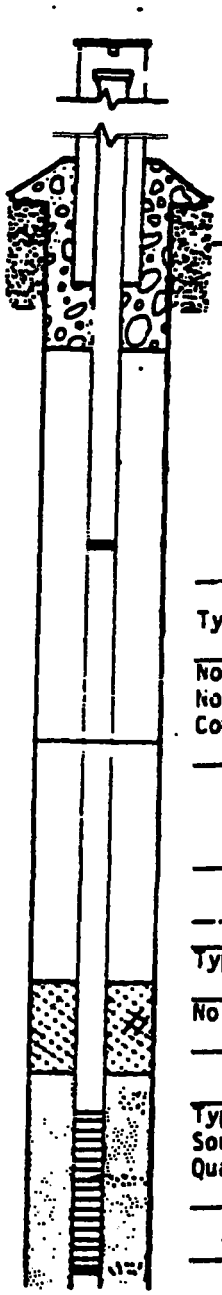
737 . 3 MSL Top of Screen Elevation
Type of Coupling/Joint - Screen to Riser Pipe: Flush Thread
Type of Screen: (material) Stainless Steel 316
Opening Size: (slot size) .010 inches
Opening Space: 6.8 sq. in/ft
% Openings in Screen
727 . 3 MSL Bottom Screen Elevation

Drilling method Rotary Wash

Lubricants Water

CSD:tk:2/15/2-1(7/6/87)

ANNULAR SPACE DETAILS



754 . 3 MSL Ground Surface Elevation

754 . 3 MSL Top of Backfill Elevation
Type of Backfill: Bentonite Slurry
No. of Bags of Cement: _____
No. of Bags of Bentonite: 1/4 Bag
Comments: _____

10 . 8 Ft. Depth to Top of Seal
743 . 5 MSL Top of Seal Elev.
4 . 2 Ft. Total Seal Interval
Type of Bentonite (granular, pellet): Pellet
No. of Bags of Bentonite: _____
15 . 0 Ft. Depth to Top of Sand Pack
739 . 3 MSL Elev. of Top of Sand
Type of Sand Pack: Red Flint #30
Source of Sand: Bag
Quantity of Sand Used: 4 Bags
13 . 0 Ft. Total Sand Pack Interval
726 . 3 MSL Bottom of Sand Pack Elevation
28 . 0 Ft. Total Borehole Depth
726 . 3 MSL Elev. of Bottom of Borehole

DRAFT

WELL COMPLETION REPORT

Site #: _____ County: Stephenson Well #: 11C

Name: Modern Plating Corporation Northing 10,346.2

Date Drilled: Start 8/17/87 Driller: L. Erdman Easting 10,334.4

Finish 8/19/87 Geologist: M. Carney

Drilling Contractor: Wisconsin Test Drilling

WELL CONSTRUCTION DETAILS

Lock Master 2121
Cap Cover Type
Type of Surface Casing: Steel

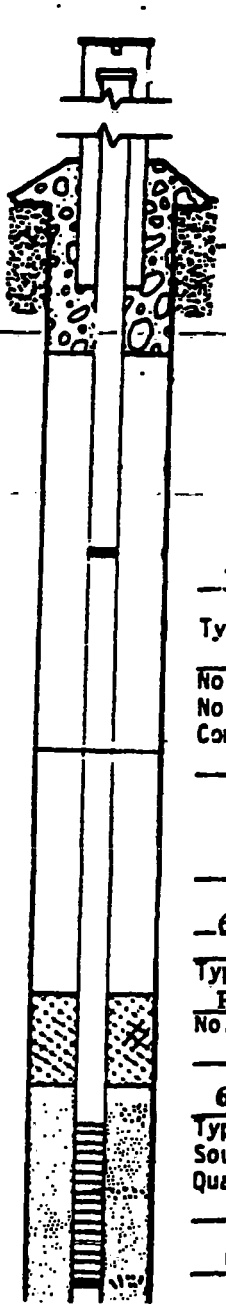
___ . ___ MSL Surface Casing Collar Elevation
756 . 06 MSL Riser Pipe Collar Elevation
1 . 8 Ft. Riser Pipe Height Above Ground Elevation (Stick-up)
2 . 9 Ft. Depth of Surface Seal Below Ground
Type of Surface Seal: Concrete
Quan. Used: 5 Bags
2 . 9 Ft. Depth of Surface Casing Below Ground

8.25 Inches - ID of Surface Casing
6 Inches - Diameter of Borehole
Type of Riser Pipe: (material)
Stainless Steel 316
2 inches - ID of Riser Pipe
2.375 Inches - OD of Riser Ripe
Type of Riser Joint/Coupling:
Flush Thread

693 . 8 MSL Top of Screen Elevation
Type of Coupling/Joint - Screen to Riser Pipe: Flush Thread
Type of Screen: (material)
Stainless Steel 316
Opening Size: (slot size) .010 inches
Opening Space: 6.8 sq in/ft
% Openings in Screen
688 . 8 MSL Bottom Screen Elevation

Drilling method Rotary Wash
Lubricants Water

ANNULAR SPACE DETAILS



754 . 3 MSL Ground Surface Elevation

754 . 3 MSL Top of Backfill Elevation
Type of Backfill: Bentonite Slurry
No. of Bags of Cement:
No. of Bags of Bentonite: 1 1/4
Comments:

56 . 0 Ft. Depth to Top of Seal
698 . 3 MSL Top of Seal Elev.
2 . 5 Ft. Total Seal Interval
Type of Bentonite (granular, pellet): Pellet
No. of Bags of Bentonite:
58 . 5 Ft. Depth to Top of Sand Pack
695 . 8 MSL Elev. of Top of Sand
Type of Sand Pack: Red Flint #30
Source of Sand: Bag
Quantity of Sand Used: 1 1/4 Bags
7 . 8 Ft. Total Sand Pack Interval
688 . 0 MSL Bottom of Sand Pack Elevation
66 . 3 Ft. Total Borehole Depth
688 . 0 MSL Elev. of Bottom of Borehole

CSD:tk:2/15/2-1(7/6/87)

DRAFT

WELL COMPLETION REPORT

Site #: _____ County: Stephenson Well #: 11E

Name: Modern Plating Corporation Northing 10,351.0

Date Drilled: Start 8/11/87 Driller: L. Erdman Easting 10,336.4

Finish 8/17/87 Geologist: M. Carney

Drilling Contractor: Wisconsin Test Drilling

WELL CONSTRUCTION DETAILS

Lock Master 2121
Cap Cover Type
Type of Surface Casing: Steel

___ . __ MSL Surface Casing Collar Elevation
755 . 73 MSL Riser Pipe Collar Elevation
1 . 4 Ft. Riser Pipe Height Above Ground Elevation (Stick-up)
2 . 0 Ft. Depth of Surface Seal Below Ground
Type of Surface Seal: Concrete
Quan. Used: 5 Bags
2 . 5 Ft. Depth of Surface Casing Below Ground

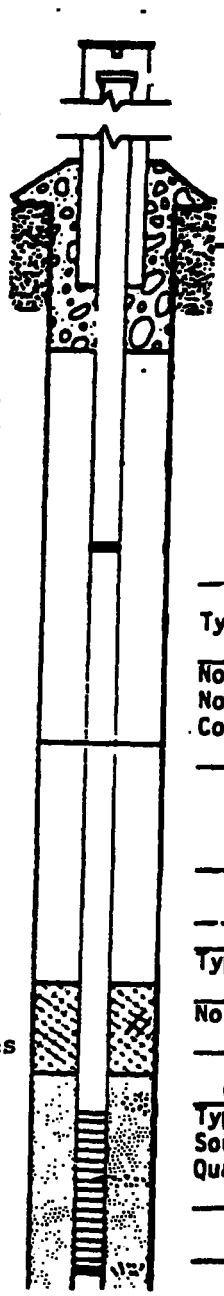
8.25 Inches - ID of Surface Casing
6 Inches - Diameter of Borehole
Type of Riser Pipe: (material) Stainless Steel 316
2 Inches - ID of Riser Pipe
2.375 Inches - OD of Riser Ripe
Type of Riser Joint/Coupling: Flush Thread

665 . 8 MSL Top of Screen Elevation
Type of Coupling/Joint - Screen to Riser Pipe: Flush Thread
Type of Screen: (material) Stainless Steel 316
Opening Size: (slot size) .010 inches
Opening Space: 6.8 sq in/ft
% Openings in Screen
655 . 8 MSL Bottom Screen Elevation

Drilling method Rotary Wash

Lubricants Water

ANNULAR SPACE DETAILS



754 . 3 MSL Ground Surface Elevation

754 . 3 MSL Top of Backfill Elevation
Type of Backfill: Bentonite Slurry
No. of Bags of Cement:
No. of Bags of Bentonite: 2
Comments:

81 . 5 Ft. Depth to Top of Seal
672 . 8 MSL Top of Seal Elev.
2 . 5 Ft. Total Seal Interval
Type of Bentonite (granular, pellet): Pellet
No. of Bags of Bentonite:
84 . 0 Ft. Depth to Top of Sand Pack
670 . 3 MSL Elev. of Top of Sand
Type of Sand Pack: Natural
Source of Sand:
Quantity of Sand Used:
17 . 0 Ft. Total Sand Pack Interval
653 . 3 MSL Bottom of Sand Pack Elevation
101 . 0 Ft. Total Borehole Depth
101 . 0 MSL Elev. of Bottom of Borehole

CSD:tk:2/15/2-1(7/6/87)

DRAFT

WELL COMPLETION REPORT

Site #: _____ County: Stephenson Well #: 12A

Name: Modern Plating Corporation Northing 10,505.5

Date Drilled: Start 8/25/87 Driller: L. Ludwig Easting 10,545.6

Finish 8/25/87 Geologist: M. Carney

Drilling Contractor: Wisconsin Test Drilling

WELL CONSTRUCTION DETAILS

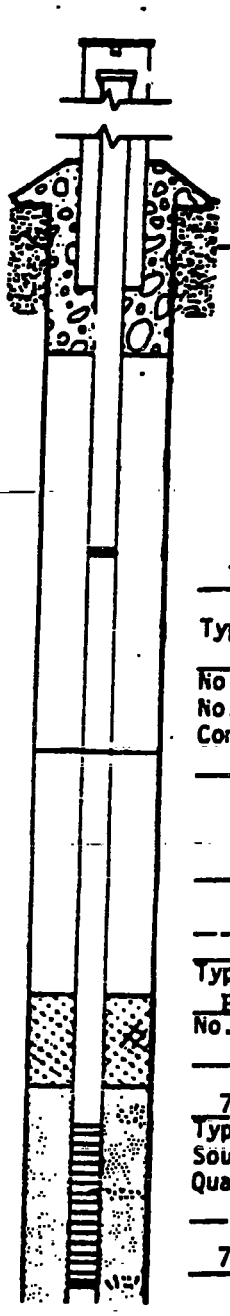
Lock Master 2I21
Cap Cover Type
Type of Surface Casing: Steel
____ . __ MSL Surface Casing Collar Elevation
756 . 61 MSL Riser Pipe Collar Elevation
3 . 0 Ft. Riser Pipe Height Above Ground Elevation (Stick-up)
1 . 9 Ft. Depth of Surface Seal Below Ground
Type of Surface Seal: Concrete
Quan. Used: 1 Bag
1 . 9 Ft. Depth of Surface Casing Below Ground

3.75 Inches - ID of Surface Casing
6 Inches - Diameter of Borehole
Type of Riser Pipe: (material)
Stainless Steel 316
2 Inches - ID of Riser Pipe
2.375 Inches - OD of Riser Ripe
Type of Riser Joint/Coupling:
Flush Thread

746 . 6 MSL Top of Screen Elevation
Type of Coupling/Joint - Screen to Riser Pipe: Flush Thread
Type of Screen: (material)
Stainless Steel 316
Opening Size: (slotted) .010 inches
Opening Space: 6.8 sq in/ft
____ % Openings in Screen
741 . 6 MSL Bottom Screen Elevation

Drilling method Rotary Wash

Lubricants Water



753 . 6 MSL Ground Surface Elevation

ANNULAR SPACE DETAILS

753 . 6 MSL Top of Backfill Elevation
Type of Backfill: Bentonite Slurry
No. of Bags of Cement:
No. of Bags of Bentonite: < 1/4 Bag
Comments:

2 . 1 Ft. Depth to Top of Seal
____ . __ MSL Top of Seal Elev.
3 . 1 Ft. Total Seal Interval
Type of Bentonite (granular, pellet): Pellet
No. of Bags of Bentonite:
5 . 2 Ft. Depth to Top of Sand Pack
748 . 4 MSL Elev. of Top of Sand
Type of Sand Pack: Red Flint #30
Source of Sand: Bag
Quantity of Sand Used: 3/4 Bag
6 . 8 Ft. Total Sand Pack Interval
741 . 6 MSL Bottom of Sand Pack Elevation
12 . 0 Ft. Total Borehole Depth
741 . 6 MSL Elev. of Bottom of Borehole

CSD:tk:2/15/2-1(7/6/87)

DRAFT

WELL COMPLETION REPORT

Site #: _____ County: Stephenson Well #: 12B

Name: Modern Plating Corporation Northing 10,507.1

Date Drilled: Start 8/25/87 Driller: L. Ludwig Easting 10,548.6

Finish 8/25/87 Geologist: M. Carney

Drilling Contractor: Wisconsin Test Drilling

WELL CONSTRUCTION DETAILS

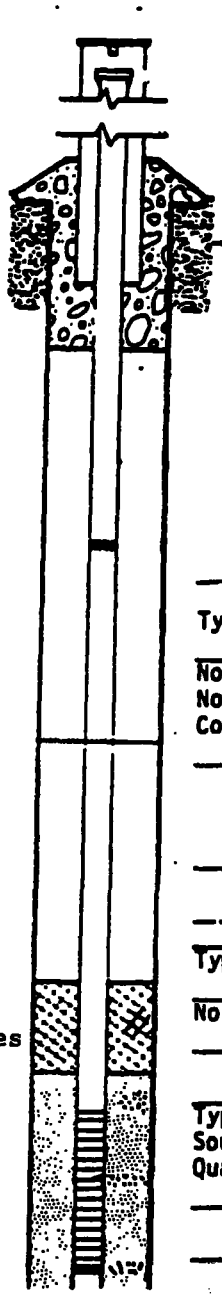
Lock Master 2121
Cap Cover Type
Type of Surface Casing: Steel

____ . __ MSL Surface Casing Collar Elevation
755 . 64 MSL Riser Pipe Collar Elevation
2 . 0 Ft. Riser Pipe Height Above Ground Elevation (Stick-up)
2 . 8 Ft. Depth of Surface Seal Below Ground
Type of Surface Seal: Concrete
Quan. Used: 2 Bags
2 . 8 Ft. Depth of Surface Casing Below Ground

3.75 Inches - ID of Surface Casing
6 Inches - Diameter of Borehole
Type of Riser Pipe: (material) Stainless Steel 316
2 Inches - ID of Riser Pipe
2.375 Inches - OD of Riser Ripe
Type of Riser Joint/Coupling: Flush Thread

735 . 6 MSL Top of Screen Elevation
Type of Coupling/Joint - Screen to Riser Pipe: Flush Thread
Type of Screen: (material) Stainless Steel 316
Opening Size: (slotsize) .010 inches
Opening Space: 6.8 sq in/ft
% Openings in Screen
725. 6 MSL Bottom Screen Elevation

Drilling method Rotary Wash
Lubricants Water



753 . 6 MSL Ground Surface Elevation

ANNULAR SPACE DETAILS

753 . 6 MSL Top of Backfill Elevation
Type of Backfill: Bentonite Slurry
No. of Bags of Cement:
No. of Bags of Bentonite: 3/4
Comments:

14 . 0 Ft. Depth to Top of Seal
739 . 6 MSL Top of Seal Elev.
2 . 2 Ft. Total Seal Interval
Type of Bentonite (granular, pellet): Pellet
No. of Bags of Bentonite:
16 . 2 Ft. Depth to Top of Sand Pack
737 . 4 MSL Elev. of Top of Sand
Type of Sand Pack: Red Flint #30
Source of Sand: Bag
Quantity of Sand Used: 4 Bags
11 . 8 Ft. Total Sand Pack Interval
725 . 6 MSL Bottom of Sand Pack Elevation
30 . 5 Ft. Total Borehole Depth
723 . 1 MSL Elev. of Bottom of Borehole

CSD:tk:2/15/2-1(7/6/87)

DRAFT

WELL COMPLETION REPORT

Site #: _____ County: Stephenson Well #: 12C

Name: Modern Plating Corporation Northing 10,512.0

Date Drilled: Start 8/24/87 Driller: L. Ludwig Easting 10,552.3

Finish 8/25/87 Geologist: M. Carney

Drilling Contractor: Wisconsin Test Drilling

WELL CONSTRUCTION DETAILS

Lock Master 2121
Cap Flip Lid
Type of Surface Casing: Steel

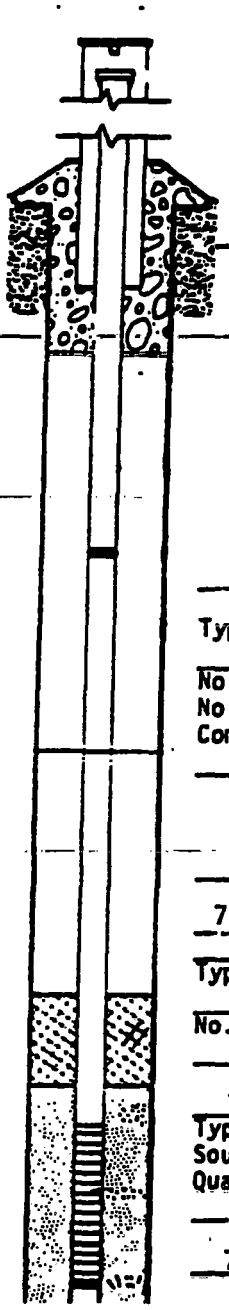
___ . __ MSL Surface Casing Collar Elevation
756 . 10 MSL Riser Pipe Collar Elevation
2 . 5 Ft. Riser Pipe Height Above Ground Elevation (Stick-up)
2 . 1 Ft. Depth of Surface Seal-Below-Ground
Type of Surface Seal: Concrete
Quan. Used: 4 Bags
2 . 1 Ft. Depth of Surface Casing Below Ground

8.25 Inches - ID of Surface Casing
6 Inches - Diameter of Borehole
Type of Riser Pipe: (material)
Stainless Steel 316
2 Inches - ID of Riser Pipe
2.375 Inches - OD of Riser Ripe
Type of Riser Joint/Coupling:
Flush Thread

705 . 6 MSL Top of Screen Elevation
Type of Coupling/Joint - Screen to Riser Pipe: Flush Thread
Type of Screen: (material)
Stainless Steel 316
Opening Size: (slotted) .010 inches
Opening Space: 6.8 sq in/ft
% Openings in Screen
700 . 6 MSL Bottom Screen Elevation

Drilling method Rotary Wash
Lubricants Water

ANNULAR SPACE DETAILS



753 . 6 MSL Ground Surface Elevation

753 . 6 MSL Top of Backfill Elevation
Type of Backfill: Bentonite Slurry
No. of Bags of Cement:
No. of Bags of Bentonite: 1
Comments:

43 . 8 Ft. Depth to Top of Seal
709 . 8 MSL Top of Seal Elev.
2 . 0 Ft. Total Seal Interval
Type of Bentonite (granular, pellet): Pellet
No. of Bags of Bentonite:
45 . 8 Ft. Depth to Top of Sand Pack
707 . 8 MSL Elev. of Top of Sand
Type of Sand Pack: Red Flint #30
Source of Sand: Bag
Quantity of Sand Used: 1 Bag
7 . 2 Ft. Total Sand Pack Interval
700 . 6 MSL Bottom of Sand Pack Elevation
56 . 0 Ft. Total Borehole Depth
697 . 6 MSL Elev. of Bottom of Borehole

CSD:tk:2/15/2-1(7/6/87)

DRAFT

WELL COMPLETION REPORT

Site #: _____ County: Stephenson Well #: 12E

Name: Modern Plating Corporation Northing 10,513.9

Date Drilled: Start 8/19/87 Driller: L. Ludwig Easting 10,555.4

Finish 8/24/87 Geologist: M. Carney

Drilling Contractor: _____

WELL CONSTRUCTION DETAILS

Lock Master 2121
Cap Flip Lid
Type of Surface Casing: Steel

___ . ___ MSL Surface Casing Collar Elevation
756 . 55 MSL Riser Pipe Collar Elevation
3 . 1 Ft. Riser Pipe Height Above Ground Elevation (stick-up)
1 . 6 Ft. Depth of Surface Seal Below Ground
Type of Surface Seal: Concrete
Quan. Used: 4 Bags
1 . 6 Ft. Depth of Surface Casing Below Ground

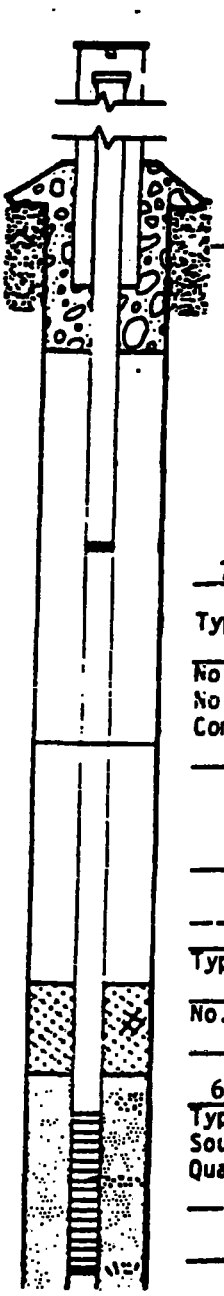
8.25 Inches - ID of Surface Casing
4 Inches - Diameter of Borehole
Type of Riser Pipe: (material) Stainless Steel 316
2 Inches - ID of Riser Pipe
2.375 Inches - OD of Riser Ripe
Type of Riser Joint/Coupling: Flush Thread

676 . 3 MSL Top of Screen Elevation
Type of Coupling/Joint - Screen to Riser Pipe: Flush Thread
Type of Screen: (material) Stainless Steel 316
Opening Size: (slot size) .010 inches
Opening Space: 6.5 sq in/ft
2 Openings in Screen
666 . 3 MSL Bottom Screen Elevation

Drilling method Rotary Wash

Lubricants Water

ANNULAR SPACE DETAILS



753 . 5 MSL Ground Surface Elevation

753 . 5 MSL Top of Backfill Elevation
Type of Backfill: Bentonite Slurry
No. of Bags of Cement: _____
No. of Bags of Bentonite: 1
Comments: _____

72 . 8 Ft. Depth to Top of Seal
680 . 7 MSL Top of Seal Elev.
2 . 4 Ft. Total Seal Interval
Type of Bentonite (granular, pellet): Pellet
No. of Bags of Bentonite: _____
75 . 2 Ft. Depth to Top of Sand Pack
678 . 3 MSL Elev. of Top of Sand
Type of Sand Pack: Red Flint #30
Source of Sand: Bag
Quantity of Sand Used: 1 Bag
12 . 0 Ft. Total Sand Pack Interval
666 . 3 MSL Bottom of Sand Pack Elevation
88 . 0 Ft. Total Borehole Depth
665 . 5 MSL Elev. of Bottom of Borehole

CSD:tk:2/15/2-1(7/6/87)

DRAFT

WELL COMPLETION REPORT

Site #: _____ County: Stephenson Well #: 13A

Name: Modern Plating Corporation Northing 10,518.5

Date Drilled: Start 8/20/87 Driller: L. Erdman Easting 10,788.6

Finish 8/21/87 Geologist: M. Carney

Drilling Contractor: Wisconsin Test Drilling

WELL CONSTRUCTION DETAILS

Lock Master 2121
Cap Cover
Type of Surface Casing: steel

____ . __ MSL Surface Casing Collar Elevation
756 . 27 MSL Riser Pipe Collar Elevation
3 . 5 Ft. Riser Pipe Height Above Ground Elevation (Stick-up)
1 . 0 Ft. Depth of Surface Seal-Below-Ground
Type of Surface Seal: Concrete
Quan. Used: 1 Bag
1 . 6 Ft. Depth of Surface Casing Below Ground

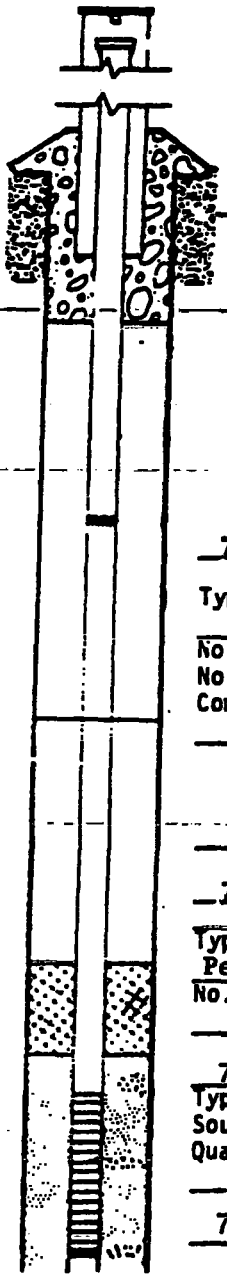
3.75 Inches - ID of Surface Casing
6 Inches - Diameter of Borehole
Type of Riser Pipe: (material) Stainless Steel 316
2 Inches - ID of Riser Pipe
2.375 Inches - OD of Riser Pipe
Type of Riser Joint/Coupling: Flush Thread

745 . 9 MSL Top of Screen Elevation
Type of Coupling/Joint - Screen to Riser Pipe: Flush Thread
Type of Screen: (material) Stainless Steel 316
Opening Size: (slot size) .010 inches
Opening Space: 6.8 sq in/ft
__ % Openings in Screen
740 . 9 MSL Bottom Screen Elevation

Drilling method Rotary Wash

Lubricants Water

ANNULAR SPACE DETAILS



752 . 8 MSL Ground Surface Elevation

752 . 8 MSL Top of Backfill Elevation
Type of Backfill: Bentonite Slurry
No. of Bags of Cement: ____
No. of Bags of Bentonite: ____
Comments: ____

2 . 0 Ft. Depth to Top of Seal
750 . 8 MSL Top of Seal Elev.
2 . 8 Ft. Total Seal Interval
Type of Bentonite (granular, pellet): Pellet
No. of Bags of Bentonite: ____
4 . 8 Ft. Depth to Top of Sand Pack
748 . 0 MSL Elev. of Top of Sand
Type of Sand Pack: Red Flint #30
Source of Sand: Bag
Quantity of Sand Used: ____
7 . 4 Ft. Total Sand Pack Interval
740 . 6 MSL Bottom of Sand Pack Elevation
12 . 2 Ft. Total Borehole Depth
740 . 6 MSL Elev. of Bottom of Borehole

CSD:tk:2/15/2-1(7/6/87)

DRAFT

WELL COMPLETION REPORT

Site #: _____ County: Stephenson Well #: 13B

Name: Modern Plating Corporation Northing 10,515.2

Date Drilled: Start 8/20/87 Driller: L. Erdman Easting 10,786.6

Finish 8/21/87 Geologist: M. Carney

Drilling Contractor: Wisconsin Test Drilling

WELL CONSTRUCTION DETAILS

Lock Master 2121
Cap Cover Type
Type of Surface Casing: Steel

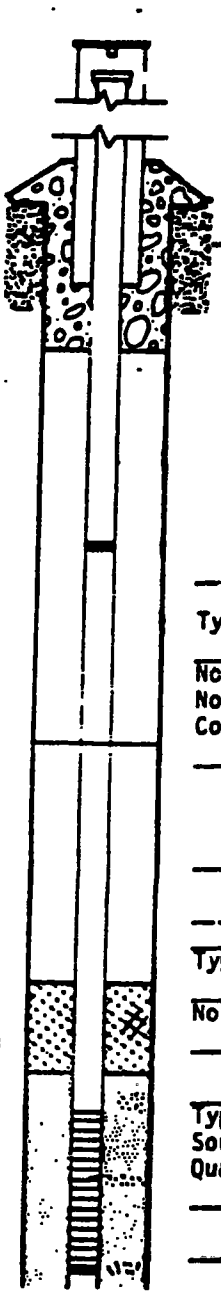
___ . ___ MSL Surface Casing Collar Elevation
754 . 94 MSL Riser Pipe Collar Elevation
2 . 1 Ft. Riser Pipe Height Atove Ground Elevation (Stick-up)
2 . 8 Ft. Depth of Surface Seal Below Ground
Type of Surface Seal: Concrete
Quan. Used: 3 Bags
2 . 8 Ft. Depth of Surface Casing Below Ground

3.75 Inches - ID of Surface Casing
6 Inches - Diameter of Borehole
Type of Riser Pipe: (material) Stainless Steel 316
2 Inches - ID of Riser Pipe
2.375 Inches - OD of Riser Ripe
Type of Riser Joint/Coupling: Flush Thread

734 . 8 MSL Top of Screen Elevation
Type of Coupling/Joint - Screen to Riser Pipe: Flush Thread
Type of Screen: (material) Stainless Steel 316
Opening Size: (slot size) .010 inches
Opening Space: 6.8 sq in/ft
% Openings in Screen
724 . 8 MSL Bottom Screen Elevation

Drilling method Rotary Wash

Lubricants Water



ANNULAR SPACE DETAILS

752 . 8 MSL Ground Surface Elevation

752 . 8 MSL Top of Backfill Elevation
Type of Backfill: Bentonite Slurry
No. of Bags of Cement:
No. of Bags of Bentonite: 3/4
Comments:

13. 5 Ft. Depth to Top of Seal
739. 3 MSL Top of Seal Elev.
2 . 3 Ft. Total Seal Interval
Type of Bentonite (granular, pellet): Pellet
No. of Bags of Bentonite:
15. 8 Ft. Depth to Top of Sand Pack
737. 0 MSL Elev.of Top of Sand
Type of Sand Pack: Natural Sand
Source of Sand:
Quantity of Sand Used:
12 . 2 Ft. Total Sand Pack Interval
724 . 8 MSL Bottom of Sand Pack Elevation
28. 0 Ft. Total Borehole Depth
724 . 8 MSL Elev. of Bottom of Borehole

CSD:tk:2/15/2-1(7/6/87)

DRAFT

WELL COMPLETION REPORT

Site #: _____ County: Stephenson Well #: 13C

Name: Modern Plating Corporation Northing 10,512.3

Date Drilled: Start 8/27/87 Driller: L. Erdman Easting 10,783.4

Finish 8/28/87 Geologist: M. Carney

Drilling Contractor: Wisconsin Test Drilling

WELL CONSTRUCTION DETAILS

Lock: Master 2121
Cap: Flip Lid
Type of Surface Casing: Steel

_____ MSL Surface Casing Collar Elevation
756.25 MSL Riser Pipe Collar Elevation
3.3 Ft. Riser Pipe Height Above Ground Elevation (Stick-up)
1.3 Ft. Depth of Surface Seal Below Ground
Type of Surface Seal: Concrete
Quan. Used: 6 Bags
1.3 Ft. Depth of Surface Casing Below Ground

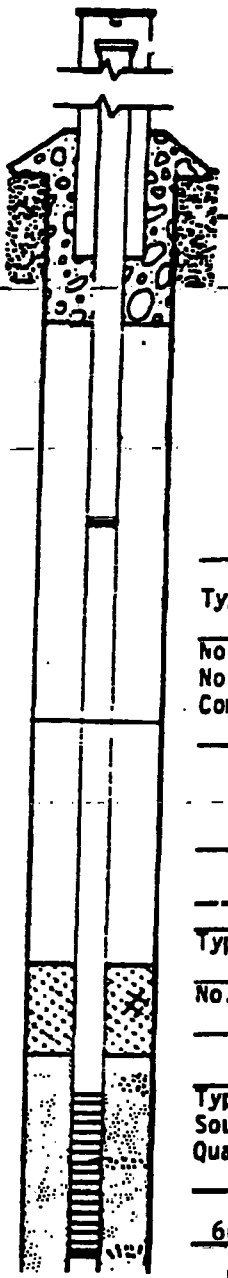
8.25 Inches - ID of Surface Casing
6 Inches - Diameter of Borehole
Type of Riser Pipe: (material) Stainless Steel 316
2 Inches - ID of Riser Pipe
2.375 Inches - OD of Riser Ripe
Type of Riser Joint/Coupling: Flush Thread

674.0 MSL Top of Screen Elevation
Type of Coupling/Joint - Screen to Riser Pipe: Flush Thread
Type of Screen: (material) Stainless Steel 316
Opening Size: (slotsize) .010 inches
Opening Space: 6.8 sq in/ft
_____ # Openings in Screen
669.0 MSL Bottom Screen Elevation

Drilling method Rotary Wash

Lubricants Water

ANNULAR SPACE DETAILS



753.0 MSL Ground Surface Elevation

753.0 MSL Top of Backfill Elevation
Type of Backfill: Bentonite Slurry
No. of Bags of Cement: _____
No. of Bags of Bentonite: 1.25
Comments: _____

75.0 Ft. Depth to Top of Seal
678.0 MSL Top of Seal Elev.
2.0 Ft. Total Seal Interval
Type of Bentonite (granular, pellet): Pellet
No. of Bags of Bentonite: _____
77.0 Ft. Depth to Top of Sand Pack
676.0 MSL Elev. of Top of Sand
Type of Sand Pack: Red Flint #30
Source of Sand: Bag
Quantity of Sand Used: _____
7.0 Ft. Total Sand Pack Interval
669.0 MSL Bottom of Sand Pack Elevation
84.0 Ft. Total Borehole Depth
669.0 MSL Elev. of Bottom of Borehole

CSD:tk:2/15/2-1(7/6/87)

DRAFT

WELL COMPLETION REPORT

Site #: _____ County: Stephenson Well #: 13E

Name: Modern Plating Corporation Northing 10,508.2

Date Drilled: Start 8/19/87 Driller: L. Erdman Easting 10,780.2

Finish 8/25/87 Geologist: M. Carney

Drilling Contractor: Wisconsin Test Drilling

WELL CONSTRUCTION DETAILS

Lock Master 2121
Cap Flip Lid
Type of Surface Casing: Steel

___ . ___ MSL Surface Casing Collar Elevation
755 . 59 MSL Riser Pipe Collar Elevation
2 . 8 Ft. Riser Pipe Height Above Ground Elevation (stick-up)
2 . 0 Ft. Depth of Surface Seal Below Ground
Type of Surface Seal: Concrete
Quan. Used: 8 Bags
2 . 0 Ft. Depth of Surface Casing Below Ground

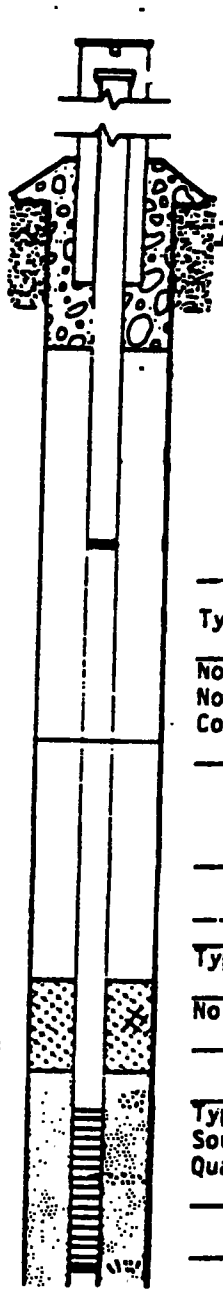
8.25 Inches - ID of Surface Casing
6 Inches - Diameter of Borehole
Type of Riser Pipe: (material)
Stainless Steel 316
2 Inches - ID of Riser Pipe
2.375 Inches - OD of Riser Ripe
Type of Riser Joint/Coupling: Flush Thread

645 . 8 MSL Top of Screen Elevation
Type of Coupling/Joint - Screen to Riser Pipe: Flush Thread
Type of Screen: (material)
Stainless Steel 316
Opening Size: (slot size) .010 inches
Opening Space: 6.8 sq in/ft
% Openings in Screen
635 . 8 MSL Bottom Screen Elevation

Drilling method Rotary Wash

Lubricants Water

ANNULAR SPACE DETAILS



752 . 8 MSL Ground Surface Elevation

752 . 8 MSL Top of Backfill Elevation
Type of Backfill: Bentonite Slurry
No. of Bags of Cement: ___
No. of Bags of Bentonite: 1.75
Comments: ___

102 . 8 Ft. Depth to Top of Seal
650 . 0 MSL Top of Seal Elev.
2 . 2 Ft. Total Seal Interval
Type of Bentonite (granular, pellet): Pellets
No. of Bags of Bentonite: ___
105 . 0 Ft. Depth to Top of Sand Pack
647 . 8 MSL Elev. of Top of Sand
Type of Sand Pack: Red Flint #30
Source of Sand: Bag
Quantity of Sand Used: 2 Bags
12 . 9 Ft. Total Sand Pack Interval
634 . 9 MSL Bottom of Sand Pack Elevation
117 . 9 Ft. Total Borehole Depth
634 . 9 MSL Elev. of Bottom of Borehole

CSD:tk:2/15/2-1(7/6/87)

DRAFT

WELL COMPLETION REPORT

Site #: _____ County: Stephenson Well #: 14A

Name: Modern Plating Corporation Northing 10,312.9

Date Drilled: Start 9/2/87 Driller: J Erdman Easting 10,877.1

Finish 9/2/87 Geologist: M. Carney

Drilling Contractor: Wisconsin Test Drilling

WELL CONSTRUCTION DETAILS

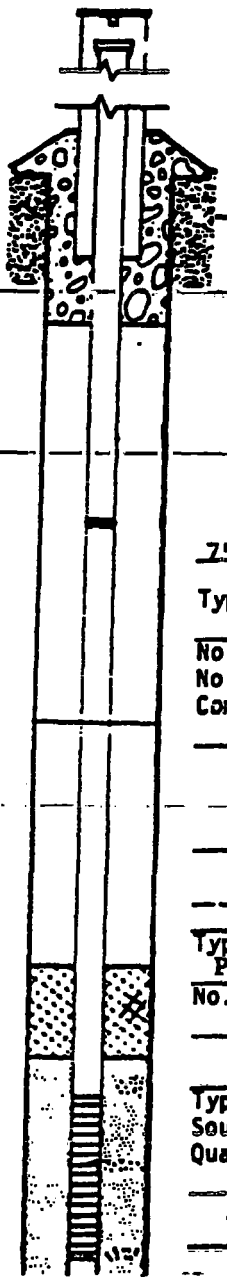
Lock Master 2121
Cap Cover Type
Type of Surface Casing: Steel
____ . ___ MSL Surface Casing Collar Elevation
761 . 84 MSL Riser Pipe Collar Elevation
3 . 2 Ft. Riser Pipe Height Above Ground Elevation (Stick-up)
1 . 9 Ft. Depth of Surface Seal Below Ground
Type of Surface Seal: Concrete
Quan. Used: 4 Bags
1 . 9 Ft. Depth of Surface Casing Below Ground

3.75 Inches - ID of Surface Casing
8 Inches - Diameter of Borehole
Type of Riser Pipe: (material)
Stainless Steel 316
2 Inches - ID of Riser Pipe
2.375 Inches - OD of Riser Ripe
Type of Riser Joint/Coupling:
Flush Thread

751 . 6 MSL Top of Screen Elevation
Type of Coupling/Joint - Screen to Riser Pipe: Flush Thread
Type of Screen: (material)
Stainless Steel 316
Opening Size: (slot size) .010 inches
Opening Space: 6.8 sq in/ft
% Openings in Screen
741 . 6 MSL Bottom Screen Elevation

Drilling method Water Wash

Lubricants Water



758 . 6 MSL Ground Surface Elevation

ANNULAR SPACE DETAILS

758 . 6 MSL Top of Backfill Elevation
Type of Backfill: Bentonite Powder
No. of Bags of Cement:
No. of Bags of Bentonite: .75
Comments: Dry

2 . 5 Ft. Depth to Top of Seal
756 . 1 MSL Top of Seal Elev.
2 . 5 Ft. Total Seal Interval
Type of Bentonite (granular, pellet): Pellets
No. of Bags of Bentonite:
5 . 0 Ft. Depth to Top of Sand Pack
753.6 MSL Elev. of Top of Sand
Type of Sand Pack: Red Flint #30
Source of Sand: Bag
Quantity of Sand Used: 3 Bags
13 . 5 Ft. Total Sand Pack Interval
740 . 1 MSL Bottom of Sand Pack Elevation
18 . 5 Ft. Total Borehole Depth
740 . 1 MSL Elev. of Bottom of Borehole

CSD:tk:2/15/2-1(7/6/87)

DRAFT

WELL COMPLETION REPORT

Site #: _____ County: Stephenson Well #: 14B

Name: Modern Plating Corporation Northing 10,309.8

Date Drilled: Start 8/31/87 Driller: L. Erdman Easting 10,875.9

Finish 8/31/87 Geologist: M. Carney

Drilling Contractor: Wisconsin Test Drilling

WELL CONSTRUCTION DETAILS

Lock Master 2121
Cap Cover Type
Type of Surface Casing: Steel

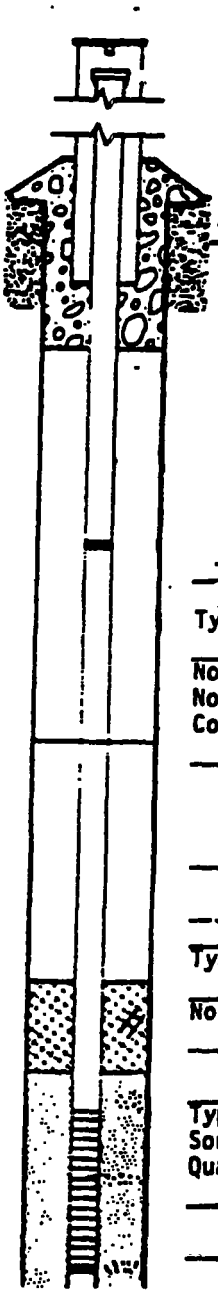
____ MSL Surface Casing Collar Elevation
762.20 MSL Riser Pipe Collar Elevation
3.6 Ft. Riser Pipe Height Above Ground Elevation (Stick-up)
1.4 Ft. Depth of Surface Seal Below Ground
Type of Surface Seal: Concrete
Quan. Used: 2 Bags
1.4 Ft. Depth of Surface Casing Below Ground

3.75 Inches - ID of Surface Casing
6 Inches - Diameter of Borehole
Type of Riser Pipe: (material) Stainless Steel 316
2 Inches - ID of Riser Pipe
2.375 Inches - OD of Riser Ripe
Type of Riser Joint/Coupling: Flush Thread

741.6 MSL Top of Screen Elevation
Type of Coupling/Joint - Screen to Riser Pipe: Flush Thread
Type of Screen: (material) Stainless Steel 316
Opening Size: (slot size) .010 inches
Opening Space: 6.8 sq in/ft
% Openings in Screen
736.6 MSL Bottom Screen Elevation

Drilling method Rotary Wash

Lubricants Water



758.6 MSL Ground Surface Elevation

ANNULAR SPACE DETAILS

758.6 MSL Top of Backfill Elevation
Type of Backfill: Bentonite Slurry
No. of Bags of Cement:
No. of Bags of Bentonite: .5
Comments:

13.0 Ft. Depth to Top of Seal
745.6 MSL Top of Seal Elev.
2.0 Ft. Total Seal Interval
Type of Bentonite (granular, pellet): Pellet
No. of Bags of Bentonite:
15.0 Ft. Depth to Top of Sand Pack
743.6 MSL Elev. of Top of Sand
Type of Sand Pack: Red Flint #30
Source of Sand: Bag
Quantity of Sand Used: 1.25 Bags
7.4 Ft. Total Sand Pack Interval
736.2 MSL Bottom of Sand Pack Elevation
22.4 Ft. Total Borehole Depth
736.2 MSL Elev. of Bottom of Borehole

CSD:tk:2/15/2-1(7/6/87)

DRAFT

WELL COMPLETION REPORT

Site #: _____ County: Stephenson Well #: 14C

Name: Modern Plating Corporation Northing 10,303.6

Date Drilled: Start 8/31/87 Driller: L. Erdman Easting 10,876.7

Finish 9/1/87 Geologist: M. Carney

Drilling Contractor: Wisconsin Test Drilling

WELL CONSTRUCTION DETAILS

Lock Master 2121
Cap Flip Lid
Type of Surface Casing: Steel

____ MSL Surface Casing Collar Elevation
760.99 MSL Riser Pipe Collar Elevation
2.2 Ft. Riser Pipe Height Above Ground Elevation (Stick-up)
2.7 Ft. Depth of Surface Seal-Below-Ground
Type of Surface Seal: Concrete
Quan. Used: 4 Bags
2.7 Ft. Depth of Surface Casing Below Ground

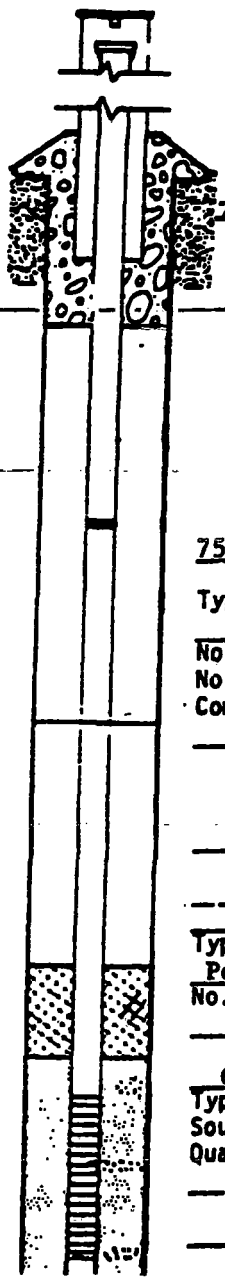
8.25 Inches - ID of Surface Casing
6 Inches - Diameter of Borehole
Type of Riser Pipe: (material) Stainless Steel 316
2 Inches - ID of Riser Pipe
2.375 Inches - OD of Riser Ripe
Type of Riser Joint/Coupling: Flush Thread

683.3 MSL Top of Screen Elevation
Type of Coupling/Joint - Screen to Riser Pipe: Flush Thread
Type of Screen: (material) Stainless Steel 316
Opening Size: (slotsize) .010 inches
Opening Space: 6.8 sq in/ft
% Openings in Screen
678.3 MSL Bottom Screen Elevation

Drilling method Rotary Wash

Lubricants Water

ANNULAR SPACE DETAILS



758.8 MSL Ground Surface Elevation

758.8 MSL Top of Backfill Elevation
Type of Backfill: Bentonite Slurry
No. of Bags of Cement: ____
No. of Bags of Bentonite: 1
Comments: ____

71.5 Ft. Depth to Top of Seal
687.3 MSL Top of Seal Elev.
2.0 Ft. Total Seal Interval
Type of Bentonite (granular, pellet): Pellet
No. of Bags of Bentonite: ____
73.5 Ft. Depth to Top of Sand Pack
685.3 MSL Elev. of Top of Sand
Type of Sand Pack: Red Flint #30
Source of Sand: Bags
Quantity of Sand Used: 1.5 Bags
7.0 Ft. Total Sand Pack Interval
678.3 MSL Bottom of Sand Pack Elevation
81.8 Ft. Total Borehole Depth
677.0 MSL Elev. of Bottom of Borehole

CSD:tk:2/15/2-1(7/6/87)

DRAFT

WELL COMPLETION REPORT

Site #: _____ County: Stephenson Well #: 14E

Name: Modern Plating Corporation Northing 10,297.8

Date Drilled: Start 8/25/87 Driller: J. Rich Easting 10,880.7

Finish 9/1/87 Geologist: M. Carney

Drilling Contractor: Exploration Technology, Inc. (subcontractor to Wisconsin Test Drilling)

WELL CONSTRUCTION DETAILS

Lock Master 2121
Cap Flip Lid
Type of Surface Casing: Steel

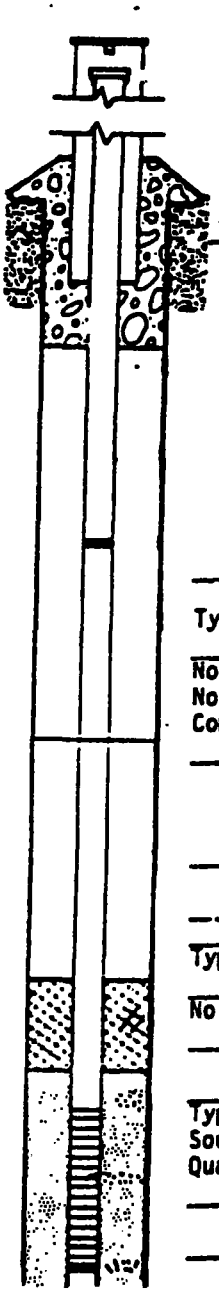
____ . __ MSL Surface Casing Collar Elevation
761 . 50 MSL Riser Pipe Collar Elevation
2 . 8 Ft. Riser Pipe Height Above Ground Elevation (stick-up)
1 . 9 Ft. Depth of Surface Seal Below Ground
Type of Surface Seal: Concrete
Quan. Used: 5 Bags
1 . 9 Ft. Depth of Surface Casing Below Ground

8.25 Inches - ID of Surface Casing
6 Inches - Diameter of Borehole
Type of Riser Pipe: (material)
Stainless Steel 316
2 Inches - ID of Riser Pipe
2.375 Inches - OD of Riser Ripe
Type of Riser Joint/Coupling:
Flush Thread

654 . 7 MSL Top of Screen Elevation
Type of Coupling/Joint - Screen to Riser Pipe: Flush Thread
Type of Screen: (material)
Stainless Steel 316
Opening Size: (slotting) .010 inches
Opening Space: 6.8 sq in/ft
% Openings in Screen
644 . 7 MSL Bottom Screen Elevation

Drilling method Rotary Wash

Lubricants Water



ANNULAR SPACE DETAILS

758 . 7 MSL Ground Surface Elevation

758 . 7 MSL Top of Backfill Elevation
Type of Backfill: Bentonite Slurry
No. of Bags of Cement:
No. of Bags of Bentonite: 2-3
Comments:

99 . 0 Ft. Depth to Top of Seal
659 . 7 MSL Top of Seal Elev.
2 . 7 Ft. Total Seal Interval
Type of Bentonite (granular, pellet):
Pellet
No. of Bags of Bentonite:
101 . 7 Ft. Depth to Top of Sand Pack
657 . 0 MSL Elev. of Top of Sand
Type of Sand Pack: Red Flint #30
Source of Sand: Bag
Quantity of Sand Used: 1.25 Bags
12 . 3 Ft. Total Sand Pack Interval
644 . 7 MSL Bottom of Sand Pack Elevation
115 . 0 Ft. Total Borehole Depth
643 . 7 MSL Elev. of Bottom of Borehole

CSD:tk:2/15/2-1(7/6/87)

DRAFT

WELL COMPLETION REPORT

Site #: _____ County: Stephenson Well #: 15A

Name: Modern Plating Corporation Northing 10,477.5

Date Drilled: Start 8/18/87 Driller: L. Ludwig Easting 10,306.4

Finish 8/19/87 Geologist: M. Carney

Drilling Contractor: Wisconsin Test Drilling

WELL CONSTRUCTION DETAILS

Lock Master 2121
Cap Cover Type
Type of Surface Casing: Steel

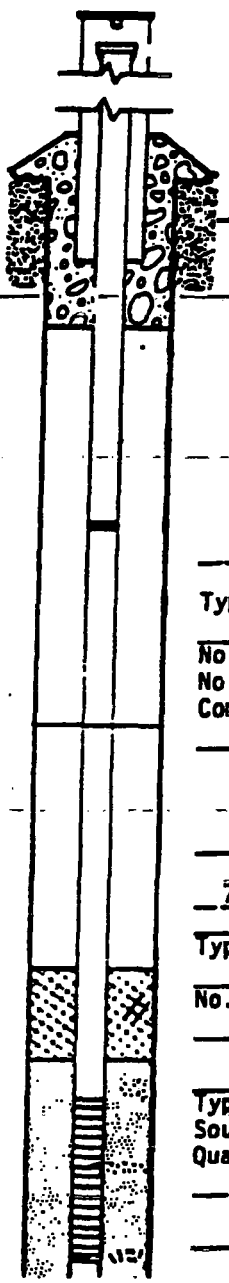
___ . ___ MSL Surface Casing Collar Elevation
759 . 00 MSL Riser Pipe Collar Elevation
3 . 2 Ft. Riser Pipe Height Above Ground Elevation (Stick-up)
2 . 0 Ft. Depth of Surface Seal Below Ground
Type of Surface Seal: Concrete
Quan. Used: 4 Bags
2 . 0 Ft. Depth of Surface Casing Below Ground

3.75 Inches - ID of Surface Casing
6 Inches - Diameter of Borehole
Type of Riser Pipe: (material) Stainless Steel 316
2 Inches - ID of Riser Pipe
2.375 Inches - OD of Riser Ripe
Type of Riser Joint/Coupling: Flush Thread

749 . 1 MSL Top of Screen Elevation
Type of Coupling/Joint - Screen to Riser Pipe: Flush Thread
Type of Screen: (material) Stainless Steel316
Opening Size: (slot size) .010 inches
Opening Space: 6.8 sq in/ft
% Openings in Screen
744 . 1 MSL Bottom Screen Elevation

Drilling method Rotary Wash

Lubricants Water



ANNULAR SPACE DETAILS

755 . 8 MSL Ground Surface Elevation

755 . 8 MSL Top of Backfill Elevation
Type of Backfill: Bentonite Slurry
No. of Bags of Cement: ___
No. of Bags of Bentonite: ___
Comments: ___

3 . 0 Ft. Depth to Top of Seal
752 . 8 MSL Top of Seal Elev.
2 . 0 Ft. Total Seal Interval
Type of Bentonite (granular, pellet): Pellet
No. of Bags of Bentonite: ___
5 . 0 Ft. Depth to Top of Sand Pack
750 . 8 MSL Elev. of Top of Sand
Type of Sand Pack: Red Flint #30
Source of Sand: Bag
Quantity of Sand Used: 1 Bag
7 . 0 Ft. Total Sand Pack Interval
743 . 8 MSL Bottom of Sand Pack Elevation
12 . 0 Ft. Total Borehole Depth
743 . 8 MSL Elev. of Bottom of Borehole

CSD:tk:2/15/2-1(7/6/87)

DRAFT

WELL COMPLETION REPORT

Site #: _____ County: Stephenson Well #: 15B

Name: Modern Plating Corporation Northing 10,474.2

Date Drilled: Start 8/18/87 Driller: J. Ludwig Easting 10,306.4

Finish 8/19/87 Geologist: M. Carney

Drilling Contractor: Wisconsin Test Drilling

WELL CONSTRUCTION DETAILS

Lock Master 2121
Cap Cover Type
Type of Surface Casing: Steel

____ . __ MSL Surface Casing Collar Elevation
758 . 88 MSL Riser Pipe Collar Elevation
3 . 1 Ft. Riser Pipe Height Above Ground Elevation (Stick-up)
2 . 0 Ft. Depth of Surface Seal Below Ground
Type of Surface Seal: Concrete
Quan. Used: 4 Bags
2 . 0 Ft. Depth of Surface Casing Below Ground

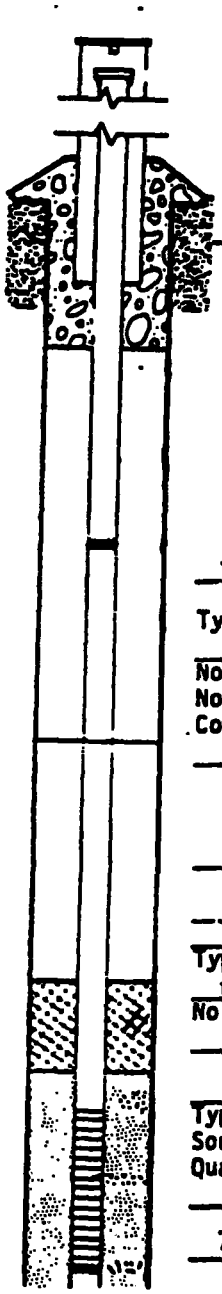
3.75 Inches - ID of Surface Casing
6 Inches - Diameter of Borehole
Type of Riser Pipe: (material)
Stainless Steel 316
2 Inches - ID of Riser Pipe
2.375 Inches - OD of Riser Ripe
Type of Riser Joint/Coupling:
Flush Thread

734 . 6 MSL Top of Screen Elevation
Type of Coupling/Joint - Screen to Riser Pipe: Flush Thread
Type of Screen: (material)
Stainless Steel 316
Opening Size: (slotted) .010 inches
Opening Space: 6.8 sq in/ft
% Openings in Screen
724 . 6 MSL Bottom Screen Elevation

Drilling method Rotary

Lubricants Water

ANNULAR SPACE DETAILS



755 . 8 MSL Ground Surface Elevation

755 . 8 MSL Top of Backfill Elevation
Type of Backfill: Bentonite Slurry
No. of Bags of Cement:
No. of Bags of Bentonite: 1
Comments:

17 . 0 Ft. Depth to Top of Seal
738 . 8 MSL Top of Seal Elev.
2 . 0 Ft. Total Seal Interval
Type of Bentonite (granular, pellet): Pellet
No. of Bags of Bentonite:
19 . 0 Ft. Depth to Top of Sand Pack
736 . 8 MSL Elev. of Top of Sand
Type of Sand Pack: Red Flint #30
Source of Sand: Bag
Quantity of Sand Used: 2 Bags
12 . 2 Ft. Total Sand Pack Interval
724 . 6 MSL Bottom of Sand Pack Elevation
31 . 2 Ft. Total Borehole Depth
724 . 6 MSL Elev. of Bottom of Borehole

CSD:tk:2/15/2-1(7/6/87)

DRAFT

WELL COMPLETION REPORT

Site #: _____ County: Stephenson Well #: 15C

Name: Modern Plating Corporation Northing 10,470.9

Date Drilled: Start 8/10/87 Driller: L. Ludwig Easting 10,306.4

Finish 8/18/87 Geologist: M. Carney

Drilling Contractor: Wisconsin Test Drilling

WELL CONSTRUCTION DETAILS

Lock Master 2121
Cap Cover Type
Type of Surface Casing: Steel

____ . __ MSL Surface Casing Collar Elevation
758 . 26 MSL Riser Pipe Collar Elevation
2 . 6 Ft. Riser Pipe Height Above Ground Elevation (Stick-up)
2 . 0 Ft. Depth of Surface Seal Below Ground
Type of Surface Seal: Concrete
Quan. Used: 4 Bags
2 . 5 Ft. Depth of Surface Casing Below Ground

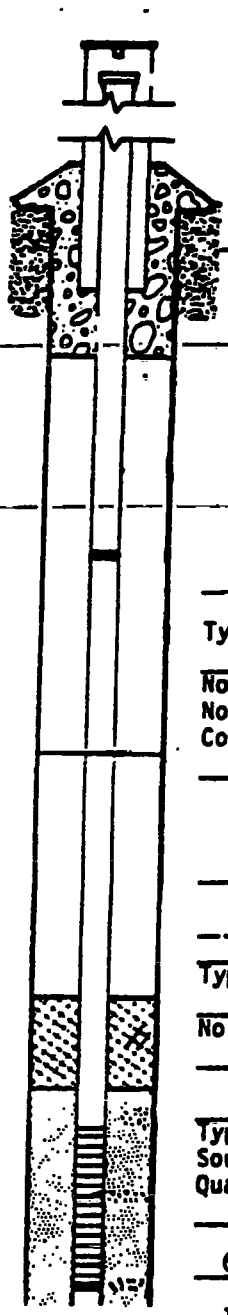
8.25 Inches - ID of Surface Casing
6 Inches - Diameter of Borehole
Type of Riser Pipe: (material) Stainless Steel 316
2 Inches - ID of Riser Pipe
2.375 Inches - OD of Riser Ripe
Type of Riser Joint/Coupling: Flush Thread

657 . 7 MSL Top of Screen Elevation
Type of Coupling/Joint - Screen to Riser Pipe: Flush Thread
Type of Screen: (material) Stainless Steel 316
Opening Size: (slotsize) .010 inches
Opening Space: 6.8 sq in/ft
% Openings in Screen
652 . 7 MSL Bottom Screen Elevation

Drilling method Rotary Wash

Lubricants Water

ANNULAR SPACE DETAILS



755 . 7 MSL Ground Surface Elevation

755 . 7 MSL Top of Backfill Elevation
Type of Backfill: Bentonite Slurry
No. of Bags of Cement: ____
No. of Bags of Bentonite: 1.5
Comments: ____

90 . 2 Ft. Depth to Top of Seal
665 . 5 MSL Top of Seal Elev.
5 . 3 Ft. Total Seal Interval
Type of Bentonite (granular, pellet): Pellet
No. of Bags of Bentonite: ____
95 . 5 Ft. Depth to Top of Sand Pack
660 . 2 MSL Elev. of Top of Sand
Type of Sand Pack: Red Flint #30
Source of Sand: Bag
Quantity of Sand Used: 1 1/4 Bags
9 . 0 Ft. Total Sand Pack Interval
651 . 2 MSL Bottom of Sand Pack Elevation
104 . 5 Ft. Total Borehole Depth
651 . 2 MSL Elev. of Bottom of Borehole

CSD:tk:2/15/2-1(7/6/87)

DRAFT

WELL COMPLETION REPORT

Site #: _____ County: Stephenson Well #: 16C

Name: Modern Plating Corporation Northing 9,403.3

Date Drilled: Start 8/28/87 Driller: L. Ludwig Easting 9,890.9

Finish 8/28/87 Geologist: M. Carney

Drilling Contractor: Wisconsin Test Drilling

WELL CONSTRUCTION DETAILS

Lock Master 2121
Cap Cover Type
Type of Surface Casing: Steel

____ . __ MSL Surface Casing Collar Elevation
784 . 78 MSL Riser Pipe Collar Elevation
3 . 2 Ft. Riser Pipe Height Above Ground Elevation (Stick-up)
1 . 0 Ft. Depth of Surface Seal Below Ground
Type of Surface Seal: Bentonite Powder
Quan. Used:
1 . 8 Ft. Depth of Surface Casing Below Ground

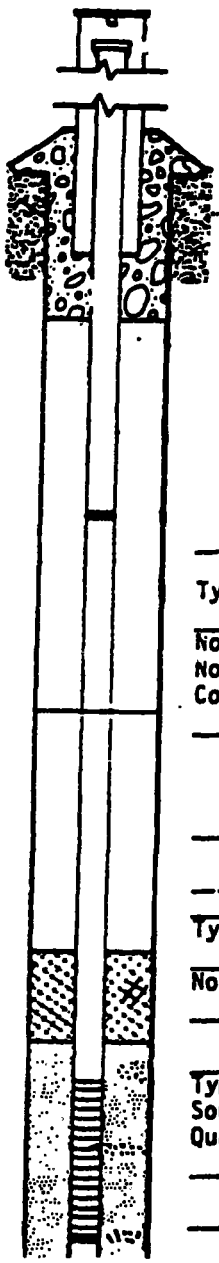
3.75 Inches - ID of Surface Casing
6 Inches - Diameter of Borehole
Type of Riser Pipe: (material) Stainless Steel 316
2 Inches - ID of Riser Pipe
2.375 Inches - OD of Riser Ripe
Type of Riser Joint/Coupling: Flush Thread

764 . 6 MSL Top of Screen Elevation
Type of Coupling/Joint - Screen to Riser Pipe: Flush Thread
Type of Screen: (material) Stainless Steel 316
Opening Size: (slot size) .010 inches
Opening Space: 6.8 sq in/ft
% Openings in Screen
754 6 MSL Bottom Screen Elevation

Drilling method Rotary Wash
Lubricants Water

CSD:tk:2/15/2-1(7/6/87)

ANNULAR SPACE DETAILS



781 . 6 MSL Ground Surface Elevation

____ . __ MSL Top of Backfill Elevation
Type of Backfill: Bentonite Slurry
No. of Bags of Cement:
No. of Bags of Bentonite: 1
Comments:

13 . 0 Ft. Depth to Top of Seal
768 . 6 MSL Top of Seal Elev.
2 . 0 Ft. Total Seal Interval
Type of Bentonite (grarular, pellet): Pellet
No. of Bags of Bentonite:
15. 0 Ft. Depth to Top of Sand Pack
766 6 MSL Elev.of Top of Sand
Type of Sand Pack: Red Flint #30
Source of Sand: Bag
Quantity of Sand Used: 2 Bags
14 . 0 Ft. Total Sand Pack Interval
752 . 6 MSL Bottom of Sand Pack Elevation
29 . 0 Ft. Total Borehole Depth
752 . 6 MSL Elev. of Bottom of Borehole

Illinois Environmental Protection Agency — Well Completion — R000428

Site #: _____ County Stephenson Well # MW-17A

Site Name: Modern Plating Corporation Grid Coordinate: Northing 10,993.8 Easting 10,470.3

Drilling Contractor: Wisconsin Test Drilling, Inc. Date Drilled Start: 11-12-88

Driller: P. Dickenson Geologist: R. Panosh Date Completed: 11-12-88

Drilling Method: Rotary Wash Drilling Fluids (type): None

Annular Space Details

Type of Surface Seal: Concrete

Type of Annular Sealant: bentonite/cement grout

Amount of cement: # of bags _____ lbs. per bag _____

Amount of bentonite: # of bags _____ lbs. per bag _____

Type of Bentonite Seal (Granular, Pellet): chips

Amount of bentonite: # of Bags 1 lbs. per bag 50

Type of Sand Pack: 30# Red Flint Filter Sand

Source of Sand: Bag

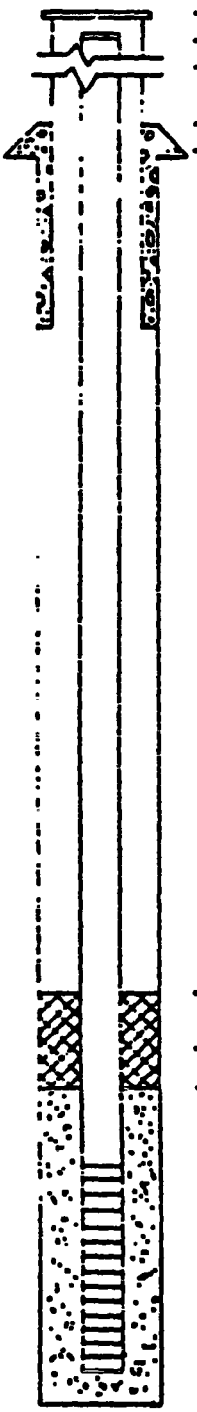
Amount of Sand: # of bags 4 lbs. per bag 50

Well Construction Materials

	Stainless Steel Specify Type	Teflon Specify Type	PVC Specify Type	Other Specify Type
Riser coupling joint	flush threaded			
Riser pipe above w.t.	316			
Riser pipe below w.t.	316			
Screen	316			
Coupling joint screen to riser	flush threaded			
Protective casing	steel			

Measurements to .01 ft. (where applicable)

Riser pipe length	15.0
Protective casing length	5.0
Screen length	5.0
Bottom of screen to end cap	
Top of screen to first joint	
Total length of casing	20.0
Screen slot size	.01
# of openings in screen	6.8 in^2/ft
Diameter of borehole (in)	8
ID of riser pipe (in)	2.0



Elevations — .01 ft.

____	____	MSL Top of Protective Casing
758	.71	MSL Top of Riser Pipe
2	.9	ft. Casing Stickup
755	.80	MSL Ground Surface
____	____	ft. Top of annular sealant
6	.5	ft. Top of Seal
3	.2	ft. Total Seal Interval
9	.7	ft. Top of Sand
12	.0	ft. Top of Screen
5	.0	ft. Total Screen Interval
17	.0	ft. Bottom of Screen
17	.9	ft. Bottom of Borehole

Completed by: JSK-FOTH & VAN DYKE & ASSOC Reviewed by: J.F. Gastel & Assoc. Ill. registration # _____

Illinois Environmental Protection Agency — **Well Completion Report**

Site #: _____ County Stephenson Well # MW-17B

Site Name: Modern Plating Corporation Grid Coordinate. Northing 10,995.1 Easting 10,465.1

Drilling Contractor: Wisconsin Test Drilling, Inc. Date Drilled Start: 11-11-88

Driller: P. Dickenson Geologist: R. Panosh Date Completed: 11-11-88

Drilling Method: 4-1/4" ID Hollow Stem Augers Drilling Fluids (type): None

Annular Space Details

Type of Surface Seal: Concrete

Type of Annular Sealant: bentonite/cement grout

Amount of cement: # of bags 4 lbs. per bag 94

Amount of bentonite. # of bags 2-1/2 lbs. per bag 50

Type of Bentonite Seal (Granular. Pellet): Pellets

Amount of bentonite: # of bags buckets 3/4 lbs. per bag _____

Type of Sand Pack: #30 Red Flint Filter Sand

Source of Sand: Bag

Amount of Sand: # of bags 2 lbs. per bag 50

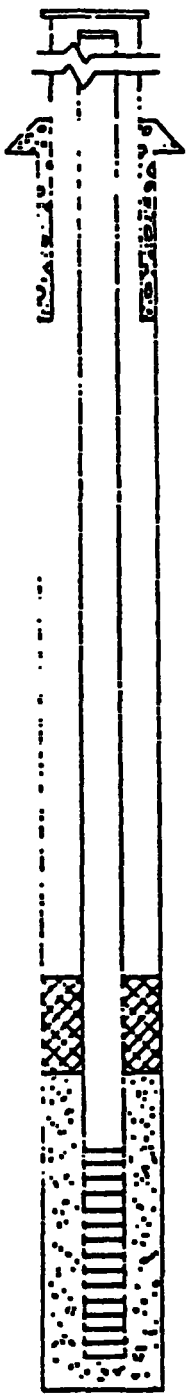
Well Construction Materials

	Stainless Steel Specify Type	Teflon Specify Type	PVC Specify Type	Other Specify Type
Riser coupling joint	Flush Threaded			
Riser pipe above w.t.	316			
Riser pipe below w.t.	316			
Screen	316			
Coupling joint screen to riser	Flush Threaded			
Protective casing	Steel			

Measurements to .01 ft. (where applicable)

Riser pipe length	29.6
Protective casing length	6.0
Screen length	10.0
Bottom of screen to end cap	
Top of screen to first joint	
Total length of casing	39.6
Screen slot size	.01
# of openings in screen	6.8 in^2/ft
Diameter of borehole (in)	8
OD of riser pipe (in)	2.0

Elevations — .01 ft.



____ . ____	MSL Top of Protective Casing
758 . 91	MSL Top of Riser Pipe
2 . 9	ft. Casing Stickup
756 . 0	MSL Ground Surface
____ . ____	ft. Top of annular sealant
21 . 5	ft. Top of Seal
3 . 2	ft. Total Seal Interval
24 . 7	ft. Top of Sand
26 . 7	ft. Top of Screen
10 . 0	ft. Total Screen Interval
36 . 7	ft. Bottom of Screen
37 . 4	ft. Bottom of Borehole

Completed by JSK -Foth & Van Dyke & Assoc. Surveyed by J.F. Gastel & Assoc. Ill. registration # _____

Illinois Environmental Protection Agency — Well Completion Report

Site #: _____ County Stephenson Well # MW-17C

Site Name: Modern Plating Corporation Grid Coordinate. Northing 10,994.1 Easting 10,459.0

Drilling Contractor: Wisconsin Test Drilling, Inc. Date Drilled Start: _____

Driller: P. Dickenson Geologist: R. Panosh Date Completed: 11/13/88

Drilling Method: Rotary Wash Drilling Fluids (type): Bentonite

Annular Space Details

Type of Surface Seal: Concrete

Type of Annular Sealant: Bentonite/cement grout

Amount of cement: # of bags 4 lbs. per bag 94

Amount of bentonite. # of bags 2 lbs. per bag 50

Type of Bentonite Seal (Granular. Pellet): Pellet

Amount of bentonite: # of Bags bucket 1/2 lbs. per bag _____

Type of Sand Pack: #30 Red Flint Sand

Source of Sand: Bag

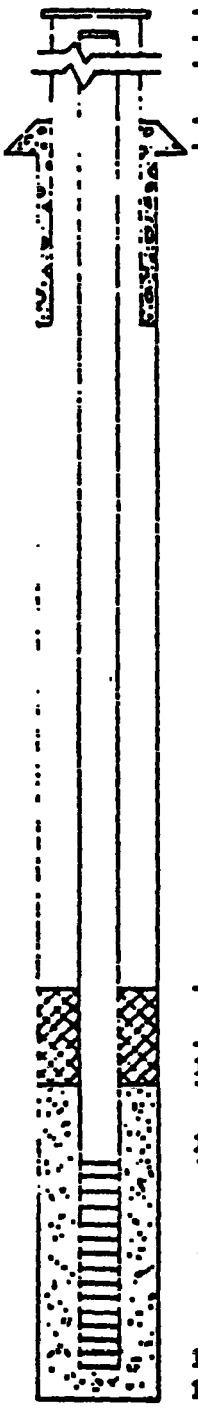
Amount of Sand: # of bags 4 lbs. per bag 50

Well Construction Materials

	Stainless Steel Specify Type	Teflon Specify Type	PVC Specify Type	Other Specify Type
Riser coupling joint	Flush Threaded			
Riser pipe above w.t.	316			
Riser pipe below w.t.	316			
Screen	316			
Coupling joint screen to riser	Flush Threaded			
Protective casing	Steel			

Measurements to .01 ft. (where applicable)

Riser pipe length	105.9
Protective casing length	6.0
Screen length	5.0
Bottom of screen to end cap	
Top of screen to first joint	
Total length of casing	111.0
Screen slot size	0.01
# of openings in screen	6.8 $in^2/ft.$
Diameter of borehole (in)	8" 0-42', 6" 42'-108
ID of riser pipe (in)	2.0



Elevations — .01 ft.

_____	_____	MSL Top of Protective Casing
758.	94	MSL Top of Riser Pipe
2.	9	ft. Casing Stickup
756.	0	MSL Ground Surface
_____	_____	ft. Top of annular sealant
98.	5	ft. Top of Seal
2.	5	ft. Total Seal Interval
101.	0	ft. Top of Sand
103.	0	ft. Top of Screen
5.	0	ft. Total Screen Interval
103.	0	ft. Bottom of Screen
108.	0	ft. Bottom of Borehole

Completed by JSK-Foth & Van Dyke and Assoc. Surveyed by J.F. Gastel and Assoc. Ill registration # _____

A6

Illinois Environmental Protection Agency — **Well Completion Report**

Site #: _____ County: Stephenson Well #: MW-17D

Site Name: Modern Plating Corporation Grid Coordinate. Northing 10,991.5 Easting 10,464.3

Drilling Contractor: Wisconsin Test Drilling, Inc. Date Drilled Start: _____

Driller: P. Dickenson Geologist: R. Panosh Date Completed: 11/10/88

Drilling Method: Rotary Wash Drilling Fluids (type): Bentonite

Annular Space Details

Type of Surface Seal: Concrete

Type of Annular Sealant: Bentonite/cement grout

Amount of cement. # of bags _____ lbs. per bag ____

Amount of bentonite # of bags _____ lbs. per bag ____

Type of Bentonite Seal (Granular, Pellet): Pellets

Amount of bentonite: # of ~~Bags~~ bucket 1/3 lbs. per bag _____

Type of Sand Pack: #30 Red Flint Filter Sand

Source of Sand: Bag

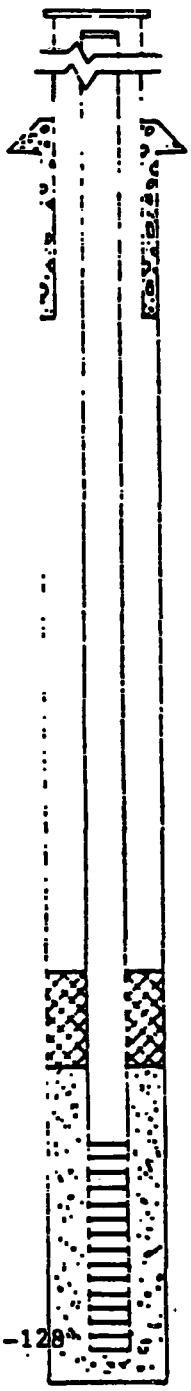
Amount of Sand: # of bags 5 lbs. per bag 50

Well Construction Materials

	Stainless Steel Specify Type	Teflon Specify Type	PVC Specify Type	Other Specify Type
Riser coupling joint	Flush Treaded			
Riser pipe above w.l.	316			
Riser pipe below w.l.	316			
Screen	316			
Coupling joint screen to riser	Flush Threaded			
Protective casing	Steel			

Measurements to .01 ft. (where applicable)

Riser pipe length	114.0
Protective casing length	6.0
Screen length	10.0
Bottom of screen to end cap	
Top of screen to first joint	
Total length of casing	124.0
Screen slot size	.01
# of openings in screen	6.8 $in^2/ft.$
Diameter of borehole (in)	8" 0-42', 6" 42-107', 4" 107'-128'
ID of riser pipe (in)	2.0"



Elevations — .01 ft.

	MSL Top of Protective Casing
758.84	MSL Top of Riser Pipe
2.9	ft. Casing Stickup
755.90	MSL Ground Surface
	ft. Top of annular sealant
108.9	ft. Top of Seal
3.5	ft. Total Seal Interval
112.4	ft. Top of Sand
110.8	ft. Top of Screen
10.0	ft. Total Screen Interval
118.1	ft. Bottom of Screen
128.0	ft. Bottom of Borehole

Completed by JSK-Foth & Van Dyke and Assoc Observed by J.F. Gastel & Assoc. Ill registration #: _____

Illinois Environmental Protection Agency — **Well Completion Report**

e #: _____ County Stephenson Well # MW-18A

e Name: Modern Plating Corporation Grid Coordinate. Northing 11,089.6 Easting 10,887.5

ing Contractor: Wisconsin Test Drilling, Inc. Date Drilled Start: 10/24/88

iller: D. Zielazowski Geologist: R. Panosh Date Completed: 10/24/88

illing Method: 4-1/4" I.D. Hollow Stem Augers Drilling Fluids (type): None

nnular Space Details

pe of Surface Seal: Concrete

pe of Annular Sealant: Bentonite/Cement grout

Amount of cement. # of bags _____ lbs. per bag _____

Amount of bentonite: # of bags _____ lbs. per bag _____

pe of Bentonite Seal (Granular, Pellet): Pellets

mount of bentonite: # of ~~Bags~~ bucket 1 lbs. per bag _____

pe of Sand Pack: #30 Red Flint Sand

urce of Sand: Bag

Amount of Sand: # of bags 2.5 lbs per bag 50

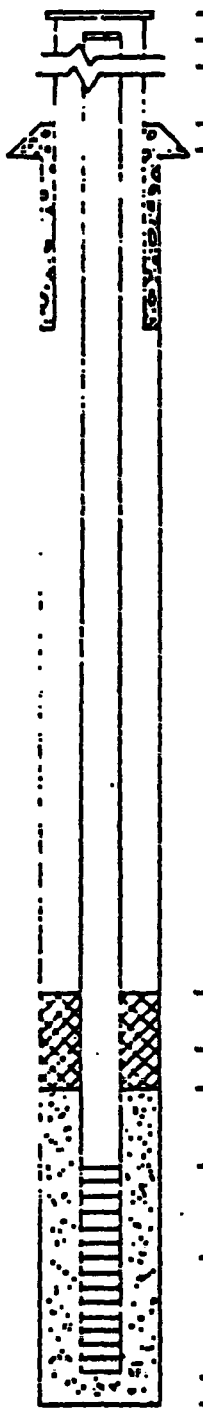
ell Construction Materials

	Stainless Steel Specify Type	Teflon Specify Type	PVC Specify Type	Other Specify Type
Riser coupling joint	Flush Threaded			
Riser pipe above w.t.	316			
Riser pipe below w.t.	316			
Screen	316			
Coupling joint screen to riser	Flush Threaded			
Protective casing	Steel			

Measurements to .01 ft. (where applicable)

Riser pipe length	13.7
Protective casing length	5.0
Screen length	5.0
Bottom of screen to end cap	
Top of screen to first joint	
Total length of casing	18.7
Screen slot size	.01
# of openings in screen	6.8 $in^2/ft.$
Diameter of borehole (in)	8
OD of riser pipe (in)	2.0

Elevations — .01 ft.



757. 34		MSL Top of Protective Casing
757. 34		MSL Top of Riser Pipe
2. 7		ft. Casing Stickup
754. 6		MSL Ground Surface
____ ____		ft. Top of annular sealant
5. 1		ft. Top of Seal
3. 9		ft. Total Seal Interval
9. 0		ft. Top of Sand
11. 0		ft. Top of Screen
5. 0		ft. Total Screen Interval
16. 0		ft. Bottom of Screen
16. 0		ft. Bottom of Borehole

Completed by JSK-Foth & Van Dyke and Assoc Surveyed by: J.F. Gastel & Assoc. Ill registration # _____

Illinois Environmental Protection Agency — **Well Completion Report**

Site #: _____ County Stephenson Well # MW-18B

Site Name: Modern Plating Corporation Grid Coordinate: Northing 11,086.1 Easting 10,892.2

Drilling Contractor: Wisconsin Test Drilling, Inc. Date Drilled Start: 10/27/88

Driller: D. Zielazowski Geologist: R. Panosh Date Completed: 10/27/88

Drilling Method: 4-1/4" I.D. Hollow Stem Augers Drilling Fluids (type): None

Annular Space Details

Type of Surface Seal: Concrete

Type of Annular Sealant: Bentonite/Cement grout

Amount of cement: # of bags _____ lbs. per bag ____

Amount of bentonite: # of bags _____ lbs. per bag ____

Type of Bentonite Seal (Granular, Pellet): Pellets

Amount of bentonite: # of bags bucket 1/2 lbs. per bag _____

Type of Sand Pack: #30 Red Flint Sand

Source of Sand: Bag

Amount of Sand: # of bags 1-1/2 lbs. per bag 50

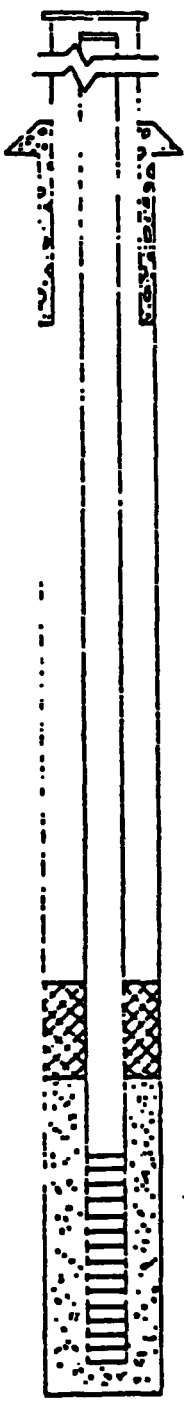
Well Construction Materials

	Stainless Steel Specify Type	Teflon Specify Type	PVC Specify Type	Other Specify Type
Riser coupling joint	Flush Threaded			
Riser pipe above w.t.	316			
Riser pipe below w.t.	316			
Screen	316			
Coupling joint screen to riser	Flush Threaded			
Protective casing	Steel			

Measurements to .01 ft. (where applicable)

Riser pipe length	29.8
Protective casing length	5.0
Screen length	10.0
Bottom of screen to end cap	
Top of screen to first joint	
Total length of casing	39.8
Screen slot size	.01
# of openings in screen	6.8 $in^2/ft.$
Diameter of borehole (in)	8
ID of riser pipe (in)	2.0

Elevations — .01 ft.



		MSL Top of Protective Casing
757.	13	MSL Top of Riser Pipe
2.	4	ft. Casing Stickup
754.	70	MSL Ground Surface
		ft. Top of annular sealant
22.	9	ft. Top of Seal
2.	1	ft. Total Seal Interval
25.	0	ft. Top of Sand
27.	4	ft. Top of Screen
10.	0	ft. Total Screen Interval
37.	4	ft. Bottom of Screen
37.	9	ft. Bottom of Borehole

Completed by JSK-Foth & Van Dyke and Assoc. Surveyed by J.F Gastel & Assoc. Ill registration # _____

Illinois Environmental Protection Agency — Well Completion Report

Site #: _____ County: Stephenson Well #: MW-18D

Site Name: Modern Plating Corporation Grid Coordinate. Northing: 11,081.6 Easting: 10,888.9

Drilling Contractor: Wisconsin Test Drilling, Inc. Date Drilled Start: 10/18/88

Driller: D. Zielazowski Geologist: R. Panosh Date Completed: 10/26/88

Drilling Method: Rotary Wash Drilling Fluids (type): Bentonite

Annular Space Details

Type of Surface Seal: Concrete

Type of Annular Sealant: Bentonite/Cement grout

Amount of cement: # of bags 4 lbs. per bag 94

Amount of bentonite: # of bags 2 lbs. per bag 50

Type of Bentonite Seal (Granular, Pellet): Pellets

Amount of bentonite: # of ~~Bags~~ bucket 1/3 lbs. per bag _____

Type of Sand Pack: #30 Red Flint Sand

Source of Sand: Bag

Amount of Sand: # of bags 1-1/4 lbs. per bag 50

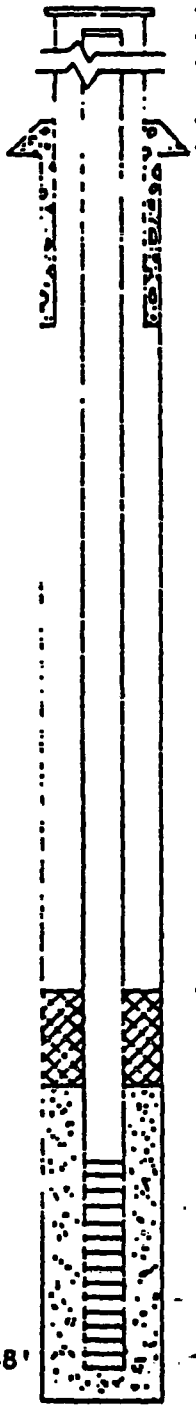
Well Construction Materials

	Stainless Steel Specify Type	Teflon Specify Type	PVC Specify Type	Other Specify Type
Riser coupling joint	Flush Threaded			
Riser pipe above w.t.	316			
Riser pipe below w.t.	316			
Screen	316			
Coupling joint screen to riser	Flush Threaded			
Protective casing	Steel			

Measurements to .01 ft. (where applicable)

Riser pipe length	139.3
Protective casing length	6.0
Screen length	10
Bottom of screen to end cap	
Top of screen to first joint	
Total length of casing	149.3
Screen slot size	.01
# of openings in screen	6.8 $in^2/ft.$
Diameter of borehole (in)	8" 0-46', 6" 46-128', 4" 128-148'
ID of riser pipe (in)	

Elevations — .01 ft.



		MSL Top of Protective Casing
757.	26	MSL Top of Riser Pipe
2.	7	ft. Casing Stickup
754.	6	MSL Ground Surface
		ft. Top of annular sealant
132.	0	ft. Top of Seal
2.	4	ft. Total Seal Interval
134.	4	ft. Top of Sand
136.	6	ft. Top of Screen
10.	0	ft. Total Screen Interval
146.	6	ft. Bottom of Screen
148.	0	ft. Bottom of Borehole

Completed by: JSK-Foth & Van Dyke and Assoc. Received by: J.F. Gastel & Assoc. Ill. registration #: _____

Illinois Environmental Protection Agency — Well Completion Report

e #: _____ County Stephenson Well # MW-19A

: Name: Modern Plating Corporation Grid Coordinate: Northing 11,056.4 Easting 11,159.9E

lling Contractor: Wisconsin Test Drilling, Inc. Date Drilled Start: 10/20/88

ller: P. Dickenson Geologist: R. Panosh Date Completed: 10/20/88

lling Method: 4-1/4" I.D. Hollow Stem Augers Drilling Fluids (type): None

nular Space Details

pe of Surface Seal: Concrete

pe of Annular Sealant: Bentonite/Cement grout

Amount of cement: # of bags _____ lbs. per bag _____

Amount of bentonite: # of bags _____ lbs. per bag _____

pe of Bentonite Seal (Granular, Pellet): Pellets

ount of bentonite: # of Bags bucket 1 lbs. per bag _____

e of Sand Pack: #30 Red Flint Sand

rce of Sand: Bag

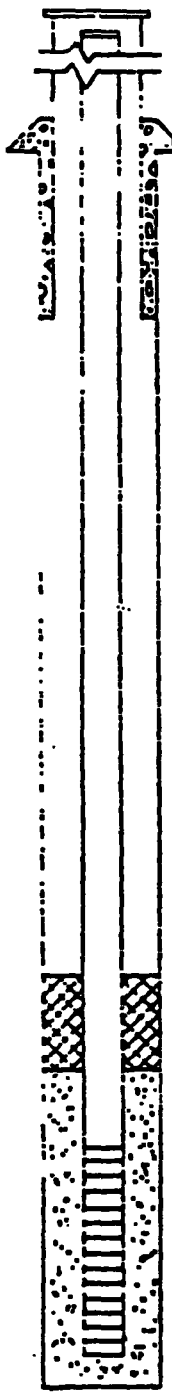
Amount of Sand: # of bags 2.5 lbs. per bag 50

ell Construction Materials

	Stainless Steel Specify Type	Teflon Specify Type	PVC Specify Type	Other Specify Type
iser coupling joint	Flush Threaded			
iser pipe above w.t.	316			
iser pipe below w.t.	316			
reen	316			
upling joint screen to riser	Flush Threaded			
otective casing	Steel			

easurements to .01 ft. (where applicable)

ser pipe length	12.2
otective casing length	5.0
reen length	5.0
ttom of screen to end cap	
p of screen to first joint	
tal length of casing	17.1
reen slot size	0.01
of openings in screen	6.8 $in^2/ft.$
ameter of borehole (in)	8
) of riser pipe (in)	2



Elevations — .01 ft.

		MSL Top of Protective Casing
757.	68	MSL Top of Riser Pipe
3.	0	ft. Casing Stickup
754.	70	MSL Ground Surface
		ft. Top of annular sealant
5.	0	ft. Top of Seal
2.	3	ft. Total Seal Interval
7.	3	ft. Top of Sand
9.	0	ft. Top of Screen
5.	0	ft. Total Screen Interval
14.	0	ft. Bottom of Screen
14.	0	ft. Bottom of Borehole

npleted by: JSK-Foth & Van Dyke and Assoc. Reviewed by: J.F Gastel & Assoc. Ill registration #: _____

Illinois Environmental Protection Agency — Well Completion Report

Site #: _____ County: Stephenson Well #: MW-19B

Site Name: Modern Plating Corporation Grid Coordinate. Northing: 11,058.4 Easting: 11,155.4

Drilling Contractor: Wisconsin Test Drilling, Inc. Date Drilled Start: 10/19/88

Driller: P. Dickenson Geologist: R. Panosh Date Completed: 10/20/88

Drilling Method: 4-1/4" I.D. Hollow Stem Augers Drilling Fluids (type): None

Annular Space Details

Type of Surface Seal: Concrete

Type of Annular Sealant: Bentonite/Cement grout

Amount of cement: # of bags _____ lbs. per bag _____

Amount of bentonite: # of bags _____ lbs. per bag _____

Type of Bentonite Seal (Granular, Pellet): Pellets

Amount of bentonite: # of Bags bucket 1 lbs. per bag _____

Type of Sand Pack: #30 Red Flint Filter Sand

Source of Sand: Bag

Amount of Sand: # of bags 8.5 lbs. per bag 50

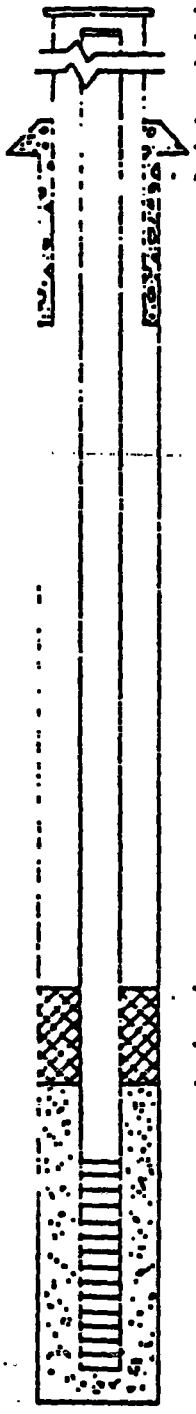
Well Construction Materials

	Stainless Steel Specify Type	Teflon Specify Type	PVC Specify Type	Other Specify Type
Riser coupling joint	Flush Threaded			
Riser pipe above w.t.	316			
Riser pipe below w.t.	316			
Screen	316			
Coupling joint screen to riser	Flush Threaded			
Protective casing	Steel			

Measurements to .01 ft. (where applicable)

Riser pipe length	29.7
Protective casing length	5.0
Screen length	10.0
Bottom of screen to end cap	
Top of screen to first joint	
Total length of casing	39.7
Screen slot size	.01
# of openings in screen	6.8 $in^2/ft.$
Diameter of borehole (in)	8
ID of riser pipe (in)	2.0

Elevations — .01 ft.



757. 57		MSL Top of Protective Casing
757. 57		MSL Top of Riser Pipe
2. 8		ft. Casing Stickup
754. 80		MSL Ground Surface
____ ____		ft. Top of annular sealant
22. 6		ft. Top of Seal
2. 1		ft. Total Seal Interval
24. 7		ft. Top of Sand
26. 9		ft. Top of Screen
10. 0		ft. Total Screen Interval
36. 9		ft. Bottom of Screen
36. 9		ft. Bottom of Borehole

Completed by JSK-Foth & Van Dyke and Assoc Surveyed by J.F. Gastel & Assoc. Ill. registration #: _____

A12

Illinois Environmental Protection Agency — Well Completion Report

te #: _____ County Stephenson Well # MW-19C

te Name: Modern Plating Corporation Grid Coordinate. Northing 11,063.7 Easting 11,153.4

rilling Contractor: Wisconsin TEst Drilling, Inc. Date Drilled Start: _____

riller: P. Dickenson Geologist: R. Panosh Date Completed: 11/1/88

rilling Method: Rotary Wash Drilling Fluids (type): Bentonite

nnular Space Details

pe of Surface Seal: Concrete

pe of Annular Sealant: Bentonite/Cement grout

Amount of cement: # of bags 4-1/4 lbs. per bag 94

Amount of bentonite. # of bags 3 lbs. per bag 50

pe of Bentonite Seal (Granular. Pellet): Pellets

nount of bentonite: # of bags bucket 2/3 lbs. per bag _____

pe of Sand Pack: #30 Red Flint Sand

urce of Sand: Bag

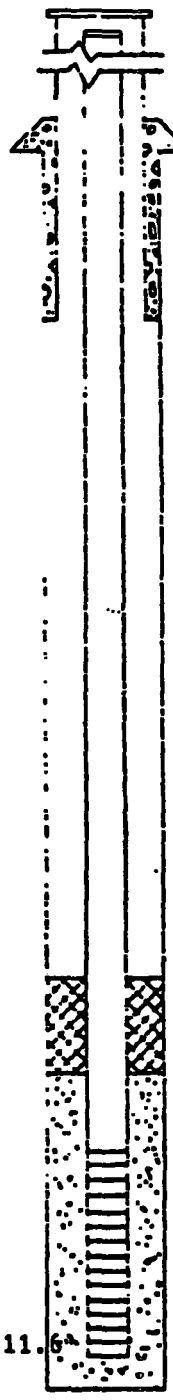
Amount of Sand: # of bags 1-1/4 lbs. per bag 50

ell Construction Materials

	Stainless Steel Specify Type	Teflon Specify Type	PVC Specify Type	Other Specify Type
Riser coupling joint	Flush Threaded			
Riser pipe above w.t.	316			
Riser pipe below w.t.	316			
Screen	316			
Coupling joint screen to riser	Flush Threaded			
Protective casing	Steel			

leasurements to .01 ft. (where applicable)

iser pipe length	108.1
rotective casing length	6.0
creen length	5.0
ottom of screen to end cap	
op of screen to first joint	
otal length of casing	113.1
creen slot size	.01
. of openings in screen	6.8 $in^2/ft.$
iameter of borehole (in)	8" 0-42', 6" 42-110', 4" 110-111.6
D of riser pipe (in)	



Elevations — .01 ft.

		MSL Top of Protective Casing
757.	70	MSL Top of Riser Pipe
2.	8	ft. Casing Stickup
754.	90	MSL Ground Surface
		ft. Top of annular sealant
98.	5	ft. Top of Seal
4.	2	ft. Total Seal Interval
102.	7	ft. Top of Sand
105.	3	ft. Top of Screen
5.	0	ft. Total Screen Interval
110.	3	ft. Bottom of Screen
111.	6	ft. Bottom of Borehole

ompleted by JSK-Foth & Van Dyke and Assoc Reviewed by J.F. Gastel and Assoc Ill registration # _____

Illinois Environmental Protection Agency — Well Completion Report

R000438

te #: _____ County Stephenson Well # MW-19D

te Name: Modern Plating Corporation Grid Coordinate. Northing 11,051.0 Easting 11,158.5

ing Contractor: Wisconsin Test Drilling, Inc. Date Drilled Start: 10/17/88

riller: P. Dickenson Geologist: R. Panosh Date Completed: 10/28/88

rilling Method: Rotary Wash Drilling Fluids (type): Bentonite

nnular Space Details

ype of Surface Seal: Concrete

ype of Annular Sealant: Bentonite/Cement grout

Amount of cement: # of bags _____ lbs. per bag _____

Amount of bentonite: # of bags _____ lbs. per bag _____

ype of Bentonite Seal (Granular, Pellet): Pellet

mount of bentonite: # of ~~Bags~~ bucket 1-1/2 lbs. per bag _____

ype of Sand Pack: #30 Red Flint Sand

ource of Sand: Bag

Amount of Sand: # of bags 1-1/4 lbs. per bag 50

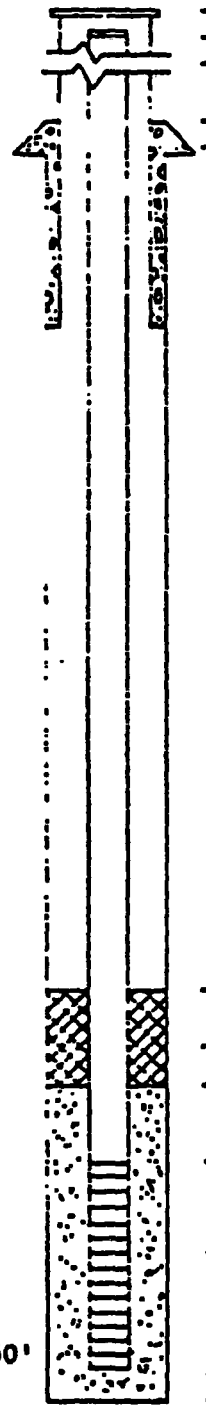
Well Construction Materials

	Stainless Steel Specify Type	Teflon Specify Type	PVC Specify Type	Other Specify Type
Riser coupling joint	Flush Threaded			
Riser pipe above w.t.	316			
Riser pipe below w.t.	316			
Screen	316			
Coupling joint screen to riser	Flush Threaded			
Protective casing	Steel			

Measurements to .01 ft. (where applicable)

Riser pipe length	142.8
Protective casing length	6.0
Screen length	10.0
Bottom of screen to end cap	
Top of screen to first joint	
Total length of casing	152.8
Screen slot size	.01
# of openings in screen	6.8 $in^2/ft.$
Diameter of borehole (in)	8" 0-42', 6" 42-129', 4" 129-150'
ID of riser pipe (in)	

Elevations — .01 ft.



757. 50		MSL Top of Protective Casing
757. 50		MSL Top of Riser Pipe
2. 9		ft. Casing Stickup
754. 6		MSL Ground Surface
____ ____		ft. Top of annular sealant
129. 2		ft. Top of Seal
6. 8		ft. Total Seal Interval
136. 0		ft. Top of Sand
137. 9		ft. Top of Screen
10. 0		ft. Total Screen Interval
149. 9		ft. Bottom of Screen
149. 9		ft. Bottom of Borehole

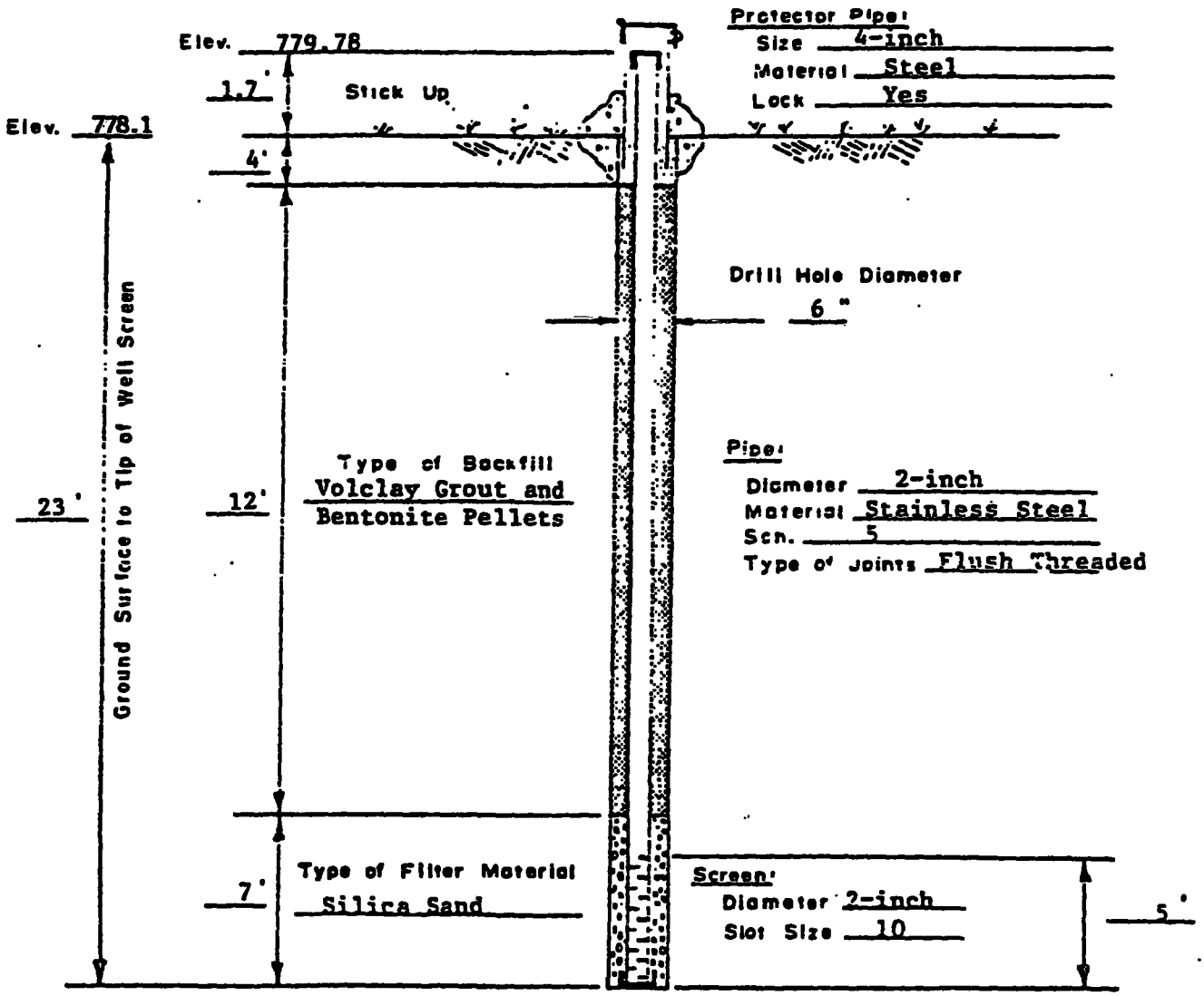
Completed by JSK-Foth & Van Dyke and Asso Reviewed by: J.F. Gastel & Assoc. Ill. registration # _____

A14

MONITORING WELL INSTALLATION DIAGRAM

WELL NO: 5C
DATE INSTALLED: 9/23/86
DRILLER: Testing Service Corp.
DRILLING METHOD: Rotary Wash

CLIENT: Modern Plating Corp.
PROJECT: Assessment Monitoring Program
SCOPE I.D.: 86M55
BY: RTB



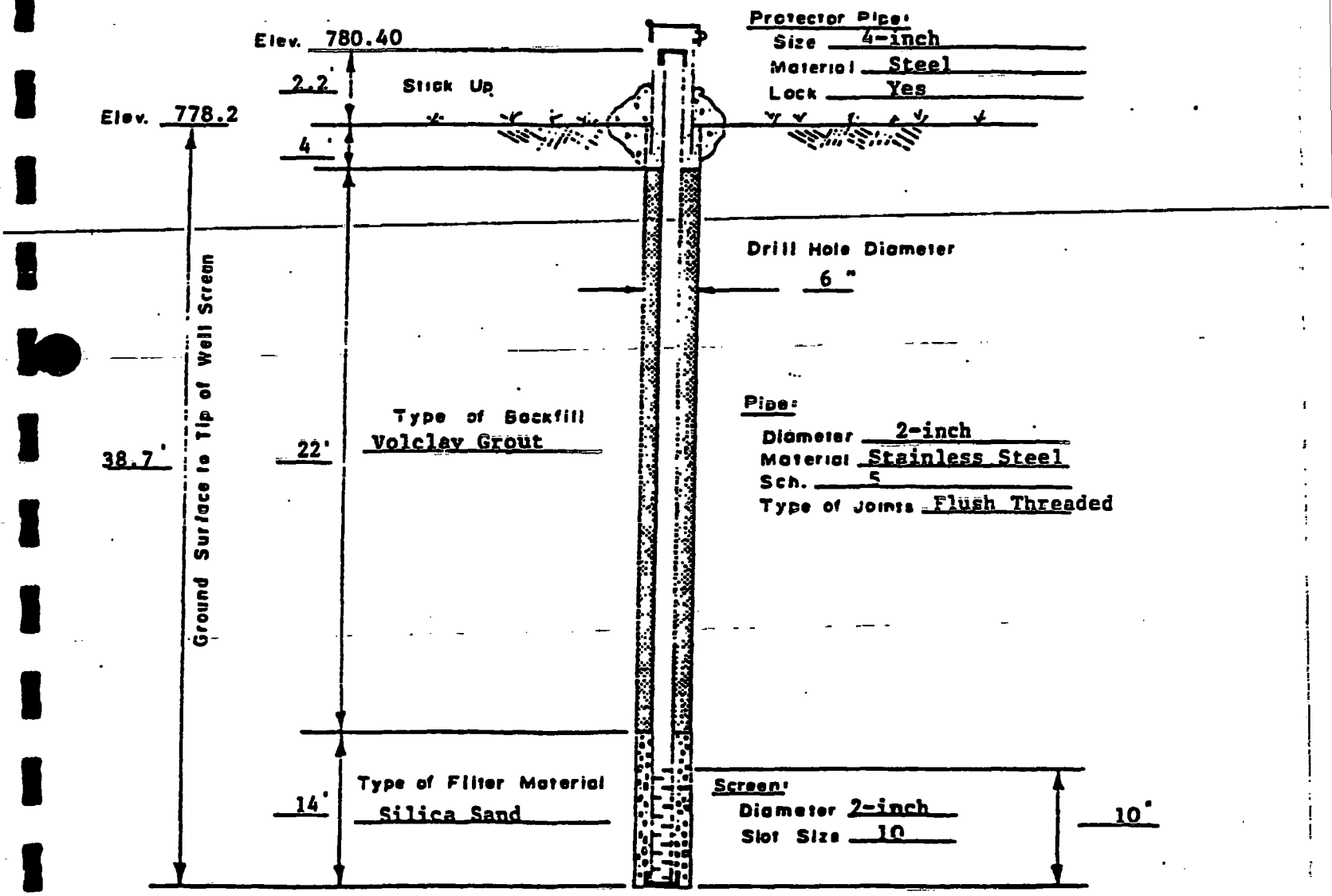
A14-1

Foth & Van Dyke
Waste/Energy Division

MONITORING WELL INSTALLATION DIAGRAM

WELL NO: 5D
DATE INSTALLED: 9/24/86
DRILLER: Testing Service Corp.
DRILLING METHOD: Rotary Wash

CLIENT: Modern Plating Corp.
PROJECT: Assessment Monitoring Program
SCOPE I.D.: 86M55
BY: RTB

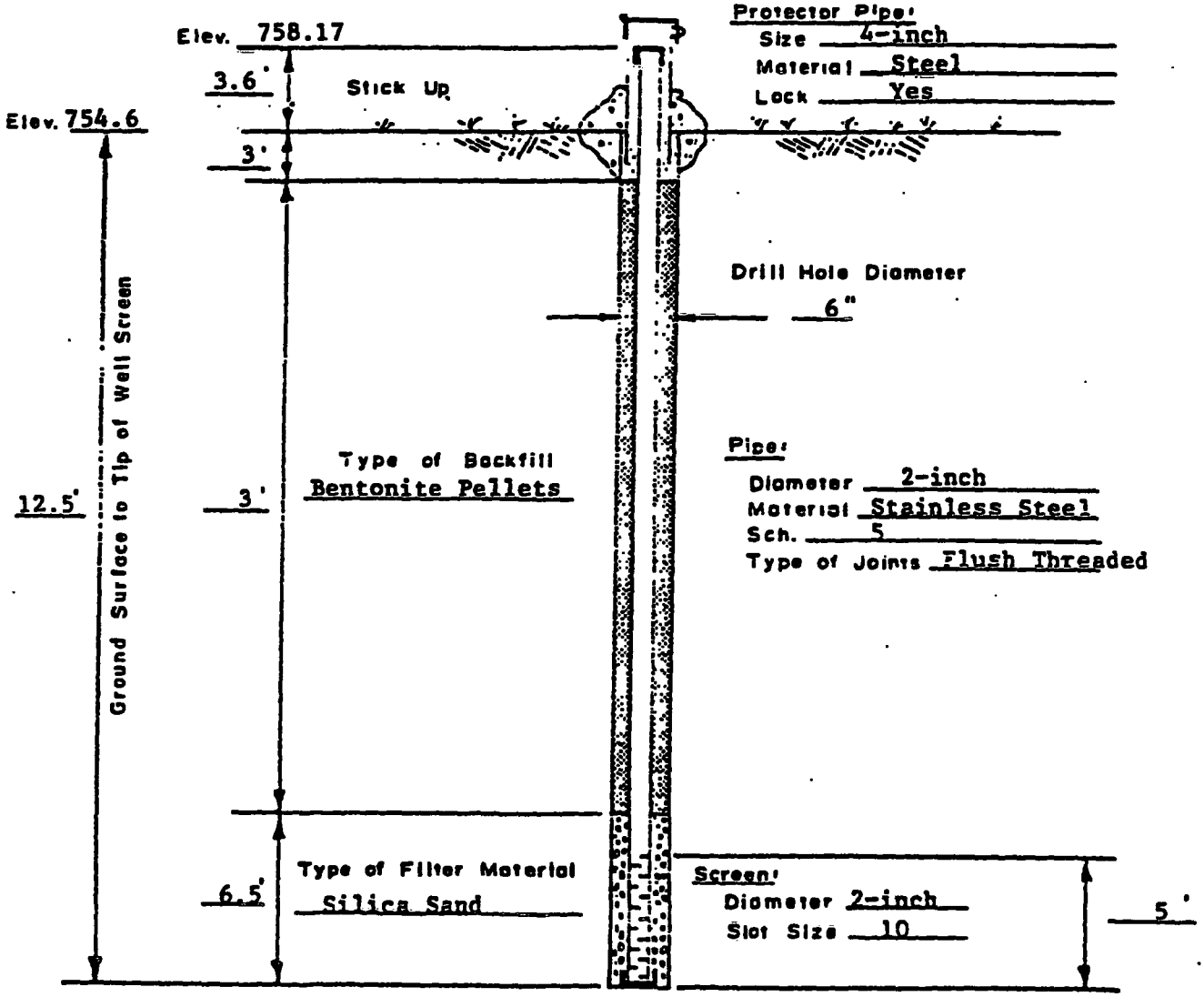


Foth & Van Dyke
Waste/Energy Division

MONITORING WELL INSTALLATION DIAGRAM

WELL NO: 6A
DATE INSTALLED: 9/26/86
DRILLER: Testing Service Corp.
DRILLING METHOD: Rotary Wash

CLIENT: Modern Plating Corp.
PROJECT: Assessment Monitoring Program
SCOPE I.D.: 86M55
BY: RTB



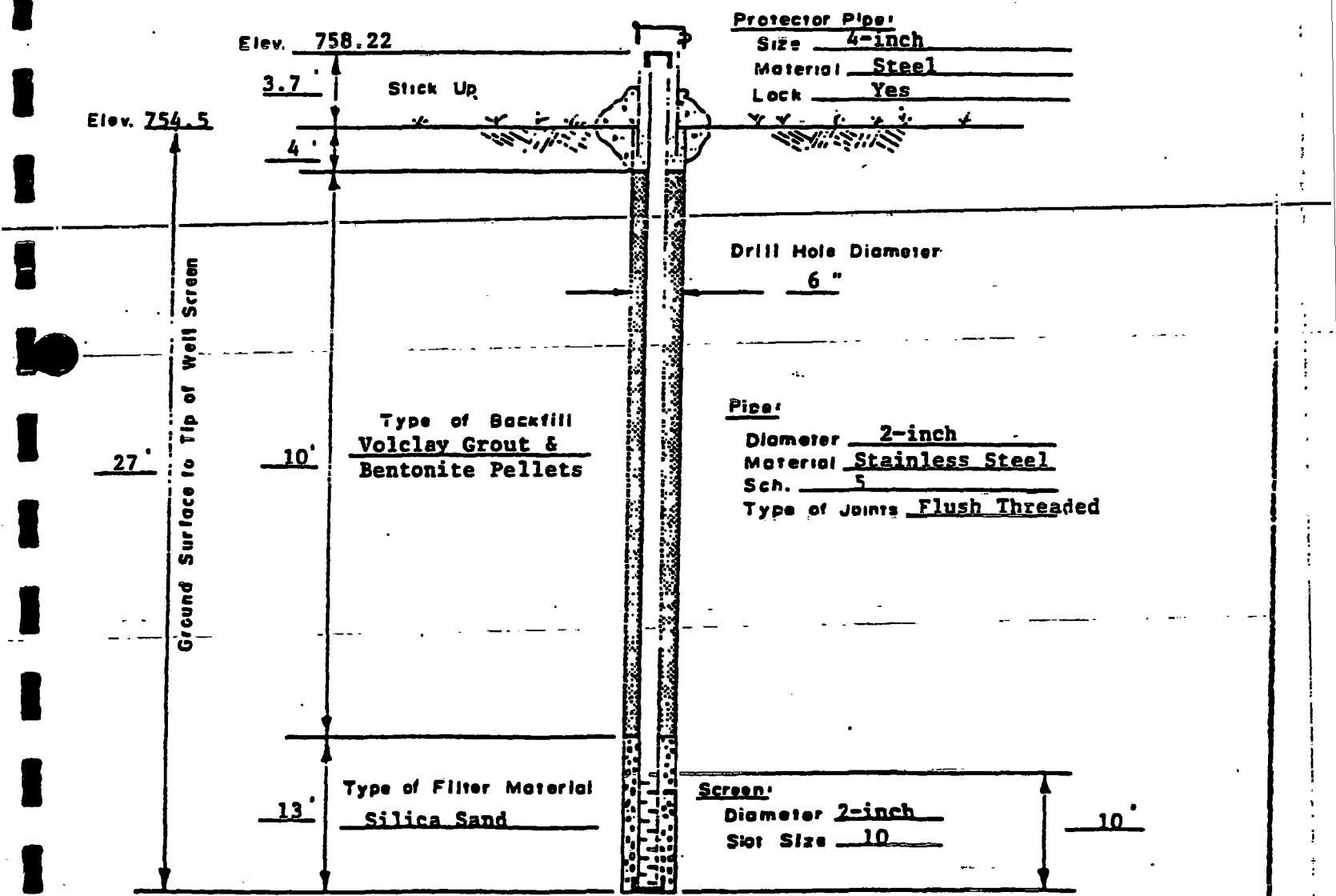
A14-3

Foth & Van Dyke
Waste/Energy Division

MONITORING WELL INSTALLATION DIAGRAM

WELL NO: 6B
DATE INSTALLED: 9/26/86
DRILLER: Testing Service Corp.
DRILLING METHOD: Rotary Wash

CLIENT: Modern Plating Corp.
PROJECT: Assessment Monitoring Program
SCOPE I.D.: 86M55
BY: RTB



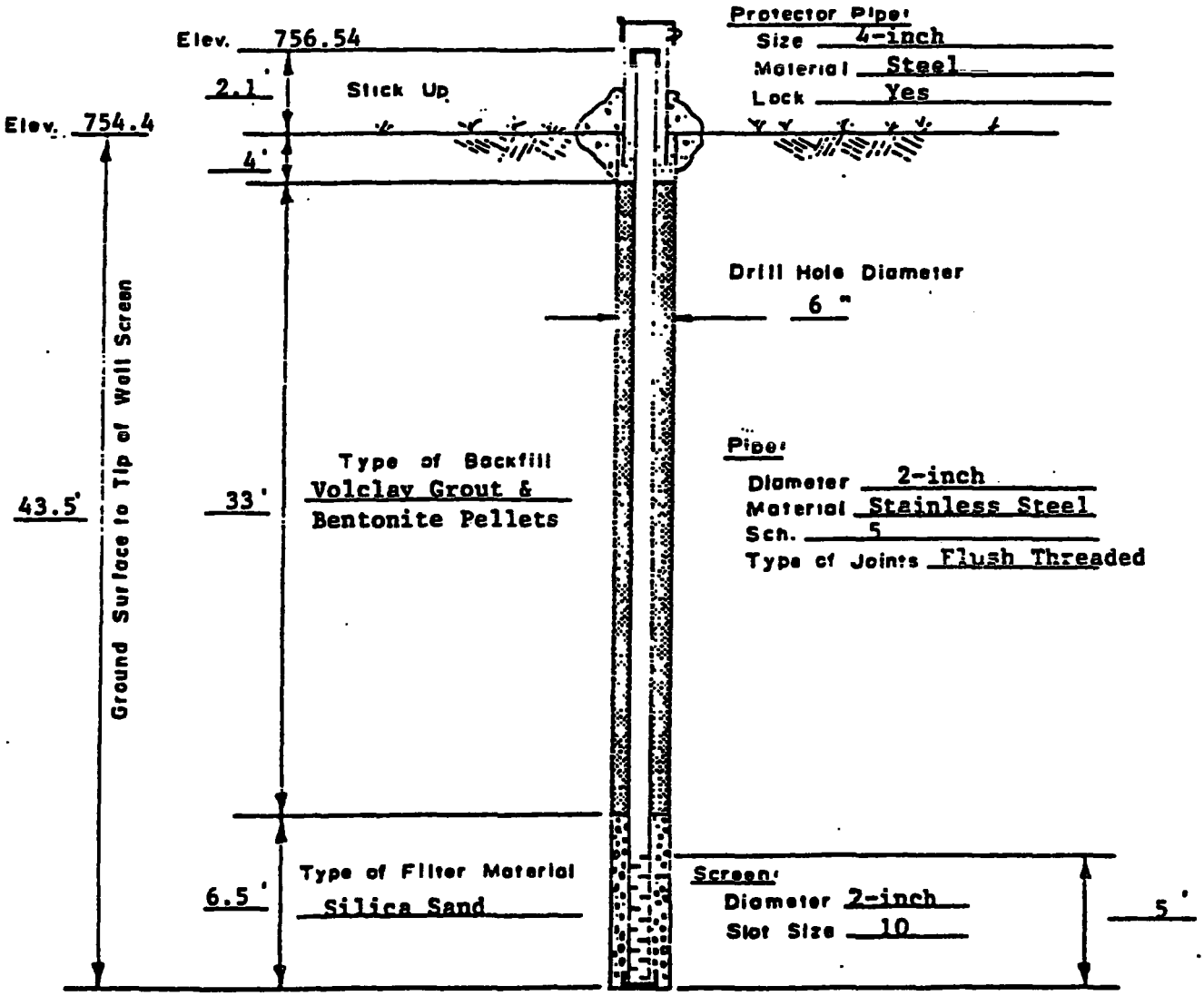
A 14-4

Foth & Van Dyke

MONITORING WELL INSTALLATION DIAGRAM

WELL NO: 6C
DATE INSTALLED: 9/25/86
DRILLER: Testing Service Corp.
DRILLING METHOD: Rotary Wash

CLIENT: Modern Plating Corp.
PROJECT: Assessment Monitoring Program
SCOPE I.D.: 86M55
BY: RTB



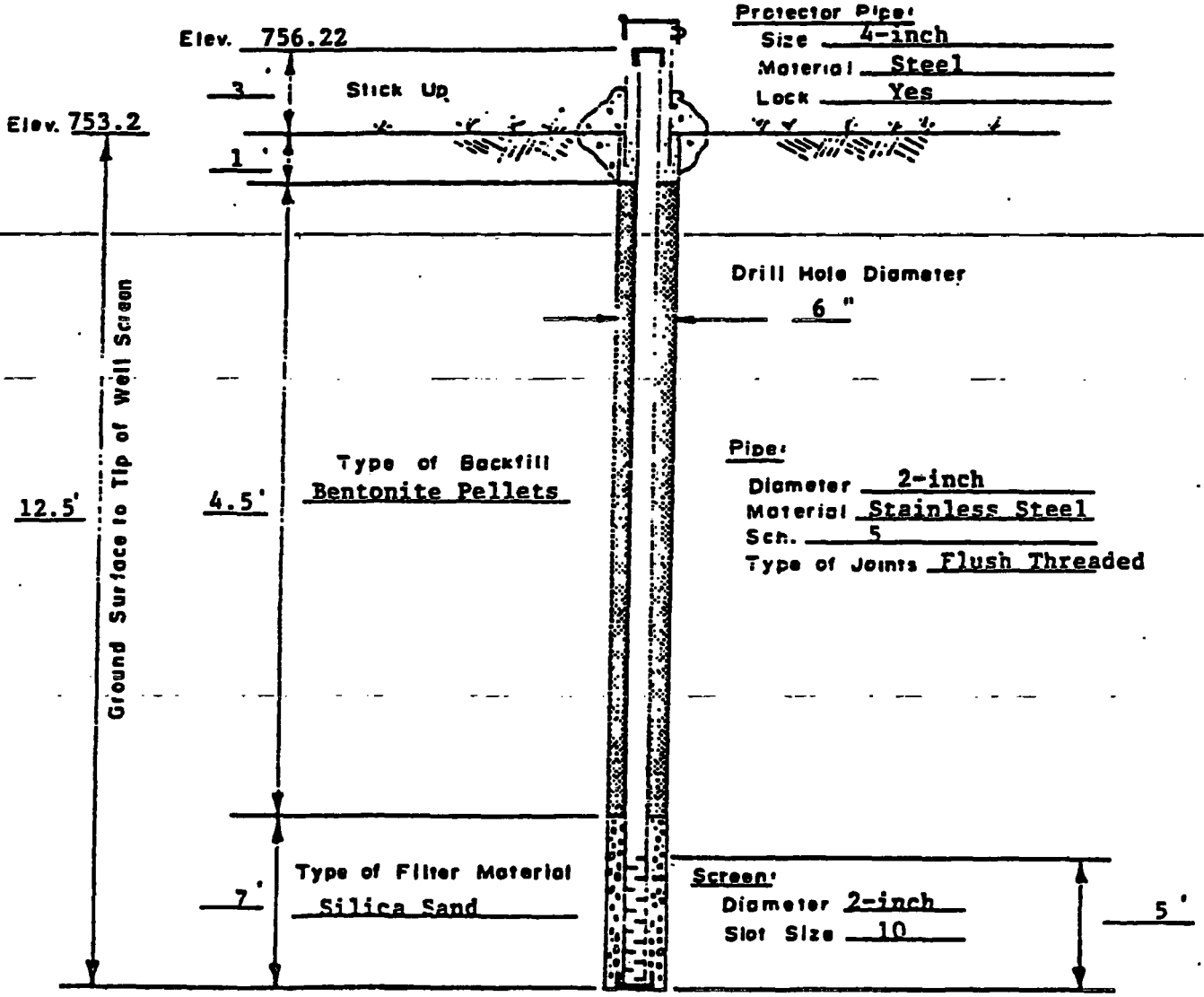
A14-5

Foth & Van Dyke
Waste Energy Division

MONITORING WELL INSTALLATION DIAGRAM

WELL NO: 7A
DATE INSTALLED: 10/7/86
DRILLER: Testing Service Corp.
DRILLING METHOD: Rotary Wash

CLIENT: Modern Plating Corp.
PROJECT: Assessment Monitoring Program
SCOPE I.D.: 86M55
BY: RTB

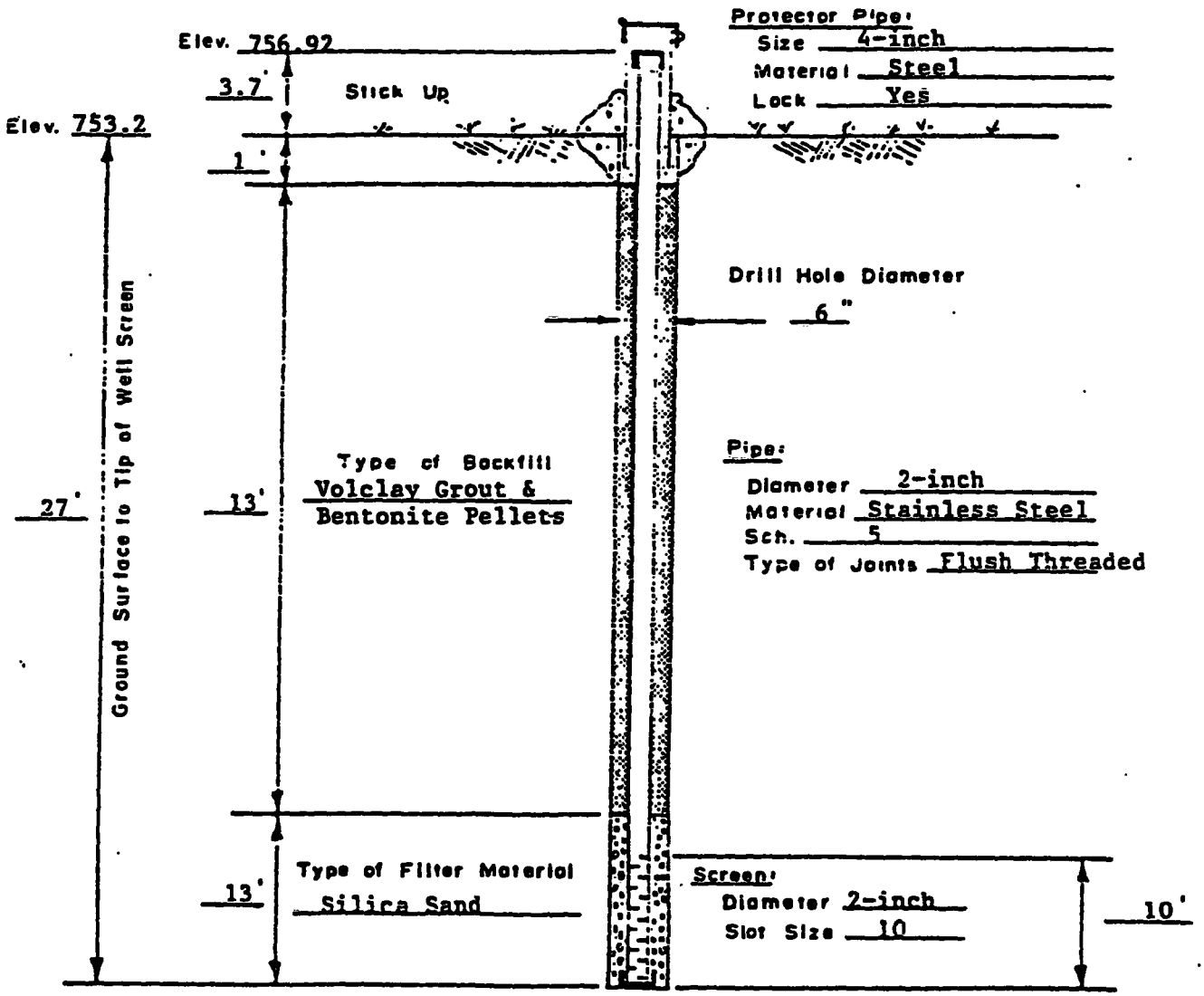


Foth & Van Dyke
Waste/Energy Division

MONITORING WELL INSTALLATION DIAGRAM

WELL NO: 7B
DATE INSTALLED: 10/7/86
DRILLER: Testing Service Corp.
DRILLING METHOD: Rotary Wash

CLIENT: Modern Plating Corp.
PROJECT: Assessment Monitoring Program
SCOPE I.D.: 86M55
BY: RTB



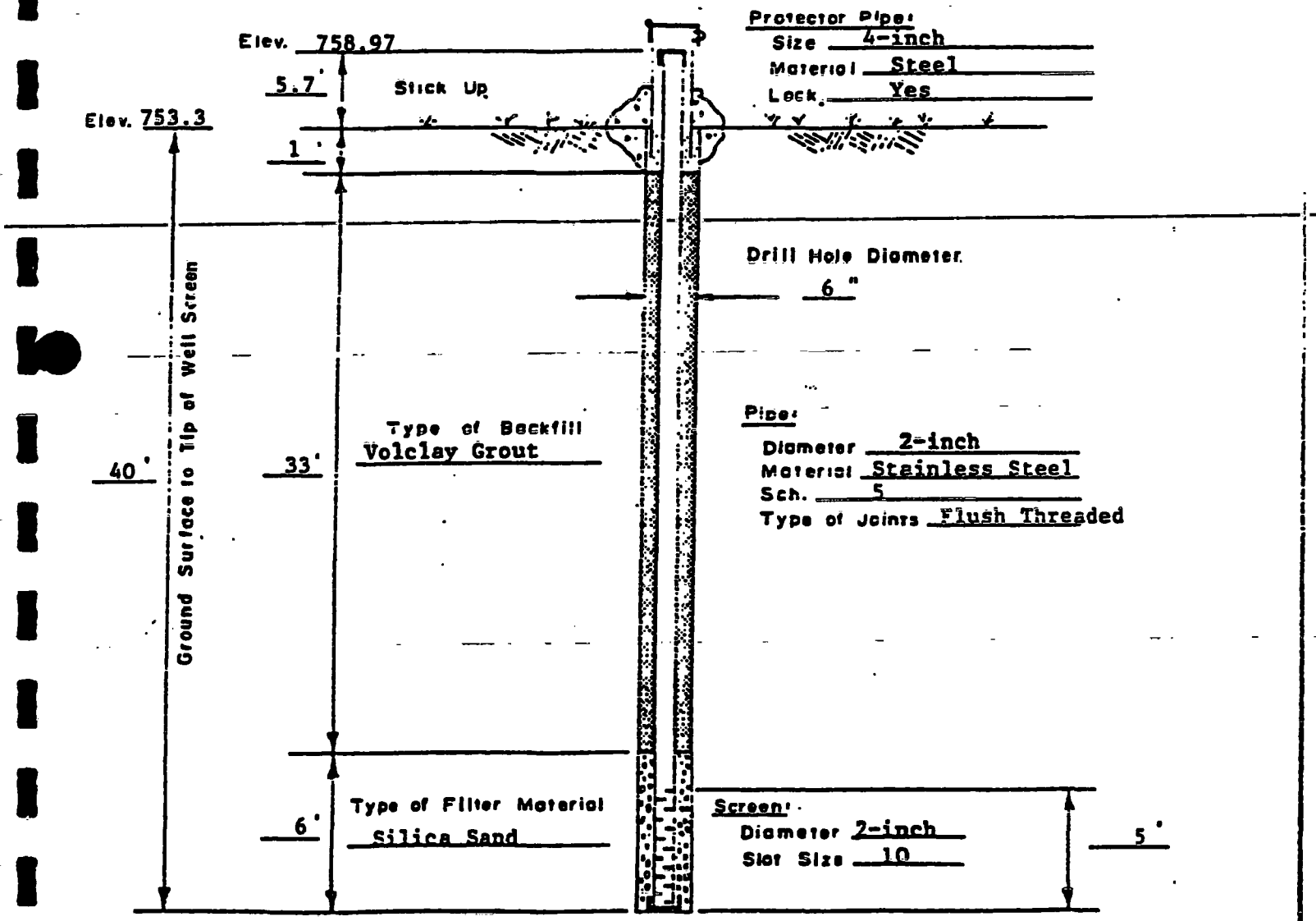
A14-7

Foth & Van Dyke
Waste/Energy Division

MONITORING WELL INSTALLATION DIAGRAM

WELL NO: 7C
DATE INSTALLED: 10/3/86
DRILLER: Testing Service Corp.
DRILLING METHOD: Rotary Wash

CLIENT: Modern Plating Corp.
PROJECT: Assessment Monitoring Program
SCOPE I.D.: 86M55
BY: RTB

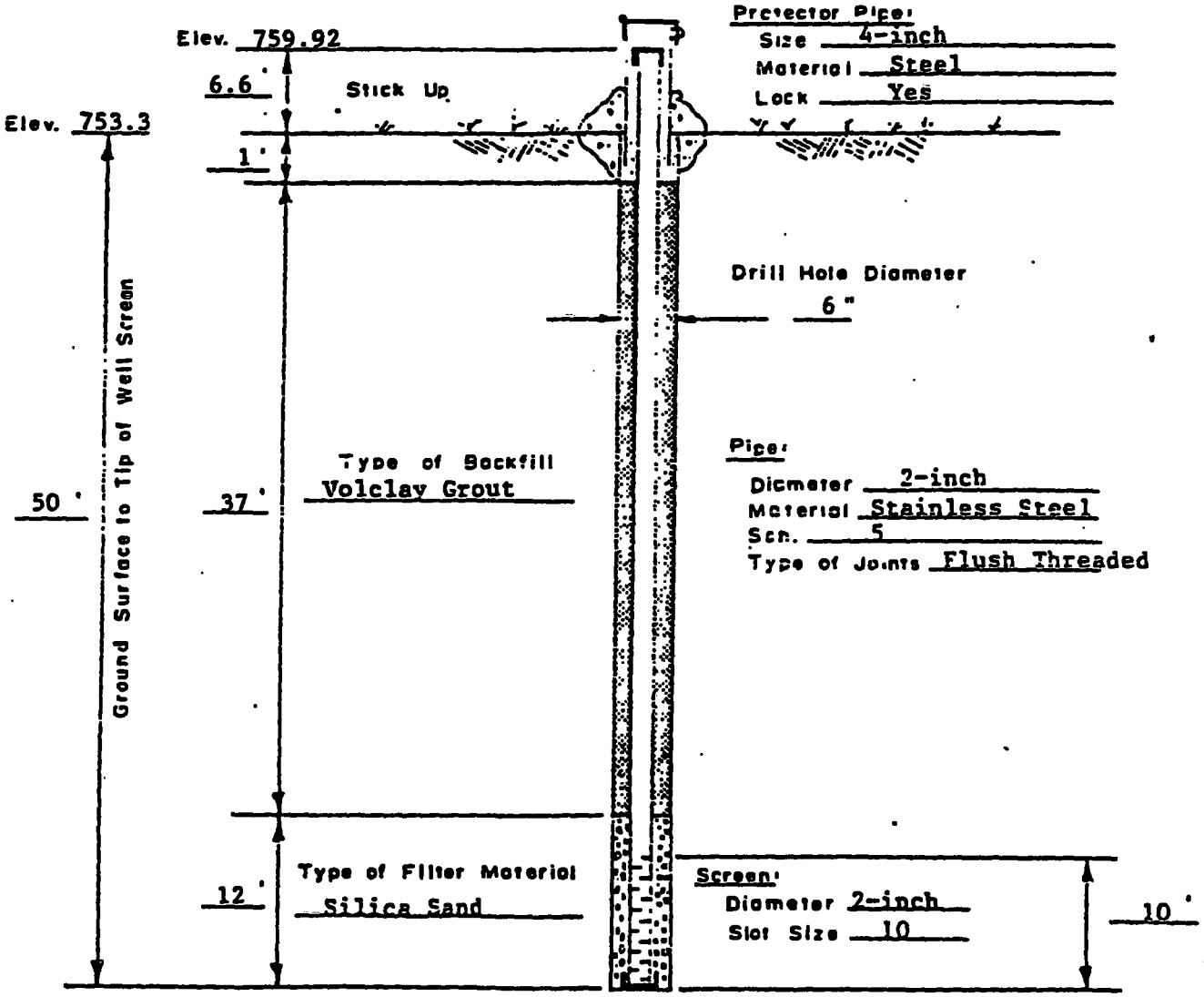


Foth & Van Dyke
Waste/Energy Division

MONITORING WELL INSTALLATION DIAGRAM

WELL NO: 7D
DATE INSTALLED: 10/6/86
DRILLER: Testing Service Corp.
DRILLING METHOD: Rotary Wash

CLIENT: Modern Plating Corp.
PROJECT: Assessment Monitoring Program
SCOPE I.D.: 86M55
BY: RTB



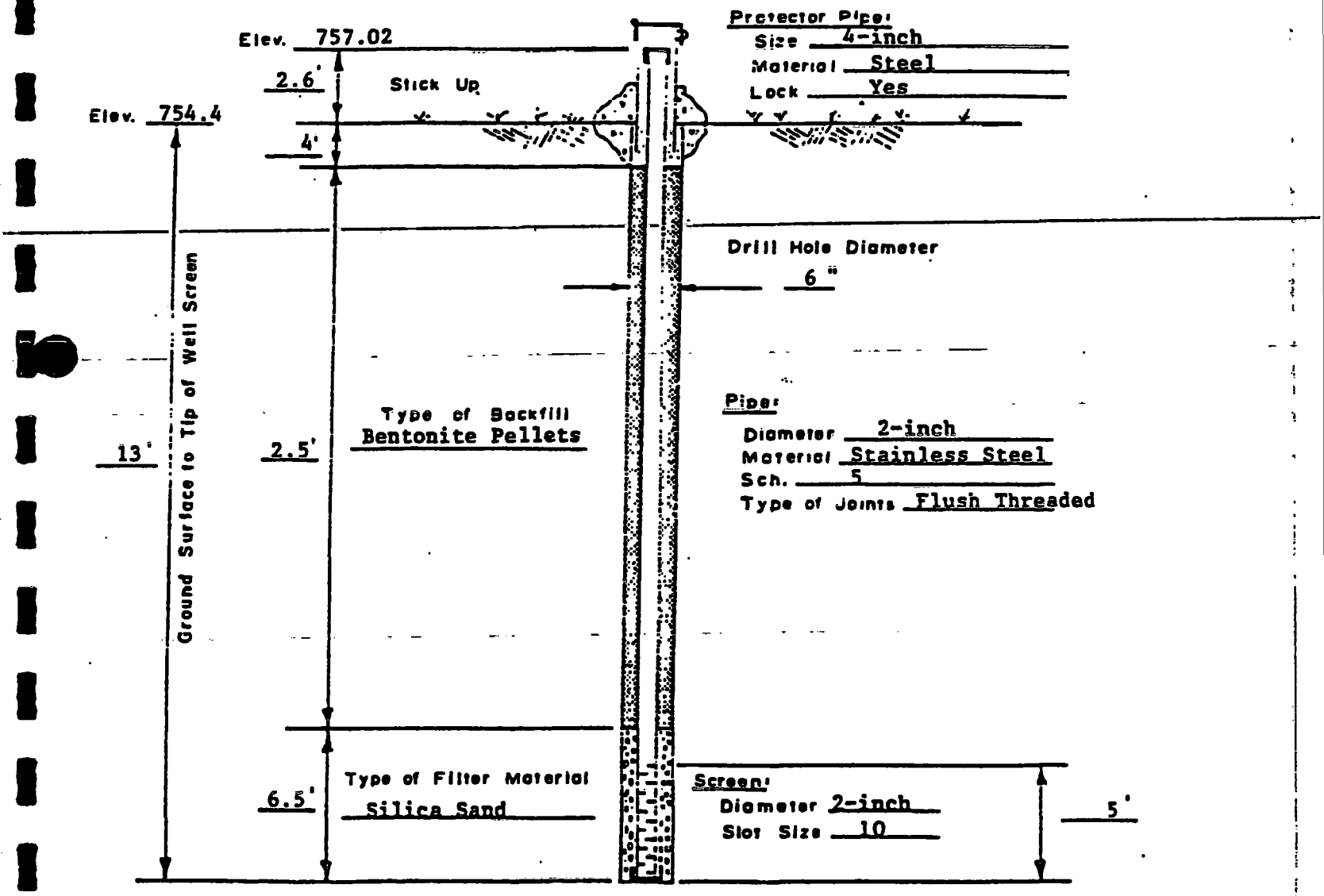
A14-9

Foth & Van Dyke
Waste/Energy Division

MONITORING WELL INSTALLATION DIAGRAM

WELL NO: 8A
DATE INSTALLED: 10/14/86
DRILLER: Testing Service Corp.
DRILLING METHOD: Rotary Wash

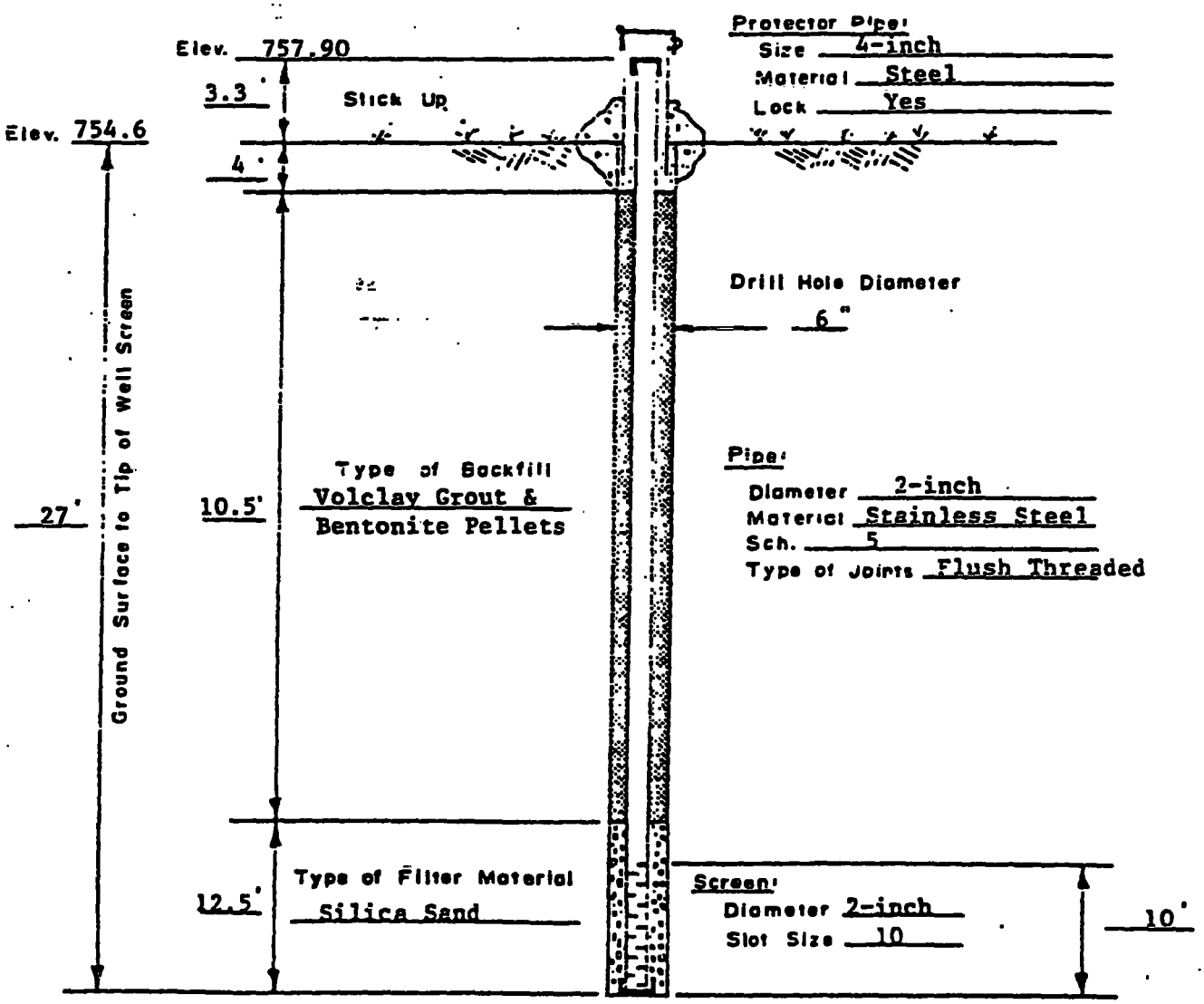
CLIENT: Modern Plating Corp.
PROJECT: Assessment Monitoring Program
SCOPE I.D.: 86M55
BY: RTB



Foth & Van Dyke
Waste/Energy Division

MONITORING WELL INSTALLATION DIAGRAM

WELL NO: 8B
CLIENT: Modern Plating Corp.
DATE INSTALLED: 10/14/86
PROJECT: Assessment Monitoring Program
DRILLER: Testing Service Corp.
SCOPE I.D.: 86M55
DRILLING METHOD: Rotary Wash
BY: RTB



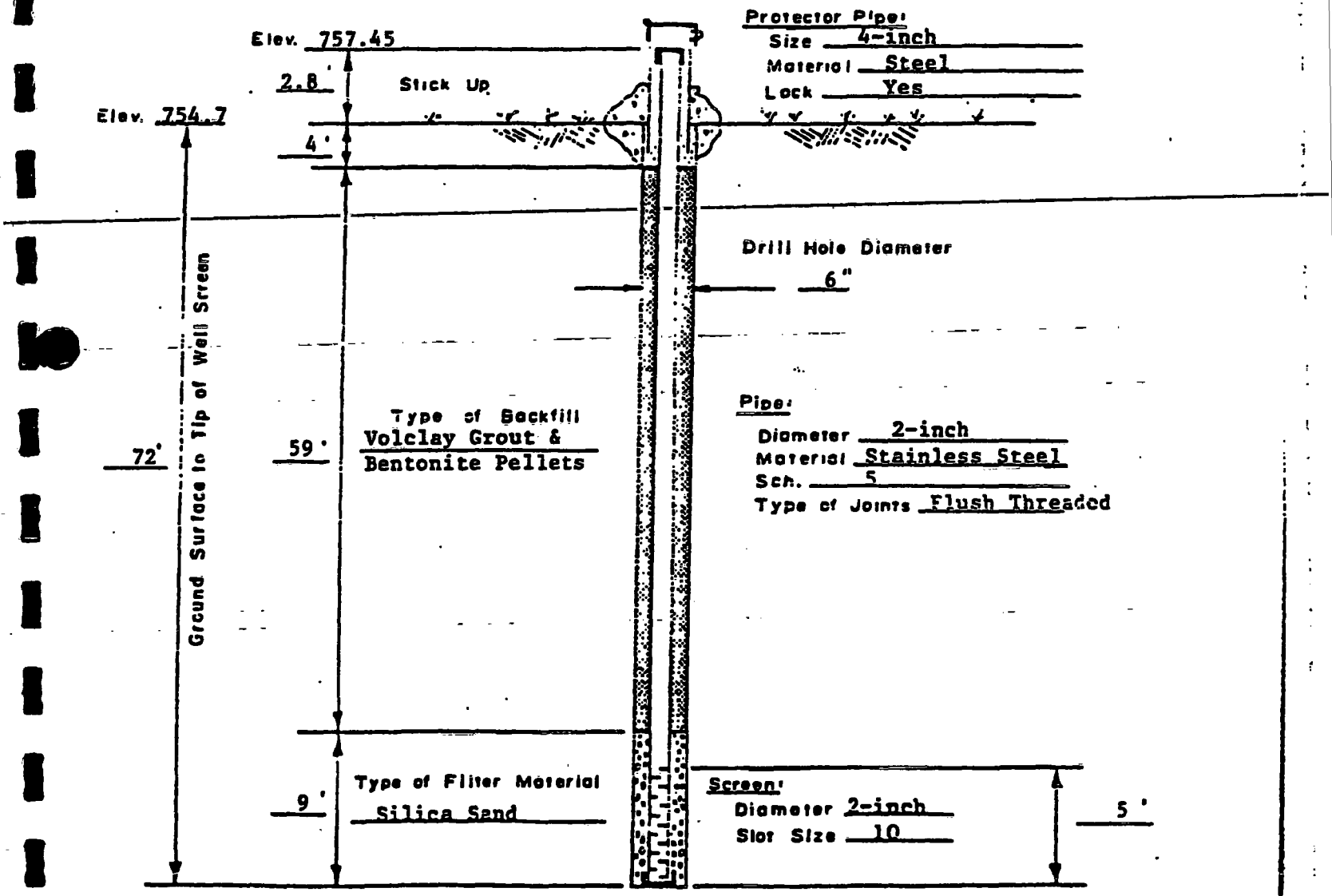
A14-11

Foth & Van Dyke
Waste/Energy Division

MONITORING WELL INSTALLATION DIAGRAM

WELL NO: 8C
DATE INSTALLED: 10/13/86
DRILLER: Testing Service Corp.
DRILLING METHOD: Rotary Wash

CLIENT: Modern Plating Corp.
PROJECT: Assessment Monitoring Program
SCOPE I.D.: 86M55
BY: RTB



Foth & Van Dyke

DRAFT

WELL COMPLETION REPORT

Site #: _____ County: Stephenson Well #: 11A

Name: Modern Plating Corporation Northing 10,334.7

Date Drilled: Start 8/18/87 Driller: L. Erdman Easting 10,331.9

Finish 8/19/87 Geologist: M. Carney

Drilling Contractor: Wisconsin Test Drilling

WELL CONSTRUCTION DETAILS

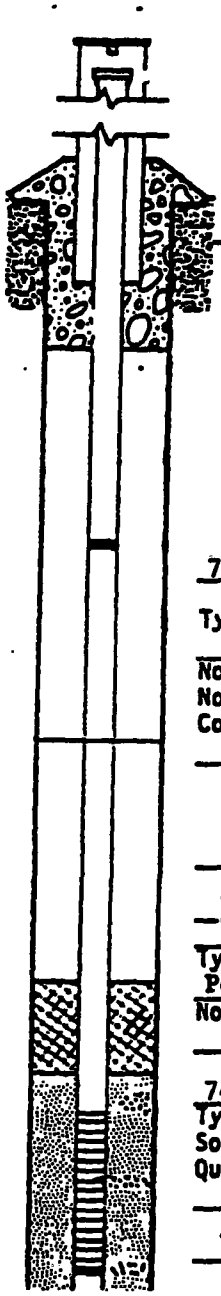
Lock Master 2121
Cap Cover Type
Type of Surface Casing: Steel

____ . __ MSL Surface Casing Collar Elevation
757 . 4 7 MSL Riser Pipe Collar Elevation
3 . 1 Ft. Riser Pipe Height Above Ground Elevation (Stick-up)
2 . 1 Ft. Depth of Surface Seal Below Ground
Type of Surface Seal: Concrete
Quan. Used: 3 bags
2 . 1 Ft. Depth of Surface Casing Below Ground

3.75 Inches - ID of Surface Casing
6 Inches - Diameter of Borehole
Type of Riser Pipe: (material)
Stainless Steel 316
2 Inches - ID of Riser Pipe
2.375 Inches - OD of Riser Ripe
Type of Riser Joint/Coupling:
Flush Thread

747 . 7 MSL Top of Screen Elevation
Type of Coupling/Joint - Screen to Riser Pipe: Flush Thread
Type of Screen: (material)
Stainless Steel 316
Opening Size: (slot size) .010 inches
Opening Space: 6.8 sq. in/ft
% Openings in Screen
742 . 7 MSL Bottom Screen Elevation

Drilling method Rotary Wash
Lubricants Water



ANNULAR SPACE DETAILS

754 . 4 MSL Ground Surface Elevation

754 . 4 MSL Top of Backfill Elevation
Type of Backfill: Bentonite Slurry
No. of Bags of Cement:
No. of Bags of Bentonite:
Comments:

2 . 9 Ft. Depth to Top of Seal
751 . 5 MSL Top of Seal Elev.
2 . 1 Ft. Total Seal Interval
Type of Bentonite (granular, pellet): Pellet
No. of Bags of Bentonite:
5 . 0 Ft. Depth to Top of Sand Pack
749 . 4 MSL Elev. of Top of Sand
Type of Sand Pack: Red Flint #30
Source of Sand: Bag
Quantity of Sand Used: 1 Bag
7 . 0 Ft. Total Sand Pack Interval
742 . 4 MSL Bottom of Sand Pack Elevation
12 . 0 Ft. Total Borehole Depth
742 . 4 MSL Elev. of Bottom of Borehole

CSD:tk:2/15/2-1(7/6/87)

DRAFT

WELL COMPLETION REPORT

Site #: _____ County: Stephenson Well #: 11B

Name: Modern Plating Corporation Northing 10,340.1

Date Drilled: Start 8/18/87 Driller: L. Erdman Easting 10,332.1

Finish 8/19/87 Geologist: M. Carney

Drilling Contractor: Wisconsin Test Drilling

WELL CONSTRUCTION DETAILS

Lock Master 2121
Cap Cover Type
Type of Surface Casing: Steel

___ . __ MSL Surface Casing Collar Elevation
757 . 49 MSL Riser Pipe Collar Elevation
3 . 2 Ft. Riser Pipe Height Above Ground Elevation (Stick-up)
1 . 9 Ft. Depth of Surface Seal Below Ground
Type of Surface Seal: Concrete
Quan. Used: 3 Bags
1 . 9 Ft. Depth of Surface Casing Below Ground

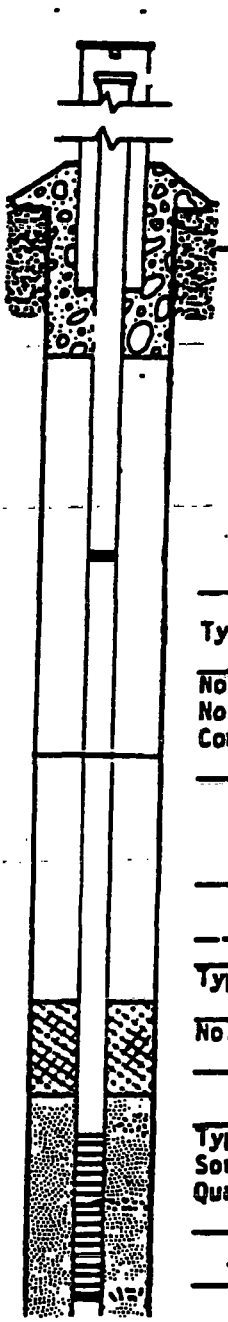
3.75 Inches - ID of Surface Casing
6 Inches - Diameter of Borehole
Type of Riser Pipe: (material) Stainless Steel 316
2 Inches - ID of Riser Pipe
2.375 Inches - OD of Riser Ripe
Type of Riser Joint/Coupling: Flush Thread

737 . 3 MSL Top of Screen Elevation
Type of Coupling/Joint - Screen to Riser Pipe: Flush Thread
Type of Screen: (material) Stainless Steel 316
Opening Size: (slot size) .010 inches
Opening Space: 6.8 sq. in/ft
% Openings in Screen
727 . 3 MSL Bottom Screen Elevation

Drilling method Rotary Wash

Lubricants Water

ANNULAR SPACE DETAILS



754 . 3 MSL Ground Surface Elevation

754 . 3 MSL Top of Backfill Elevation
Type of Backfill: Bentonite Slurry
No. of Bags of Cement:
No. of Bags of Bentonite: 1/4 Bag
Comments:

10 . 8 Ft. Depth to Top of Seal
743 . 5 MSL Top of Seal Elev.
4 . 2 Ft. Total Seal Interval
Type of Bentonite (granular, pellet): Pellet
No. of Bags of Bentonite:
15 . 0 Ft. Depth to Top of Sand Pack
739 . 3 MSL Elev. of Top of Sand
Type of Sand Pack: Red Flint #30
Source of Sand: Bag
Quantity of Sand Used: 4 Bags
13 . 0 Ft. Total Sand Pack Interval
726 . 3 MSL Bottom of Sand Pack Elevation
28 . 0 Ft. Total Borehole Depth
726 . 3 MSL Elev. of Bottom of Borehole

CSD:tk:2/15/2-1(7/6/87)

A14-14

DRAFT

WELL COMPLETION REPORT

Site #: _____ County: Stephenson Well #: 11C

Name: Modern Plating Corporation Northing 10,346.2

Date Drilled: Start 8/17/87 Driller: L. Erdman Easting 10,334.4

Finish 8/19/87 Geologist: M. Carney

Drilling Contractor: Wisconsin Test Drilling

WELL CONSTRUCTION DETAILS

Lock Master 2121
Cap Cover Type
Type of Surface Casing: Steel

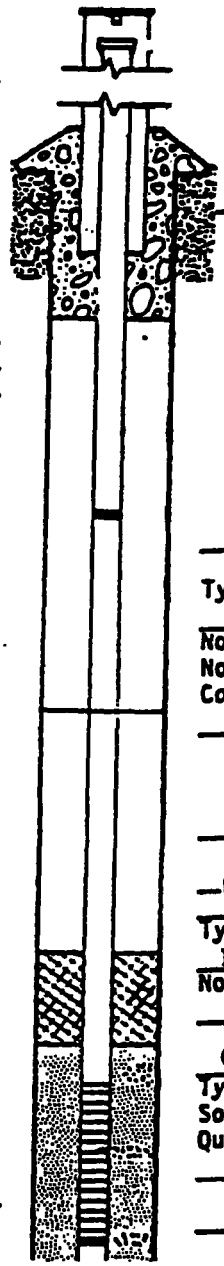
____ . __ MSL Surface Casing Collar Elevation
756 . 06 MSL Riser Pipe Collar Elevation
1 . 8 Ft. Riser Pipe Height Above Ground Elevation (Stick-up)
2 . 9 Ft. Depth of Surface Seal Below Ground
Type of Surface Seal: Concrete
Quan. Used: 5 Bags
2 . 9 Ft. Depth of Surface Casing Below Ground

8.25 Inches - ID of Surface Casing
6 Inches - Diameter of Borehole
Type of Riser Pipe: (material)
Stainless Steel 316
2 Inches - ID of Riser Pipe
2.375 Inches - OD of Riser Ripe
Type of Riser Joint/Coupling:
Flush Thread

693 . 8 MSL Top of Screen Elevation
Type of Coupling/Joint - Screen to Riser Pipe: Flush Thread
Type of Screen: (material)
Stainless Steel 316
Opening Size: (slot size) .010 inches
Opening Space: 6.8 sq in/ft
% Openings in Screen
688 . 8 MSL Bottom Screen Elevation

Drilling method Rotary Wash

Lubricants Water



ANNULAR SPACE DETAILS

754 . 3 MSL Ground Surface Elevation

754 . 3 MSL Top of Backfill Elevation
Type of Backfill: Bentonite Slurry
No. of Bags of Cement:
No. of Bags of Bentonite: 1 1/4
Comments:

56 . 0 Ft. Depth to Top of Seal
698 . 3 MSL Top of Seal Elev.
2 . 5 Ft. Total Seal Interval
Type of Bentonite (granular, pellet): Pellet
No. of Bags of Bentonite:
58 . 5 Ft. Depth to Top of Sand Pack
695 . 8 MSL Elev. of Top of Sand
Type of Sand Pack: Red Flint #30
Source of Sand: Bag
Quantity of Sand Used: 1 1/4 Bags
7 . 8 Ft. Total Sand Pack Interval
688 . 0 MSL Bottom of Sand Pack Elevation
66 . 3 Ft. Total Borehole Depth
688 . 0 MSL Elev. of Bottom of Borehole

CSD:tk:2/15/2-1(7/6/87)

A14-15

DRAFT

WELL COMPLETION REPORT

Site #: _____ County: Stephenson Well #: 11E

Name: Modern Plating Corporation Northing 10,351.0

Date Drilled: Start 8/11/87 Driller: L. Erdman Easting 10,336.4

Finish 8/17/87 Geologist: M. Carney

Drilling Contractor: Wisconsin Test Drilling

WELL CONSTRUCTION DETAILS

Lock Master 2121
Cap Cover Type
Type of Surface Casing: Steel

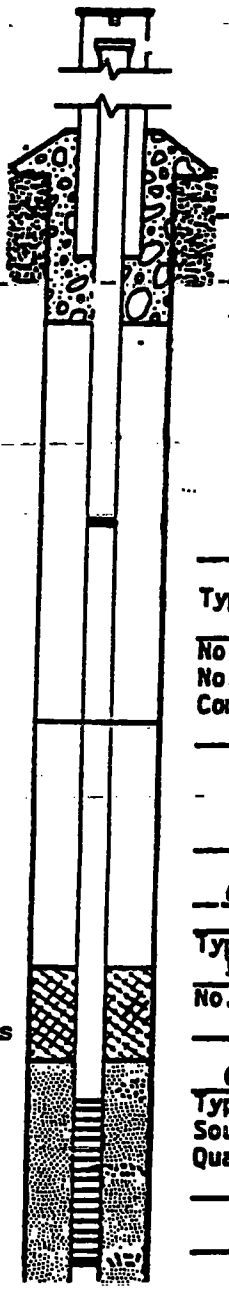
_____ MSL Surface Casing Collar Elevation
755.73 MSL Riser Pipe Collar Elevation
1.4 Ft. Riser Pipe Height Above Ground Elevation (Stick-up)
2.0 Ft. Depth of Surface Seal Below Ground
Type of Surface Seal: Concrete
Quan. Used: 5 Bags
2.5 Ft. Depth of Surface Casing Below Ground

8.25 Inches - ID of Surface Casing
6 Inches - Diameter of Borehole
Type of Riser Pipe: (material) Stainless Steel 316
2 Inches - ID of Riser Pipe
2.375 Inches - OD of Riser Ripe
Type of Riser Joint/Coupling: Flush Thread

665.8 MSL Top of Screen Elevation
Type of Coupling/Joint - Screen to Riser Pipe: Flush Thread
Type of Screen: (material) Stainless Steel 316
Opening Size: (slotsize) .010 inches
Opening Space: 6.8 sq in/ft
% Openings in Screen
655.8 MSL Bottom Screen Elevation

Drilling method Rotary Wash

Lubricants Water



754.3 MSL Ground Surface Elevation

ANNULAR SPACE DETAILS

754.3 MSL Top of Backfill Elevation
Type of Backfill: Bentonite Slurry
No. of Bags of Cement: _____
No. of Bags of Bentonite: 2
Comments: _____

81.5 Ft. Depth to Top of Seal
672.8 MSL Top of Seal Elev.
2.5 Ft. Total Seal Interval
Type of Bentonite (granular, pellet): Pellet
No. of Bags of Bentonite: _____
84.0 Ft. Depth to Top of Sand Pack
670.3 MSL Elev. of Top of Sand
Type of Sand Pack: Natural
Source of Sand: _____
Quantity of Sand Used: _____
17.0 Ft. Total Sand Pack Interval
653.3 MSL Bottom of Sand Pack Elevation
101.0 Ft. Total Borehole Depth
101.0 MSL Elev. of Bottom of Borehole

CSD:tk:2/15/2-1(7/6/87)

DRAFT

WELL COMPLETION REPORT

Site #: _____ County: Stephenson Well #: 12A

Name: Modern Plating Corporation Northing 10,505.5

Date Drilled: Start 8/25/87 Driller: L. Ludwig Easting 10,545.6

Finish 8/25/87 Geologist: M. Carney

Drilling Contractor: Wisconsin Test Drilling

WELL CONSTRUCTION DETAILS

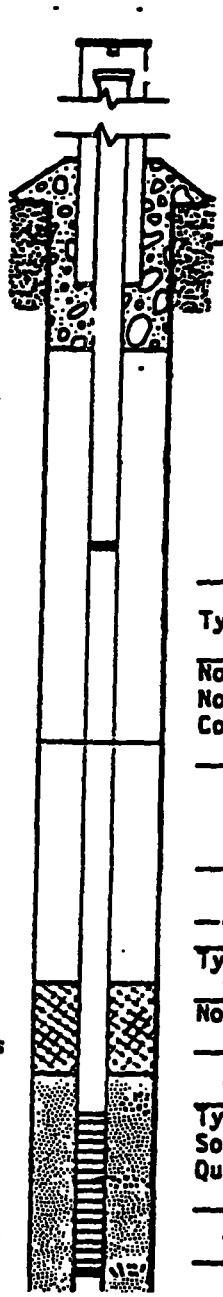
Lock Master 2121
Cap Cover Type
Type of Surface Casing: Steel

____ . __ MSL Surface Casing Collar Elevation
756 . 61 MSL Riser Pipe Collar Elevation
3 . 0 Ft. Riser Pipe Height Above Ground Elevation (Stick-up)
1 . 9 Ft. Depth of Surface Seal Below Ground
Type of Surface Seal: Concrete
Quan. Used: 1 Bag
1 . 9 Ft. Depth of Surface Casing Below Ground

3.75 Inches - ID of Surface Casing
6 Inches - Diameter of Borehole
Type of Riser Pipe: (material)
Stainless Steel 316
2 Inches - ID of Riser Pipe
2.375 Inches - OD of Riser Ripe
Type of Riser Joint/Coupling:
Flush Thread

746 . 6 MSL Top of Screen Elevation
Type of Coupling/Joint - Screen to Riser Pipe: Flush Thread
Type of Screen: (material)
Stainless Steel 316
Opening Size: (width) .010 inches
Opening Space: 6.8 sq in/ft
% Openings in Screen
741 . 6 MSL Bottom Screen Elevation

Drilling method Rotary Wash
Lubricants Water



753 . 6 MSL Ground Surface Elevation

ANNULAR SPACE DETAILS

753 . 6 MSL Top of Backfill Elevation
Type of Backfill: Bentonite Slurry
No. of Bags of Cement:
No. of Bags of Bentonite: < 1/4 Bag
Comments:

2 . 1 Ft. Depth to Top of Seal
____ . __ MSL Top of Seal Elev.
3 . 1 Ft. Total Seal Interval
Type of Bentonite (granular, pellet):
Pellet
No. of Bags of Bentonite:
5 . 2 Ft. Depth to Top of Sand Pack
748 . 4 MSL Elev. of Top of Sand
Type of Sand Pack: Red Flint #30
Source of Sand: Bag
Quantity of Sand Used: 3/4 Bag
6 . 8 Ft. Total Sand Pack Interval
741 . 6 MSL Bottom of Sand Pack Elevation
12 . 0 Ft. Total Borehole Depth
741 . 6 MSL Elev. of Bottom of Borehole

CSD:tk:2/15/2-1(7/6/87)

DRAFT

WELL COMPLETION REPORT

Site #: _____ County: Stephenson Well #: 12B

Name: Modern Plating Corporation Northing 10,507.1

Date Drilled: Start 8/25/87 Driller: L. Ludwig Easting 10,548.6

Finish 8/25/87 Geologist: M. Carney

Drilling Contractor: Wisconsin Test Drilling

WELL CONSTRUCTION DETAILS

Lock Master 2121
Cap Cover Type
Type of Surface Casing: Steel

____ . __ MSL Surface Casing Collar Elevation
755 . 64 MSL Riser Pipe Collar Elevation
2 . 0 Ft. Riser Pipe Height Above Ground Elevation (Stick-up)
2 . 8 Ft. Depth of Surface Seal Below Ground
Type of Surface Seal: Concrete
Quan. Used: 2 Bags
2 . 8 Ft. Depth of Surface Casing Below Ground

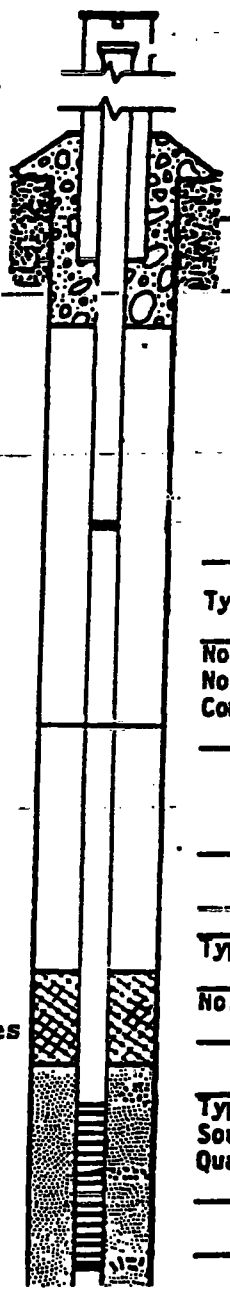
3.75 Inches - ID of Surface Casing
6 Inches - Diameter of Borehole
Type of Riser Pipe: (material)
Stainless Steel 316
2 Inches - ID of Riser Pipe
2.375 Inches - OD of Riser Ripe
Type of Riser Joint/Coupling:
Flush Thread

735 . 6 MSL Top of Screen Elevation
Type of Coupling/Joint - Screen to Riser Pipe: Flush Thread
Type of Screen: (material)
Stainless Steel 316
Opening Size: (slot size) .010 inches
Opening Space: 6.8 sq in/ft
% Openings in Screen
725 . 6 MSL Bottom Screen Elevation

Drilling method Rotary Wash

Lubricants Water

ANNULAR SPACE DETAILS



753 . 6 MSL Ground Surface Elevation

753 . 6 MSL Top of Backfill Elevation
Type of Backfill: Bentonite Slurry
No. of Bags of Cement:
No. of Bags of Bentonite: 3/4
Comments:

14 . 0 Ft. Depth to Top of Seal
739 . 6 MSL Top of Seal Elev.
2 . 2 Ft. Total Seal Interval
Type of Bentonite (granular, pellet): Pellet
No. of Bags of Bentonite:
16 . 2 Ft. Depth to Top of Sand Pack
737 . 4 MSL Elev. of Top of Sand
Type of Sand Pack: Red Flint #30
Source of Sand: Bag
Quantity of Sand Used: 4 Bags
11 . 8 Ft. Total Sand Pack Interval
725 . 6 MSL Bottom of Sand Pack Elevation
30 . 5 Ft. Total Borehole Depth
723 . 1 MSL Elev. of Bottom of Borehole

CSD:tk:2/15/2-1(7/6/87)

DRAFT

WELL COMPLETION REPORT

Site #: _____ County: Stephenson Well #: 12C

Name: Modern Plating Corporation Northing 10,512.0

Date Drilled: Start 8/24/87 Driller: L. Ludwig Easting 10,552.3

Finish 8/25/87 Geologist: M. Carney

Drilling Contractor: Wisconsin Test Drilling

WELL CONSTRUCTION DETAILS

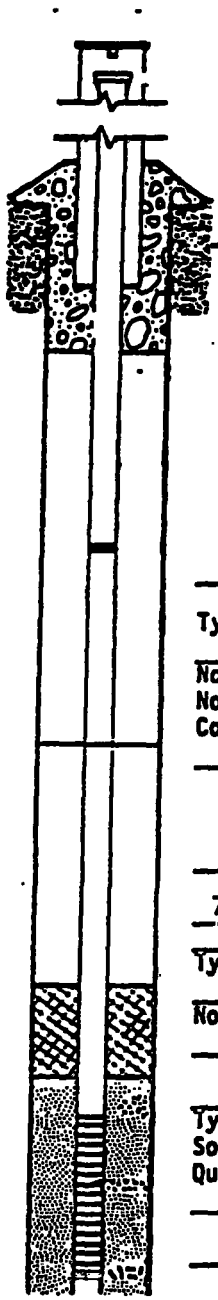
Lock Master 2121
Cap Flip Lid
Type of Surface Casing: Steel

___ . ___ MSL Surface Casing Collar Elevation
756 . 10 MSL Riser Pipe Collar Elevation
2 . 5 Ft. Riser Pipe Height Above Ground Elevation (Stick-up)
2 . 1 Ft. Depth of Surface Seal Below Ground
Type of Surface Seal: Concrete
Quan. Used: 4 Bags
2 . 1 Ft. Depth of Surface Casing Below Ground

8.25 Inches - ID of Surface Casing
6 Inches - Diameter of Borehole
Type of Riser Pipe: (material) Stainless Steel 316
2 Inches - ID of Riser Pipe
2.375 Inches - OD of Riser Ripe
Type of Riser Joint/Coupling: Flush Thread

705 . 6 MSL Top of Screen Elevation
Type of Coupling/Joint - Screen to Riser Pipe: Flush Thread
Type of Screen: (material) Stainless Steel 316
Opening Size: (slotsize) .010 inches
Opening Space: 6.8 sq in/ft
Openings in Screen
700 . 6 MSL Bottom Screen Elevation

Drilling method Rotary Wash
Lubricants Water



753 . 6 MSL Ground Surface Elevation

ANNULAR SPACE DETAILS

753 . 6 MSL Top of Backfill Elevation
Type of Backfill: Bentonite Slurry
No. of Bags of Cement: ___
No. of Bags of Bentonite: 1
Comments: ___

43 . 8 Ft. Depth to Top of Seal
709 . 8 MSL Top of Seal Elev.
2 . 0 Ft. Total Seal Interval
Type of Bentonite (granular, pellet): Pellet
No. of Bags of Bentonite: ___
45 . 8 Ft. Depth to Top of Sand Pack
707 . 8 MSL Elev. of Top of Sand
Type of Sand Pack: Red Flint #30
Source of Sand: Bag
Quantity of Sand Used: 1 Bag
7 . 2 Ft. Total Sand Pack Interval
700 . 6 MSL Bottom of Sand Pack Elevation
56 . 0 Ft. Total Borehole Depth
697 . 6 MSL Elev. of Bottom of Borehole

CSD:tk:2/15/2-1(7/6/87)

A14-19

DRAFT

WELL COMPLETION REPORT

Site #: _____ County: Stephenson Well #: 12E

Name: Modern Plating Corporation Northing 10,513.9

Date Drilled: Start 8/19/87 Driller: L. Ludwig Easting 10,555.4

Finish 8/24/87 Geologist: M. Carney

Drilling Contractor: _____

WELL CONSTRUCTION DETAILS

Lock Master 2121
Cap Flip Lid
Type of Surface Casing: Steel

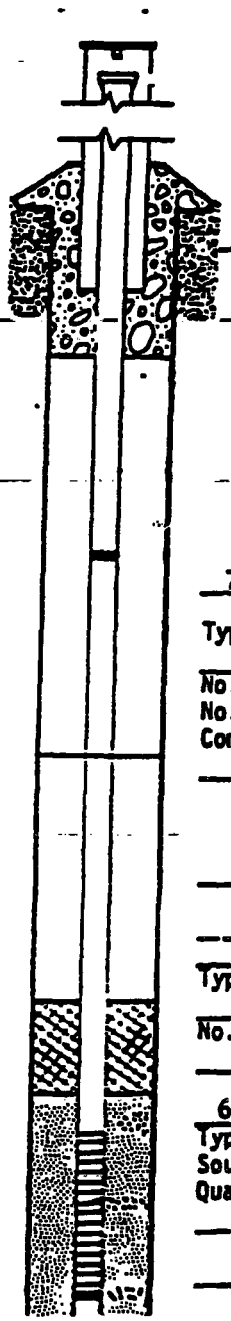
_____ . _ _ MSL Surface Casing Collar Elevation
756 . 55 MSL Riser Pipe Collar Elevation
3 . 1 Ft. Riser Pipe Height Above Ground Elevation (Stick-up)
1 . 6 Ft. Depth of Surface Seal Below Ground
Type of Surface Seal: Concrete
Quan. Used: 4 Bags
1 . 6 Ft. Depth of Surface Casing Below Ground

8.25 Inches - ID of Surface Casing
4 Inches - Diameter of Borehole
Type of Riser Pipe: (material)
Stainless Steel 316
2 Inches - ID of Riser Pipe
2.375 Inches - OD of Riser Ripe
Type of Riser Joint/Coupling:
Flush Thread

676 . 3 MSL Top of Screen Elevation
Type of Coupling/Joint - Screen to Riser Pipe: Flush Thread
Type of Screen: (material)
Stainless Steel 316
Opening Size: (width) .010 inches
Opening Space: 6.8 sq in/ft
% Openings in Screen
666 . 3 MSL Bottom Screen Elevation

Drilling method Rotary Wash
Lubricants Water

ANNULAR SPACE DETAILS



753 . 5 MSL Ground Surface Elevation

753 . 5 MSL Top of Backfill Elevation
Type of Backfill: Bentonite Slurry
No. of Bags of Cement:
No. of Bags of Bentonite: 1
Comments:

72 . 8 Ft. Depth to Top of Seal
680 . 7 MSL Top of Seal Elev.
2 . 4 Ft. Total Seal Interval
Type of Bentonite (granular, pellet): Pellet
No. of Bags of Bentonite:
75 . 2 Ft. Depth to Top of Sand Pack
678 . 3 MSL Elev. of Top of Sand
Type of Sand Pack: Red Flint #30
Source of Sand: Bag
Quantity of Sand Used: 1 Bag
12 . 0 Ft. Total Sand Pack Interval
666 . 3 MSL Bottom of Sand Pack Elevation
88 . 0 Ft. Total Borehole Depth
665 . 5 MSL Elev. of Bottom of Borehole

CSD:tk:2/15/2-1(7/6/87)

DRAFT

WELL COMPLETION REPORT

Site #: _____ County: Stephenson Well #: 13A

Name: Modern Plating Corporation Northing 10,518.5

Date Drilled: Start 8/20/87 Driller: L. Erdman Easting 10,788.6

Finish 8/21/87 Geologist: M. Carney

Drilling Contractor: Wisconsin Test Drilling

WELL CONSTRUCTION DETAILS

Lock Master 2121
Cap Cover
Type of Surface Casing: steel

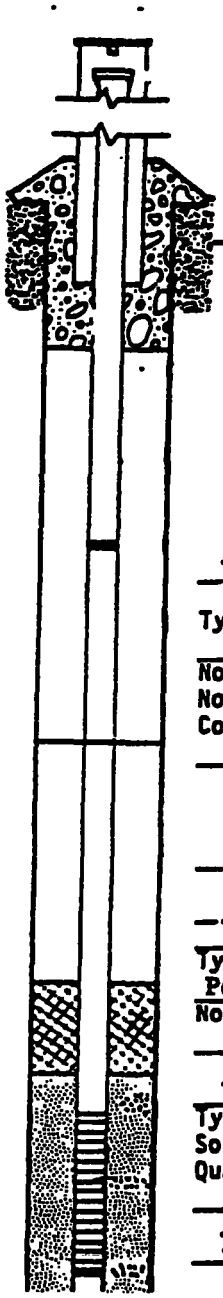
____ . __ MSL Surface Casing Collar Elevation
756 . 27 MSL Riser Pipe Collar Elevation
3 . 5 Ft. Riser Pipe Height Above Ground Elevation (Stick-up)
1 . 0 Ft. Depth of Surface Seal Below Ground
Type of Surface Seal: Concrete
Quan. Used: 1 Bag
1 . 6 Ft. Depth of Surface Casing Below Ground

3.75 Inches - ID of Surface Casing
6 Inches - Diameter of Borehole
Type of Riser Pipe: (material)
Stainless Steel 316
2 Inches - ID of Riser Pipe
2.375 Inches - OD of Riser Ripe
Type of Riser Joint/Coupling: Flush Thread

745 . 9 MSL Top of Screen Elevation
Type of Coupling/Joint - Screen to Riser Pipe: Flush Thread
Type of Screen: (material) Stainless Steel 316
Opening Size: (slotted) .010 inches
Opening Space: 6.8 sq in/ft
% Openings in Screen
740 . 9 MSL Bottom Screen Elevation

Drilling method Rotary Wash

Lubricants Water



ANNULAR SPACE DETAILS

752 . 8 MSL Ground Surface Elevation

752 . 8 MSL Top of Backfill Elevation
Type of Backfill: Bentonite Slurry
No. of Bags of Cement:
No. of Bags of Bentonite:
Comments:

2 . 0 Ft. Depth to Top of Seal
750 . 8 MSL Top of Seal Elev.
2 . 8 Ft. Total Seal Interval
Type of Bentonite (granular, pellet): Pellet
No. of Bags of Bentonite:
4 . 8 Ft. Depth to Top of Sand Pack
748 . 0 MSL Elev. of Top of Sand
Type of Sand Pack: Red Flint #30
Source of Sand: Bag
Quantity of Sand Used:
7 . 4 Ft. Total Sand Pack Interval
740 . 6 MSL Bottom of Sand Pack Elevation
12 . 2 Ft. Total Borehole Depth
740 . 6 MSL Elev. of Bottom of Borehole

CSD:tk:2/15/2-1(7/6/87)

A14-21

DRAFT

WELL COMPLETION REPORT

Site #: _____ County: Stephenson Well #: 13B

Name: Modern Plating Corporation Northing 10,515.2

Date Drilled: Start 8/20/87 Driller: L. Erdman Easting 10,786.6

Finish 8/21/87 Geologist: M. Carney

Drilling Contractor: Wisconsin Test Drilling

WELL CONSTRUCTION DETAILS

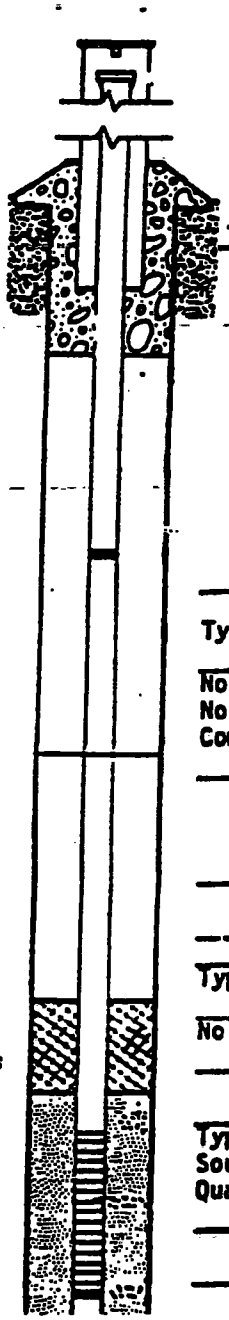
Lock Master 2121
Cap Cover Type
Type of Surface Casing: Steel

___ . ___ MSL Surface Casing Collar Elevation
754 . 94 MSL Riser Pipe Collar Elevation
2 . 1 Ft. Riser Pipe Height Above Ground Elevation (Stick-up)
2 . 8 Ft. Depth of Surface Seal Below Ground
Type of Surface Seal: Concrete
Quan. Used: 3 Bags
2 . 8 Ft. Depth of Surface Casing Below Ground

3.75 Inches - ID of Surface Casing
6 Inches - Diameter of Borehole
Type of Riser Pipe: (material) Stainless Steel 316
2 Inches - ID of Riser Pipe
2.375 Inches - OD of Riser Ripe
Type of Riser Joint/Coupling: Flush Thread

734 . 8 MSL Top of Screen Elevation
Type of Coupling/Joint - Screen to Riser Pipe: Flush Thread
Type of Screen: (material) Stainless Steel 316
Opening Size: (slot size) .010 inches
Opening Space: 6.8 sq in/ft
% Openings in Screen
724 . 8 MSL Bottom Screen Elevation

Drilling method Rotary Wash
Lubricants Water



ANNULAR SPACE DETAILS

752 . 8 MSL Ground Surface Elevation

752 . 8 MSL Top of Backfill Elevation
Type of Backfill: Bentonite Slurry
No. of Bags of Cement:
No. of Bags of Bentonite: 374
Comments:

13.5 Ft. Depth to Top of Seal
739.3 MSL Top of Seal Elev.
2.3 Ft. Total Seal Interval
Type of Bentonite (granular, pellet): Pellet
No. of Bags of Bentonite:
15.8 Ft. Depth to Top of Sand Pack
737.0 MSL Elev. of Top of Sand
Type of Sand Pack: Natural Sand
Source of Sand:
Quantity of Sand Used:
12.2 Ft. Total Sand Pack Interval
724.8 MSL Bottom of Sand Pack Elevation
28.0 Ft. Total Borehole Depth
724.8 MSL Elev. of Bottom of Borehole

CSD:tk:2/15/2-1(7/6/87)

DRAFT

WELL COMPLETION REPORT

Site #: _____ County: Stephenson Well #: 13C

Name: Modern Plating Corporation Northing 10,512.3

Date Drilled: Start 8/27/87 Driller: L. Erdman Easting 10,783.4

Finish 8/28/87 Geologist: M. Carney

Drilling Contractor: Wisconsin Test Drilling

WELL CONSTRUCTION DETAILS

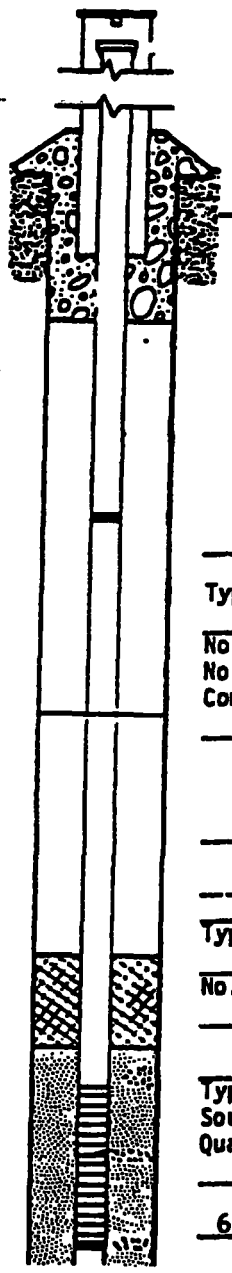
Lock Master 2121
Cap Flip Lid
Type of Surface Casing: Steel

____ . __ MSL Surface Casing Collar Elevation
756 . 25 MSL Riser Pipe Collar Elevation
3 . 3 Ft. Riser Pipe Height Above Ground Elevation (Stick-up)
1 . 3 Ft. Depth of Surface Seal Below Ground
Type of Surface Seal: Concrete
Quan. Used: 6 Bags
1 . 3 Ft. Depth of Surface Casing Below Ground

8.25 Inches - ID of Surface Casing
6 Inches - Diameter of Borehole
Type of Riser Pipe: (material)
Stainless Steel 316
2 Inches - ID of Riser Pipe
2.375 Inches - OD of Riser Ripe
Type of Riser Joint/Coupling:
Flush Thread

674 . 0 MSL Top of Screen Elevation
Type of Coupling/Joint - Screen to Riser Pipe: Flush Thread
Type of Screen: (material)
Stainless Steel 316
Opening Size: (slot size) .010 inches
Opening Space: 6.8 sq in/ft
____ Openings in Screen
669 . 0 MSL Bottom Screen Elevation

Drilling method Rotary Wash
Lubricants Water



753 . 0 MSL Ground Surface Elevation

ANNULAR SPACE DETAILS

753 . 0 MSL Top of Backfill Elevation
Type of Backfill: Bentonite Slurry
No. of Bags of Cement:
No. of Bags of Bentonite: 1.25
Comments:

75 . 0 Ft. Depth to Top of Seal
678 . 0 MSL Top of Seal Elev.
2 . 0 Ft. Total Seal Interval
Type of Bentonite (granular, pellet):
Pellet
No. of Bags of Bentonite:
77 . 0 Ft. Depth to Top of Sand Pack
676.0 MSL Elev. of Top of Sand
Type of Sand Pack: Red Flint #30
Source of Sand: Bag
Quantity of Sand Used:
7 . 0 Ft. Total Sand Pack Interval
669 . 0 MSL Bottom of Sand Pack Elevation
84 . 0 Ft. Total Borehole Depth
669 . 0 MSL Elev. of Bottom of Borehole

CSD:tk:2/15/2-1(7/6/87)

A14-23

DRAFT

WELL COMPLETION REPORT

Site #: _____ County: Stephenson Well #: 13E

Name: Modern Plating Corporation Northing 10,508.2

Date Drilled: Start 8/19/87 Driller: L. Erdman Easting 10,780.2

Finish 8/25/87 Geologist: M. Carney

Drilling Contractor: Wisconsin Test Drilling

WELL CONSTRUCTION DETAILS

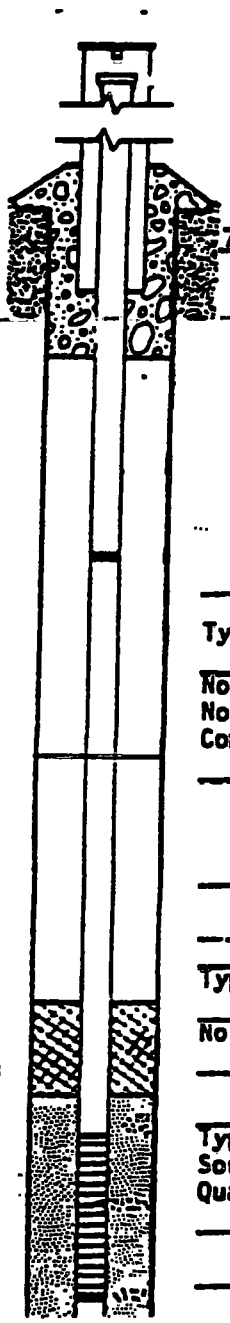
Lock Master 2121
Cap Flip Lid
Type of Surface Casing: Steel

_____ MSL Surface Casing Collar Elevation
755.59 MSL Riser Pipe Collar Elevation
2.8 Ft. Riser Pipe Height Above Ground Elevation (Stick-up)
2.0 Ft. Depth of Surface Seal Below Ground
Type of Surface Seal: Concrete
Quan. Used: 8 Bags
2.0 Ft. Depth of Surface Casing Below Ground

8.25 Inches - ID of Surface Casing
6 Inches - Diameter of Borehole
Type of Riser Pipe: (material) Stainless Steel 316
2 Inches - ID of Riser Pipe
2.375 Inches - OD of Riser Ripe
Type of Riser Joint/Coupling: Flush Thread

645.8 MSL Top of Screen Elevation
Type of Coupling/Joint - Screen to Riser Pipe: Flush Thread
Type of Screen: (material) Stainless Steel 316
Opening Size: (slot size) .010 inches
Opening Space: 6.8 sq in/ft
% Openings in Screen
635.8 MSL Bottom Screen Elevation

Drilling method Rotary Wash
Lubricants Water



752.8 MSL Ground Surface Elevation

ANNULAR SPACE DETAILS

752.8 MSL Top of Backfill Elevation
Type of Backfill: Bentonite Slurry
No. of Bags of Cement: _____
No. of Bags of Bentonite: 1.75
Comments: _____

102.8 Ft. Depth to Top of Seal
650.0 MSL Top of Seal Elev.
2.2 Ft. Total Seal Interval
Type of Bentonite (granular, pellet): Pellets
No. of Bags of Bentonite: _____
105.0 Ft. Depth to Top of Sand Pack
647.8 MSL Elev. of Top of Sand
Type of Sand Pack: Red Flint #30
Source of Sand: Bag
Quantity of Sand Used: 2 Bags
12.8 Ft. Total Sand Pack Interval
634.9 MSL Bottom of Sand Pack Elevation
117.9 Ft. Total Borehole Depth
634.0 MSL Elev. of Bottom of Borehole

CSD:tk:2/15/2-1(7/6/87)

DRAFT

WELL COMPLETION REPORT

Site #: _____ County: Stephenson Well #: 14A

Name: Modern Plating Corporation Northing 10,312.9

Date Drilled: Start 9/2/87 Driller: I Erdman Easting 10,877.1

Finish 9/2/87 Geologist: M. Carney

Drilling Contractor: Wisconsin Test Drilling

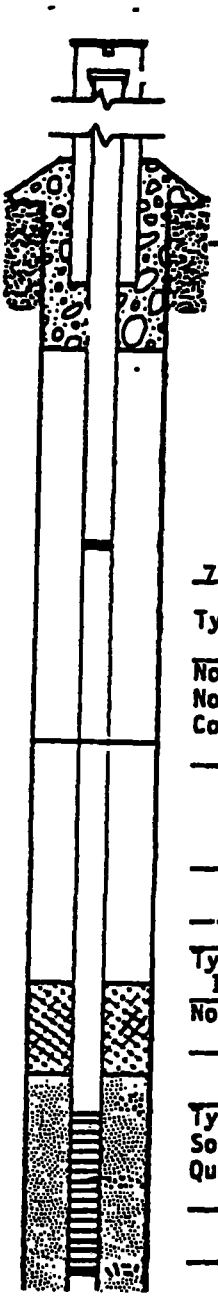
WELL CONSTRUCTION DETAILS

Lock Master 2121
Cap Cover Type
Type of Surface Casing: Steel
____ . ___ MSL Surface Casing Collar Elevation
761 . 84 MSL Riser Pipe Collar Elevation
3 . 2 Ft. Riser Pipe Height Above Ground Elevation (Stick-up)
1 . 9 Ft. Depth of Surface Seal Below Ground
Type of Surface Seal: Concrete
Quan. Used: 4 Bags
1 . 9 Ft. Depth of Surface Casing Below Ground

3.75 Inches - ID of Surface Casing
8 Inches - Diameter of Borehole
Type of Riser Pipe: (material)
Stainless Steel 316
2 Inches - ID of Riser Pipe
2.375 Inches - OD of Riser Ripe
Type of Riser Joint/Coupling:
Flush Thread

751 . 6 MSL Top of Screen Elevation
Type of Coupling/Joint - Screen to Riser Pipe: Flush Thread
Type of Screen: (material)
Stainless Steel 316
Opening Size: (width) .010 inches
Opening Space: 6.8 sq in/ft
% Openings in Screen
741 . 6 MSL Bottom Screen Elevation

Drilling method Water Wash
Lubricants Water



ANNULAR SPACE DETAILS

758 . 6 MSL Ground Surface Elevation

758 . 6 MSL Top of Backfill Elevation
Type of Backfill: Bentonite Powder
No. of Bags of Cement:
No. of Bags of Bentonite: .75
Comments: Dry

2 . 5 Ft. Depth to Top of Seal
756 . 1 MSL Top of Seal Elev.
2 . 5 Ft. Total Seal Interval
Type of Bentonite (granular, pellet): Pellets
No. of Bags of Bentonite:
5 . 0 Ft. Depth to Top of Sand Pack
753.6 MSL Elev. of Top of Sand
Type of Sand Pack: Red Flint #30
Source of Sand: Bag
Quantity of Sand Used: 3 Bags
13. 5 Ft. Total Sand Pack Interval
740 . 1 MSL Bottom of Sand Pack Elevation
18 . 5 Ft. Total Borehole Depth
740 . 1 MSL Elev. of Bottom of Borehole

CSD:tk:2/15/2-1(7/6/87)

A14-25

DRAFT

WELL COMPLETION REPORT

Site #: _____ County: Stephenson Well #: 14B

Name: Modern Plating Corporation Northing 10,309.8

Date Drilled: Start 8/31/87 Driller: L. Erdman Easting 10,875.9

Finish 8/31/87 Geologist: M. Carney

Drilling Contractor: Wisconsin Test Drilling

WELL CONSTRUCTION DETAILS

Lock Master 2121
Cap Cover Type
Type of Surface Casing: Steel

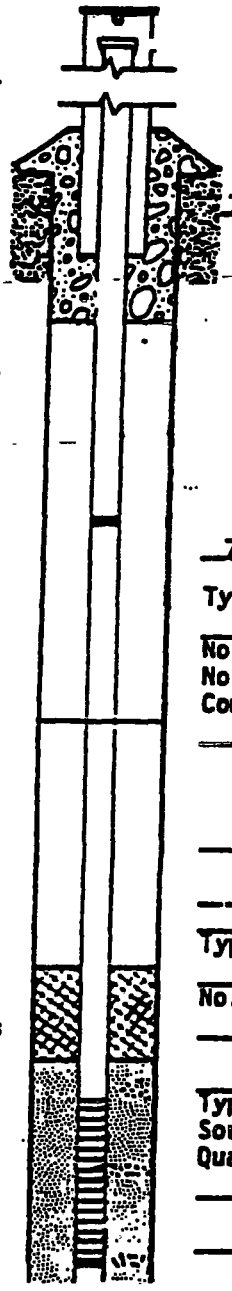
____ . __ MSL Surface Casing Collar Elevation
762 . 20 MSL Riser Pipe Collar Elevation
3 . 6 Ft. Riser Pipe Height Above Ground Elevation (Stick-up)
1 . 4 Ft. Depth of Surface Seal Below Ground
Type of Surface Seal: Concrete
Quan. Used: 2 Bags
1 . 4 Ft. Depth of Surface Casing Below Ground

3.75 Inches - ID of Surface Casing
6 Inches - Diameter of Borehole
Type of Riser Pipe: (material)
Stainless Steel 316
2 Inches - ID of Riser Pipe
2.375 Inches - OD of Riser Ripe
Type of Riser Joint/Coupling:
Flush Thread

741 . 6 MSL Top of Screen Elevation
Type of Coupling/Joint - Screen to Riser Pipe: Flush Thread
Type of Screen: (material)
Stainless Steel 316
Opening Size: (slot size) .010 inches
Opening Space: 6.8 sq in/ft
% Openings in Screen
736 . 6 MSL Bottom Screen Elevation

Drilling method Rotary Wash
Lubricants Water

ANNULAR SPACE DETAILS



758 . 6 MSL Ground Surface Elevation

758 . 6 MSL Top of Backfill Elevation
Type of Backfill: Bentonite Slurry
No. of Bags of Cement:
No. of Bags of Bentonite: .5
Comments:

13 . 0 Ft. Depth to Top of Seal
745 . 6 MSL Top of Seal Elev.
2 . 0 Ft. Total Seal Interval
Type of Bentonite (granular, pellet): Pellet
No. of Bags of Bentonite:
15.0 Ft. Depth to Top of Sand Pack
743 . 6 MSL Elev. of Top of Sand
Type of Sand Pack: Red Flint #30
Source of Sand: Bag
Quantity of Sand Used: 1.25 Bags
7 . 4 Ft. Total Sand Pack Interval
736 . 2 MSL Bottom of Sand Pack Elevation
22 . 4 Ft. Total Borehole Depth
736 . 2 MSL Elev. of Bottom of Borehole

CSD:tk:2/15/2-1(7/6/87)

DRAFT

WELL COMPLETION REPORT

Site #: _____ County: Stephenson Well #: 14C

Name: Modern Plating Corporation Northing 10,303.6

Date Drilled: Start 8/31/87 Driller: L. Erdman Easting 10,876.7

Finish 9/1/87 Geologist: M. Carney

Drilling Contractor: Wisconsin Test Drilling

WELL CONSTRUCTION DETAILS

Lock Master 2121
Cap Flip Lid
Type of Surface Casing: Steel

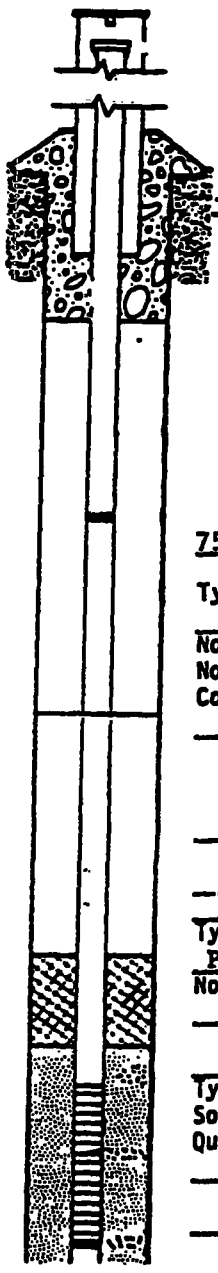
_____ MSL Surface Casing Collar Elevation
760.99 MSL Riser Pipe Collar Elevation
2.2 Ft. Riser Pipe Height Above Ground Elevation (Stick-up)
2.7 Ft. Depth of Surface Seal Below Ground
Type of Surface Seal: Concrete
Quan. Used: 4 Bags
2.7 Ft. Depth of Surface Casing Below Ground

8.25 Inches - ID of Surface Casing
6 Inches - Diameter of Borehole
Type of Riser Pipe: (material) Stainless Steel 316
2 Inches - ID of Riser Pipe
2.375 Inches - OD of Riser Ripe
Type of Riser Joint/Coupling: Flush Thread

683.3 MSL Top of Screen Elevation
Type of Coupling/Joint - Screen to Riser Pipe: Flush Thread
Type of Screen: (material) Stainless Steel 316
Opening Size: (slot size) .010 inches
Opening Space: 6.8 sq in/ft
% Openings in Screen
678.3 MSL Bottom Screen Elevation

Drilling method Rotary Wash

Lubricants Water



ANNULAR SPACE DETAILS

758.8 MSL Ground Surface Elevation

758.8 MSL Top of Backfill Elevation
Type of Backfill: Bentonite Slurry
No. of Bags of Cement: _____
No. of Bags of Bentonite: 1
Comments: _____

71.5 Ft. Depth to Top of Seal
687.3 MSL Top of Seal Elev.
2.0 Ft. Total Seal Interval
Type of Bentonite (grarular, pellet): Pellet
No. of Bags of Bentonite: _____
73.5 Ft. Depth to Top of Sand Pack
685.3 MSL Elev. of Top of Sand
Type of Sand Pack: Red Flint #30
Source of Sand: Bags
Quantity of Sand Used: 1.5 Bags
7.0 Ft. Total Sand Pack Interval
678.3 MSL Bottom of Sand Pack Elevation
81.8 Ft. Total Borehole Depth
677.0 MSL Elev. of Bottom of Borehole

CSD:tk:2/15/2-1(7/6/87) A 14-27

DRAFT

WELL COMPLETION REPORT

Site #: _____ County: Stephenson Well #: 14E

Name: Modern Plating Corporation Northing 10,297.8

Date Drilled: Start 8/25/87 Driller: J. Rich Easting 10,880.7

Finish 9/1/87 Geologist: M. Carney

Drilling Contractor: Exploration Technology, Inc. (subcontractor to Wisconsin Test Drilling)

WELL CONSTRUCTION DETAILS

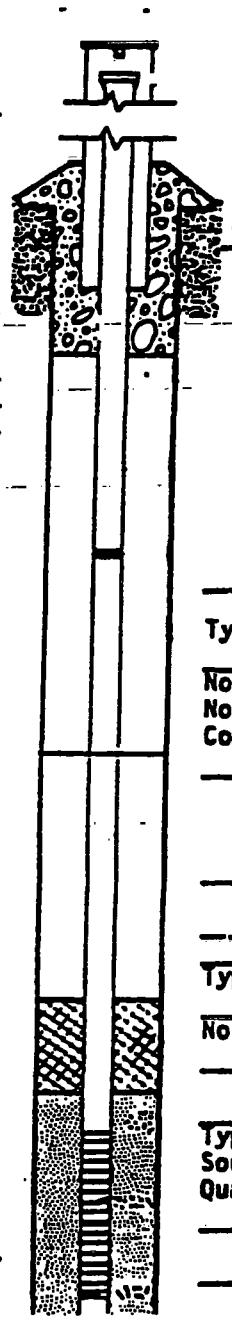
Lock Master 2121
Cap Flip Lid
Type of Surface Casing: Steel

___ . ___ MSL Surface Casing Collar Elevation
761 . 50 MSL Riser Pipe Collar Elevation
2 . 8 Ft. Riser Pipe Height Above Ground Elevation (Stick-up)
1 . 9 Ft. Depth of Surface Seal Below Ground
Type of Surface Seal: Concrete
Quan. Used: 5 Bags
1 . 9 Ft. Depth of Surface Casing Below Ground

8.25 Inches - ID of Surface Casing
6 Inches - Diameter of Borehole
Type of Riser Pipe: (material) Stainless Steel 316
2 Inches - ID of Riser Pipe
2.375 Inches - OD of Riser Ripe
Type of Riser Joint/Coupling: Flush Thread

654 . 7 MSL Top of Screen Elevation
Type of Coupling/Joint - Screen to Riser Pipe: Flush Thread
Type of Screen: (material) Stainless Steel 316
Opening Size: (slot size) .010 inches
Opening Space: 6.8 sq in/ft
Openings in Screen
644 . 7 MSL Bottom Screen Elevation

Drilling method Rotary Wash
Lubricants Water



ANNULAR SPACE DETAILS

758 . 7 MSL Ground Surface Elevation

758 . 7 MSL Top of Backfill Elevation
Type of Backfill: Bentonite Slurry
No. of Bags of Cement: ___
No. of Bags of Bentonite: 2-3
Comments: ___

99 . 0 Ft. Depth to Top of Seal
659 . 7 MSL Top of Seal Elev.
2 . 7 Ft. Total Seal Interval
Type of Bentonite (granular, pellet): Pellet
No. of Bags of Bentonite: ___
101 . 7 Ft. Depth to Top of Sand Pack
657 . 0 MSL Elev. of Top of Sand
Type of Sand Pack: Red Flint #30
Source of Sand: Bag
Quantity of Sand Used: 1.25 Bags
12 . 3 Ft. Total Sand Pack Interval
644 . 7 MSL Bottom of Sand Pack Elevation
115 . 0 Ft. Total Borehole Depth
643 . 7 MSL Elev. of Bottom of Borehole

CSD:tk:2/15/2-1(7/6/87)

A14-28

DRAFT

WELL COMPLETION REPORT

Site #: _____ County: Stephenson Well #: 15A

Name: Modern Plating Corporation Northing 10,477.5

Date Drilled: Start 8/18/87 Driller: L. Ludwig Easting 10,306.4

Finish 8/19/87 Geologist: M. Carney

Drilling Contractor: Wisconsin Test Drilling

WELL CONSTRUCTION DETAILS

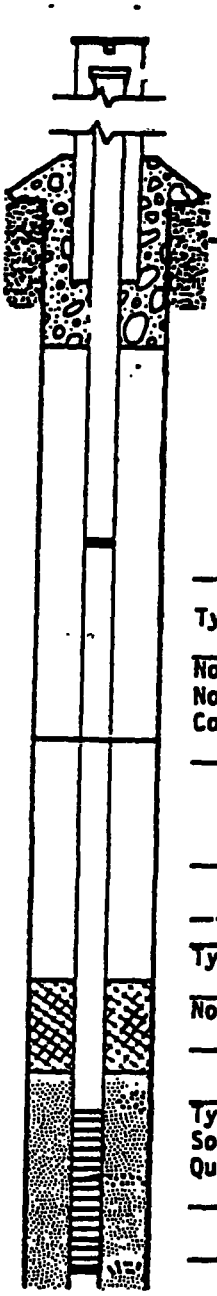
Lock Master 2121
Cap Cover Type
Type of Surface Casing: Steel

___ . __ MSL Surface Casing Collar Elevation
759 . 00 MSL Riser Pipe Collar Elevation
3 . 2 Ft. Riser Pipe Height Above Ground Elevation (Stick-up)
2 . 0 Ft. Depth of Surface Seal Below Ground
Type of Surface Seal: Concrete
Quan. Used: 4 Bags
2 . 0 Ft. Depth of Surface Casing Below Ground

3.75 Inches - ID of Surface Casing
6 Inches - Diameter of Borehole
Type of Riser Pipe: (material) Stainless Steel 316
2 Inches - ID of Riser Pipe
2.375 Inches - OD of Riser Ripe
Type of Riser Joint/Coupling: Flush Thread

749 . 1 MSL Top of Screen Elevation
Type of Coupling/Joint - Screen to Riser Pipe: Flush Thread
Type of Screen: (material) Stainless Steel316
Opening Size: (slotsize) .010 inches
Opening Space: 6.8 sq in/ft
% Openings in Screen
744 . 1 MSL Bottom Screen Elevation

Drilling method Rotary Wash
Lubricants Water



ANNULAR SPACE DETAILS

755 . 8 MSL Ground Surface Elevation

755 . 8 MSL Top of Backfill Elevation
Type of Backfill: Bentonite Slurry
No. of Bags of Cement:
No. of Bags of Bentonite:
Comments:

3 . 0 Ft. Depth to Top of Seal
752 . 8 MSL Top of Seal Elev.
2 . 0 Ft. Total Seal Interval
Type of Bentonite (granular, pellet): Pellet
No. of Bags of Bentonite:
5 . 0 Ft. Depth to Top of Sand Pack
750 . 8 MSL Elev. of Top of Sand
Type of Sand Pack: Red Flint #30
Source of Sand: Bag
Quantity of Sand Used: 1 Bag
7 . 0 Ft. Total Sand Pack Interval
743 . 8 MSL Bottom of Sand Pack Elevation
12 . 0 Ft. Total Borehole Depth
743 . 8 MSL Elev. of Bottom of Borehole

CSD:tk:2/15/2-1(7/6/87)

A14-29

DRAFT

WELL COMPLETION REPORT

Site #: _____ County: Stephenson Well #: 15B

Name: Modern Plating Corporation Northing 10,474.2

Date Drilled: Start 8/18/87 Driller: J. Ludwig Easting 10,306.4

Finish 8/19/87 Geologist: M. Carney

Drilling Contractor: Wisconsin Test Drilling

WELL CONSTRUCTION DETAILS

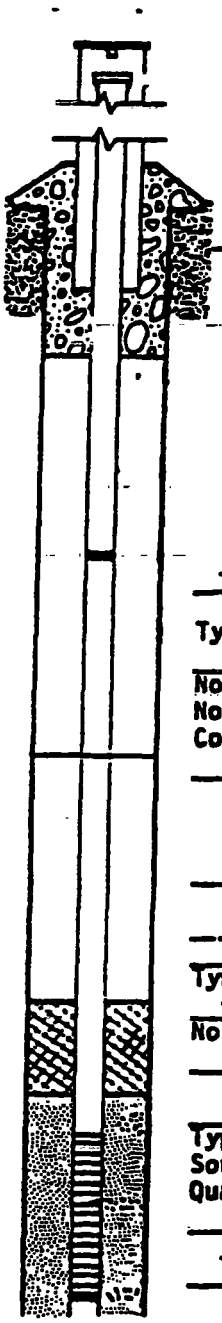
Lock Master 2121
Cap Cover Type
Type of Surface Casing: Steel
____ . __ MSL Surface Casing Collar Elevation
758 . 88 MSL Riser Pipe Collar Elevation
3 . 1 Ft. Riser Pipe Height Above Ground Elevation (Stick-up)
2 . 0 Ft. Depth of Surface Seal Below Ground
Type of Surface Seal: Concrete
Quan. Used: 4 Bags
2 . 0 Ft. Depth of Surface Casing Below Ground

3.75 Inches - ID of Surface Casing
6 Inches - Diameter of Borehole
Type of Riser Pipe: (material) Stainless Steel 316
2 Inches - ID of Riser Pipe
2.375 Inches - OD of Riser Ripe
Type of Riser Joint/Coupling: Flush Thread

734 . 6 MSL Top of Screen Elevation
Type of Coupling/Joint - Screen to Riser Pipe: Flush Thread
Type of Screen: (material) Stainless Steel 316
Opening Size: (slot size) .010 inches
Opening Space: 6.8 sq in/ft
2 Openings in Screen
724 . 6 MSL Bottom Screen Elevation

Drilling method Rotary

Lubricants Water



ANNULAR SPACE DETAILS

755 . 8 MSL Ground Surface Elevation

755 . 8 MSL Top of Backfill Elevation
Type of Backfill: Bentonite Slurry
No. of Bags of Cement:
No. of Bags of Bentonite: 1
Comments:

17 . 0 Ft. Depth to Top of Seal
738 . 8 MSL Top of Seal Elev.
2 . 0 Ft. Total Seal Interval
Type of Bentonite (granular, pellet): Pellet
No. of Bags of Bentonite:
19 . 0 Ft. Depth to Top of Sand Pack
736 . 8 MSL Elev. of Top of Sand
Type of Sand Pack: Red Flint #30
Source of Sand: Bag
Quantity of Sand Used: 2 Bags
12 . 2 Ft. Total Sand Pack Interval
724 . 6 MSL Bottom of Sand Pack Elevation
31 . 2 Ft. Total Borehole Depth
724 . 6 MSL Elev. of Bottom of Borehole

CSD:tk:2/15/2-1(7/6/87)

DRAFT

WELL COMPLETION REPORT

Site #: _____ County: Stephenson Well #: 15C

Name: Modern Plating Corporation Northing 10,470.9

Date Drilled: Start 8/10/87 Driller: L. Ludwig Easting 10,306.4

Finish 8/18/87 Geologist: M. Carney

Drilling Contractor: Wisconsin Test Drilling

WELL CONSTRUCTION DETAILS

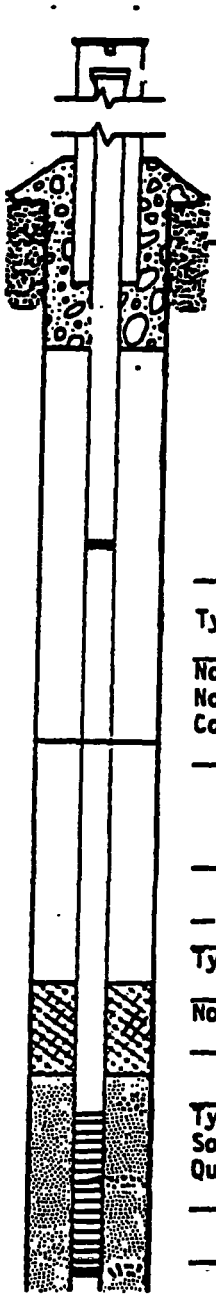
Lock Master 2131
Cap Cover Type
Type of Surface Casing: Steel

____ . __ MSL Surface Casing Collar Elevation
758 . 26 MSL Riser Pipe Collar Elevation
2 . 6 Ft. Riser Pipe Height Above Ground Elevation (Stick-up)
2 . 0 Ft. Depth of Surface Seal Below Ground
Type of Surface Seal: Concrete
Quan. Used: 4 Bags
2 . 5 Ft. Depth of Surface Casing Below Ground

8.25 Inches - ID of Surface Casing
6 Inches - Diameter of Borehole
Type of Riser Pipe: (material) Stainless Steel 316
2 Inches - ID of Riser Pipe
2.375 Inches - OD of Riser Ripe
Type of Riser Joint/Coupling: Flush Thread

657 . 7 MSL Top of Screen Elevation
Type of Coupling/Joint - Screen to Riser Pipe: Flush Thread
Type of Screen: (material) Stainless Steel 316
Opening Size: (slot size) .010 inches
Opening Space: 6.8 sq in/ft
% Openings in Screen
652 . 7 MSL Bottom Screen Elevation

Drilling method Rotary Wash
Lubricants Water



ANNULAR SPACE DETAILS

755 . 7 MSL Ground Surface Elevation

755 . 7 MSL Top of Backfill Elevation
Type of Backfill: Bentonite Slurry
No. of Bags of Cement: ____
No. of Bags of Bentonite: 1.5
Comments: ____

90 . 2 Ft. Depth to Top of Seal
665 . 5 MSL Top of Seal Elev.
5 . 3 Ft. Total Seal Interval
Type of Bentonite (grarular, pellet): Pellet
No. of Bags of Bentonite: ____
95 . 5 Ft. Depth to Top of Sand Pack
660 . 2 MSL Elev. of Top of Sand
Type of Sand Pack: Red Flint #30
Source of Sand: Bag
Quantity of Sand Used: 1 1/4 Bags
9 . 0 Ft. Total Sand Pack Interval
651 . 2 MSL Bottom of Sand Pack Elevation
104 . 5 Ft. Total Borehole Depth
651 . 2 MSL Elev. of Bottom of Borehole

CSD:tk:2/15/2-1(7/6/87)

A14-31

DRAFT

WELL COMPLETION REPORT

Site #: _____ County: Stephenson Well #: 16C

Name: Modern Plating Corporation Northing 9,403.3

Date Drilled: Start 8/28/87 Driller: L. Ludwig Easting 9,890.9

Finish 8/28/87 Geologist: M. Carney

Drilling Contractor: Wisconsin Test Drilling

WELL CONSTRUCTION DETAILS

Lock Master 2121
Cap Cover Type
Type of Surface Casing: Steel

___ . ___ MSL Surface Casing Collar Elevation
784 . 78 MSL Riser Pipe Collar Elevation
3 . 2 Ft. Riser Pipe Height Above Ground Elevation (Stick-up)
1 . 0 Ft. Depth of Surface Seal Below Ground
Type of Surface Seal: Bentonite Powder
Quan. Used:
1 . 8 Ft. Depth of Surface Casing Below Ground

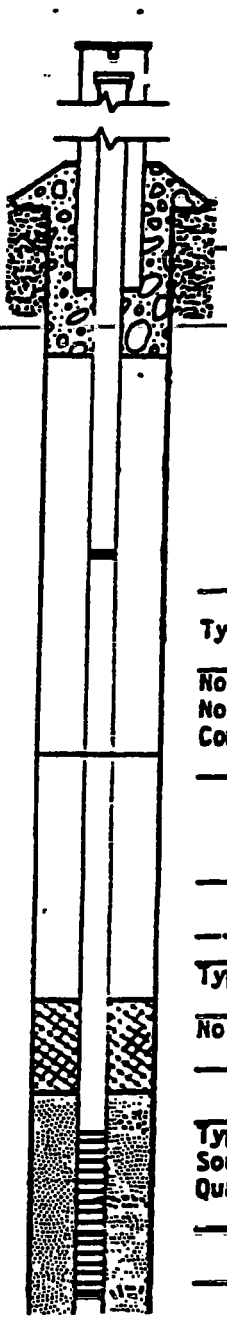
3.75 Inches - ID of Surface Casing
6 Inches - Diameter of Borehole
Type of Riser Pipe: (material) Stainless Steel 316
2 Inches - ID of Riser Pipe
2.375 Inches - OD of Riser Ripe
Type of Riser Joint/Coupling: Flush Thread

764 . 6 MSL Top of Screen Elevation
Type of Coupling/Joint - Screen to Riser Pipe: Flush Thread

Type of Screen: (material) Stainless Steel 316
Opening Size: (slotted) .010 inches
Opening Space: 6.8 sq in/ft
% Openings in Screen
754 6 MSL Bottom Screen Elevation

Drilling method Rotary Wash

Lubricants Water



781 . 6 MSL Ground Surface Elevation

ANNULAR SPACE DETAILS

___ . ___ MSL Top of Backfill Elevation
Type of Backfill: Bentonite Slurry
No. of Bags of Cement:
No. of Bags of Bentonite: 1
Comments:

13 . 0 Ft. Depth to Top of Seal
768 . 6 MSL Top of Seal Elev.
2 . 0 Ft. Total Seal Interval
Type of Bentonite (granular, pellet): Pellet
No. of Bags of Bentonite:
15 . 0 Ft. Depth to Top of Sand Pack
766 6 MSL Elev. of Top of Sand
Type of Sand Pack: Red Flint #30
Source of Sand: Bag
Quantity of Sand Used: 2 Bags
14 . 0 Ft. Total Sand Pack Interval
752 . 6 MSL Bottom of Sand Pack Elevation
29 . 0 Ft. Total Borehole Depth
752 . 6 MSL Elev. of Bottom of Borehole

CSD:tk:2/15/2-1(7/6/87)

Illinois Environmental Protection Agency — **Well Completion Report**

Site #: 17702 00010 County: Stephenson Well #: MW-21A

Site Name: Modern Plating Grid Coordinate. Northing: 9943.3 Easting: 10489.9

Drilling Contractor: Rock & Soil Drilling Corporation Date Drilled Start: 2/21/94

Driller: Tim Geologist: K. Dittman Date Completed: 2/21/94

Drilling Method: 4 1/4" I.D. Hollow Stem Auger Drilling Fluids (type): None

Annular Space Details

Type of Surface Seal: Concrete

Type of Annular Sealant: Cement/Bentonite Grout

Amount of cement: # of bags 3 lbs. per bag 90

Amount of bentonite: # of bags 0.5 lbs. per bag 50

Type of Bentonite Seal (Granular, Pellet): Volclay Puregold 1/2" Pellets

Amount of bentonite: # of Bags 1 Bucket lbs. per bag 50

Type of Sand Pack: #4 Global Filter Sand

Source of Sand: Global Sand Company

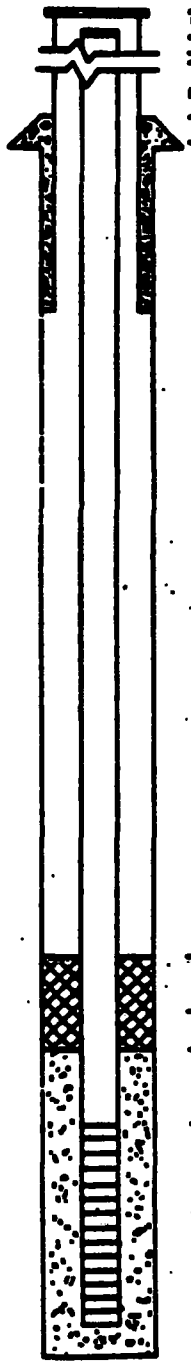
Amount of Sand: # of bags 6 lbs. per bag 50

Well Construction Materials

	Stainless Steel Specify Type	Teflon Specify Type	PVC Specify Type	Other Specify Type
Riser coupling joint			Sch40	
Riser pipe above w.t.			Sch40	
Riser pipe below w.t.	304			
Screen	304			
Coupling joint screen to riser	304			
Protective casing				Cast Iron

Measurements to .01 ft. (where applicable)

Riser pipe length	10 ft
Protective casing length	1 ft
Screen length	10 ft
Bottom of screen to end cap	0.28 ft
Top of screen to first joint	0.11 ft
Total length of casing	14.6 ft
Screen slot size	0.010 in
# of openings in screen	6
Diameter of borehole (in)	8
ID of riser pipe (in)	2



Elevations — .01 ft.

773.00 MSL Top of Protective Casin

772.59 MSL Top of Riser Pipe

= 0.41 ft. Casing Stickup

773.00 MSL Ground Surface

1.0 ft. Top of annular sealant

11.4 ft. Top of Seal

2.0 ft. Total Seal Interval

13.4 ft. Top of Sand

15.4 ft. Top of Screen

10.0 ft. Total Screen Interval

25.4 ft. Bottom of Screen

25.4 ft. Bottom of Borehole

Completed by: Fotha Van Dyke Surveyed by: Fehr-Graham & Assoc. Ill. registration #: 035-002452

Illinois Environmental Protection Agency — **Well Completion Report**

Site #: 1770200010 County Stephenson Well # MW-21C

Site Name: Modern Plating Grid Coordinate. Northing 9943.4 Easting 10494.4

Drilling Contractor: Rock & Soil Drilling Corporation Date Drilled Start: 2/21/94

Driller: Tim Geologist: K. Dittman Date Completed: 3/2/94

Drilling Method: 6" I.D. H.S.A. to 47', then 5 7/8" Tricone Drilling Fluids (type): Potable Water

Annular Space Details

Type of Surface Seal: Concrete

Type of Annular Sealant: Cement/Bentonite Grout

Amount of cement: # of bags 4 lbs. per bag 90

Amount of bentonite: # of bags 1 lbs. per bag 50

Type of Bentonite Seal (Granular, Pellet): Volclay Puregold "1/2" Pellets

Amount of bentonite: # of Bags 1 Bucket lbs. per bag 50

Type of Sand Pack: #4 Global Filter Sand

Source of Sand: Global Sand Company

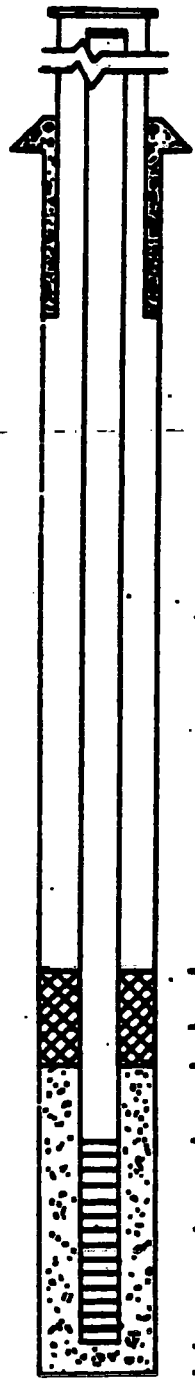
Amount of Sand: # of bags 3 lbs. per bag 50

Well Construction Materials

	Stainless Steel Specify Type	Teflon Specify Type	PVC Specify Type	Other Specify Type
Riser coupling joint			Sch 40	
Riser pipe above w.t.			Sch 40	
Riser pipe below w.t.	304			
Screen	304			
Coupling joint screen to riser	304			
Protective casing				Cast Iron

Measurements to .01 ft. (where applicable)

Riser pipe length	10 ft
Protective casing length	1 ft
Screen length	5 ft
Bottom of screen to end cap	0.28 ft
Top of screen to first joint	0.11 ft
Total length of casing	50 ft
Screen slot size	0.010 inch
% of openings in screen	6
Diameter of borehole (in)	5 7/8
ID of riser pipe (in)	2



Elevations — .01 ft.

773.11 MSL Top of Protective Casing
772.80 MSL Top of Riser Pipe
-0.31 ft. Casing Stickup

773.11 MSL Ground Surface
1.0 ft. Top of annular sealant

42.3 ft. Top of Seal
6.0 ft. Total Seal Interval
48.3 ft. Top of Sand
50.3 ft. Top of Screen
5.0 ft. Total Screen Interval
55.3 ft. Bottom of Screen
57.0 ft. Bottom of Borehole

Completed by: Foth & Van Dyke Surveyed by: Fehr Graham & Assoc. Ill. registration # 035-00245

Illinois Environmental Protection Agency — **Well Completion Report**

Site #: 1770200010 County: Stephenson Well #: MW-22A

Site Name: Modern Plating Grid Coordinate. Northing: 10050.1 Easting: 10516.2

Drilling Contractor: Rock-Soil Drilling Corporation Date Drilled Start: 3/3/94

Driller: Tim Geologist: K. Dittman Date Completed: 3/3/94

Drilling Method: 4 1/4" I.D. Hollow Stem Augers Drilling Fluids (type): None

Annular Space Details

Type of Surface Seal: Concrete

Type of Annular Sealant: Bentonite Chips

Amount of cement: # of bags — lbs. per bag —

Amount of bentonite: # of bags 10 lbs. per bag 50

Type of Bentonite Seal (Granular, Pellet): Volclay Pure gold 1/2" Pellets

Amount of bentonite: # of Bags 1 Bucket lbs. per bag 50

Type of Sand Pack: #4 Global Filter Sand

Source of Sand: Global Sand Company

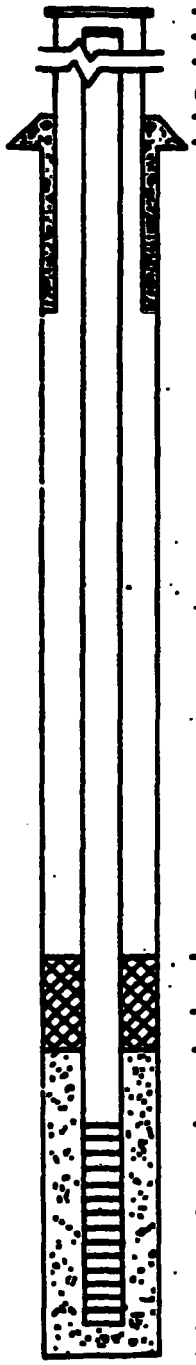
Amount of Sand: # of bags 6 lbs. per bag 50

Well Construction Materials

	Stainless Steel Specify Type	Teflon Specify Type	PVC Specify Type	Other Specify Type
Riser coupling joint			Sch 40	
Riser pipe above w.t.			Sch 40	
Riser pipe below w.t.	304			
Screen	304			
Coupling joint screen to riser	304			
Protective casing				Cast Iron

Measurements to .01 ft. (where applicable)

Riser pipe length	10 ft
Protective casing length	1 ft
Screen length	10 ft
Bottom of screen to end cap	0.28 ft
Top of screen to first joint	0.11 ft
Total length of casing	15 ft
Screen slot size	0.010 in
% of openings in screen	6
Diameter of borehole (in)	8
ID of riser pipe (in)	2



Elevations — .01 ft.

774.14 MSL Top of Protective Casing

773.75 MSL Top of Riser Pipe

-0.39 ft. Casing Stickup

774.14 MSL Ground Surface

1.0 ft. Top of annular sealant

9.4 ft. Top of Seal

3.0 ft. Total Seal Interval

12.4 ft. Top of Sand

15.4 ft. Top of Screen

10.0 ft. Total Screen Interval

25.4 ft. Bottom of Screen

25.4 ft. Bottom of Borehole

Completed by: Fathe Van Dyke Surveyed by: Fehr-Graham & Assoc. Ill. registration #: 035-002452

Illinois Environmental Protection Agency — **Well Completion Report**

Site #: 1770200010 County: Stephenson Well #: MW-22C

Site Name: Modern Plating Grid Coordinate: Northing 10052.7 Easting 10521.0

Drilling Contractor: Rock 2 Soil Drilling Corporation Date Drilled Start: 2/23/94

Driller: Tim Geologist: K. Dittman Date Completed: 3/2/94

Drilling Method: 6" I.D HSA to 48', then 5⅞" Tricone Drilling Fluids (type): Potable Water

Annular Space Details

Type of Surface Seal: Concrete

Type of Annular Sealant: Cement/Bentonite Grout

Amount of cement: # of bags 4 lbs. per bag 90

Amount of bentonite: # of bags 1 lbs. per bag 50

Type of Bentonite Seal (Granular, Pellet): Volclay Puregold 1/2" Pellets

Amount of bentonite: # of Bags 1 Bucket lbs. per bag 50

Type of Sand Pack: #4 Global Filter Sand

Source of Sand: Global Sand Company

Amount of Sand: # of bags 3 lbs. per bag 50

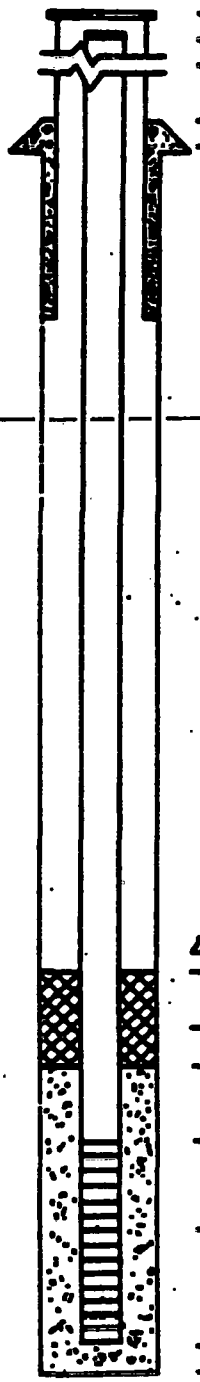
Well Construction Materials

	Stainless Steel Specify Type	Teflon Specify Type	PVC Specify Type	Other Specify Type
Riser coupling joint	304			
Riser pipe above w.t.	304			
Riser pipe below w.t.	304			
Screen	304			
Coupling joint screen to riser	304			
Protective casing				Cast Iron

Measurements

to .01 ft. (where applicable)

Riser pipe length	10 ft
Protective casing length	1 ft
Screen length	5 ft
Bottom of screen to end cap	0.28 ft
Top of screen to first joint	0.11 ft
Total length of casing	55 ft
Screen slot size	0.010 in
% of openings in screen	6
Diameter of borehole (in)	5 7/8
ID of riser pipe (in)	2



Elevations — .01 ft.

774 . 29 MSL Top of Protective Casing
773 . 80 MSL Top of Riser Pipe
-0 . 49 ft. Casing Stickup

774 . 29 MSL Ground Surface
1 . 0 ft. Top of annular sealant

46 . 25 ft. Top of Seal
6 . 0 ft. Total Seal Interval
52 . 25 ft. Top of Sand
55 . 25 ft. Top of Screen
5 . 0 ft. Total Screen Interval
60 . 25 ft. Bottom of Screen
62 . 0 ft. Bottom of Borehole

Completed by: Futhal Van Dyke Surveyed by: Fehr-Graham & Assoc. Ill. registration # 035-002452

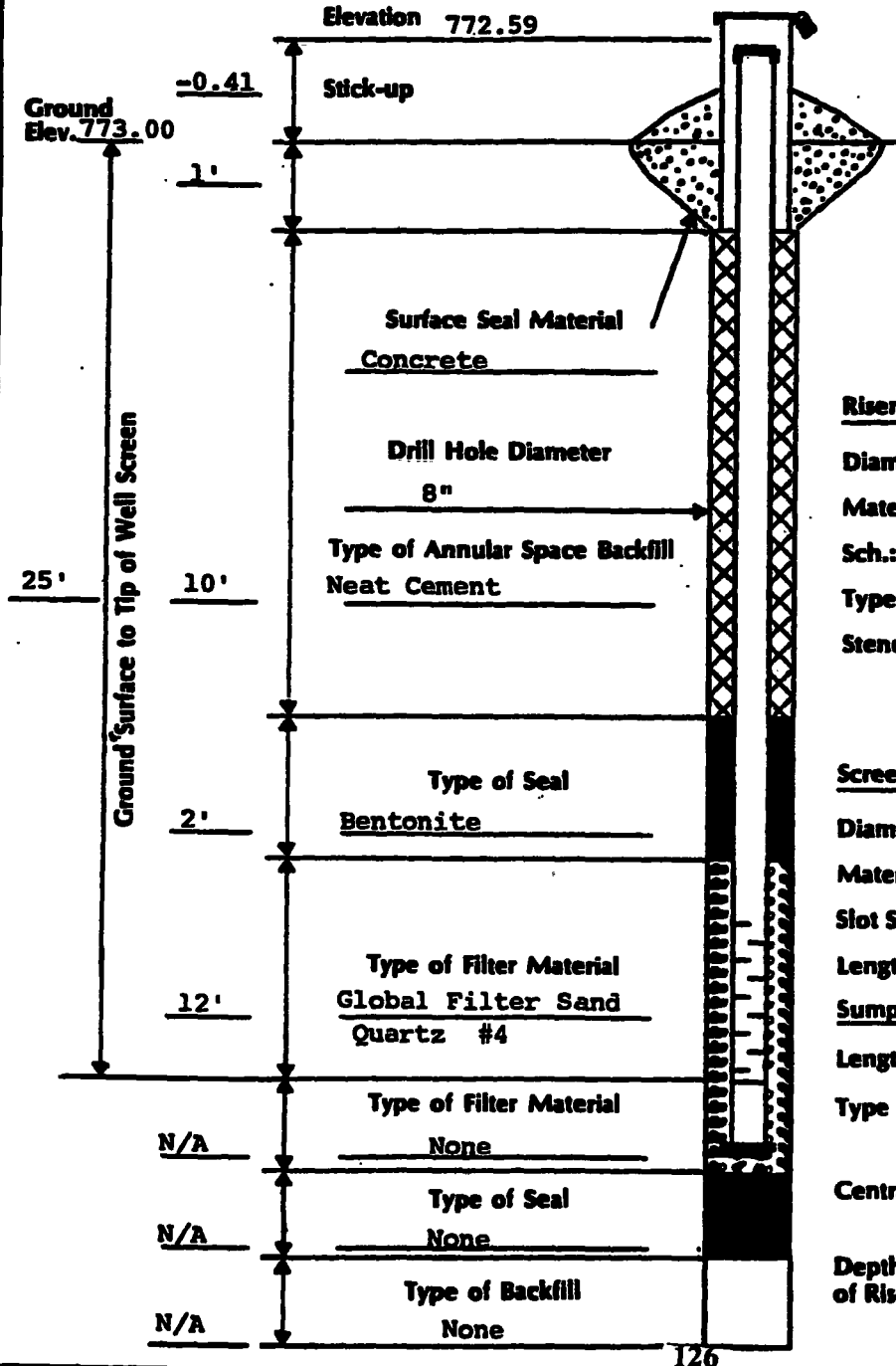
Foth & Van Dyke

Client: Modern Plating Corporation — Scope I.D.: 93M020
Project: CMS Well Installations — Page: 1 of 1
Prepared by: KAD — Date: 2-21-94
Checked by: RTB — Date: 3-25-94

MONITORING WELL CONSTRUCTION DIAGRAM

Driller: Rock & Soil Drilling Corporation — Well No.: MW-21A
Drilling Method: 4¼" I.D. to 25' w/split spoon sampling — Date Installed: 2-21-94

Coordinates: N9943.3 E10489.9



Protector Pipe:
Size: 6" - Flush Mounted
Material: Cast Iron
Lock No.: Master No. 2258

Riser:
Diameter: 2"
Material: Stainless (304) 10', PVC 5'
Sch.: Stainless (Sch. 5) and PVC (Sch.
Type of Joints: Flush Threaded
Stenciled? Yes

Screen:
Diameter: 2"
Material: Stainless Steel 304
Slot Size: 0.010 inches
Length: 10'

Sump:
Length: N/A
Type of Cap: Flat Stainless

Centralizer: Used ☐ Not Used ☒

Depth to Water From Top of Riser at Completion: 15'

NOTE: Not to Scale

FORM ES5024 (1/91)

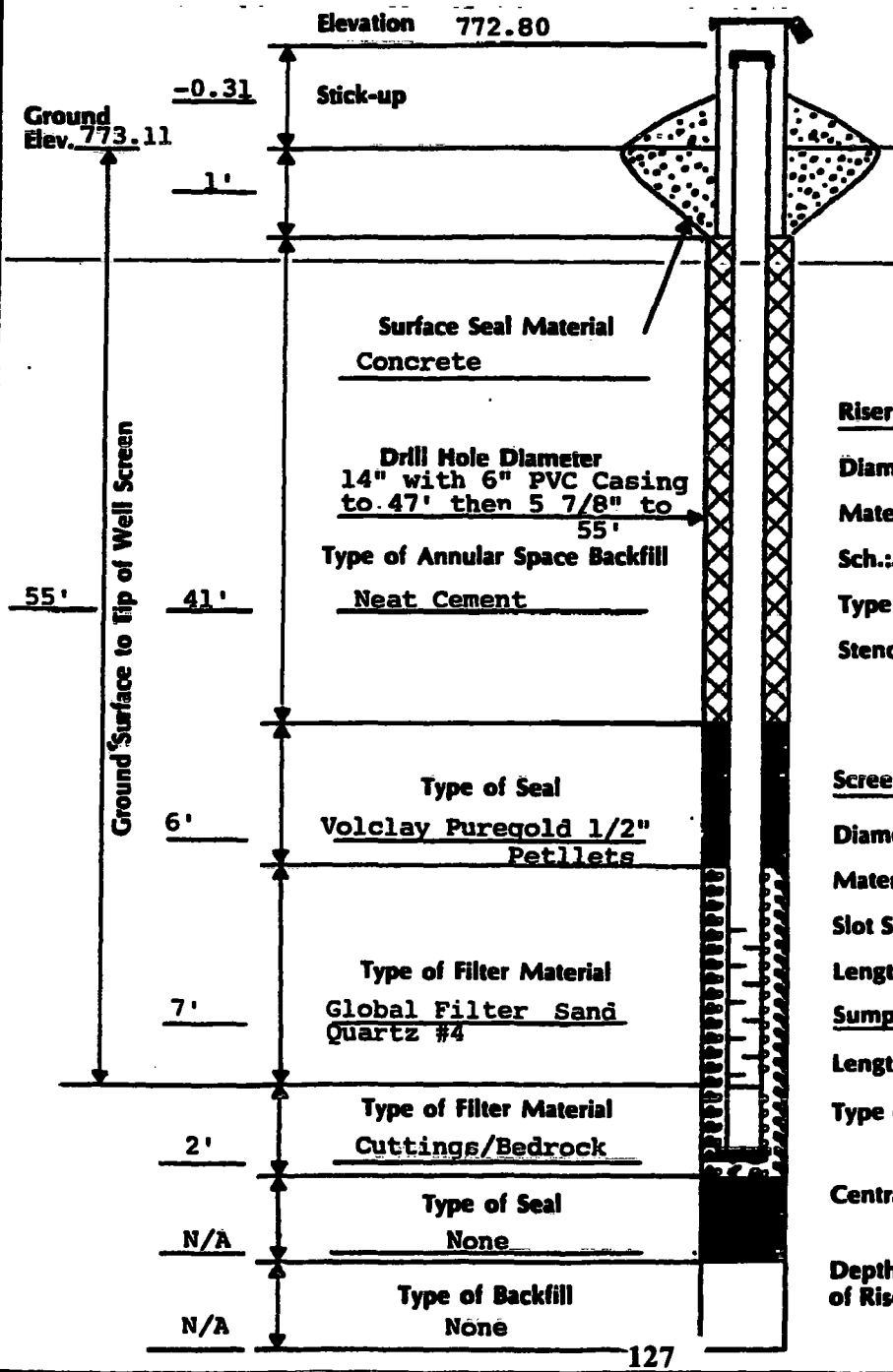
Foth & Van Dyke

Client: Modern Plating Corporation Scope I.D.: 93M020
Project: CMS Well Installations Page: 1 of 1
Prepared by: KAD Date: 3-2-94
Checked by: RTB Date: 3-25-94

MONITORING WELL CONSTRUCTION DIAGRAM

Driller: Rock and Soil Drilling Corporation Well No. MW-21C
Drilling Method: HSA to 47', 6" PVC Casing to 47', Tricone Drilling to 55' Date Installed: 3-2-94

Coordinates: N9943.4 E10494.4



Protector Pipe:
Size: 6"
Material: Cast Iron
Lock No.: Master No. 2258

Riser: -
Diameter: 2"
Material: Stainless Steel (304) 50'
Sch.: 5
Type of Joints: Flush Threaded
Stenciled? Yes

Screen:
Diameter: 2"
Material: Stainless Steel (304)
Slot Size: 0.010 inches
Length: 5'

Sump:
Length: -
Type of Cap: Flat Stainless

Centralizer: Used ☐
Not Used ☒

Depth to Water From Top of Riser at Completion: 11'

NOTE: Not to Scale

FORM EES024 11.

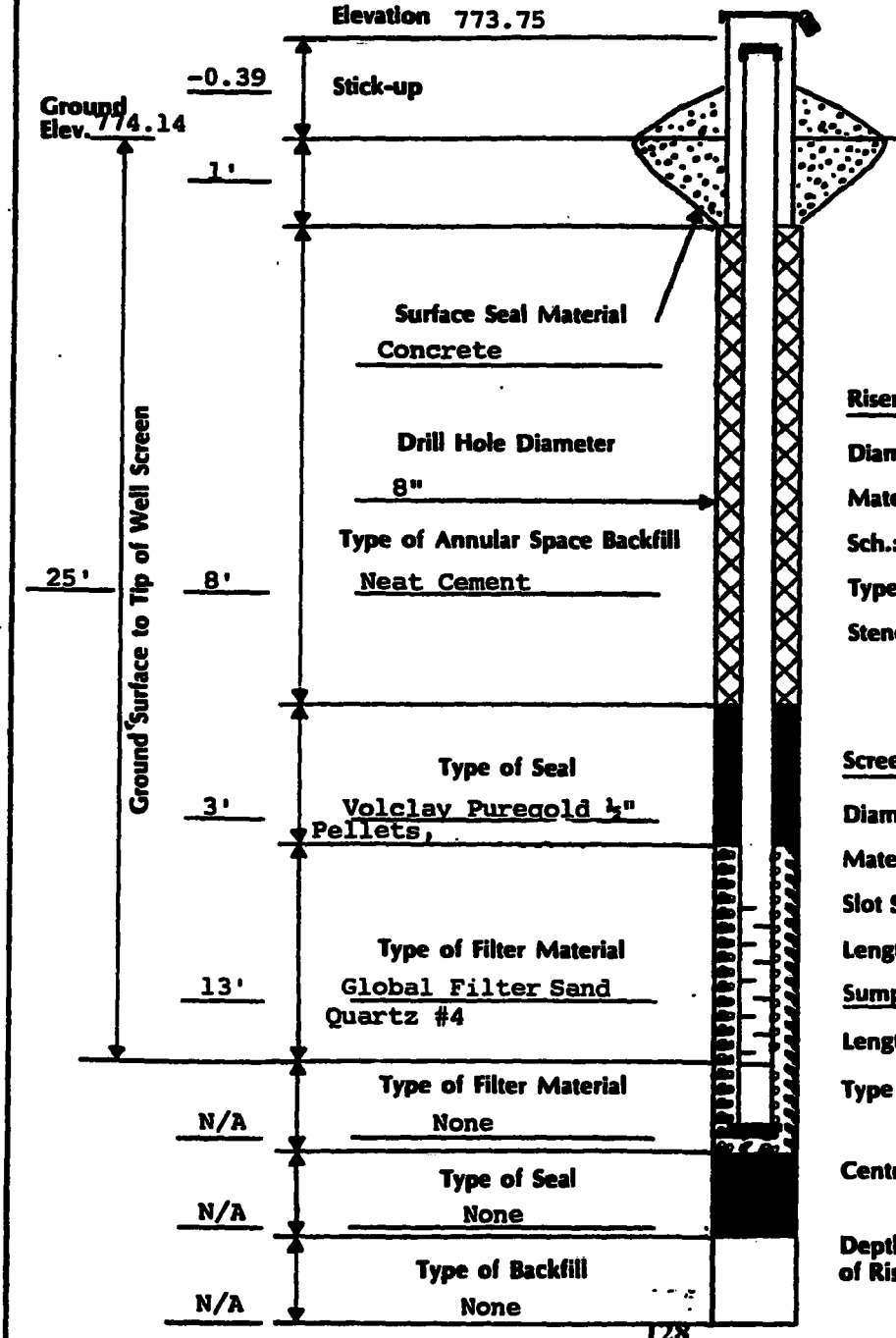
Foth & Van Dyke

Client: Modern Plating Corporation — Scope I.D.: 93M020
Project: CMS Well Installations — Page: 1 of 1
Prepared by: KAD — Date: 3-3-94
Checked by: RTB — Date: 3-25-94

MONITORING WELL CONSTRUCTION DIAGRAM

Driller: Rock & Soil Drilling Corporation — Well No.: MW-22A
Drilling Method: 4¼" I.D. HSA to 25' w/split spoon sampling — Date Installed: 3-3-94

Coordinates: N10050.1' E10516.2



Protector Pipe:
Size: 6" - Flush Mounted
Material: Cast Iron
Lock No.: Master No. 2258

Riser:
Diameter: 2"
Material: Stainless (304) 10', PVC - 5'
Sch.: Stainless (Sch.5) and PVC (Sch.4
Type of Joints: Flush Threaded
Stenciled? Yes

Screen:
Diameter: 2"
Material: Stainless Steel (304)
Slot Size: 0.010 inches
Length: 10'

Sump:
Length: -
Type of Cap: Flat Stainless

Centralizer: Used ☐ Not Used ☑

Depth to Water From Top of Riser at Completion: 15' from Ground Surface

NOTE: Not to Scal

128
L8

FORM EE5024 (1

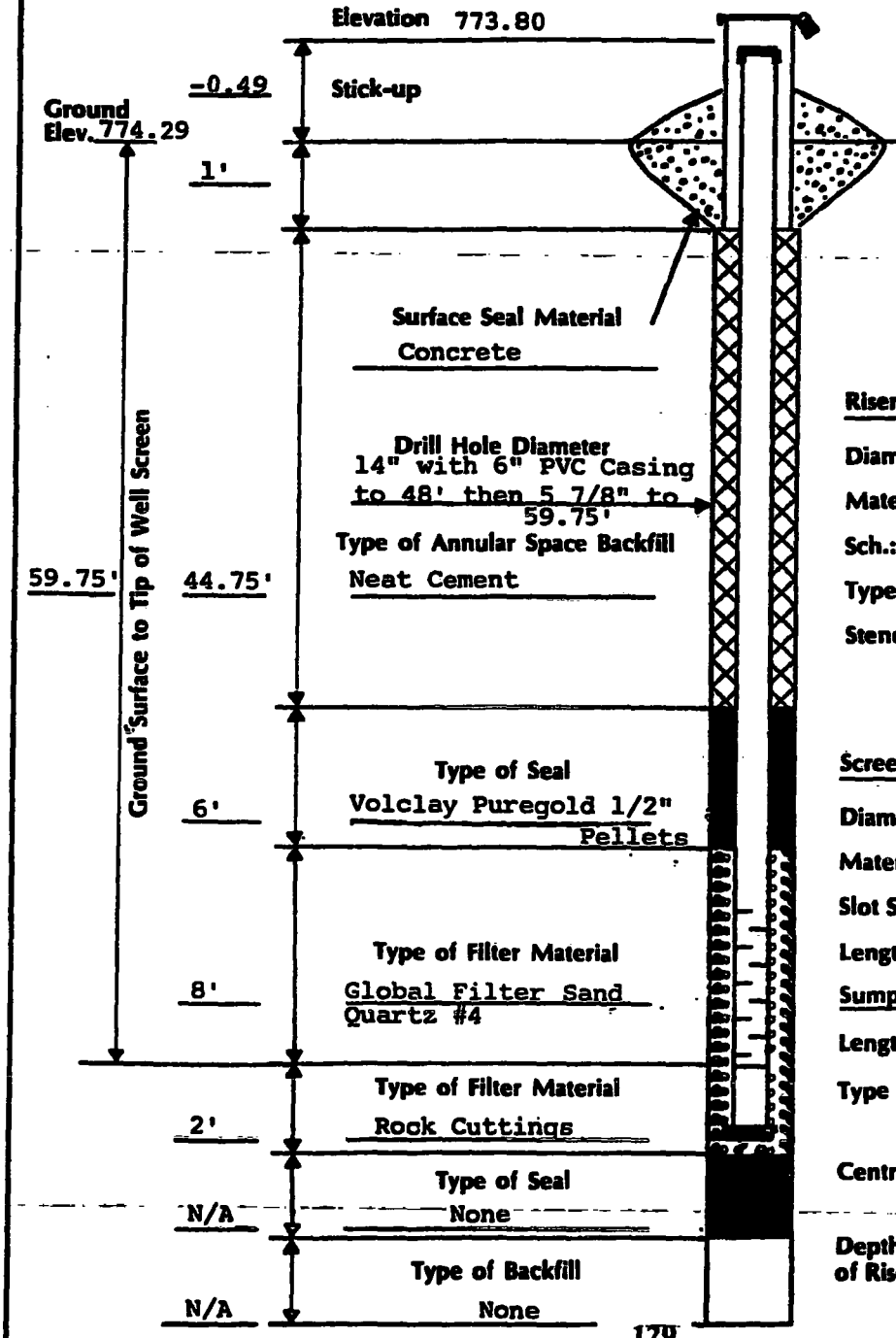
Foth & Van Dyke

Client: Modern Plating Corporation — Scope I.D.: 93M020
Project: CMS Well Installations — Page: 1 of 1
Prepared by: KAD — Date: 3-2-94
Checked by: RTB — Date: 3-25-94

MONITORING WELL CONSTRUCTION DIAGRAM

Driller: Rock & Soil Drilling Corporation — Well No.: MW-22C
Drilling Method: HSA to 48', 6" PVC Casing to 48', Tricone Drilling to 59.75' — Date Installed: 3-2-94

Coordinates: N10052.7 E10521.0



Protector Pipe:
Size: 6"
Material: Cast Iron
Lock No.: Master No. 2258

Riser:
Diameter: 2"
Material: Stainless (304) 55'
Sch.: 5
Type of Joints: Flush Threaded
Stenciled? Yes

Screen:
Diameter: 2"
Material: Stainless (304)
Slot Size: 0.010 inches
Length: 5'

Sump:
Length: -
Type of Cap: Flat Stainless

Centralizer: Used ☐ Not Used ☒

Depth to Water From Top of Riser at Completion: 10'

NOTE: Not to Scal

R000479

Illinois Environmental Protection Agency — Well Completion Report

SITE #: _____ COUNTY: Stephenson WELL #: MW-23B

SITE NAME: Modern Plating Corporation BOREHOLE #: B-23B

STATE PLANE COORDINATE: X _____ Y _____ (m) LATITUDE: ____° ____' ____" LONGITUDE: ____° ____' ____"

SURVEYED BY: _____ ILL. REGISTRATION #: _____

DRILLING CONTRACTOR: Boart-Longyear DRILLER: Larry Erdman

CONSULTING FIRM: Fotha-Van Dyke GEOLOGIST: EAS

DRILLING METHOD: 4 1/4 ID HSA DRILLING FLUIDS (TYPE): NA

LOGGED BY: EAS DATE STARTED: 3/14/00 DATE FINISHED: 3/14/00

REPORT FORM COMPLETED BY: EAS DATE: 3/14/00

ANNULAR SPACE DETAILS

TYPE OF SURFACE SEAL: Quikcrete / Native / Bentonite

TYPE OF ANNULAR SEALANT: 3/8" Chipped Bentonite - Hydrated

INSTALLATION METHOD: Gravity-thru augers

SETTING TIME: ~5 min / 1 1/2 bag below water

TYPE OF BENTONITE SEAL - GRANULAR, PELLET, SLURRY (CIRCLE ONE): 3/8" chips

INSTALLATION METHOD: Gravity thru augers

SETTING TIME: ~5 min / 1 1/2 bag

Fine Sand Seal: Badger Mining Fine Silica BB#7

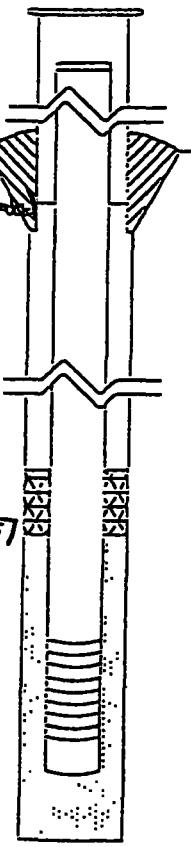
TYPE OF SAND PACK: American Materials

GRAIN SIZE: #30 (SIEVE SIZE)

INSTALLATION METHOD: Gravity - thru augers

TYPE OF BACKFILL MATERIAL: NA (IF APPLICABLE)

INSTALLATION METHOD: NA



ELEVATIONS (MSL)*	DEPTHS (BGS) (.01 ft)	
_____	3.52	TOP OF PROTECTIVE CASING
_____	3.33	TOP OF RISER PIPE
_____	0	GROUND SURFACE
_____	0.5	TOP OF ANNULAR SEALANT
_____	9.48	STATIC WATER LEVEL (AFTER COMPLETION)
_____	0.5	TOP OF SEAL
_____	6.0	Top of fine sand
_____	8.0	TOP OF SANDPACK
_____	10.0	TOP OF SCREEN
_____	20.0	BOTTOM OF SCREEN
_____	20.0	BOTTOM OF WELL
_____	21.0	BOTTOM OF BOREHOLE

* REFERENCED TO A NATIONAL GEODETIC VERTICAL DATUM

WELL CONSTRUCTION MATERIALS (CIRCLE ONE)

PROTECTIVE CASING	(SS304)	SS316, PTFE, PVC OR OTHER:
RISER PIPE ABOVE W.T.	(SS304)	SS316, PTFE, PVC OR OTHER:
RISER PIPE BELOW W.T.	(SS304)	SS316, PTFE, PVC OR OTHER:
SCREEN	(SS304)	SS316, PTFE, PVC OR OTHER:

CASING MEASUREMENTS

DIAMETER OF BOREHOLE (in)	8 1/4
ID OF RISER PIPE (in)	1.92
PROTECTIVE CASING LENGTH (ft)	7
RISER PIPE LENGTH (ft)	13.5
BOTTOM OF SCREEN TO END CAP (ft)	0.2
SCREEN LENGTH (1st SLOT TO LAST SLOT) (ft)	10
TOTAL LENGTH OF CASING (ft)	23.5
SCREEN SLOT SIZE **	0.010

** HAND-SLOTTED WELL SCREENS ARE UNACCEPTABLE

(9-13-1)

R000480

Illinois Environmental Protection Agency — Well Completion Report

SITE #: _____ COUNTY: Stephenson WELL #: MW-23C

SITE NAME: Modern Plating Corporation BOREHOLE #: B-23C

STATE PLANE COORDINATE: X _____ Y _____ (or) LATITUDE: _____ ° _____ ' _____ " LONGITUDE: _____ ° _____ ' _____ "

SURVEYED BY: _____ ILL. REGISTRATION #: _____

DRILLING CONTRACTOR: Boart-Longyear DRILLER: Larry Erdman

CONSULTING FIRM: Foth & Van Dyke GEOLOGIST: EAS

DRILLING METHOD: 4¼ ID HSA DRILLING FLUIDS (TYPE): NA

LOGGED BY: EAS DATE STARTED: 03/14/00 DATE FINISHED: 03/14/00

REPORT FORM COMPLETED BY: EAS DATE: 03/14/00

ANNULAR SPACE DETAILS

TYPE OF SURFACE SEAL: Quikcrete/Native/Bentonite

TYPE OF ANNULAR SEALANT: 3/8" Chipped Bentonite-Hydrated

INSTALLATION METHOD: Gravity-thru augers

SETTING TIME: ~5min / ½ bag below water

TYPE OF BENTONITE SEAL - GRANULAR, PELLET, SLURRY (CIRCLE ONE): 3/8" Chips

INSTALLATION METHOD: Gravity-thru augers

SETTING TIME: ~5min / ½ bag

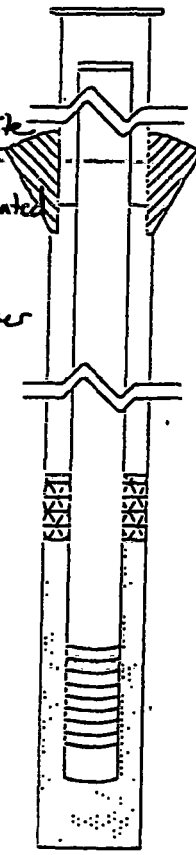
TYPE OF SAND PACK: American Mtls #30

GRAIN SIZE: #30 (SIEVE SIZE)

INSTALLATION METHOD: Gravity-thru augers

TYPE OF BACKFILL MATERIAL: NA (IF APPLICABLE)

INSTALLATION METHOD: NA



ELEVATIONS (MSL)*	DEPTHS (BGS) (.01 ft)	
_____	3.48	TOP OF PROTECTIVE CASING
_____	3.31	TOP OF RISER PIPE
_____	0	GROUND SURFACE
_____	3.00	TOP OF ANNULAR SEALANT
_____	6.52'	STATIC WATER LEVEL (AFTER COMPLETION)
_____	_____	TOP OF SEAL
_____	27.0	TOP OF SANDPACK
_____	29.1	TOP OF SCREEN
_____	34.1	BOTTOM OF SCREEN
_____	34.3	BOTTOM OF WELL
_____	35.5	BOTTOM OF BOREHOLE

* REFERENCED TO A NATIONAL GEODETIC VERTICAL DATUM

WELL CONSTRUCTION MATERIALS (CIRCLE ONE)

PROTECTIVE CASING	(SS304)	SS316, PTFE, PVC OR OTHER:
RISER PIPE ABOVE W.T.	(SS304)	SS316, PTFE, PVC OR OTHER:
RISER PIPE BELOW W.T.	(SS304)	SS316, PTFE, PVC OR OTHER:
SCREEN	(SS304)	SS316, PTFE, PVC OR OTHER:

CASING MEASUREMENTS

DIAMETER OF BOREHOLE (in)	8¼
ID OF RISER PIPE (in)	1.92
PROTECTIVE CASING LENGTH (ft)	7'
RISER PIPE LENGTH (ft)	32.5
BOTTOM OF SCREEN TO END CAP (ft)	0.2
SCREEN LENGTH (1st SLOT TO LAST SLOT) (ft)	5
TOTAL LENGTH OF CASING (ft)	37.5
SCREEN SLOT SIZE **	0.010

** HAND-SLOTTED WELL SCREENS ARE UNACCEPTABLE

(9-1011)

Well Development Records

Well Development Data for Wells MW-5A to MW-8C

MONITORING WELL	H O LEVEL INITIAL	(Reference to Riser) FINAL	WELL VOLUMES REMOVED	TEMPERATURE (Deg. F.)	CONDUCTIVITY (Umhos)	pH (Units)
5A	17.19'	17.29'	Initial	55.8	1005	7.35
			7.5	55.2	1697	7.17
			15.8	55.2	1650	7.11
			23.5	54.2	1663	7.12
			46.3	54.2	1546	7.33
			52	54.4	1549	7.20
5B	16.71'	16.71'	Initial	54.6	755	7.52
			4.8	55.2	1064	7.43
			10	54.4	1080	7.40
6A	2.91'	2.91'	Initial	54.2	1384	7.54
			8.3	55.6	2750	7.33
			15	57.3	2860	7.20
			21.7	54.4	2850	7.13
			28.3	55.8	2910	6.98
			35	55.4	2910	6.86
6B	3.03'	3.91'	Initial	56.6	2250	7.08
			5.4	56.3	2270	7.14
			10	57.2	2470	7.29
6C	Artesian	0.21'	Initial	54.8	1070	7.48
			3	56.2	1047	7.55
			6	59.9	1057	7.45
7A	2.33'	2.73'	Initial	57.2	908	7.60
			7	57.4	4310	7.39
			13.7	56.9	4460	7.18
			18.7	57.0	4430	7.34
7B	2.31'	2.36'	Initial	62.3	3950	7.78
			4.5	61.0	2900	7.52
			8.3	59.8	2880	7.34
			12.2	61.1	2830	7.30
7C	3.92'	43.58' (Went Dry)	Initial	59.9	1141	7.52
			6	60.4	1084	7.85
7D	3.12'	36.48'	Initial	54.2	1072	8.21
			1	55.4	1048	8.05
			2	55.6	1078	8.00
			2.5	56.6	1100	7.99
8A	2.81'	3.77'	Initial	57.4	2410	7.60
			8	57.8	3530	7.58
			16	57.9	3630	7.50
8B	3.44'	4.25'	Initial	56.6	1251	8.07
			5	57.0	2110	7.85
			9.8	56.5	2060	7.70
8C	1.34'	73.31' (Went dry)	Initial	54.4	1305	7.77
			1.76	54.6	1135	7.76
			1.94	54.5	1141	7.78

MONITORING WELL DEVELOPMENT

WELL NUMBER 11A
WELL DIAMETER 2-inch
TOTAL DEPTH OF WELL
DEPTH TO WATER — TIME OF MEASUREMENT
BEFORE -.3 — 5:25
AFTER .6 — 5:40

CLIENT Modern Plating Corp.
PROJECT Phase 2
SCOPE I.D. 87M77
BY MJC
DATE 8/27/87

DESCRIPTION OF DEVELOPMENT METHOD

Pumped/surged with pitcher pump.

VOLUME OF WATER REMOVED FROM WELL 13 gallons
CLARITY OF WATER IN WELL BEFORE DEVELOPMENT Dark brown, highly turbid
CLARITY OF WATER IN WELL AFTER DEVELOPMENT Light brown, low-mod turbid
PRESENCE OF SEDIMENT AT THE BOTTOM OF THE WELL
VOLUME OF WATER ADDED TO WELL None
SOURCE OF WATER ADDED TO WELL N/A
TIME SPENT FOR DEVELOPMENT 15 minutes

STABILIZATION READINGS

GAL. REMOVED	TIME	FIELD TEMPERATURE	FIELD SPEC. COND.	FIELD pH
0		16°C	1200	7.04
7		16°C	1200	6.98
10		16°C	1225	7.04
12		16°C	1200	7.03

MONITORING WELL DEVELOPMENT

WELL NUMBER 11B
WELL DIAMETER 2-inch
TOTAL DEPTH OF WELL
DEPTH TO WATER — TIME OF MEASUREMENT
BEFORE Surface — 4:10
AFTER 1.5 — 4:30

CLIENT Modern Plating Corp.
PROJECT Phase 2
SCOPE I.D. 87M77
BY MJC
DATE 9/2/87

DESCRIPTION OF DEVELOPMENT METHOD

Pumped/surged with pitcher pump.

VOLUME OF WATER REMOVED FROM WELL 30 gallons
CLARITY OF WATER IN WELL BEFORE DEVELOPMENT Dark brown, highly turbid
CLARITY OF WATER IN WELL AFTER DEVELOPMENT Brown, mod-high turbidity
PRESENCE OF SEDIMENT AT THE BOTTOM OF THE WELL
VOLUME OF WATER ADDED TO WELL None
SOURCE OF WATER ADDED TO WELL N/A
TIME SPENT FOR DEVELOPMENT 20 minutes

STABILIZATION READINGS

GAL. REMOVED	TIME	FIELD TEMPERATURE	FIELD SPEC. COND.	FIELD pH
5		17.5°C	1200	7.13
10		16°C	1150	7.15
15		16.5°C	1200	7.07
24		16.5°C	1150	7.06
28		16.5°C	1200	7.08

MONITORING WELL DEVELOPMENT

WELL NUMBER 11C
WELL DIAMETER 2-inch
TOTAL DEPTH OF WELL
DEPTH TO WATER — TIME OF MEASUREMENT
BEFORE Surface
AFTER .2

CLIENT Modern Plating Corp.
PROJECT Phase 2
SCOPE I.D. 87M77
BY MJC
DATE 9/2/87

DESCRIPTION OF DEVELOPMENT METHOD

Pumped/surged with pitcher pump.

VOLUME OF WATER REMOVED FROM WELL 55 gallons
CLARITY OF WATER IN WELL BEFORE DEVELOPMENT Clear, low turbidity
CLARITY OF WATER IN WELL AFTER DEVELOPMENT Gray, low-mod turbidity
PRESENCE OF SEDIMENT AT THE BOTTOM OF THE WELL
VOLUME OF WATER ADDED TO WELL None
SOURCE OF WATER ADDED TO WELL N/A
TIME SPENT FOR DEVELOPMENT 20 minutes

STABILIZATION READINGS

GAL. REMOVED	TIME	FIELD TEMPERATURE	FIELD SPEC. COND.	FIELD pH
0		17°C	325	7.43
20		15°C	600	7.18
30		15°C	625	7.12
40		15°C	600	7.08
50		15°C	625	7.09

FOTH AND VAN DYKE

MONITORING WELL DEVELOPMENT

WELL NUMBER 11E
WELL DIAMETER 2-inch
TOTAL DEPTH OF WELL
DEPTH TO WATER — TIME OF MEASUREMENT
BEFORE Surface
AFTER 10.2

CLIENT Modern Plating Corp.
PROJECT Phase 2
SCOPE I.D. 87M77
BY MJC
DATE 9/2/87

DESCRIPTION OF DEVELOPMENT METHOD

Pumped/surged with pitcher pump.

VOLUME OF WATER REMOVED FROM WELL 80 gallons
CLARITY OF WATER IN WELL BEFORE DEVELOPMENT Clear, low turbidity
CLARITY OF WATER IN WELL AFTER DEVELOPMENT Cloudy, low turbidity
PRESENCE OF SEDIMENT AT THE BOTTOM OF THE WELL
VOLUME OF WATER ADDED TO WELL None
SOURCE OF WATER ADDED TO WELL N/A
TIME SPENT FOR DEVELOPMENT 50 minutes

STABILIZATION READINGS

GAL. REMOVED	TIME	FIELD TEMPERATURE	FIELD SPEC. COND.	FIELD pH
2		15.5°C	500	7.29
15		15°C	500	7.39
30		14°C	575	7.72
40		14.5°C	550	7.65
55		14.5°C	575	7.38
60		14.5°C	575	7.30
65		14°C	575	7.31
75		14°C	575	7.21

FOTH AND VAN DYKE

MONITORING WELL DEVELOPMENT

WELL NUMBER 12A
WELL DIAMETER 2-inch
TOTAL DEPTH OF WELL
DEPTH TO WATER — TIME OF MEASUREMENT
BEFORE Surface
AFTER 1.3

CLIENT Modern Plating Corp.
PROJECT Phase 2
SCOPE I.D. 87M77
BY MJC
DATE 8/27/87

DESCRIPTION OF DEVELOPMENT METHOD

Pumped/surged with pitcher pump.

VOLUME OF WATER REMOVED FROM WELL 15 gallons
CLARITY OF WATER IN WELL BEFORE DEVELOPMENT Dark brown, highly turbid
CLARITY OF WATER IN WELL AFTER DEVELOPMENT Light brown, moderately turbid
PRESENCE OF SEDIMENT AT THE BOTTOM OF THE WELL
VOLUME OF WATER ADDED TO WELL None
SOURCE OF WATER ADDED TO WELL N/A
TIME SPENT FOR DEVELOPMENT 15 minutes

STABILIZATION READINGS

GAL. REMOVED	TIME	FIELD TEMPERATURE	FIELD SPEC. COND.	FIELD pH
0		15°C	1800	6.95
2.5		16°C	1675	6.90
7.5		15°C	1650	6.98
11		16°C	1700	7.00
12.5		16°C	1675	7.02

FOTH AND VAN DYKE

MONITORING WELL DEVELOPMENT

WELL NUMBER 12B
WELL DIAMETER 2-inch
TOTAL DEPTH OF WELL
DEPTH TO WATER — TIME OF MEASUREMENT
BEFORE .3 — 7:45
AFTER .3 — 8:00

CLIENT Modern Plating Corp.
PROJECT Phase 2
SCOPE I.D. 87M77
BY MJC
DATE 9/3/87

DESCRIPTION OF DEVELOPMENT METHOD

Pumped/surged with pitcher pump.

VOLUME OF WATER REMOVED FROM WELL 40 gallons
CLARITY OF WATER IN WELL BEFORE DEVELOPMENT Brown, highly turbid
CLARITY OF WATER IN WELL AFTER DEVELOPMENT Light brown, mod. turbidity
PRESENCE OF SEDIMENT AT THE BOTTOM OF THE WELL
VOLUME OF WATER ADDED TO WELL None
SOURCE OF WATER ADDED TO WELL N/A
TIME SPENT FOR DEVELOPMENT 15 minutes

STABILIZATION READINGS

GAL. REMOVED	TIME	FIELD TEMPERATURE	FIELD SPEC. COND.	FIELD pH
3		14°C	1100	7.01
15		14°C	1200	6.98
30		14.5°C	1200	6.97
40		14°C	1200	6.94

FOTH AND VAN DYKE

MONITORING WELL DEVELOPMENT

WELL NUMBER 12C
WELL DIAMETER 2-inch
TOTAL DEPTH OF WELL
DEPTH TO WATER — TIME OF MEASUREMENT
BEFORE .9 — 8:10
AFTER .5 — 8:35

CLIENT Modern Plating Corp.
PROJECT Phase 2
SCOPE I.D. 87M77
BY MJC
DATE 9/3/87

DESCRIPTION OF DEVELOPMENT METHOD

VOLUME OF WATER REMOVED FROM WELL 60 gallons
CLARITY OF WATER IN WELL BEFORE DEVELOPMENT Clear, low turbidity
CLARITY OF WATER IN WELL AFTER DEVELOPMENT Light brown, low-mod turbidity
PRESENCE OF SEDIMENT AT THE BOTTOM OF THE WELL
VOLUME OF WATER ADDED TO WELL None
SOURCE OF WATER ADDED TO WELL N/A
TIME SPENT FOR DEVELOPMENT 25 minutes

STABILIZATION READINGS

GAL. REMOVED	TIME	FIELD TEMPERATURE	FIELD SPEC. COND.	FIELD pH
0		15.5°C	625	6.90
20		14°C	550	9.11
25		14°C	650	8.47
35		14°C	650	7.26
40		14°C	675	7.33
45		14°C	675	7.18
50		14°C	675	7.07
55		14°C	675	7.20
58		14.5°C	700	7.11

FOTH AND VAN DYKE

MONITORING WELL DEVELOPMENT

WELL NUMBER 12E
WELL DIAMETER 2-inch
TOTAL DEPTH OF WELL
DEPTH TO WATER — TIME OF MEASUREMENT
BEFORE 1.3
AFTER 1.0

CLIENT Modern Plating Corp.
PROJECT Phase 2
SCOPE I.D. 87M77
BY MJC
DATE 8/27/87

DESCRIPTION OF DEVELOPMENT METHOD

Pumped/surged with pitcher pump.

VOLUME OF WATER REMOVED FROM WELL 72 gallons
CLARITY OF WATER IN WELL BEFORE DEVELOPMENT Clear, low turbidity
CLARITY OF WATER IN WELL AFTER DEVELOPMENT Clear, low turbidity
PRESENCE OF SEDIMENT AT THE BOTTOM OF THE WELL
VOLUME OF WATER ADDED TO WELL None
SOURCE OF WATER ADDED TO WELL N/A
TIME SPENT FOR DEVELOPMENT 45 minutes

STABILIZATION READINGS

GAL. REMOVED	TIME	FIELD TEMPERATURE	FIELD SPEC. COND.	FIELD pH
0		15°C	650	7.48
20		14°C	800	7.06
30		14°C	800	7.07
50		14°C	800	7.02
70		14°C	800	7.03

FOTH AND VAN DYKE

MONITORING WELL DEVELOPMENT

WELL NUMBER 13A
WELL DIAMETER 2-inch
TOTAL DEPTH OF WELL
DEPTH TO WATER TIME OF MEASUREMENT
BEFORE Surface
AFTER 1.6

CLIENT Modern Plating Corp.
PROJECT Phase 2
SCOPE I.D. 87M77
BY MJC
DATE 9/3/87

DESCRIPTION OF DEVELOPMENT METHOD

Pumped with 3/4-inch hose with flip valve connected to ditch pump.

VOLUME OF WATER REMOVED FROM WELL 35 gallons
CLARITY OF WATER IN WELL BEFORE DEVELOPMENT Dark gray, highly turbid.
CLARITY OF WATER IN WELL AFTER DEVELOPMENT Cloudy, low turbidity
PRESENCE OF SEDIMENT AT THE BOTTOM OF THE WELL
VOLUME OF WATER ADDED TO WELL None
SOURCE OF WATER ADDED TO WELL N/A
TIME SPENT FOR DEVELOPMENT 25 minutes

STABILIZATION READINGS

GAL. REMOVED	TIME	FIELD TEMPERATURE	FIELD SPEC. COND.	FIELD pH
0		16°C	1025	6.86
7.5		16.5°C	1150	6.80
11		16°C	1225	6.87
13		16°C	1150	6.90
15		16°C	1125	6.92
17		16°C	1250	6.93
19		16°C	1275	6.95
20		16°C	1100	6.96
25		16°C	1350	6.96
30		16.5°C	1325	7.00
35		16.5°C	1200	6.95

FOTH AND VAN DYKE

MONITORING WELL DEVELOPMENT

WELL NUMBER 13B
WELL DIAMETER 2-inch
TOTAL DEPTH OF WELL
DEPTH TO WATER — TIME OF MEASUREMENT
BEFORE .5
AFTER .4

CLIENT Modern Plating Corp.
PROJECT Phase 2
SCOPE I.D. 87M77
BY MJC
DATE 9/3/87

DESCRIPTION OF DEVELOPMENT METHOD

Pumped/surged with pitcher pump.

VOLUME OF WATER REMOVED FROM WELL 30 gallons
CLARITY OF WATER IN WELL BEFORE DEVELOPMENT Clear, low turbidity
CLARITY OF WATER IN WELL AFTER DEVELOPMENT Brown, mod-high turbidity
PRESENCE OF SEDIMENT AT THE BOTTOM OF THE WELL
VOLUME OF WATER ADDED TO WELL None
SOURCE OF WATER ADDED TO WELL N/A
TIME SPENT FOR DEVELOPMENT 10 minutes

STABILIZATION READINGS

GAL. REMOVED	TIME	FIELD TEMPERATURE	FIELD SPEC. COND.	FIELD pH
0		16.5°C	700	6.89
10		15°C	1400	6.85
17		15.5°C	1400	6.85
30		15.5°C	1400	6.84

FOTH AND VAN DYKE

MONITORING WELL DEVELOPMENT

WELL NUMBER 13C
WELL DIAMETER 2-inch
TOTAL DEPTH OF WELL
DEPTH TO WATER — TIME OF MEASUREMENT
BEFORE 1.3
AFTER 6.0

CLIENT Modern Plating Corp.
PROJECT Phase 2
SCOPE I.D. 87M77
BY MJC
DATE 9/3/87

DESCRIPTION OF DEVELOPMENT METHOD

Pumped/surged with pitcher pump.

VOLUME OF WATER REMOVED FROM WELL 65 gallons
CLARITY OF WATER IN WELL BEFORE DEVELOPMENT Clear, low turbidity
CLARITY OF WATER IN WELL AFTER DEVELOPMENT Brown, mod-high turbidity
PRESENCE OF SEDIMENT AT THE BOTTOM OF THE WELL
VOLUME OF WATER ADDED TO WELL None
SOURCE OF WATER ADDED TO WELL N/A
TIME SPENT FOR DEVELOPMENT 1 hour

STABILIZATION READINGS

GAL. REMOVED	TIME	FIELD TEMPERATURE	FIELD SPEC. COND.	FIELD pH
1		15.5°C	625	6.97
15		15°C	700	7.03
30		15°C	800	6.97
45		14.5°C	800	6.89
60		15°C	800	6.91

MONITORING WELL DEVELOPMENT

WELL NUMBER 13E
WELL DIAMETER 2-inch
TOTAL DEPTH OF WELL
DEPTH TO WATER — TIME OF MEASUREMENT
BEFORE 6 — 9:10
AFTER 6.3 — 10:10

CLIENT Modern Plating Corp.
PROJECT Phase 2
SCOPE I.D. 87M77
BY MJC
DATE 9/3/87

DESCRIPTION OF DEVELOPMENT METHOD

Pumped/surged with pitcher pump.

VOLUME OF WATER REMOVED FROM WELL 80 gallons
CLARITY OF WATER IN WELL BEFORE DEVELOPMENT Clear, low turbidity
CLARITY OF WATER IN WELL AFTER DEVELOPMENT Brown, mod turbidity
PRESENCE OF SEDIMENT AT THE BOTTOM OF THE WELL
VOLUME OF WATER ADDED TO WELL None
SOURCE OF WATER ADDED TO WELL N/A
TIME SPENT FOR DEVELOPMENT 1 hour

STABILIZATION READINGS

GAL. REMOVED	TIME	FIELD TEMPERATURE	FIELD SPEC. COND.	FIELD pH
0		15°C	600	7.11
20		14°C	600	7.02
40		14°C	750	6.88
60		14°C	750	6.91
77		14°C	750	6.85

FOTH AND VAN DYKE

MONITORING WELL DEVELOPMENT

WELL NUMBER 14A
WELL DIAMETER 2-inch
TOTAL DEPTH OF WELL
DEPTH TO WATER — TIME OF MEASUREMENT
BEFORE 2.8
AFTER Dry

CLIENT Modern Plating Corp.
PROJECT Phase 2
SCOPE I.D. 87M77
BY MJC
DATE 9/3/87

DESCRIPTION OF DEVELOPMENT METHOD

Pumped with 3/4-inch hose with flip valve connected to ditch pump and with pitcher pump.

VOLUME OF WATER REMOVED FROM WELL 11 gallons
CLARITY OF WATER IN WELL BEFORE DEVELOPMENT Dark brown, highly turbid
CLARITY OF WATER IN WELL AFTER DEVELOPMENT Dark brown, highly turbid
PRESENCE OF SEDIMENT AT THE BOTTOM OF THE WELL
VOLUME OF WATER ADDED TO WELL None
SOURCE OF WATER ADDED TO WELL N/A
TIME SPENT FOR DEVELOPMENT 45 minutes

STABILIZATION READINGS

GAL. REMOVED	TIME	FIELD TEMPERATURE	FIELD SPEC. COND.	FIELD pH
0		21°C	1050	7.17
10		20°C	1300	7.09
11		18.5°C	1300	7.92

FOTH AND VAN DYKE

MONITORING WELL DEVELOPMENT

WELL NUMBER 14B
WELL DIAMETER 2-inch
TOTAL DEPTH OF WELL
DEPTH TO WATER — TIME OF MEASUREMENT
BEFORE 6' —
AFTER 5.2' —

CLIENT Modern Plating Corp.
PROJECT Phase 2
SCOPE I.D. 87M77
BY MJC
DATE 9/3/87

DESCRIPTION OF DEVELOPMENT METHOD

Pumped/surged with pitcher pump.

VOLUME OF WATER REMOVED FROM WELL 20 gallons
CLARITY OF WATER IN WELL BEFORE DEVELOPMENT Clear, low turbidity
CLARITY OF WATER IN WELL AFTER DEVELOPMENT Dark brown, mod-high turbidity
PRESENCE OF SEDIMENT AT THE BOTTOM OF THE WELL
VOLUME OF WATER ADDED TO WELL None
SOURCE OF WATER ADDED TO WELL N/A
TIME SPENT FOR DEVELOPMENT 10 minutes

STABILIZATION READINGS

GAL. REMOVED	TIME	FIELD TEMPERATURE	FIELD SPEC. COND.	FIELD pH
0		17°C	650	7.06
5		15.5°C	1350	6.90
12		15°C	1450	6.73
17		15°C	1500	6.76
20		15°C	1500	6.70

FOTH AND VAN DYKE

MONITORING WELL DEVELOPMENT

WELL NUMBER 14C
WELL DIAMETER 2-inch
TOTAL DEPTH OF WELL
DEPTH TO WATER — TIME OF MEASUREMENT
BEFORE 5.4
AFTER 23

CLIENT Modern Plating Corp.
PROJECT Phase 2
SCOPE I.D. 87M77
BY MJC
DATE 9/3/87

DESCRIPTION OF DEVELOPMENT METHOD

Pumped/surged with pitcher pump

VOLUME OF WATER REMOVED FROM WELL 64 gallons
CLARITY OF WATER IN WELL BEFORE DEVELOPMENT Clear, low turbidity
CLARITY OF WATER IN WELL AFTER DEVELOPMENT Light brown, low-mod turbidity
PRESENCE OF SEDIMENT AT THE BOTTOM OF THE WELL
VOLUME OF WATER ADDED TO WELL None
SOURCE OF WATER ADDED TO WELL N/A
TIME SPENT FOR DEVELOPMENT 1.5 hours

STABILIZATION READINGS

GAL. REMOVED	TIME	FIELD TEMPERATURE	FIELD SPEC. COND.	FIELD pH
0		18°C	700	7.48
20		17°C	650	7.38
40		16°C	650	7.19
50		16.5°C	675	7.25
60		16.5°C	675	7.27

FOTH AND VAN DYKE

MONITORING WELL DEVELOPMENT

WELL NUMBER 14E
CLIENT Modern Plating Corp.
WELL DIAMETER 2-inch
PROJECT Phase 2
TOTAL DEPTH OF WELL
SCOPE I.D. 87M77
DEPTH TO WATER TIME OF MEASUREMENT BY MJC
BEFORE 7.3
DATE 9/3/87
AFTER 8.8

DESCRIPTION OF DEVELOPMENT METHOD

Pumped/surged with pitcher pump.

VOLUME OF WATER REMOVED FROM WELL 90 gallons
CLARITY OF WATER IN WELL BEFORE DEVELOPMENT Clear, low turbidity
CLARITY OF WATER IN WELL AFTER DEVELOPMENT Light brown, low-mod turbidity
PRESENCE OF SEDIMENT AT THE BOTTOM OF THE WELL
VOLUME OF WATER ADDED TO WELL None
SOURCE OF WATER ADDED TO WELL N/A
TIME SPENT FOR DEVELOPMENT 1 hour

STABILIZATION READINGS

GAL. REMOVED	TIME	FIELD TEMPERATURE	FIELD SPEC. COND.	FIELD pH
0		24°C	725	7.33
25		21°C	700	7.77
40		19.5°C	700	7.62
60		21°C	700	7.31
75		18°C	700	7.27
80		19°C	700	7.33
90		18.5°C	700	7.28

FOTH AND VAN DYKE

MONITORING WELL DEVELOPMENT

WELL NUMBER 15A
WELL DIAMETER 2-inch
TOTAL DEPTH OF WELL
DEPTH TO WATER — TIME OF MEASUREMENT
BEFORE 1.0
AFTER 3.4

CLIENT Modern Plating Corp.
PROJECT Phase 2
SCOPE I.D. 87M77
BY MJC
DATE 8/27/87

DESCRIPTION OF DEVELOPMENT METHOD

Pumped with 3/4-inch hose with flip valve connected to ditch pump.

VOLUME OF WATER REMOVED FROM WELL 15 gallons
CLARITY OF WATER IN WELL BEFORE DEVELOPMENT Dark brown, highly turbid
CLARITY OF WATER IN WELL AFTER DEVELOPMENT Dark brown, highly turbid
PRESENCE OF SEDIMENT AT THE BOTTOM OF THE WELL
VOLUME OF WATER ADDED TO WELL None
SOURCE OF WATER ADDED TO WELL N/A
TIME SPENT FOR DEVELOPMENT 20 minutes

STABILIZATION READINGS

GAL. REMOVED	TIME	FIELD TEMPERATURE	FIELD SPEC. COND.	FIELD pH
0		20°C	825	7.12
8		19°C	875	7.16
10		20°C	825	7.08
13		20°C	815	7.10

FOTH AND VAN DYKE

MONITORING WELL DEVELOPMENT

WELL NUMBER 15B
WELL DIAMETER 2-inch
TOTAL DEPTH OF WELL
DEPTH TO WATER — TIME OF MEASUREMENT
BEFORE 1.1
AFTER 2.3

CLIENT Modern Plating Corp.
PROJECT Phase 2
SCOPE I.D. 87M77
BY MJC
DATE 8/27/87

DESCRIPTION OF DEVELOPMENT METHOD

Pumped/surged with pitcher pump.

VOLUME OF WATER REMOVED FROM WELL 40 gallons
CLARITY OF WATER IN WELL BEFORE DEVELOPMENT Brown, highly turbid
CLARITY OF WATER IN WELL AFTER DEVELOPMENT Cloudy, low turbidity
PRESENCE OF SEDIMENT AT THE BOTTOM OF THE WELL
VOLUME OF WATER ADDED TO WELL None
SOURCE OF WATER ADDED TO WELL N/A
TIME SPENT FOR DEVELOPMENT 30 minutes

STABILIZATION READINGS

GAL. REMOVED	TIME	FIELD TEMPERATURE	FIELD SPEC. COND.	FIELD pH
0		16°C	1100	8.05
35		17°C	725	7.06
40		17°C	725	7.06

FOTH AND VAN DYKE

MONITORING WELL DEVELOPMENT

WELL NUMBER 15C
WELL DIAMETER 2-inch
TOTAL DEPTH OF WELL
DEPTH TO WATER — TIME OF MEASUREMENT
BEFORE 1.1 — 1:50
AFTER 1.1 — 2:36

CLIENT Modern Plating Corp.
PROJECT Phase 2
SCOPE I.D. 87M77
BY MJC
DATE 8/27/87

DESCRIPTION OF DEVELOPMENT METHOD

Pumped with 3/4-inch hose with flip valve connected to ditch pump.

VOLUME OF WATER REMOVED FROM WELL 80 gallons
CLARITY OF WATER IN WELL BEFORE DEVELOPMENT Cloudy, low turbidity
CLARITY OF WATER IN WELL AFTER DEVELOPMENT Light gray, low turbidity
PRESENCE OF SEDIMENT AT THE BOTTOM OF THE WELL
VOLUME OF WATER ADDED TO WELL 1 gallon (prime pump)
SOURCE OF WATER ADDED TO WELL Freeport water supply
TIME SPENT FOR DEVELOPMENT 34 minutes

STABILIZATION READINGS

GAL. REMOVED	TIME	FIELD TEMPERATURE	SPEC. COND.	pH
5		15°C	650	7.61
20		15.5°C	675	7.49
40		16°C	700	7.46
60		15°C	675	7.39
80		15°C	675	7.41

FOTH AND VAN DYKE

MONITORING WELL DEVELOPMENT

WELL NUMBER 16C
WELL DIAMETER 2-inch
TOTAL DEPTH OF WELL
DEPTH TO WATER — TIME OF MEASUREMENT
BEFORE 9.3
AFTER Dry

CLIENT Modern Plating Corp.
PROJECT Phase 2
SCOPE I.D. 87M77
BY MJC
DATE 9/3/87

DESCRIPTION OF DEVELOPMENT METHOD

Pumped with pitcher pump.

VOLUME OF WATER REMOVED FROM WELL 12.5 gallons
CLARITY OF WATER IN WELL BEFORE DEVELOPMENT Clear, low turbidity
CLARITY OF WATER IN WELL AFTER DEVELOPMENT Dark brown, mod-high turbidity
PRESENCE OF SEDIMENT AT THE BOTTOM OF THE WELL
VOLUME OF WATER ADDED TO WELL None
SOURCE OF WATER ADDED TO WELL N/A
TIME SPENT FOR DEVELOPMENT 70 minutes

STABILIZATION READINGS

GAL. REMOVED	TIME	FIELD TEMPERATURE	SPEC. COND.	pH
0		20°C	600	6.21
5		17°C	600	6.88
9		17°C	600	7.73
10		17°C	625	7.54
11.5		16.5°C	625	7.37
12.5		16.5°C	625	7.56

FOTH AND VAN DYKE

Foth & Van Dyke

Client: Modern Plating Corp. Scope I.D.: 88M70
Project: RFI Lagoon Investigation Page: 1
Prepared by: Craig Wirtz Date: 5/16/89
Checked by: JSK Date: 5/18/89

MONITORING WELL DEVELOPMENT

Well Number: MW-9A
Well Diameter: 2"
Total Depth of Well: 26.00'

Depth to Water:
Initial: 18.86'
Final: 22.95'

Time of Measurement:
4:15 p.m.
5:27 p.m.

Description of Development Method:
After measuring depth to water and total depth, I used submersible pump to bail (purge) well. After every 10 gallons purged, I took pH, cond. @ 25 degrees C, temperature, depth to groundwater and time. After 40 gallons were purged, well started to clear up. Stabilization of readings occurred after 60 gallons were removed. I used a Lakewood Instrument (serial number 22990) for pH/conductivity. I used a Fluke Inst. meter for temperature.

Volume of Water Removed From Well: 60 gallons
Clarity of Water in Well Before Development: Dark Gray, High Turbidity
Clarity of Water in Well After Development: V.Lt.Gray, Slight Turbidity
Presence of Sediment at the Bottom of the Well: Yes, Gray Sediment
Volume of Water Added to Well: None
Source of Water Added to Well: ----
Time Spent for Development: 1-1/2 hours

Stabilization Readings:

Gal. Removed	Depth to Water (ft)	Time	Field Temperature (°C)	Spec. Cond. umhos	pH S.U.
Initial	18.86'	4:15 p.m.	16.3	1811	6.40
10	20.10'	4:25 p.m.	15.0	1980	6.77
20	22.70'	4:40 p.m.	13.0	1917	6.68
30	21.80'	4:50 p.m.	13.0	1737	6.56
40	21.00'	5:00 p.m.	12.0	1711	6.73
50	22.10'	5:17 p.m.	13.0	1619	6.87
60	22.95'	5:27 p.m.	14.0	1582	6.78

FORM 6449 GEM 15/881

Foth & Van Dyke

Client: Modern Plating Corp. Scope I.D.: 88M70
Project: RFI Lagoon Investigation Page:
Prepared by: Craig Wirtz Date: 5/17/89
Checked by: JSK Date: 5/18/89

MONITORING WELL DEVELOPMENT

Well Number: MW-10A
Well Diameter: 2"
Total Depth of Well: 24.60'

Depth to Water:
Initial: 14.34'
Final: 16.10'

Time of Measurement:
1:40 p.m.
2:25 p.m.

Description of Development Method:
After measuring initial depth to groundwater, total depth, pH, cond. @ 25°C, temperature and time, I used a submersible pump to purge well. After every 10 gallons purged, I took readings (all) again. After 30 gallons were purged, well started to clear up. Stabilization of readings occurred after 40 gallons were removed. I used a Lakewood Instrument meter (serial number 22990) for pH and conductivity. I used a Fluke Instrument meter for temperature.

Volume of Water Removed From Well: 40 gallons
Clarity of Water in Well Before Development: Lt. Brown, High Turbidity
Clarity of Water in Well After Development: Lt. Brown, Slight Turbidity
Presence of Sediment at the Bottom of the Well: Yes, Lt. Brown
Volume of Water Added to Well: None
Source of Water Added to Well: ----
Time Spent for Development: 45 minutes

Stabilization Readings:

Gal. Removed	Depth to Water	Time	(°C) Field Temperature	umhos Spec. Cond.	S.U. pH
Initial	14.34'	1:40 p.m.	13.8°	1417	6.75
10	14.90'	1:50 p.m.	11.5	1183	7.30
20	15.45'	2:00 p.m.	11.7	1190	7.11
30	15.75'	2:15 p.m.	11.6	1085	6.93
35	16.00'	2:20 p.m.	11.6	1076	7.11
40	16.10'	2:25 p.m.	11.6	1070	7.18

Foth & Van Dyke

Client: Modern Plating Corp. Scope I.D.: 88M70
Project: RFI Hydro. Invest. Page: 1 of 1
Prepared by: RLP Date: 11-13-88
Checked by: JSK Date: 11-21-88

MONITORING WELL DEVELOPMENT

Well Number: MW-17A
Well Diameter: 2" I.D.
Total Depth of Well: 17.0' (+3' stick-up)

Depth to Water:
Initial: 11.4' from T.O.R.
Final: 16.3'

Time of Measurement:
11:50 a.m. 11-13-88
4:55 p.m. 11-13-88

Description of Development Method:
Pumped with Brainard-Kilman 1.7" Hand Pump with discharge to a 5-gallon bucket for vol. calcs. and subsequent discharge to ground surface.

11 well vols. removed

Volume of Water Removed From Well: 15 gal.
Clarity of Water in Well Before Development: V. Muddy - Dk Brown
Clarity of Water in Well After Development: Slightly Muddy - Brown
Presence of Sediment at the Bottom of the Well: Yes
Volume of Water Added to Well: None
Source of Water Added to Well: N/A
Time Spent for Development: 4 hours

Stabilization Readings:

Gal. Removed	Depth to Water	Time	Field Temperature	Spec. Cond.	pH

Foth & Van Dyke

Client: Modern Plating Corp. Scope I.D.: 88M70
Project: RFI Hydro Invest. Page: 1 of 1
Prepared by: RLP Date: 11-13-88
Checked by: JSK Date: 11-21-88

MONITORING WELL DEVELOPMENT

Well Number: MW-17B
Well Diameter: 2" I.D.
Total Depth of Well: 36.7' (-3.0' stick-up)

Depth to Water:
Initial: 11.5' from T.O.R. 8:45 a.m. 11-13-88
Final: 21.2' from T.O.R. 11:40 a.m. 11-13-88

Description of Development Method:
Pumped with Brainerd-Kilman 1.7" Hand Pump with discharge to a 5-gallon pail for vol. calcs. and subsequent discharge to ground surface.

33 well vols. removed

Volume of Water Removed From Well: 150 gal.
Clarity of Water in Well Before Development: V. Muddy - Dk Brown
Clarity of Water in Well After Development: Cloudy -Lt. Brown
Presence of Sediment at the Bottom of the Well: None
Volume of Water Added to Well: None
Source of Water Added to Well: N/A
Time Spent for Development: 2.5 hours

Stabilization Readings:

Gal. Removed	Depth to Water	Time	Field Temperature	Spec. Cond.	pH

Foth & Van Dyke

Client: Modern Plating Corp. Scope I.D.: 88M70
Project: RFI Hydro Invest Page: 1/1
Prepared by: MJH Date: 1/31/89
Checked by: JSK Date: 2/7/89

MONITORING WELL DEVELOPMENT

Well Number: MW-17C
Well Diameter: 2" stainless steel
Total Depth of Well: 109.20'

Depth to Water:
Initial: 6.7'
Final: Dry

Time of Measurement:
3:15 p.m.
5:10 p.m.

Description of Development Method:
The well was simultaneously surged and bailed using a foot valve installed on a 3/4-inch flexible PVC pipe. The pipe and foot valve are moved up and down in the well by a pump with discharge to a 5-gallon bucket for volume calculations and subsequent discharge to ground surface.

Volume of Water Removed From Well: 67 Gallons
Clarity of Water in Well Before Development: Clear
Clarity of Water in Well After Development: Light brown
Presence of Sediment at the Bottom of the Well: Yes
Volume of Water Added to Well: NA
Source of Water Added to Well: NA
Time Spent for Development: 90 Minutes

Stabilization Readings:*

Gal. Removed	Depth to Water	Time	Field Temperature	Spec. Cond.	pH
10	20.5'	4:40 p.m.	12°	879	8.56
30	37.8'	5:10 p.m.	12°	876	7.56

*pH/conductivity meter began malfunctioning due to cold weather

Foth & Van Dyke

Client: Modern Plating Corp. Scope I.D.: 88M70
Project: RFI Hydro Invest Page: 1/1
Prepared by: MJH Date: 1/31/89
Checked by: JSK Date: 2/7/89

MONITORING WELL DEVELOPMENT

Well Number: MW-17D
Well Diameter: 2" stainless steel
Total Depth of Well: 120.90'

Depth to Water:
Initial: 6.38'
Final: 6.38'

Time of Measurement:
3:10 p.m.
6:00 p.m.

Description of Development Method:
Pumped with Brainard-Kilman 1.7" hand pump with discharge to a 5-gallon bucket for volume calculations and subsequent discharge to ground surface.

Volume of Water Removed From Well: 75 gallons
Clarity of Water in Well Before Development: Clear
Clarity of Water in Well After Development: Light brown
Presence of Sediment at the Bottom of the Well: Yes
Volume of Water Added to Well: NA
Source of Water Added to Well: NA
Time Spent for Development: 90 Minutes

Stabilization Readings:

Gal. Removed	Depth to Water	Time	Field Temperature	Spec. Cond.	pH
10	-	4:40 p.m.	12°	585	8.54
30	-	5:10 p.m.	12°	534	9.99

*pH/conductivity meter began malfunctioning due to cold

Foth & Van Dyke

Client: Modern Plating Corp. Scope I.D.: 88M70
Project: RFI Hydro. Invest. Page: 1 of 1
Prepared by: RLP Date: 11-8-88
Checked by: JSK Date: 11-21-88

MONITORING WELL DEVELOPMENT

Well Number: MW-18A
Well Diameter: 2" I.D.
Total Depth of Well: 16.0'(+3.0' stick-up)

Depth to Water:
Initial: 11.0' from T.O.R. 3:30 p.m. 11-8-88
Final: 11.0' from T.O.R. 5:15 p.m. 11-8-88

Description of Development Method:
Pumped with Brainard-Kilman 1.7"Hand Pump with discharge to a 5-gallon bucket for vol. calcs. and subsequent discharge to ground surface.

Well vol. = 1.3 gal. 123 well vols. removed

Volume of Water Removed From Well: 160 gal.
Clarity of Water in Well Before Development: V. Muddy - Dk Brown
Clarity of Water in Well After Development: Cloudy, Brown
Presence of Sediment at the Bottom of the Well: None
Volume of Water Added to Well: None
Source of Water Added to Well: N/A
Time Spent for Development: 2 hours

Stabilization Readings:

Gal. Removed	Depth to Water	Time	Field Temperature	Spec. Cond.	pH
160					

Foth & Van Dyke

Client: Modern Plating Corp. Scope I.D.: 88M 70
Project: RFI Hydro. Invest. Page: 1 of 1
Prepared by: RLP Date: 11-9-88
Checked by: JSK Date: 11-21-88

MONITORING WELL DEVELOPMENT

Well Number: MW-18B
Well Diameter: 2" I.D.
Total Depth of Well: 37.4' (+2.7' stick-up)

Depth to Water:
Initial: 11.0' from T.O.R.
Final: 10.8' from T.O.R.

Time of Measurement:
7:35 a.m. 11-9-88
9:45 a.m. 11-9-88

Description of Development Method:
Pumped with Brainard-Kilman 1.7"Hand Pump with discharge to a 5-gallon bucket for vol. calcs. with subsequent ground surface disposal.

Well vol. = 4.7 gal. 35 well vol. removed

Volume of Water Removed From Well: 165 gal.
Clarity of Water in Well Before Development: V. Muddy Brown
Clarity of Water in Well After Development: Cloudy Brown
Presence of Sediment at the Bottom of the Well: None
Volume of Water Added to Well: None
Source of Water Added to Well: N/A
Time Spent for Development: 2 hours

Stabilization Readings:

Gal. Removed	Depth to Water	Time	Field Temperature	Spec. Cond.	pH

Foth & Van Dyke

Client: Modern Plating Corp. Scope I.D.: 88M70
Project: RFI Hydro Invest Page: 1/1
Prepared by: MJH Date: 2/1/89
Checked by: JSK Date: 2/7/89

MONITORING WELL DEVELOPMENT

Well Number: MW-18D
Well Diameter: 2" stainless steel
Total Depth of Well: 150' +

Depth to Water:
Initial: 6.72'
Final: Dry

Time of Measurement:
8:20 a.m.
4:00 p.m.

Description of Development Method:
The well was simultaneously surged and bailed using a foot valve installed on a 3/4-inch flexible PVC pipe. The pipe and foot valve are moved up and down in the well by a pump with discharge to a 5-gallon bucket for volume calculations and subsequent discharge to ground surface. Well was pumped dry 1-1/2 times.

Volume of Water Removed From Well: 95 gallons
Clarity of Water in Well Before Development: Clear
Clarity of Water in Well After Development: Light brown gray
Presence of Sediment at the Bottom of the Well: Yes
Volume of Water Added to Well: NA
Source of Water Added to Well: NA
Time Spent for Development: 90 minutes

Stabilization Readings:

Gal. Removed	Depth to Water	Time	Field Temperature	Spec. Cond.	pH
10	-	11:35 a.m.	11°	824	5.78

*pH/conducitivity meter began malfunctioning due to cold

FORM #449 GEM (5/88)

Foth & Van Dyke

Client: Modern Plating Corp. Scope I.D.: 88MZ0
Project: RFI Hydro. Invest. Page: 1 of 1
Prepared by: RLP Date: 11-8-88
Checked by: JSK Date: 11-21-88

MONITORING WELL DEVELOPMENT

Well Number: MW-19A
Well Diameter: 2" I.D.
Total Depth of Well: 14.0' (+3.1' stick-up)

Depth to Water:
Initial: 11.8' from T.O.R. 11:30 a.m. 11-8-88
Final: 11.9' from T.O.R. 2:00 p.m. 11-8-88

Description of Development Method:
Pumped with Brainerd-Kilman 1.7"Hand Pump with discharge to a 5-gallon bucket for vol. calcs. with subsequent disposal to ground surface.

Well vol. = 0.8 gal. 100 well vol. removed

Volume of Water Removed From Well: 80 gal.
Clarity of Water in Well Before Development: V. Muddy - Dk Brown
Clarity of Water in Well After Development: Clear
Presence of Sediment at the Bottom of the Well: None
Volume of Water Added to Well: None
Source of Water Added to Well: N/A
Time Spent for Development: 2 hours

Stabilization Readings:

Gal. Removed	Depth to Water	Time	Field Temperature	Spec. Cond.	pH

Foth & Van Dyke

Client: Modern Plating Corp. Scope I.D.: 88M70
Project: RFI Hydro. Invest. Page: 1 of 1
Prepared by: RLP Date: 11-8-88
Checked by: JSK Date: 11-21-88

MONITORING WELL DEVELOPMENT

Well Number: MW-19B
Well Diameter: 2" I.D.
Total Depth of Well: 34.7' (+3.0' stick-up)

Depth to Water:
Initial: 11.9' from T.O.R.
Final: 25.9' from T.O.R.

Time of Measurement:
7:00 a.m. 11-4-88
10:50 a.m. 11-8-88

Description of Development Method:
Pumped with Brainard-Kilman 1.7"Hand Pump with discharge to a 5-gallon bucket for vol. calcs. and subsequent disposal to ground surface.

Well vol. = 4.2 gal. Approx. 24 well vols. removed

Volume of Water Removed From Well: 100 gals. (45 gals. 10-26-88 + 55 gals. 11-8-88
Clarity of Water in Well Before Development: V Muddy-Dk Brown
Clarity of Water in Well After Development: Cloudy-Brown
Presence of Sediment at the Bottom of the Well: None
Volume of Water Added to Well: None
Source of Water Added to Well: N/A
Time Spent for Development: 4 hours

Stabilization Readings:

Gal. Removed	Depth to Water	Time	Field Temperature	Spec. Cond.	pH

Foth & Van Dyke

Client: Modern Plating Corp. Scope I.D.: 88M70
Project: RFI Hydro. Invest. Page: 1 of 1
Prepared by: RLP Date: 11-9-88
Checked by: JSK Date: 11-21-88

MONITORING WELL DEVELOPMENT

Well Number: MW-19C
Well Diameter: 2" I.D.
Total Depth of Well: 110.3' (+3.0' stick up)

Depth to Water:
Initial: 10.6' from T.O.R.
Final: -

Time of Measurement:
7:00 a.m. 11-4-88
-

Description of Development Method:
Pumped with Brainard-Kilman 1.7" Hand Pump with discharge to a 5-gallon bucket for vol. calcs. and subsequent discharge to ground surface.

12 well vols. removed

Volume of Water Removed From Well: 200 gal.
Clarity of Water in Well Before Development: Muddy Dk Brown
Clarity of Water in Well After Development: Cloudy Brown
Presence of Sediment at the Bottom of the Well: None
Volume of Water Added to Well: None
Source of Water Added to Well: N/A
Time Spent for Development: 2 hours

Stabilization Readings:

Gal. Removed	Depth to Water	Time	Field Temperature	Spec. Cond.	pH

Foth & Van Dyke

Client: Modern Plating Corp. Scope I.D.: 88M70
Project: BFI Hydro Invest Page: 1/1
Prepared by: MJH Date: 2/1/89
Checked by: JSK Date: 2/7/89

MONITORING WELL DEVELOPMENT

Well Number: MW-19 D
Well Diameter: 2" stainless steel
Total Depth of Well: 155'

Depth to Water:
Initial: 7.93
Final: Dry

Time of Measurement:
7:55 a.m.
4:00 p.m.

Description of Development Method:
The well was simultaneously surged and bailed using a foot valve installed on a 3/4-inch flexible PVC pipe. The pipe and foot valve are moved up and down in the well by a pump with discharge to a 5-gallon bucket for volume calculations and subsequent discharge to ground surface. Well was pumped dry 2 times.

Volume of Water Removed From Well: 100 Gallons
Clarity of Water in Well Before Development: Very light grayish brown
Clarity of Water in Well After Development: Light gray
Presence of Sediment at the Bottom of the Well: Yes
Volume of Water Added to Well: NA
Source of Water Added to Well: NA
Time Spent for Development: 120 Minutes

Stabilization Readings:

Gal. Removed	Depth to Water	Time	Field Temperature	Spec. Cond.	pH
25		4:00	11°C	650	7.02

Foth & Van Dyke

Client: Modern Plating Corporation
Project: CMS Well Installations
Prepared by KAD
Checked by: RTB

Scope I.D. 93M020
Page 1 of 1
Date 3/3/94
Date 3/28/94

Monitoring Well Development

Well Number: MW-21A	Depth to Water:	Time of Measurement:
Well Diameter: 2"	Initial: 14.38'	11:30
Total Depth of Well: 25' (toc)	Final: 14.38'	13:40

Description of Development Method: initially silt/debris removed from the bottom of the hole, then pumped/surged with pump on rig, well screen surged with bailer

Volume of Water Removed From Well:	110 gallons
Clarity of Water in Well Before Development:	grey, silty
Clarity of Water in Well After Development:	clear
Presence of Sediment at the Bottom of the Well:	several inches initially, none after dev.
Volume of Water Added to Well:	none
Source of Water Added to Well:	N/A
Time Spent for Development:	55 minutes

Stabilization Readings: Not Taken

Gal. Removed	Depth to Water	Time	Field Temperature	Spec. Cond.	pH

Foth & Van Dyke

Client: Modern Plating Corporation
Project: CMS Well Installation
Prepared by KAD
Checked by: RTB

Scope I.D. 93M020
Page 1 of 1
Date 3/3/94
Date 3/28/94

Monitoring Well Development

Well Number: MW-21C
Well Diameter: 2"
Total Depth of Well: 55" (toc)

Depth to Water:
Initial: 12.73'
Final: 14.00'

Time of Measurement:
11:30
13:00

Description of Development Method: silt and debris removed from the bottom with a bailer, screen surged with bailer, water pumped from well

Volume of Water Removed From Well: 110 gallons
Clarity of Water in Well Before Development: cloudy, silty
Clarity of Water in Well After Development: clear
Presence of Sediment at the Bottom of the Well: several inches initially - none after dev.
Volume of Water Added to Well: none
Source of Water Added to Well: N/A
Time Spent for Development: 65 minutes

Stabilization Readings: Not Taken

Gal. Removed	Depth to Water	Time	Field Temperature	Spec. Cond.	pH

Foth & Van Dyke

Client: Modern Plating Corporation
Project: CMS Well Installation
Prepared by KAD
Checked by: RTB

Scope I.D. 94M020
Page 1 of 1
Date 3/3/94
Date 3/28/94

Monitoring Well Development

Well Number: MW-22A	Depth to Water:	Time of Measurement:
Well Diameter: 2"	Initial: 14.72'	13:55
Total Depth of Well: 25' (toc)	Final:14.72'	15:15

Description of Development Method: sediment and debris removed with bailer, screen area surged with bailer, water pumped out with drill rig pump

Volume of Water Removed From Well:	110 gallons
Clarity of Water in Well Before Development:	back, silty
Clarity of Water in Well After Development:	clear but greyish in color
Presence of Sediment at the Bottom of the Well:	several inches initially, none after dev.
Volume of Water Added to Well:	none
Source of Water Added to Well:	N/A
Time Spent for Development:	80 minutes

Stabilization Readings: Not Taken

Gal. Removed	Depth to Water	Time	Field Temperature	Spec. Cond.	pH

Foth & Van Dyke

Client: Modern Plating Corporation
Project: CMS Well Installations
Prepared by KAD
Checked by: RTB

Scope I.D. 93M020
Page 1 of 1
Date 3/3/94
Date 3/28/94

Monitoring Well Development

Well Number: MW-22C
Well Diameter: 2"
Total Depth of Well: 59.75'(toc)

Depth to Water:
Initial: 16.68'
Final: 16.70'

Time of Measurement:
1:50 p.m.
3:00 p.m.

Description of Development Method: Bailer used initially to remove sediment and debris. Bailer used to surge water in the well screen. Tremie pipe and hose lowered into well then water pumped out.

Volume of Water Removed From Well: 110 gallons
Clarity of Water in Well Before Development: silty (yellow)
Clarity of Water in Well After Development: clear
Presence of Sediment at the Bottom of the Well: six inches prior to development, none after dev.
Volume of Water Added to Well: none
Source of Water Added to Well: N/A
Time Spent for Development: 50 minutes

Stabilization Readings: Not Taken

Gal. Removed	Depth to Water	Time	Field Temperature	Spec. Cond.	pH

WELL DEVELOPMENT REPORT

WELL NAME MW-23B

JOB NO# 10498

WELL DIAMETER 2.0"

LOCATION Freeport, IL

(MEASUREMENTS BELOW FROM TOP OF CASING)
TOTAL DEPTH 23.0'

DATE 3-13-00

DEPTH TO WATER BEFORE DEVELOPMENT 9.48'

DEVELOPED BY L. Erdman

DEPTH TO WATER AFTER DEVELOPMENT 12.3'

DESCRIPTION OF DEVELOPMENT METHOD

(CHECK ONE)

- ☐ SURGED W/BAILER & BAILED
- ☐ SURGED W/BAILER & PUMPED
- ☐ SURGED W/BLOCK & BAILED
- ☐ SURGED W/BLOCK & PUMPED
- ☒ OTHER Hose Pump

CAN THIS WELL BE PURGED DRY? ☐ YES ☒ NO

VOLUME OF WATER IN FILTER PACK AND WELL CASING ____

VOLUME OF WATER REMOVED FROM WELL 65 gals.

CLARITY OF WATER BEFORE DEVELOPMENT Muddy

CLARITY OF WATER AFTER DEVELOPMENT Clear

VOLUME OF WATER ADDED ____

SOURCE OF WATER ADDED

TIME SPENT FOR DEVELOPMENT 15 MIN. START: 5:15 P.M. END: 5:30 P.M.

COMMENTS:

WELL DEVELOPMENT REPORT

WELL NAME MW-23C

JOB NO# 10498

WELL DIAMETER 2.0"

LOCATION Freeport, IL

(MEASUREMENTS BELOW FROM TOP OF CASING)
TOTAL DEPTH 35.53'

DATE 3-13-00

DEPTH TO WATER BEFORE DEVELOPMENT 6.52'

DEVELOPED BY L. Erdman

DEPTH TO WATER AFTER DEVELOPMENT 33.2'

DESCRIPTION OF DEVELOPMENT METHOD

(CHECK ONE)

- ☐ SURGED W/BAILER & BAILED
- ☐ SURGED W/BAILER & PUMPED
- ☐ SURGED W/BLOCK & BAILED
- ☐ SURGED W/BLOCK & PUMPED
- ☒ OTHER Hose Pump

CAN THIS WELL BE PURGED DRY? ☒ YES ☐ NO

VOLUME OF WATER IN FILTER PACK AND WELL CASING ____

VOLUME OF WATER REMOVED FROM WELL 10 gals.

CLARITY OF WATER BEFORE DEVELOPMENT Muddy

CLARITY OF WATER AFTER DEVELOPMENT Cloudy

VOLUME OF WATER ADDED ____

SOURCE OF WATER ADDED

TIME SPENT FOR DEVELOPMENT 15 MIN. START: 5:00 P.M. END: 5:15 P.M.

COMMENTS:
Well went dry 4 times.

Attachment 2

APPENDIX I

Appendix I

Emergency Equipment Location Figures

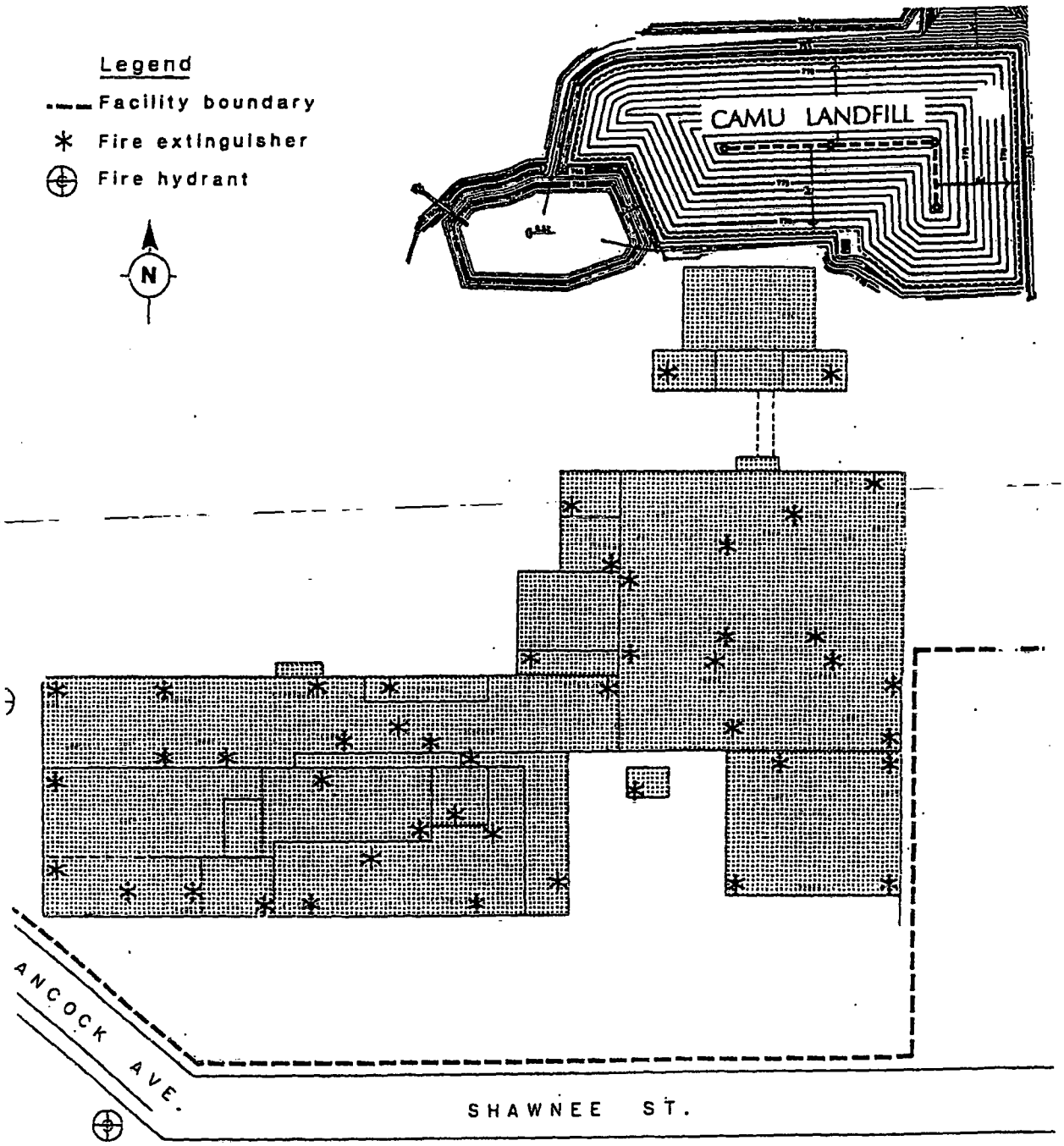


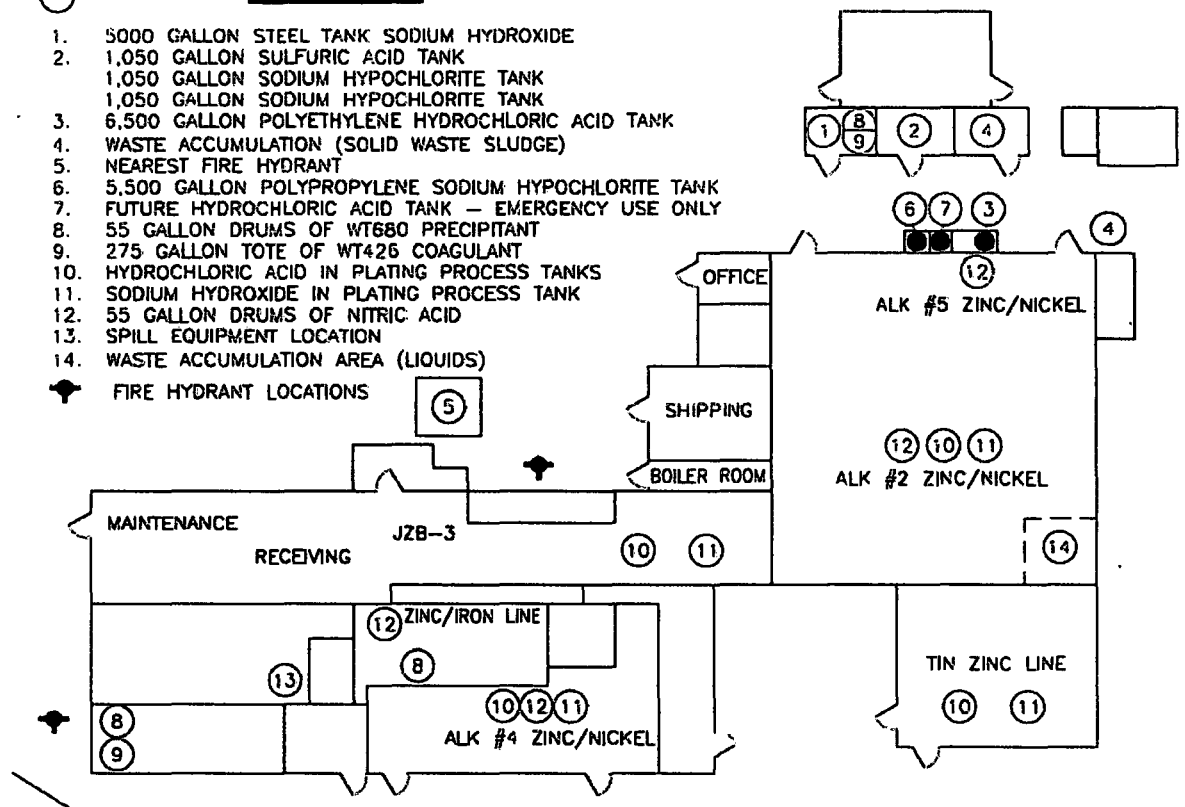
Figure G-1

17a

KEY NOTES

1. 5000 GALLON STEEL TANK SODIUM HYDROXIDE
2. 1,050 GALLON SULFURIC ACID TANK
   1,050 GALLON SODIUM HYPOCHLORITE TANK
   1,050 GALLON SODIUM HYPOCHLORITE TANK
3. 6,500 GALLON POLYETHYLENE HYDROCHLORIC ACID TANK
4. WASTE ACCUMULATION (SOLID WASTE SLUDGE)
5. NEAREST FIRE HYDRANT
6. 5,500 GALLON POLYPROPYLENE SODIUM HYPOCHLORITE TANK
7. FUTURE HYDROCHLORIC ACID TANK – EMERGENCY USE ONLY
8. 55 GALLON DRUMS OF WT680 PRECIPITANT
9. 275 GALLON TOTE OF WT426 COAGULANT
10. HYDROCHLORIC ACID IN PLATING PROCESS TANKS
11. SODIUM HYDROXIDE IN PLATING PROCESS TANK
12. 55 GALLON DRUMS OF NITRIC ACID
13. SPILL EQUIPMENT LOCATION
14. WASTE ACCUMULATION AREA (LIQUIDS)

FIRE HYDRANT LOCATIONS



02–24–2010
701 SOUTH HANCOCK AVE.
001731
42.2919769338187/–89.59884881973266
CONTAINMENT WILL HOLD 6700 GALLONS
OF HYDROCHLORIC ACID AND WATER

N
W E
S

NOT TO SCALE

EXHIBIT 1

TIER II SITE MAP

MODERN PLATING CORPORATION
701 S. HANCOCK AVENUE
FREEPORT, IL 61032

08/11/17

FEHR GRAHAM
ENGINEERING & ENVIRONMENTAL
ILLINOIS DESIGN FIRM NO. 184-003255

ILLINOIS
IOWA
WISCONSIN

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R000526

NELSON FIRE PROTECTION CO.
10853 N. 2nd Street
Rockford, IL 61115
Ph. (815) 877-6004 Fax: (815) 877-6042

REPORT OF INSPECTION
Compliance Engine

Annual X
Semiannual
Quarterly

REPORT TO Modern Plating
STREET 701 S Hancock
CITY/STATE Freeport, IL 61032

BUILDING LOCATION Same
INSPECTOR Rob Grismore FSI0346
DATE 09.26.2024

1. GENERAL	YES	N.A.+	NO*
a. Is the building occupied according to information furnished by owner or owner's representative?	X		
b. Is occupancy same as previous inspection according to information furnished by owner or owner's representative?	X		
c. Are all systems in service?	X		
d. Are all fire protection systems same as last inspection according to information furnished by owner or owner's representative?	X		
e. Is building completely sprinklered?			X
f. Are all new additions and building changes properly protected according to information furnished by owner or owner's representative?			X
g. Is all stock or storage properly below sprinkler piping?	X		
h. Was property free of fires since last inspection according to information furnished by owner or owner's representative? (Explain any fire on separate sheet)	X		
i. In areas protected by wet system, does the building appear to be properly heated in all areas, including blind attics, perimeter areas and are all exterior openings protected against entrance of cold air?	X		
j. Are hydraulic placards displayed at riser?			
2. CONTROL VALVES (See Section 16)			
a. Are all sprinkler system main control valves open?	X		
b. Are all other valves in proper position?	X		
c. Are all control valves in good condition and sealed or supervised?	X		X
3. WATER SUPPLIES (See Section 17)	YES	N.A+	NO*
a. Was a water flow test made and results satisfactory?	X		
4. TANKS, PUMPS, FIRE DEPT. CONNECTIONS			
a. Are fire pumps, gravity tanks, reservoirs and pressure tanks in good condition and properly maintained?		X	
b. Are fire dept. connections in satisfactory condition, couplings free, caps in place and check valves tight?	X		
5. WET SYSTEMS (See Section 13)			
a. Have anti-freeze systems been tested and left in satisfactory condition?		X	
b. Are alarm valves, water-flow indicators and retards in satisfactory condition?	X		
6. DRY SYSTEMS (See Section 14)			
a. Is dry valve in service and in good condition?	X		
b. Is air pressure and priming water level normal?	X		
c. Is air compressor in good condition?	X		
d. Were low points drained during fall and winter inspection?		X	
e. Are quick-opening devices in service?		X	
f. Have dry valves been trip tested satisfactory as required?	X		
g. Are dry valves adequately protected from freezing?	X		
h. Are valve house and heater condition satisfactory?		X	
7. SPECIAL SYSTEMS (See Section 18)			
a. Were valves tested as required?		X	
b. Were all heat responsive system tested and results satisfactory?		X	
c. Were supervisory features tested and results satisfactory?		X	

8. ALARMS

a. Are water motor and gong test satisfactory?	X
b. Water flow alarm time	40 - 1 Min
c. Is electric alarm test satisfactory?	X
d. Is supervisory alarm service test satisfactory?	X

9. SPRINKLERS-PIPING

	YES	N.A.+	NO*
a. Are all sprinklers in good condition, not obstructed, and free of corrosion or loading?			X
b. Are all sprinklers less than 50 years old?			X
c. Sample Tested? STD (50yr) QR(20yr) Dry(15yr) Extra High temp / Corrosive Env.(5yr)... Type & Due Date:			
c. Sample Tested? QR(20yr) Dry (10yr) Extra High Temp (5yr) Corrosive Env. (5yr)...			
d. Are extra sprinklers readily available?	X		
e. Is condition of piping, drain valves, check valves, hangers, pressure gages, open sprinklers, strainers satisfactory?	X		
f. Date 5 year inspection last done on	2021		

*Explain "No" answers in Item #19 +Not Applicable

10. Date Dry-system Piping last checked for stoppage
11. Date Dry-system Piping last checked for proper pitch
12. Date Dry-pipe Valve last trip tested
13. Wet Systems: No? 4 Make and Model? 4", 3", 6", 6" DDC Reliable
14. Dry Systems: No? 3 Make and Model? 6" Tyco and Central dry valve
15. Special System: No? Type
Make and Model? Condition?

16. CONTROL VALVES	No?	Type?	Open Yes	Open No	Secured Yes	Secured No	Closed Yes	Closed No	Signs Yes	Signs No	Condition
City Connection Control Valve	2	6" gate	Y		Y		N		Y		Unknown
Test Header											
Pump Control Valves											
Sectional Control Valves	6	6" PIV	Y		N		N		Y		No
System Abandoned	2	6" PIV	N		Y		Y		Y		N/A
	5	6" Butterfly	Y		Y		N		N		OK
System Control Valves											

17. WATER-FLOW TEST

Water Pressure? Yes 80 PSI TANK PSI FIRE PUMP PSI
Water-flow Test? Yes (If none made, Why?)

Test Pipe Located	Size Test Pipe	Pressure Before	Flow Pressure	Pressure After	Test Pipe Located	Size Test Pipe	Pressure Before	Flow Pressure	Pressure After
Riser	2"	80	60	80					

18. Heat Responsive Devices: Type?
Valve No.....A.....B.....C.....D.....E.....F.....Valve No.....A.....B.....C.....D.....E.....F.....
Valve No.....A.....B.....C.....D.....E.....F.....Valve No.....A.....B.....C.....D.....E.....F.....
Auxiliary equipment No? Type? Location? Test Results?

19. Explanation of any "No" answers. *See notes.*
20. Recent changes in building occupancy of fire protection equipment.
21. Adjustments or corrections made.
22. Desirable improvements. *Sprinkler rest of bldg & correct #19*

This Inspection Report assumes that the Fire Protection System has been installed in accordance with generally accepted practices. Any discrepancies found will be documented. The responsibility for a properly functioning Fire Protection System rests solely with the owner.

For Property Owner

Nelson Fire Protection Co.
Rob Grismore

PRINT NAME HERE

BUILDING OWNER RESPONSIBLE FOR DRAINING ALL LOW POINT DRAINS ON DRY SYSTEMS.
BUILDING OWNER RESPONSIBLE FOR REMOVAL OF ANY ICE BUILDUP OR SLIPPERY CONDITIONS.

NELSON FIRE PROTECTION CO.
10853 N. 2nd Street
Rockford, IL 61115
Ph: (815) 877-6004 Fax: (815) 877-6042

DRY PIPE VALVE TRIP TEST REPORT

Compliance Engine

FOR Modern Plating
STREET 701 S. Hancock, Freeport, IL
DATE OF TRIP TEST 09.26.2024 INSPECTOR Rob Grismore FSI0346

Annual X
Semiannual
Quarterly

STANDARD FORM OF THE NATIONAL AUTOMATIC SPRINKLER AND FIRE CONTROL ASSOCIATION INC.

NOTE: BEFORE ANY DRY PIPE VALVE IS TRIP TESTED, THE WATER SUPPLY LINE TO IT SHOULD BE THOROUGHLY FLUSHED. THE TWO INCH DRAIN BELOW THE VALVE SHOULD BE OPENED WIDE, AND WATER AT FULL PRESSURE SHOULD BE DISCHARGED LONG ENOUGH TO CLEAR THE PIPE OF ANY ACCUMULATION OF SCALE OR FOREIGN MATERIAL. IF THERE IS A HYDRANT ON THE SUPPLY LINE, THIS HYDRANT SHOULD BE FLUSHED BEFORE THE TWO INCH DRAIN IS OPENED. THE DRIP VALVE ON THE DRY PIPE VALVE SHOULD BE CHECKED BEFORE TRIPPING THE DRY PIPE VALVE, TO SEE THAT IT IS IN OPERATING CONDITION.

DRY PIPE VALVES		SYSTEM NO (6)	SYSTEM NO (13)	SYSTEM NO (14)	SYSTEM NC ( )
Valve Serial No.			N/A		
Manufacturer (Name)					
Valve Model		Tyco	Tyco	Reliable	
Valve Size		6 Inch	6 Inch	4 Inch	Inch
Controlling Sprinkle	(Location)	Loading Dock	Warehouse	Warehouse & Shop	
	(Number)	50 (Approx)	200 (Approx)	250 (Approx)	(Approx)
Date Last Trip Tested?		2024	2024	2024	
Date Last Operated?		2024	2024	2024	
Pressure Before Test	Air	50 LBS	50 LBS	40 LBS	LBS
	Water	80 LBS	80 LBS	80 LBS	LBS
Size and Location of Test Valve		1" Loading Dock	1" I.T.V., Shop	1" by stairs	
Was Gate Valve Below Dry Valve Open Wide At Test? (If not, how many turns?)		Yes	Yes	Yes	
Valve Tripped At	Air Pressure	15 LBS	15 LBS	12 LBS	LBS
	Water Pressure	80 LBS	80 LBS	80 LBS	LBS
	Time	Min 25 Sec	Min 30 Sec	Min 25 Sec	Min Sec
If System Flooded, List Time Water Reached Test Opening		N/A Min 30 Sec	N/A Min 45 Sec	N/A Min 45 Sec	Min Sec
PERFORMANCE		Good	Good	OK	
Valve Condition	Interior of Body	Good	Good	OK	
	Moving parts	Good	Good	OK	
	Rubber Facing	Good	Good	OK	
	Seats	Good	Good	OK	
	Reset?	Yes	Yes	Yes	
Did Alarms Operate At Trip Test?		Yes	Yes	NO	
All Low point Drains Blown Out?		N/A	N/A	N/A	
Water Control Valve Left Open & Sealed?		Yes	Yes	Yes	
Alarm Control Valve Left Open & Sealed?		Yes	Yes	Yes	
QUICK OPENING DEVICES		SYSTEM NO ( )	SYSTEM NO ( )	SYSTEM NO ( )	SYSTEM NC ( )
Device Serial Number					
Manufacturer (Name)					
Type and Model					
Air Pressure In Upper Chamber		Lbs		LBS	LBS
Quick Opening Device Tripped At		Sec LBS		Sec LBS	Sec LBS
PERFORMANCE					
Quick Opening Device Left In Service and Control Open and Sealed?					

BUILDING OWNER RESPONSIBLE FOR DRAINING ALL LOW POINT DRAINS.

List Any Unsatisfactory Conditions:

Remarks:

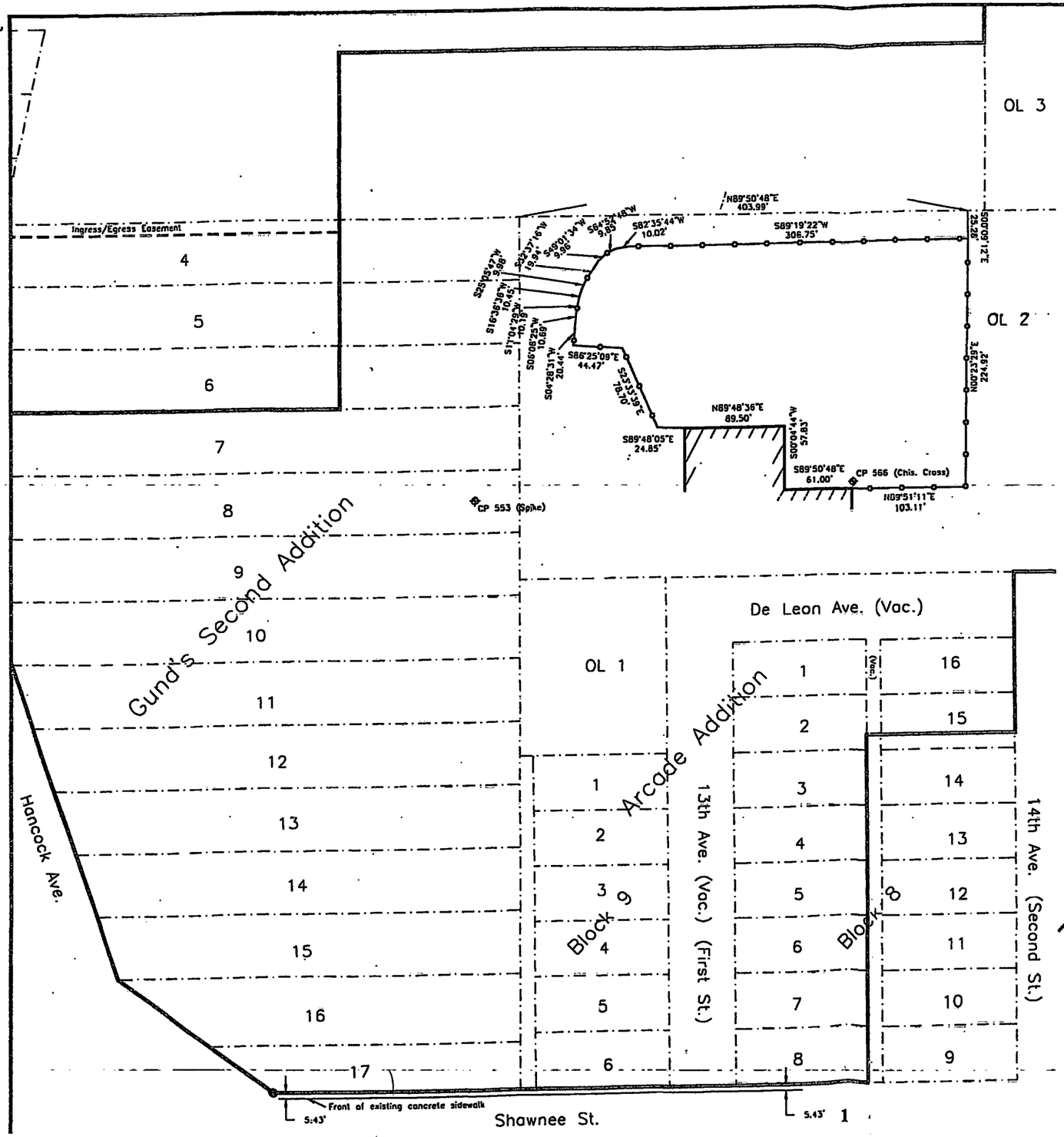
Property Owner Nelson Fire Protection Rob Grismore

Attachment 2

APPENDIX J

Appendix J

Survey Plat for the CAMU Landfill Documentation



LEGEND

- PREVIOUSLY PLATTED LINE
- FRONT OF EXISTING CONCRETE SIDEWALK
- MODERN PLATING PROPERTY LINE
- EASEMENT LINE
- BUILDING LINE
- FENCE LINE
- PROPERTY CORNER FOUND (1IN DIA. IP)
- CONTROL POINT

NOTES

1. SURVEY PERFORMED BY SPATIAL DATA SURVEYS, VERONA, WI, JULY, 2001.

2. BEARINGS FOR THIS SURVEY AND MAP ARE REFERENCED TO THE NORTH LINE OF SHAWNEE STREET, ASSUMED TO BEAR S00°00'00"E. HORIZONTAL DATUM IS REFERENCED TO SITE GRID BY FOTH AND VAN DYKE AND ASSOCIATES, MADISON, WI.

3. DRAWING NO. 2 ATTACHED WAS PREPARED BY FOTH AND VAN DYKE AND ASSOCIATES INC. THIS DRAWING SHOWS THE LOCATION OF THE AREAS FROM WHICH SOLID AND HAZARDOUS WASTES WERE REMOVED AND SUBSEQUENTLY PLACED IN THE CAMU.

4. THE CAMU CONTAINS THE REMEDIATION WASTES GENERATED DURING THE CLOSURE OF HAZARDOUS WASTE AND SOLID WASTE UNITS AT THE MODERN PLATING FACILITY IN ACCORDANCE WITH AN ILLINOIS EPA APPROVED CLOSURE PLAN (LOG NO. C-259-M-8).

5. THE WASTE MATERIALS CONTAINED IN THE CAMU ARE CONSIDERED RCRA HAZARDOUS WASTES. THEY INCLUDE ELECTROPLATING SLUDGES (F006), WASTES WITH TRICHLOROETHYLENE (F002) AND WASTES CONTAINING CADMIUM, CHROMIUM, AND CYANIDE.

6. ANY FILL REMOVED FROM THE CAMU DURING FUTURE ACTIVITIES MUST BE MANAGED AS A HAZARDOUS WASTE IN ACCODANCE WITH 35 ILL. ADM. CODE SUBTITLE G: WASTE DISPOSAL.

7. THE USE OF THIS AREA IS RESTRICTED.

8. A SURVEY PLAT AND RECORD OF THE TYPE, LOCATION AND QUALITY OF WASTE MATERIALS IN THE CAMU HAVE BEEN FILED WITH IPEA, THE COUNTY, AND ANY LOCAL ZONING AUTHORITY WITH JURISDICTION OVER LOCAL LAND USE.

LEGAL DESCRIPTION

A PARCEL OF LAND LOCATED IN OUTLOT 2, GUND'S SECOND ADDITION, CITY OF FREEPORT, STEPHENSON COUNTY, ILLINOIS, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHWEST CORNER OF SAID OUTLOT 2;

THENCE ALONG THE NORTH LINE OF SAID OUTLOT 2, N 89°50'48" E, 403.99';

THENCE NORMAL TO THE NORTH LINE OF SAID OULOT 2, S 00°09'12" E, 25.28 FEET TO A METAL FENCE POST SET IN CONCRETE, THE POINT OF BEGINNING OF THIS DESCRIPTION;

THENCE S 89°19'22" W, 306.75 FEET TO A METAL FENCE POST SET IN CONCRETE;

THENCE S 82°35'44" W, 10.02 FEET TO A METAL FENCE POST SET IN CONCRETE;

THENCE S 64°52'48" W, 9.85 FEET TO A METAL FENCE POST SET IN CONCRETE;

THENCE S 49°01'34" W, 9.96 FEET TO A METAL FENCE POST SET IN CONCRETE;

THENCE S 32°37'16" W, 19.94 FEET TO A METAL FENCE POST SET IN CONCRETE;

THENCE S 25°05'47" W, 9.98 FEET TO A METAL FENCE POST SET IN CONCRETE;

THENCE S 16°36'36" W, 10.45 FEET TO A METAL FENCE POST SET IN CONCRETE;

THENCE S 11°04'29" W, 10.19 FEET TO A METAL FENCE POST SET IN CONCRETE;

THENCE S 06°06'25" W, 10.69 FEET TO A METAL FENCE POST SET IN CONCRETE;

THENCE S 04°28'31" W, 20.44 FEET TO A METAL FENCE POST SET IN CONCRETE;

THENCE S 86°25'09" E, 44.47 FEET TO A METAL FENCE POST SET IN CONCRETE;

THENCE S 23°33'39" E, 78.70 FEET TO A METAL FENCE POST SET IN CONCRETE;

THENCE S 89°48'05" E, 24.85 FEET TO A CORNER OF A BUILDING;

THENCE ALONG SAID BUILDING, N 89°48'36" E, 89.50 FEET TO A CORNER OF SAID BUILDING;

THENCE ALONG SAID BUILDING, S 00°04'44" W, 57.83 FEET TO A CORNER OF SAID BUILDING;

THENCE ALONG SAID BUILDING, S 89°50'48" E, 61.00 FEET TO A CORNER OF SAID BUILDING;

THENCE N 89°51'11" E, 103.11 FEET TO A METAL FENCE POST SET IN CONCRETE;

THENCE N 00°23'29" E, 224.92 FEET TO THE POINT OF BEGINNING.

SAID PARCEL CONTAINING 62,904 SQUARE FEET OR 1.444 ACRES.

JAMES D. PREHN
REGISTERED
LAND SURVEYOR
L-035-002930
STATE OF ILLINOIS

SURVEYOR'S CERTIFICATE:

I, JAMES D. PREHN, REGISTERED ILLINOIS LAND SURVEYOR, NO. 035-002930, HEREBY CERTIFY THAT I HAVE SURVEYED THE FOREGOING BASED ON A FOUND 1-INCH IRON PIPE AND EXISTING CONCRETE SIDEWALK ALONG SHAWNEE STREET AND RECORD INFORMATION AS SHOWN ON THE PLAT'S OF GUND'S SECOND ADDITION AND ARCADE ADDITION, CITY OF FREEPORT, STEPHENSON COUNTY, ILLINOIS, TO THE BEST OF MY KNOWLEDGE, UNDERSTANDING, AND BELIEF.

17JULY01

JAMES D. PREHN
035-002930

DATE

NORTH
0 25 50 100
GRAPHIC SCALE IN FEET

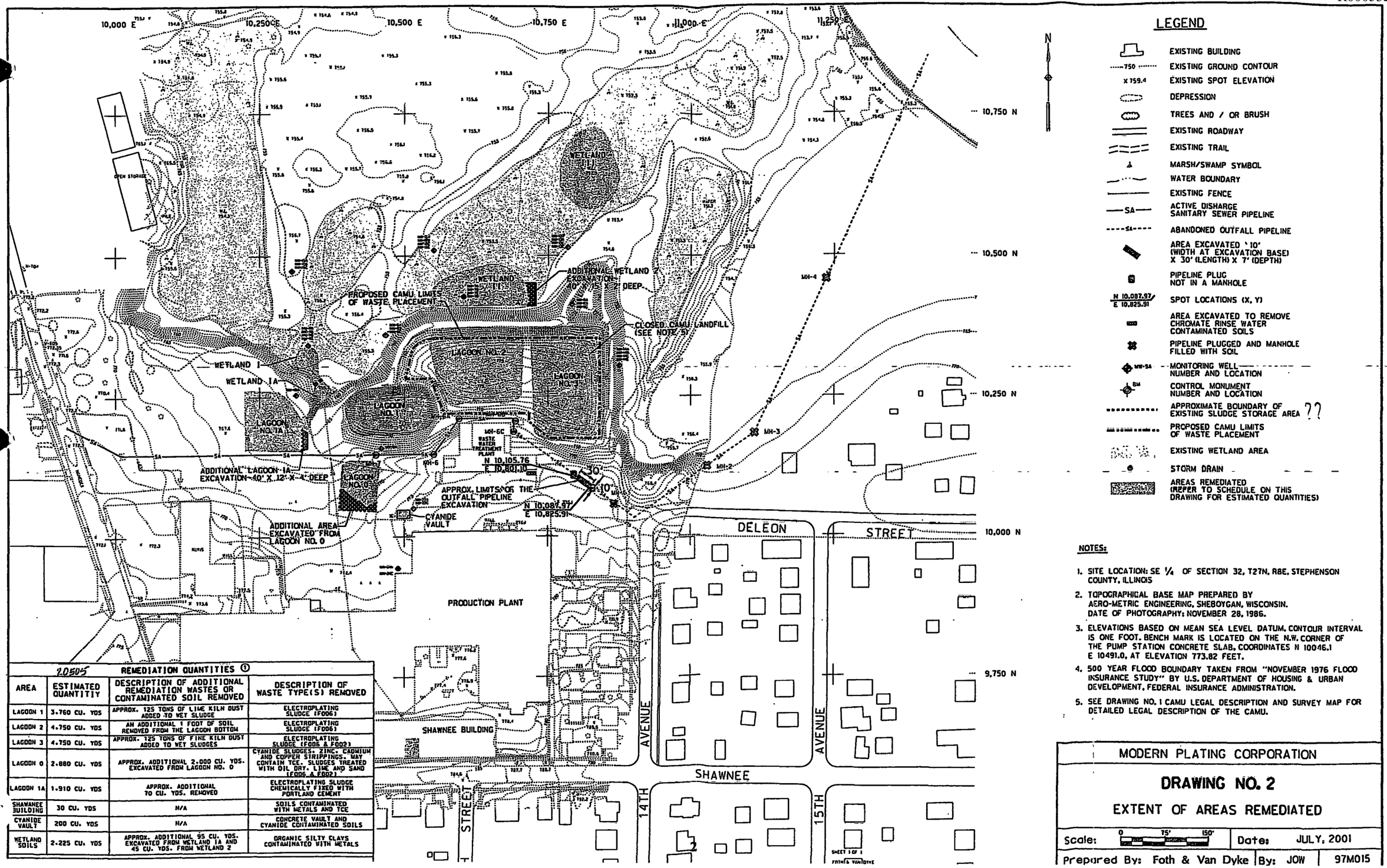
Rev.	Description	By	Date
△			

Plat of Survey
CAMU Legal Description & Survey Map
Modern Plating Property
PIN 18-14-32-402-019
Part of OL 2, Gund's Second Addition
City of Freeport, Stephenson County, Illinois

Dwn: JDP
Date: 17 July 2001

Spatial Data Surveys
580 Arthur Street
Verona, WI 53593
608-845-2048

Drawing No. SDS01013-1
Sheet No. 1 of 1



LEGEND

- EXISTING BUILDING
- 750 — EXISTING GROUND CONTOUR
- x 759.4 — EXISTING SPOT ELEVATION
- DEPRESSION
- TREES AND / OR BRUSH
- EXISTING ROADWAY
- EXISTING TRAIL
- MARSH/SWAMP SYMBOL
- WATER BOUNDARY
- EXISTING FENCE
- —SA— ACTIVE DISHARGE SANITARY SEWER PIPELINE
- ----SA---- ABANDONED OUTFALL PIPELINE
- AREA EXCAVATED 1'0" (WIDTH AT EXCAVATION BASE) X 30' (LENGTH) X 7' (DEPTH)
- PIPELINE PLUG NOT IN A MANHOLE
- N 10,087.97 / E 10,825.91 — SPOT LOCATIONS (X, Y)
- AREA EXCAVATED TO REMOVE CHROMATE RINSE WATER CONTAMINATED SOILS
- PIPELINE PLUGGED AND MANHOLE FILLED WITH SOIL
- MW-5A — MONITORING WELL NUMBER AND LOCATION
- BM — CONTROL MONUMENT NUMBER AND LOCATION
- APPROXIMATE BOUNDARY OF EXISTING SLUDGE STORAGE AREA ??
- PROPOSED CAMU LIMITS OF WASTE PLACEMENT
- EXISTING WETLAND AREA
- STORM DRAIN
- AREAS REMEDIATED (REFER TO SCHEDULE ON THIS DRAWING FOR ESTIMATED QUANTITIES)

20505 **REMEDIATION QUANTITIES** ①

AREA	ESTIMATED QUANTITIY	DESCRIPTION OF ADDITIONAL REMEDIATION WASTES OR CONTAMINATED SOIL REMOVED	DESCRIPTION OF WASTE TYPE(S) REMOVED
LAGOON 1	3,760 CU. YDS	APPROX. 125 TONS OF LIME KILN DUST ADDED TO WET SLUDGE	ELECTROPLATING SLUDGE (F006)
LAGOON 2	4,750 CU. YDS	AN ADDITIONAL 1 FOOT OF SOIL REMOVED FROM THE LAGOON BOTTOM	ELECTROPLATING SLUDGE (F006)
LAGOON 3	4,750 CU. YDS	APPROX. 125 TONS OF FINE KILN DUST ADDED TO WET SLUDGES	ELECTROPLATING SLUDGE (F006 & F002)
LAGOON 0	2,880 CU. YDS	APPROX. ADDITIONAL 2,000 CU. YDS. EXCAVATED FROM LAGOON NO. 0	CYANIDE SLUDGES: ZINC, CADMIUM AND COPPER STRIPPINGS. MAY CONTAIN TCE. SLUDGES TREATED WITH OIL DRY, LIME AND SAND (F006 & F002)
LAGOON 1A	1,910 CU. YDS	APPROX. ADDITIONAL 70 CU. YDS. REMOVED	ELECTROPLATING SLUDGE CHEMICALLY FIXED WITH PORTLAND CEMENT
SHAWNEE BUILDING	30 CU. YDS	N/A	SOILS CONTAMINATED WITH METALS AND TCE
CYANIDE VAULT	200 CU. YDS	N/A	CONCRETE VAULT AND CYANIDE CONTAMINATED SOILS
WETLAND SOILS	2,225 CU. YDS	APPROX. ADDITIONAL 95 CU. YDS. EXCAVATED FROM WETLAND 1A AND 45 CU. YDS. FROM WETLAND 2	ORGANIC SILTY CLAYS CONTAMINATED WITH METALS

NOTES:

1. SITE LOCATION: SE ¼ OF SECTION 32, T27N, R8E, STEPHENSON COUNTY, ILLINOIS
2. TOPOGRAPHICAL BASE MAP PREPARED BY AERO-METRIC ENGINEERING, SHEBOYGAN, WISCONSIN. DATE OF PHOTOGRAPHY: NOVEMBER 28, 1986.
3. ELEVATIONS BASED ON MEAN SEA LEVEL DATUM. CONTOUR INTERVAL IS ONE FOOT. BENCH MARK IS LOCATED ON THE N.W. CORNER OF THE PUMP STATION CONCRETE SLAB, COORDINATES N 10046.1 E 10491.0, AT ELEVATION 773.82 FEET.
4. 500 YEAR FLOOD BOUNDARY TAKEN FROM "NOVEMBER 1976 FLOOD INSURANCE STUDY" BY U.S. DEPARTMENT OF HOUSING & URBAN DEVELOPMENT, FEDERAL INSURANCE ADMINISTRATION.
5. SEE DRAWING NO. 1 CAMU LEGAL DESCRIPTION AND SURVEY MAP FOR DETAILED LEGAL DESCRIPTION OF THE CAMU.

MODERN PLATING CORPORATION

DRAWING NO. 2

EXTENT OF AREAS REMEDIATED

Scale: 0 75' 150' | Date: JULY, 2001

Prepared By: Foth & Van Dyke | By: JOW | 97M015

SHEET 1 OF 1
FOTH & VAN DYKE

Attachment 2

APPENDIX K

Appendix K

39(i) Certification for Operating a Waste Management Facility

Illinois Environmental Protection Agency

2520 West Iles Avenue • P.O. Box 19276 • Springfield • Illinois • 62794-9276 • (217) 782-3397

39(i) Certification
for Operating a Waste Management Facility

Pursuant to 415 ILCS 5/39(i), prior to issuing any RCRA permit, or any permit for a waste storage site, sanitary landfill, waste disposal site, waste transfer station, waste treatment facility, waste incinerator, clean construction or demolition debris fill operation, or used tire storage site, the Illinois EPA must conduct an evaluation of the prospective owner's or operator's prior experience in waste management operations, clean construction or demolition debris fill operations, and tire storage site management. As part of that evaluation please complete and submit this form with your permit application.

This form may be completed online and saved locally before printing, signing and submitting it to the Illinois EPA at the address below. If the form is completed manually, please type or print clearly.

Illinois Environmental Protection Agency
Division of Land Pollution Control - #33
39(i) Certification
2520 West Iles Avenue
P.O. Box 19276
Springfield, IL 62794-9276

I. Applicant Information

Site Name: Modern Plating Corporation — IEPA BOL No.: 1770200010

Site Address: 701 S Hancock Avenue

City: Freeport — State: IL — Zip Code: 61032

Permit Numbers (if applicable): B-167R-M-12

Owner

Owner Name: David Servatius

Street Address: 701 S Hancock Avenue

City: Freeport — State: IL — Zip: 61032

Operator

Operator Name: Modern Plating Corp c/o Brandon Smith

Street Address: 701 S Hancock Avenue

City: Freeport — State: IL — Zip: 61032

Is this 39(i) certification for the owner or the operator?

☑ Owner ○ Operator ○ Owner and operator are the same entity

II. Officers and Employees with Site Responsibility

Unless the owner and operator are the same entity, a separate 39(i) form must be submitted for both the owner and operator. Persons operating under the authority of the owner should be listed on the owner's 39(i) form and persons operating under authority of the operator should be listed on the operator's 39(i) form.

A. Officers: List the name and title of all officers of the owner or operator that will have personal involvement or active participation in the operation or management of the site or facility for which the application is submitted.

Name	Title

IEPA - Division of Records Management
Releasable
JUL 31 2025
Reviewer: SAB

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JUL 31 2025
IEPA-BOL
PERMIT SECTION

B. Employees: List the name and title of each employee of the owner or operator that will have personal involvement or active participation in the overall operation or management of the site or facility for which the application is submitted (e.g. site managers, site engineers, and other persons who direct or control the overall day-to-day management of the operation, but not persons whose duties are exclusively limited to equipment operation, labor, or similar non-managerial functions).

Name	Title

III. Owner, Operator, Officer, and Employee Information

A. Prior Conduct Identification

The applicant must answer each of the following questions for every owner or operator, and for any officer or employee identified under Section II. If the answer to any of the following questions is affirmative, the applicant must complete an Attachment A for each person for whom the answer is affirmative and include a copy of each final administrative or judicial determination that required an affirmative response. If the information for each owner, operator, officer, and employee has not changed since the applicant's last submission of a 39(i) certification, the applicant can skip to Section III(C), below.

1) Has there been a finding that any person named in Section II violated federal, State, or local laws, regulations, standards, or ordinances in the operation of one or more waste management facilities or sites, clean construction or demolition debris fill operation facilities or sites, or tire storage sites? ○ Yes ⊘ No

2) Has any person named in Section II ever been convicted in this or another State of any crime which is a felony under the laws of this State, or convicted of a felony in a federal court; or convicted in this or another state or federal court of any of the following crimes: forgery, official misconduct, bribery, perjury, or knowingly submitting false information under any environmental law, regulation, or permit term or condition? ○ Yes ⊘ No

3) Has there been a finding against any person named in Section II of gross carelessness or incompetence in handling, storing, processing, transporting or disposing of waste, clean construction or demolition debris, or used or waste tires, or a finding of gross carelessness or incompetence in using clean construction or demolition debris as fill? ○ Yes ⊘ No

B. Pending Proceedings

The applicant must answer each of the following questions for every owner or operator, and for any officer or employee identified in Section II. If the answer to any of the following questions is affirmative, the applicant must complete an Attachment A for each person for whom the answer is affirmative and provide information identified in Attachment A regarding the pending proceeding.

1. Is there any proceeding currently pending against any person named in Section II that could result in a conviction or finding described in subsection A, above? ○ Yes ⊘ No

2. Is there any proceeding currently pending against any person named in Section II that could result in the reversal of a conviction or finding described in subsection A, above? ○ Yes ⊘ No

C. Prior Application Information

If (i) the applicant has previously submitted the Attachments required pursuant to subsections A and B above and (ii) the Attachments previously submitted are still complete, true, and correct, then the applicant does not need to include Attachments with this submission if the following box is checked:

☐ By checking this box, I affirm that the Attachments previously submitted are still complete, true, and correct and wish to incorporate them into this Certification.

If the above box is checked, identify the application that contains the previously submitted Attachments that are complete, true, and correct.

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JUL 31 2025
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PERMIT SECTION

Authorization for Release of Information

R000537

This Certification must be signed by an officer of the applicant.

The undersigned authorizes any representative of the Illinois Environmental Protection Agency bearing this release to obtain any information from the Illinois State Police pertaining to the criminal records of the applicant and hereby directs the Illinois State Police to release such information upon request of the bearer. The undersigned authorizes a review of and full disclosure of all records, or any part thereof, concerning the applicant's criminal records by and to a duly authorized agent of the Illinois Environmental Protection Agency, whether the records are of public, private, or confidential nature. The intent of this authorization is to give consent for full and complete disclosure of the applicant's criminal records.

The undersigned fully understands that any information which is developed directly or indirectly, in whole or in part, as a result of this authorization will be considered in determining whether a permit shall be issued by the Illinois Environmental Protection Agency under the Environmental Protection Act [415 ILCS 5]. The undersigned further agrees to release the Illinois State Police and the Illinois Environmental Protection Agency, its agents and designees under this release, from any and all liability which may be incurred as a result of compliance with this authorization for release of information.

Certification Statements

I certify under penalty of law that the information submitted, including information on any Attachments submitted as part of or incorporated into this Certification, is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44(h))

David Servatius — Signature of Applicant Officer

7/23/2025 — Date

David Servatius — Printed Name

Owner — Title

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JUL 31 2025
IEPA-BOL
PERMIT SECTION

R000538

Illinois Environmental Protection Agency

2520 West Iles Avenue • P.O. Box 19276 • Springfield • Illinois • 62794-9276 • (217) 782-3397

39(i) Certification
for Operating a Waste Management Facility

Pursuant to 415 ILCS 5/39(i), prior to issuing any RCRA permit, or any permit for a waste storage site, sanitary landfill, waste disposal site, waste transfer station, waste treatment facility, waste incinerator, clean construction or demolition debris fill operation, or used tire storage site, the Illinois EPA must conduct an evaluation of the prospective owner's or operator's prior experience in waste management operations, clean construction or demolition debris fill operations, and tire storage site management. As part of that evaluation please complete and submit this form with your permit application.

This form may be completed online and saved locally before printing, signing and submitting it to the Illinois EPA at the address below. If the form is completed manually, please type or print clearly.

Illinois Environmental Protection Agency
Division of Land Pollution Control - #33
39(i) Certification
2520 West Iles Avenue
P.O. Box 19276
Springfield, IL 62794-9276

I. Applicant Information

Site Name: Modern Plating Corporation IEPA BOL No.: 1770200010

Site Address: 701 S Hancock Avenue

City: Freeport State: IL Zip Code: 61032

Permit Numbers (if applicable): B-167R-M-12

Owner

Owner Name: David Servatius

Street Address: 701 S Hancock Avenue

City: Freeport State: IL Zip: 61032

Operator

Operator Name: Modern Plating Corp c/o Brandon Smith

Street Address: 701 S Hancock Avenue

City: Freeport State: IL Zip: 61032

Is this 39(i) certification for the owner or the operator?

○ Owner ⊘ Operator ○ Owner and operator are the same entity

II. Officers and Employees with Site Responsibility

Unless the owner and operator are the same entity, a separate 39(i) form must be submitted for both the owner and operator. Persons operating under the authority of the owner should be listed on the owner's 39(i) form and persons operating under authority of the operator should be listed on the operator's 39(i) form.

A. Officers: List the name and title of all officers of the owner or operator that will have personal involvement or active participation in the operation or management of the site or facility for which the application is submitted.

Name	Title
Brandon Smith	President
Dave Servatius	Vice President

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B. Employees: List the name and title of each employee of the owner or operator that will have personal involvement or active participation in the overall operation or management of the site or facility for which the application is submitted (e.g. site managers, site engineers, and other persons who direct or control the overall day-to-day management of the operation, but not persons whose duties are exclusively limited to equipment operation, labor, or similar non-managerial functions).

Name	Title

III. Owner, Operator, Officer, and Employee Information

A. Prior Conduct Identification

The applicant must answer each of the following questions for every owner or operator, and for any officer or employee identified under Section II. If the answer to any of the following questions is affirmative, the applicant must complete an Attachment A for each person for whom the answer is affirmative and include a copy of each final administrative or judicial determination that required an affirmative response. If the information for each owner, operator, officer, and employee has not changed since the applicant's last submission of a 39(i) certification, the applicant can skip to Section III(C), below.

1) Has there been a finding that any person named in Section II violated federal, State, or local laws, regulations, standards, or ordinances in the operation of one or more waste management facilities or sites, clean construction or demolition debris fill operation facilities or sites, or tire storage sites? ○ Yes ⊘ No

2) Has any person named in Section II ever been convicted in this or another State of any crime which is a felony under the laws of this State, or convicted of a felony in a federal court; or convicted in this or another state or federal court of any of the following crimes: forgery, official misconduct, bribery, perjury, or knowingly submitting false information under any environmental law, regulation, or permit term or condition? ○ Yes ⊘ No

3) Has there been a finding against any person named in Section II of gross carelessness or incompetence in handling, storing, processing, transporting or disposing of waste, clean construction or demolition debris, or used or waste tires, or a finding of gross carelessness or incompetence in using clean construction or demolition debris as fill? ○ Yes ⊘ No

B. Pending Proceedings

The applicant must answer each of the following questions for every owner or operator, and for any officer or employee identified in Section II. If the answer to any of the following questions is affirmative, the applicant must complete an Attachment A for each person for whom the answer is affirmative and provide information identified in Attachment A regarding the pending proceeding.

1. Is there any proceeding currently pending against any person named in Section II that could result in a conviction or finding described in subsection A, above? ○ Yes ⊘ No

2. Is there any proceeding currently pending against any person named in Section II that could result in the reversal of a conviction or finding described in subsection A, above? ○ Yes ⊘ No

C. Prior Application Information

If (i) the applicant has previously submitted the Attachments required pursuant to subsections A and B above and (ii) the Attachments previously submitted are still complete, true, and correct, then the applicant does not need to include Attachments with this submission if fhe following box is checked:

☐ By checking this box, I affirm that the Attachments previously submitted are still complete, true, and correct and wish to incorporate them into this Certification.

If the above box is checked, identify the application that contains the previously submitted Attachments that are complete, true, and correct.

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Authorization for Release of Information

This Certification must be signed by an officer of the applicant.

The undersigned authorizes any representative of the Illinois Environmental Protection Agency bearing this release to obtain any information from the Illinois State Police pertaining to the criminal records of the applicant and hereby directs the Illinois State Police to release such information upon request of the bearer. The undersigned authorizes a review of and full disclosure of all records, or any part thereof, concerning the applicant's criminal records by and to a duly authorized agent of the Illinois Environmental Protection Agency, whether the records are of public, private, or confidential nature. The intent of this authorization is to give consent for full and complete disclosure of the applicant's criminal records.

The undersigned fully understands that any information which is developed directly or indirectly, in whole or in part, as a result of this authorization will be considered in determining whether a permit shall be issued by the Illinois Environmental Protection Agency under the Environmental Protection Act [415 ILCS 5]. The undersigned further agrees to release the Illinois State Police and the Illinois Environmental Protection Agency, its agents and designees under this release, from any and all liability which may be incurred as a result of compliance with this authorization for release of information.

Certification Statements

I certify under penalty of law that the information submitted, including information on any Attachments submitted as part of or incorporated into this Certification, is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44(h))

Signature of Applicant Officer	Date
	7/25/25

Printed Name	Title
Brandon Smith	President

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IEPA-BOL
PERMIT SECTION

Illinois Environmental Protection Agency

1021 North Grand Avenue East • P.O. Box 19276 • Springfield • Illinois • 62794-9276 • (217) 782-3397

39(i) Certification for Operating a Waste Management Facility

Pursuant to 415 ILCS 5/39(i), prior to issuing any RCRA permit, or any permit for a waste storage site, sanitary landfill, waste disposal site, waste transfer station, waste treatment facility, waste incinerator, clean construction or demolition debris fill operation, or used tire storage site, the Illinois EPA must conduct an evaluation of the prospective owner's or operator's prior experience in waste management operations, clean construction or demolition debris fill operations, and tire storage site management. As part of that evaluation please complete and submit this form with your permit application.

This form may be completed online and saved locally before printing, signing and submitting it to the Illinois EPA at the address below. If the form is completed manually, please type or print clearly.

Illinois Environmental Protection Agency
Division of Land Pollution Control - #33
39(i) Certification
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276

I. Applicant Information

Site Name: Modern Plating Corporation IEPA BOL No.: 1770200010

Site Address: 701 S Hancock Avenue

City: Freeport State: IL Zip Code: 61032

Permit Numbers (if applicable): B-167R-M-10

Owner

Owner Name: David Servatius

Street Address: 701 S Hancock Avenue

City: Freeport State: IL Zip: 61032

Operator

Operator Name: Modern Plating Corp c/o James R Stenberg

Street Address: 701 S Hancock Avenue

City: Freeport State: IL Zip: 61032

II. Officers and Employees with Site Responsibility

A. Officers: List the name and title of all officers of the owner or operator that will have personal involvement or active participation in the operation or management of the site or facility for which the application is submitted.

Name	Title
James Stenberg	President
David Servatius	Vice President

B. Employees: List the name and title of each employee of the owner or operator that will have personal involvement or active participation in the overall operation or management of the site or facility for which the application is submitted (e.g. site managers, site engineers, and other persons who direct or control the overall day-to-day management of the operation, but not persons whose duties are exclusively limited to equipment operation, labor, or similar non-managerial functions).

Name	Title

III. Owner, Operator, Officer, and Employee Information

A. Prior Conduct Identification

The applicant must answer each of the following questions for every owner or operator, and for any officer or employee identified under Section II. If the answer to any of the following questions is affirmative, the applicant must complete an Attachment A for each person for whom the answer is affirmative and include a copy of each final administrative or judicial determination that required an affirmative response. If the information for each owner, operator, officer, and employee has not changed since the applicant's last submission of a 39(i) certification, the applicant can skip to Section III(C), below.

1) Has there been a finding that any person named in Section II violated federal, State, or local laws, regulations, standards, or ordinances in the operation of one or more waste management facilities or sites, clean construction or demolition debris fill operation facilities or sites, or tire storage sites? ○ Yes ⊘ No

2) Has any person named in Section II ever been convicted in this or another State of any crime which is a felony under the laws of this State, or convicted of a felony in a federal court; or convicted in this or another state or federal court of any of the following crimes: forgery, official misconduct, bribery, perjury, or knowingly submitting false information under any environmental law, regulation, or permit term or condition? ○ Yes ⊘ No

3) Has there been a finding against any person named in Section II of gross carelessness or incompetence in handling, storing, processing, transporting or disposing of waste, clean construction or demolition debris, or used or waste tires, or a finding of gross carelessness or incompetence in using clean construction or demolition debris as fill? ○ Yes ⊘ No

B. Pending Proceedings

The applicant must answer each of the following questions for every owner or operator, and for any officer or employee identified in Section II. If the answer to any of the following questions is affirmative, the applicant must complete an Attachment A for each person for whom the answer is affirmative and provide information identified in Attachment A regarding the pending proceeding.

1. Is there any proceeding currently pending against any person named in Section II that could result in a conviction or finding described in subsection A, above? ○ Yes ⊘ No

2. Is there any proceeding currently pending against any person named in Section II that could result in the reversal of a conviction or finding described in subsection A, above? ○ Yes ⊘ No

C. Prior Application Information

If (i) the applicant has previously submitted the Attachments required pursuant to subsections A and B above and (ii) the Attachments previously submitted are still complete, true, and correct, then the applicant does not need to include Attachments with this submission if the following box is checked:

☐ By checking this box, I affirm that the Attachments previously submitted are still complete, true, and correct and wish to incorporate them into this Certification.

If the above box is checked, identify the application that contains the previously submitted Attachments that are complete, true, and correct.

Authorization for Release of Information

This Certification must be signed by an officer of the applicant.

The undersigned authorizes any representative of the Illinois Environmental Protection Agency bearing this release to obtain any information from the Illinois State Police pertaining to the criminal records of the applicant and hereby directs the Illinois State Police to release such information upon request of the bearer. The undersigned authorizes a review of and full disclosure of all records, or any part thereof, concerning the applicant's criminal records by and to a duly authorized agent of the Illinois Environmental Protection Agency, whether the records are of public, private, or confidential nature. The intent of this authorization is to give consent for full and complete disclosure of the applicant's criminal records.

The undersigned fully understands that any information which is developed directly or indirectly, in whole or in part, as a result of this authorization will be considered in determining whether a permit shall be issued by the Illinois Environmental Protection Agency under the Environmental Protection Act [415 ILCS 5]. The undersigned further agrees to release the Illinois State Police and the Illinois Environmental Protection Agency, its agents and designees under this release, from any and all liability which may be incurred as a result of compliance with this authorization for release of information.

Certification Statements

I certify under penalty of law that the information submitted, including information on any Attachments submitted as part of or incorporated into this Certification, is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44(h))

Signature of Applicant Officer	Date
	7-23-20
James R. Steinberg	President
Printed Name	Title

Attachment A (1 of 1)

This Attachment must be completed for each owner or operator, and for each officer or employee identified in Section II, for whom one or more affirmative responses were included in Section III.

ame: _____ Title: _____

Status: ☐ Owner ☐ Operator ☐ Officer ☐ Employee (check all that apply)

A. Prior Findings or Convictions

1. Has there been a finding that the person named above violated federal, State, or local laws, regulations, standards, or ordinances in the operation of one or more waste management facilities or sites, clean construction or demolition debris fill operation facilities or sites, or tire storage sites? ○ Yes ○ No

2. Has the person named above ever been convicted in this or another State of any crime which is a felony under the laws of this State, or convicted of a felony in a federal court; or convicted in this or another state or federal court of any of the following crimes: forgery, official misconduct, bribery, perjury, or knowingly submitting false information under any environmental law, regulation, or permit term or condition? ○ Yes ○ No

3. Has there been a finding against the person named above of gross carelessness or incompetence in handling, storing, processing, transporting or disposing of waste, clean construction or demolition debris, or used or waste tires, or a finding of gross carelessness or incompetence in using clean construction or demolition debris as fill? ○ Yes ○ No

If the answer to any of the above questions is Yes, attach a copy of each final administrative or judicial determination that required an affirmative response.

B. Pending Proceedings

Is there any proceeding currently pending that could result in one of the following:

1. A conviction or finding described in subsection A, above? ○ Yes ○ No

2. The reversal of a conviction or finding described in subsection A, above? ○ Yes ○ No

If the answer to any of the above questions is Yes, please provide information about the pending proceeding, including the parties involved, the adjudicating body, the docket number, the nature of the proceeding, and the status. The box below will expand as needed. Attach additional sheets if necessary.

Attachment 2

APPENDIX L

Appendix L

Letters Received from the IEPA Regarding Corrective Action

SJLR0005K, REM

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276

THOMAS V. SKINNER, DIRECTOR

217/524-3300

May 25, 1999

CERTIFIED MAIL
P 344 335 381

Mr. Craig Skolrood
Modern Plating Corporation
701 South Hancock Avenue
P.O. Box 838
Freeport, Illinois 61032

Re: 1770200010 - Stephenson County
Modern Plating Corporation
ILD005172325
Log No. C-259-M-7
Response to Letter Reports
RCRA Closure

Dear Mr. Skolrood:

This is in response to several recent letters from Steve Laszewski, Foth & Van Dyke (FVD) submitted on behalf Modern Plating Corporation (MPC) regarding certain RCRA closure and RCRA corrective action activities to be carried out at the MPC facility in Freeport, Illinois. MPC has been addressing soil and groundwater contamination associated with releases from four RCRA hazardous waste management units: Lagoon 1, Lagoon 2, Lagoon 3, the Shawnee Building; and four solid waste management units: Lagoon 0, Lagoon 1A, Cyanide Treatment Vault, and the Wetlands Area. RCRA closure activities address the extent, type and execution of physical remediation to be performed at these units. The RCRA permit will address: (1) MPC's long-term management plan for these units (including groundwater management); and (2) operation/post-closure care of a Corrective Action Management Unit (CAMU) for waste generated from remediation efforts at the aforementioned units.

The Illinois EPA's November 18, 1998 letter provided comments on the "Modification to RCRA Closure Plan and Basis of Design Report (Revision No. 1)" submitted by MPC/FVS. That design report contained a proposal to complete closure of the four hazardous waste management units and four solid waste management units at the MPC facility. The November 18, 1998 from the Illinois EPA identified, in Attachments III thru VI, concerns it had with the proposed RCRA closure activities and the also required that a revised closure plan be submitted addressing the comments/concerns set forth in the letter.

During a December 18, 1998 conference call, Illinois EPA and FVD discussed the Illinois EPA's November 18, 1998 letter to MPC and a proposed method to resolve the issues raised in that letter. The Illinois EPA and MPC/FVD determined a series of letter reports addressing the major issues raised in the November 18, 1998 letter should be developed and submitted to Illinois EPA for review and approval, prior to the submittal of a completely revised closure plan (Revision 2) for the subject units.

A series of "letter reports" have been submitted by FVD since March 19, 1999. The date of these letters and their subject matter are listed below:

Date of Letter	Items from November 18, 1998 Addressed
√ March 19, 1999	Attachment II - Groundwater Monitoring Program, GMZ Proposal
March 29, 1999	Attachment IV- Lagoons and CN Treatment Vault, Items 1, 2 and 2a
March 31, 1999	Attachment II - Groundwater Monitoring Program, GMZ Errata
April 14, 1999 √ April 13, 1999	Attachment III - General Deficiencies, Items 1, 3 and 4
√ April 13, 1999	Attachment IV - Lagoons and CN Treatment Vault, Items 2b and 3
√ April 30, 1999	Attachment III - General Deficiencies, Items 2 and 5
√ May 4, 1999	Attachment V - Shawnee Building, Items 1 thru 5; and Attachment VI - Wetlands, all Items

RBM doesn't have

Attachment A comments 1 through 13

Attachment A to this letter provides a table summarizing the Illinois EPA evaluation of the above letters with regard to Illinois EPA's comments in Attachments III thru VI of the November 18, 1998 closure plan letter. The table identifies items that have been resolved in concept and the items where additional information is needed.

The proposed Groundwater Management Zone (GMZ), set forth in the March 19, 1999 submittal from FVD is approved, subject to certain conditions and modifications. The proposed GMZ should be incorporated into the approved groundwater monitoring program for the proposed RCRA closure project subject to the conditions and modifications set forth in Attachment B to this letter.

A revised closure plan incorporating Illinois EPA's comments on the above-mentioned letter reports should now be developed by MPC. This revised plan should then be submitted to Illinois EPA for review and approval. Review of this plan will take place on a parallel track relative to issuance of a RCRA permit to MPC. Overall closure and corrective action requirements at this facility must meet the requirements of 35 Ill. Adm. Code 620, 724, 725 and 742.

The revised closure plan should include a detailed cost estimate for closure activities including unit costs and all calculations for: (1) each task to be completed, from initiating closure to placing material in the CAMU; (2) engineered barriers for areas that do not meet TACO remedial objectives; and (3) 30 years post-closure care (including groundwater monitoring).

Within 35 days of the date of mailing of the final decision by Illinois EPA, the applicant may petition for a hearing before the Illinois Pollution Control Board to contest the decision of the Illinois EPA; however, the 35-day period for petitioning for a hearing may be extended for a period of time not to exceed 90 days by written notice provided to the Board from the applicant and the Illinois EPA within the 35-day initial appeal period.

Work required by this letter, your submittal or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989,the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989.This letter does not relieve anyone from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

If you have any questions regarding the groundwater aspects of this project, please contact Terri Blake Myers, L.P.G. at 217/524-3284; questions regarding other aspects of the project should be directed to Karen Nachtwey at 217/524-3273.

Sincerely,

Joyce L. Munie, P.E.
Manager, Permit Section
Bureau of Land

JLM:KEN:bjh\992322S.WPD

Attachment A - Evaluation of Information in Letter Reports
Attachment B - Groundwater Monitoring Program

cc: Mr. Steven J. Laszewski, Ph.D., Foth & Van Dyke

ATTACHMENT A
Modern Plating Corporation
Evaluation of Information in Letter Reports
Log C-259

This document identifies: (1) each item of concern in Attachment III thru VI of Illinois EPA's November 18, 1998 letter; (2) identifies the letter report submitted on behalf of Modern Plating during March - May, 1999 which contained additional information regarding each of these items; and (3) summarizes the response to that information.

Attachment	Item No. Description of Item Date of Response	MP/FVD Response	Resolved/ Need Additional Information
Attachment III - General Deficiencies	Item No. 1 CAMU design not part of RCRA closure review. April 13, 1999	FVD/MP recognized CAMU review part of Part B review.	Resolved
	Item No. 2 - Site History: a) Where were tunnel, discharge and plating lines?	Diagram provided not depict plating and discharge lines and how they are/were connected with the tunnel.	Need additional information
	b) Where materials removed from Lagoon #1 and #2 placed?	Materials were placed in Lagoon # 3.	Resolved
	c) Underground vault same as CN Treatment Vault? April 30, 1999	Yes	Resolved

TJC

ATTACHMENT A
Modern Plating Corporation
Page 2

Attachment	Item No. Description of Item Date of Response	MP/FVD Response	Resolved/ Need Additional Information
	Item No. 3 Property Boundaries with respect to Wetlands and future use April 13, 1999	A revised Property Boundaries shown is on *Drawing 3.* To the NE of the facility, the topography is not shown and a structure within the MP boundary line needs to be identified.	Need additional information
	Item No. 4 Exclusion of Groundwater pathway April 13, 1999	No longer proposed (See Illinois EPA response to Attachment II).	Resolved
	Item No. 5 Characterization effort sufficient? April 30, 1999	Risk assessment and soil characterization has been performed. In addition, Tier I proposed north of lagoons.	Resolved
Attachment IV - Lagoons and CN Treatment Vault	**Item No. 1** Tree, vegetation cleared prior to construction? March 29, 1999	Yes	Resolved
	Item No. 2 Extent of Removal? March 29, 1999	Extent of removal will be 1 foot below base and interior berms.	Resolved (after base elevation of lagoons is clarified and with proposal of confirmation soil samples).

TJC to call Karen N. initials

5

ATTACHMENT A
Modern Plating Corporation
Page 3

Attachment	Item No. Description of Item Date of Response	MP/FVD Response	Resolved/ Need Additional Information
	Item No. 2a Engineered barrier is needed. March 29, 1999	Engineered barrier for all former lagoons shall meeting requirements of 724.328 (a)(2)(c).	Resolved
	Item No. 2b Need assurance majority of hazardous waste constituents shall be removed. April 13, 1999	MPC proposes to collect samples from the sediment liner below the lagoons after over-excavation.	Resolved (after base elevation clarified and with proposal of confirmation soil samples).
	Item No. 3 Extent of soil contamination south of SB-51? April 13, 1999	MPC proposes confirmation sampling.	Resolved (after base elevation clarified and with proposal of confirmation soil samples).
Attachment V-Shawnee Building	**Item No. 1** Summary of RCRA closure and soil data so stand-alone document May 4, 1999.	Summary of Shawnee Building RCRA Closure was provided.	Resolved

ATTACHMENT A
Modern Plating Corporation
Page 4

	Item No. 2 Total Chromium (2.5 mg/l) at MW-5-C and Nickel (4.1 mg/l) at MW-5D are above Class II Groundwater Standards. What is the trend? May 4, 1999	MP states both levels of Chromium and Nickel have decreased however, only VOCs have been required at MW-5C since 1997. Nickel is reported at .850 mg/l at MW-5D.	Resolved however. MW-5C should be monitored to verify level of Chromium is below 1.0 mg/l. letter to Tstng Lab cc: Karen N., Craig S., STLI, REM
	Item No. 3 All heavy metals must be included in confirmation testing. May 4, 1999	MPC states all heavy metals will be included.	Resolved
	Item No. 4 Tier III Lead acceptable May 4, 1999	No response needed.	Resolved
	Item No. 5 May 4, 1999 Remedial Objectives acceptable subject to: a. Institutional control b. Adding Hex-Chromium c. Demonstrate cis-1,2-dichloroethene value used appropriate for Tier 2 analysis	MPC will implement a deed restriction. Hex-chromium will be added. Demonstration sufficient	Resolved Resolved Resolved

7

ATTACHMENT A
Modern Plating Corporation
Page 5

Attachment VI - Wetlands	Items No. 1 -7 OCS comments regarding Tier III review.	MP proposes an Tier I for off-site soils north of lagoons and using Industrial/ Commercial (I/C) and Construction worker objectives. MP proposes Tier I (I/C) objectives for on-site soils north of the lagoons with a deed restriction preventing future on-site construction work in the wetlands soils; does not include construction worker.	MP/FVD must provide the regulatory basis for the on-site proposal and information demonstrating these regulations will be met.

JLM:KEN:bjh\992323S.WPD

8

ATTACHMENT B

GROUNDWATER MONITORING PROGRAM
MODERN PLATING CORPORATION
C-259

The proposed Groundwater Management Zone (GMZ) for the Modern Plating facility in Freeport, Illinois, as set forth in the March 19, 1999 submittal is hereby approved, incorporated into the approved groundwater monitoring program, and subject to the following conditions and modifications:

1. At this time, direct groundwater corrective action measures can be deferred until additional information concerning soils and "hot spots" in the wetlands area are addressed by the facility. Once these issues are addressed by the facility, it may be necessary to modify the groundwater monitoring program to include expanding the groundwater program to include additional groundwater monitoring wells, implementation of direct groundwater corrective action measures, and/or an increase in the sampling frequencies of groundwater monitoring wells at the facility.

2. Table 2-28 in the report, containing the annual long-term care costs estimates for the proposed CAMU, must be modified to reflect unit cost and cost/year for the approved number of wells and sampling frequency associated with the current approved groundwater monitoring program.

3. In the September 15, 1997 letter from the Illinois EPA, the Illinois EPA concurred with a reduction in the number of inorganics and VOCs being sampled for, as well as, the number of groundwater monitoring wells being sampled during each sampling event. Condition 3 of the May 23, 1997 letter from the Illinois EPA and 35 Ill. Adm. Code 725.193(d)(7)(A), requires the facility to continue to make quarterly determinations of rate, extent, and concentrations of hazardous wastes and hazardous waste constituents in the groundwater on a quarterly basis. These wells designated as "base wells" will provide consistent monitoring data for constituent concentrations, migration tracking, and hydrology information. In addition, other wells, designated as "additional assessment wells" will be required to provide additional information concerning constituent levels and trends. GMZ wells not previously designated as base wells will be designated as additional assessment wells. These wells will not be considered part of the base wells system and therefore can be monitored semi-annually.

4. Groundwater monitoring wells MW-5D, MW-10A, MW-12A, MW-13A, MW-14A, MW-15A, MW-16C, and MW-20C will be considered base wells for inorganic assessment purposes at the facility and be sampled quarterly in accordance with Condition 10 below. However, due to historical analytical results and/or proximity to the abandoned underground vault groundwater monitoring groundwater monitoring wells MW-9A, MW-21A, and MW-22A must also be sampled for inorganics. These wells have consistently detected inorganics in excess of applicable 35 Ill. Adm. Code 620 groundwater quality standards. In addition, analytical results from wells MW-21A and MW-22A will provide information concerning

contaminant levels immediately downgradient of the abandoned underground vault. Wells MW-9A, MW-21A, and MW-22A are not considered base wells, but rather additional assessment wells. Therefore, sampling of these wells will occur on a semi-annual basis.

5. Groundwater monitoring wells MW-12B, MW-13B, MW-14B, MW-15B, MW-17B, MW-18B, MW-19B, MW-5C, MW-6C, MW-8C, MW-11C, MW-14C, MW-16C, and MW-7D will be considered base wells for VOC assessment purposes at the facility and be sampled quarterly in accordance with Condition 10 below. However, due to historical analytical results wells MW-6A, MW-7A, and MW-8A must also be sampled for VOCs. These wells have consistently detected VOCs in excess of applicable 35 Ill. Adm. Code 620 groundwater quality standards. Wells MW-6A, MW-7A, and MW-8A are not considered base wells, but rather additional assessment wells. Therefore, sampling of these wells will occur on a semi-annual basis.

6. Groundwater monitoring wells MW-15B, MW-17B, MW-18B, MW-19B, MW-15C, MW-16C, MW-17C, MW-19C, MW-23C, MW-17D, MW-18D, MW-19D and the two (2) river sampling locations delineate the boundaries of the GMZ as required by 35 Ill. Adm. Code 620.450. As discussed in Conditions 4 and 5 above, wells MW-15B, MW-17B, MW-18B, MW-19B, and MW-16C are designated as base wells, and as such must be sampled quarterly in accordance with Condition 10 below for both VOCs and inorganics. Wells MW-15C, MW-17C, MW-17D, MW-18D, MW-19C, MW-19D, MW-23C and the river sampling locations are not considered base wells. Therefore, sampling of VOCs and inorganics in these wells and the river sampling locations will occur on a semi-annual basis. In accordance with 35 Ill. Adm. Code 620.250(c), the GMZ will expire upon the Illinois EPA's receipt of appropriate documentation which confirms the completion of the corrective measure taken pursuant to 35 Ill. Adm. Code 620.250(a) and which confirms the attainment of applicable groundwater quality standards as set forth in 35 Ill. Adm. Code 620, Subpart D.

7. Construction of the new groundwater monitoring well(s) must be at a minimum in accordance with the diagram attached and continuously sampled and logged on Illinois EPA boring logs (attached). MPC shall submit boring logs, construction diagrams (attached) and data sheets from the installation and development of any new well(s) to the Illinois EPA at the address below within thirty (30) days of the date that installation of the well(s) is completed.

Illinois Environmental Protection Agency
Bureau of Land
Reporting and Financial Assurance Unit
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

8. The unconsolidated aquifer at the facility meets the definition of Class II: General Resource Groundwater in accordance with 35 Ill. Adm. Code 620.220 and need only meet the groundwater quality standards found in 35 Ill. Adm. Code 620.420. The dolomite aquifer meets the criteria set forth in 35 Ill. Adm. Code 620.210 for designation as a Class I: Potable Resource Groundwater and must meet the groundwater quality standards found in 35 Ill. Adm. Code 620.410.

9. The facility shall determine groundwater quality at each well identified in Conditions 4, 5, and 6 above in accordance with the schedule found in Condition 10. When obtaining and analyzing samples, the facility shall use the techniques and procedures associated with the appropriate analysis method from SW-846 (Third Edition). All analytical results must be reported to the Illinois EPA on Agency Chemical Analysis Forms using the appropriate store number and the minimum units listed below.

Field Parameters	Storet	Units
pH	00400	
Specific Conductance	00094	micromos/cm
Temperature of Water Sample	00011	(°F)
Turbidity	45626	Ntus
Depth to Water (below land surface)	72019	Feet
Depth to Water (below measuring point)	72109	Feet
Elevation of Measuring Point (top of casing)	72110	Ft. MSL
Elevation of Groundwater Surface	71993	Ft. MSL
Elevation of Bottom of Well*	72020	Ft. MSL

*Shall be determined during the second quarter sampling event each year.

Inorganics	Storet	Units
Cadmium (total)	01027	ug/L
Chromium (total)	01034	ug/L
Lead (total)	01051	ug/L
Nickel (total)	01067	ug/L

VOCs	Storet	Units
Cis-1,2-Dichloroethene	77093	ug/L
Tetrachloroethene	34475	ug/L

Trichloroethene	39180	ug/L
Vinyl Chloride	39175	ug/L

NOTE: Detection limits shall not be greater that the applicable Class 35 Ill. Adm. Code 620, Class I groundwater quality standard.

10. Sampling at the base wells and the additional assessment wells to meet the requirements of the groundwater monitoring program shall be collected and reported, as identified in the table below. The results of analyses conducted on the groundwater quality samples shall be submitted in accordance with this schedule:

Samples to be Collected During the Month of	Results Submitted to the Illinois EPA by the Following	Wells to be Sampled
First Quarter	April 15	Base, Additional Assessment
Second Quarter	July 15	Base
Third Quarter	October 15	Base, Additional Assessment
Fourth Quarter	January	Base

11. Groundwater surface elevation data collected each quarter from all of the groundwater monitoring wells located at the facility shall be submitted to the Illinois EPA as identified in the table above.

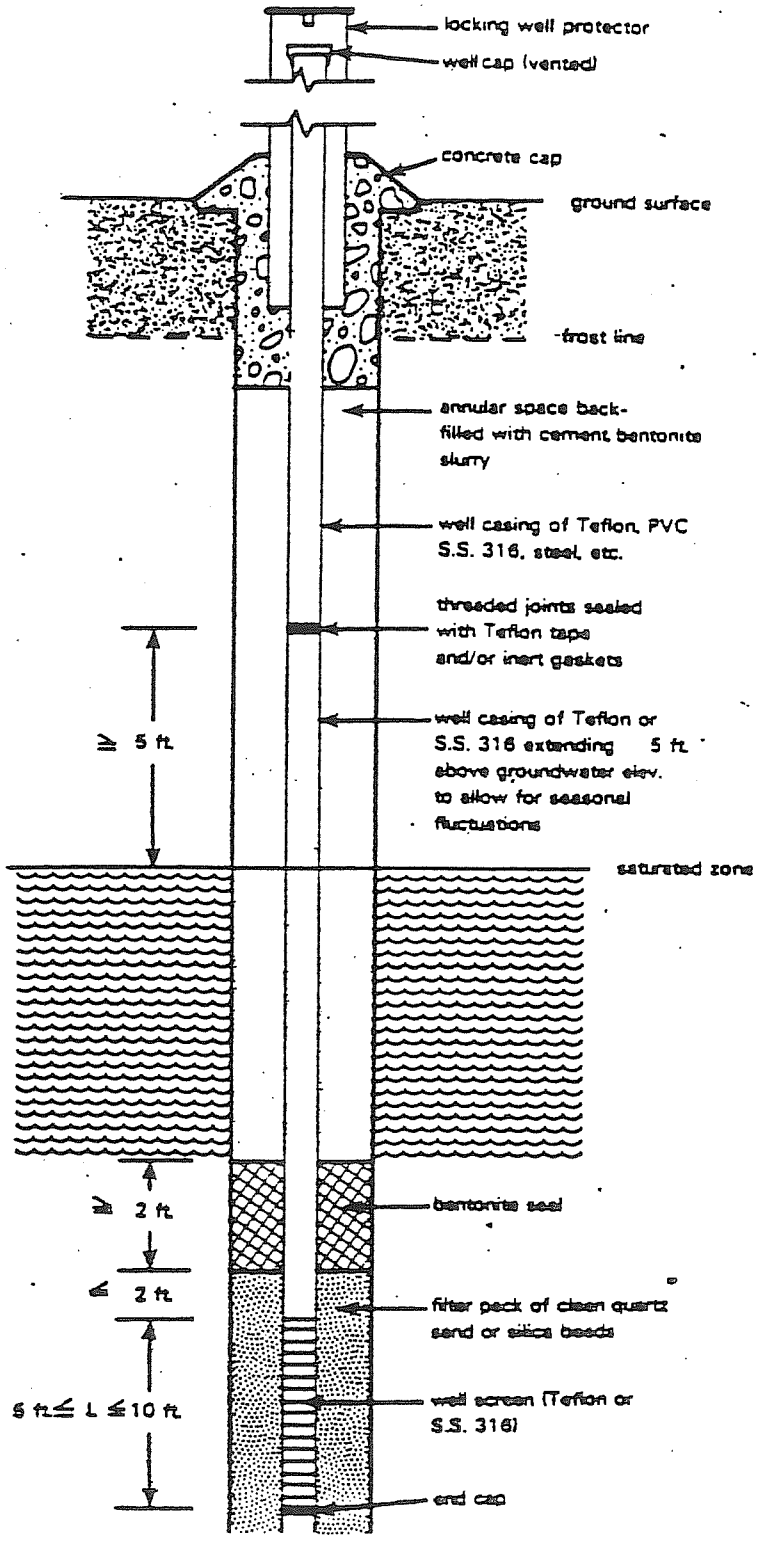
12. If it is determined that the groundwater monitoring program no longer satisfies the requirements of 35 Ill. Adm. Code 725, Subpart F, the facility must submit a closure modification request within 90 days to make any appropriate changes to the program. This includes, but is not limited to, expanding to groundwater monitoring program to include additional groundwater monitoring wells and/or increasing the sampling frequencies.

13. In accordance with Condition 9 of the September 15, 1997 letter from the Illinois EPA, all of the wells not utilized in the modified groundwater monitoring system, but retained by the facility, must be maintained in accordance with 77 Ill. Adm. Code 920 regulation

JLM:KEN:bjh\992324S.WPD

Attachments: Monitoring Well Diagram
IEPA Boring Log Form
IEPA Well Completion Report

Monitoring Well Diagram



Illinois Environmental Protection Agency — Field Boring Log

Page ___ of ___

Site File No.: _____ County _____ Boring No.: _____ Monitor well No. _____

Site File Name _____ Surface Elevation _____ Completion Depth _____

Fed. ID. No. _____ Auger Depth _____ Rotary Depth _____

Quadrangle _____ Sec. ____ T. ____ R. ____ Date: Start _____ Finish _____

UTM (or State Plane) Coord. N.(X) _____ E.(Y) _____

Latitude ° ' " Longitude ° ' "

Boring Location _____

Drilling Equipment _____

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	Personnel: D - D - E - I -	REMARKS

Illinois Environmental Protection Agency — Well Completion Report

SITE #: _____ COUNTY: _____ WELL #: _____

SITE NAME: _____ BOREHOLE #: _____

STATE PLANE COORDINATE: X _____ Y _____ (or) LATITUDE: ____° ____' ____" LONGITUDE: ____° ____' ____"

SURVEYED BY: _____ ILL. REGISTRATION #: _____

DRILLING CONTRACTOR: _____ DRILLER: _____

CONSULTING FIRM: _____ GEOLOGIST: _____

DRILLING METHOD: _____ DRILLING FLUIDS (TYPE): _____

LOGGED BY: _____ DATE STARTED: _____ DATE FINISHED: _____

REPORT FORM COMPLETED BY: _____ DATE: _____

ANNULAR SPACE DETAILS

TYPE OF SURFACE SEAL: _____

TYPE OF ANNULAR SEALANT: _____

INSTALLATION METHOD: _____

SETTING TIME: _____

TYPE OF BENTONITE SEAL – GRANULAR, PELLET, SLURRY (CIRCLE ONE)

INSTALLATION METHOD: _____

SETTING TIME: _____

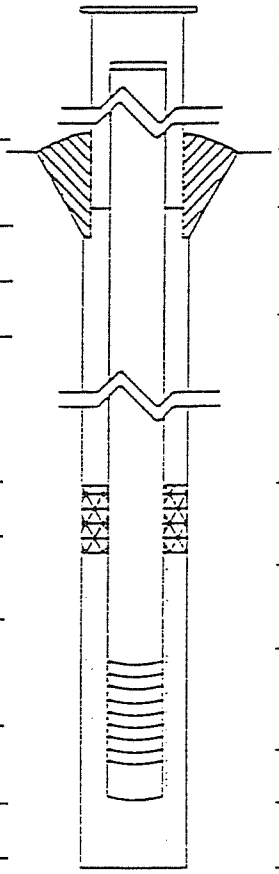
TYPE OF SAND PACK: _____

GRAIN SIZE: _____ (SIEVE SIZE)

INSTALLATION METHOD: _____

TYPE OF BACKFILL MATERIAL: _____ (IF APPLICABLE)

INSTALLATION METHOD: _____



ELEVATIONS (MSL)*	DEPTHS (BGS) (.01 ft)	
_____	_____	TOP OF PROTECTIVE CASING
_____	_____	TOP OF RISER PIPE
_____	_____	GROUND SURFACE
_____	_____	TOP OF ANNULAR SEALANT
_____	_____	STATIC WATER LEVEL (AFTER COMPLETION)
_____	_____	TOP OF SEAL
_____	_____	TOP OF SANDPACK
_____	_____	TOP OF SCREEN
_____	_____	BOTTOM OF SCREEN
_____	_____	BOTTOM OF WELL
_____	_____	BOTTOM OF BOREHOLE

* REFERENCED TO A NATIONAL GEODETIC VERTICAL DATUM

WELL CONSTRUCTION MATERIALS

(CIRCLE ONE)

PROTECTIVE CASING	SS304, SS316, PTFE, PVC OR OTHER:
RISER PIPE ABOVE W.T.	SS304, SS316, PTFE, PVC OR OTHER:
RISER PIPE BELOW W.T.	SS304, SS316, PTFE, PVC OR OTHER:
SCREEN	SS304, SS316, PTFE, PVC OR OTHER:

CASING MEASUREMENTS

DIAMETER OF BOREHOLE (in)	
ID OF RISER PIPE (in)	
PROTECTIVE CASING LENGTH (ft)	
RISER PIPE LENGTH (ft)	
BOTTOM OF SCREEN TO END CAP (ft)	
SCREEN LENGTH (1st SLOT TO LAST SLOT) (ft)	
TOTAL LENGTH OF CASING (ft)	
SCREEN SLOT SIZE **	

** HAND-SLOTTED WELL SCREENS ARE UNACCEPTABLE

(9410:4)

MASTER FILE COPY 0990562

Scope 44MOLS Classification 4.000

Copy To SJLI IJC REM NKD EAS(W/ps)

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276

THOMAS V. SKINNER, DIRECTOR

217/524-3300

December 2, 1999

CERTIFIED MAIL
P 344 335 449

Mr. Craig Skolrood
Modern Plating Corporation
701 South Hancock Avenue
P.O. Box 838
Freeport, Illinois 61032

Re: 1770200010 -- Stephenson County
Modern Plating Corporation
ILD005172325
Log No. C-259-M-8
RCRA Closure

Dear Mr. Skolrood:

The *Final RCRA Closure Plan and Basis of Design Report*, dated July 22, 1999, prepared and submitted by Foth & Van Dyke on behalf of Modern Plating Corporation has been reviewed. Your final RCRA Closure plan to close four RCRA hazardous waste management units (HWMUs) - *Lagoon 1, Lagoon 2, Lagoon 3 and Shawnee Building*; and four solid waste management units (SWMUs) - *Lagoon 0, Lagoon 1A, Cyanide Treatment Vault and Wetlands Area* at the Modern Plating Corporation (MPC) in Freeport, Illinois is hereby approved subject to the following conditions and modifications:

1. The closure activities required by this RCRA closure plan approval letter address the extent, type and execution of physical remediation to be performed at *Lagoon 0, Lagoon 1A, Lagoon 1, Lagoon 2, Lagoon 3, the Cyanide Treatment Vault, the Shawnee Building and the Wetlands Area* at the MPC facility. These units are shown in Attachment 1 - Site Map of HWMUs and SWMUs. An application for a RCRA permit for this facility is currently under review by Illinois EPA; the permit eventually issued in response to this application should address MPC's long-term management plan for these units (including groundwater management) and operation/post-closure care of a Corrective Management Unit (CAMU) for waste generated from remediation efforts at the eight aforementioned units. Investigation and remediation of these units was initially required by December 31, 1987 Administrative Order of Consent enforced by USEPA.

2. Overall closure and corrective action requirements at this facility must meet the requirements of 35 Ill. Adm. Code 620, 724, 725 and 742.

3. Remediation activities required by the final RCRA closure plan for the eight units of concern must be performed in accordance with the July 22, 1999 final RCRA closure plan plan as summarized below. A characterization and a description of the former operations for these eight units is provided in Attachment 2 to this letter.

   a. Lagoons 0, 1A, 2, and 3 and Cyanide Treatment Vault Area

      (1) At Lagoons 0, 1A, 2, and 3, MPC will over-excavate 1 foot of the base and 1 foot of interior side slopes. Excavated soil (an estimated 15,250 cubic yards) will be removed from the lagoons and be placed in a Corrective Action Management Unit (CAMU) to be constructed at the location of Lagoon 2 and Lagoon 3.

      (2) In the Cyanide Treatment Vault Area, 2 feet of contaminated soil will be excavated from the floor and side walls of the former vault (approximately 200 cubic yards) and placed in the CAMU.

      (3) After excavation activities, soil samples will be obtained in the lagoon areas and Cyanide Treatment Vault Area to define the amount of residual contamination.

      (4) An engineered barrier meeting the requirements of 35 Ill. Adm. Code 724.328 will be placed over these areas. Institutional controls and 30 year post-closure monitoring will be present for all units not achieving clean closure. Clean closure is not the goal of remediation efforts at the Lagoons or the Cyanide Treatment Tank Area.

   b. Shawnee Building

      Three areas were used for storage of hazardous waste in the former Shawnee Building. Soil at the former Shawnee Building must meet 35 Ill. Adm Code 742 TACO Tier II remedial objectives (shown in Attachment 3) and a remedial objectives of 400 mg/kg for Lead. It is estimated that 30 cubic yards of soil will be removed in order for soil to meet these remedial objectives. This effort will meet the clean closure requirements of 35 Ill. Adm Code 725 Subpart G. Contaminated soil will be placed in the on-site CAMU.

   c. Wetland Area

      Soil will be removed in the Wetlands Area, in three areas. Two of these areas are on-site areas immediately north of Lagoon 2 and one area is off-site area in the low area northeast of MW-13. These areas are shown in a map provided in Attachment 4. Soil

shall be excavated to meet 35 IAC Section 742 TACO - Tier I remedial objectives shown in Attachment 5. Contaminated soil will be placed in the on-site CAMU. This effort will meet the clean closure requirements of 35 Ill. Adm Code 725 Subpart G.

4. A Groundwater Management Zone (GMZ) has been established to address contaminated groundwater at the MPC facility. The boundaries of the GMZ, defined by the Pecatonica River and monitoring wells in compliance with the water quality standards specified for the MPC site, are in shown in Attachment 6. The GMZ was approved in the May 25, 1999 letter from the Illinois EPA and is hereby modified in accordance with the conditions specified in Attachment 7 Groundwater Monitoring Program.

5. MPC must place institutional controls meeting the requirements of 35 Ill. Adm. Code 742.1000 - Institutional Controls to restrict: (1) future land use; and (2) direct exposure in the future to soil remaining at the five (5) Lagoons and the Cyanide Treatment Vault unit.

6. Several tanks, listed below, were shown in Drawing No. 2 (Revised): Existing Conditions of MPC's final RCRA closure plan. In order for the Illinois EPA to have a comprehensive understanding of site operations at the MPC facility and understand how these tanks relate or do not relate to meeting the goal of final RCRA closure at the MPC facility, the Illinois EPA requests additional information regarding the tanks: (1) physical characteristics - material of construction, age, capacity, etc; (2) function; and (3) type of waste and/or product contained. This information should be provided to the Illinois EPA by February 1, 2000.

   a. Outside Storage Tanks (East of Shawnee Building);

   b. Five Tanks (Northwest of Production Plant);

   c. 8000 Gallon Tank (Northeast of Production Building);

   d. Storage Tank on Foundation (North of Production Building);

   e. Diesel Fuel Tank (North of Production Building); and

   f. Cyanide Sludge Tank, Chromium Batch Treatment Tanks and Underground Concentrated Waste Neutralizing Tanks Chromium Sludge (all in/outside the Wastewater Treatment Plant).

7. In Section 2.2 - Site History and Description of Facility of the final RCRA closure plan, it is stated that in the 1940's a large 24" discharge line was installed to the Pecatonica River. It was also stated that a secondary sanitary sewer line was also installed during this time. In

1964 MPC began operation. MPC's plating wastes were directed through a pipe in a newly-constructed tunnel through the northeast wall of the plant to connect with the existing cooling water discharge line. MPC also stated that no records are available to show the location of the cooling water discharge line. Drawing 2 (Revised) of the July 22, 1999 final RCRA closure plan shows the location of the sanitary sewer line.

Given the above, the potential exists for a release (s) of heavy metals waste/wastewater along these lines (the secondary sanitary sewer and 24" discharge line) prior to the operation and construction of the wastewater treatment. The Illinois EPA would like to rule out this possibility. MPC is therefore requested to submit and implement an investigative plan for these pathways. The goal of this plan would be to locate these lines and sample soil along these lines for heavy metal constituents and volatile organics that were used during MPC operations. Soil should be sampled from the point(s) of line connection to the Pecatonica River. This plan should be submitted to the Illinois EPA by February 1, 2000.

8. When closure is complete a certification must be submitted to Illinois EPA by the owner/operator and an independent professional engineer that the hazardous waste management units at the facility have been closed in accordance with the specifications in the approved closure plan. This certification should be received at the Illinois EPA within sixty (60) days after closure. These dates may be revised if Modern Plating Corporation finds that additional time is necessary to complete all required closure activities and Modern Plating Corporation demonstrates to the Illinois EPA that it is attempting to complete closure in a timely manner.

The attached closure certification form must be used. Signatures must meet the requirements of 35 Ill. Adm. Code 702.126. The independent engineer should be present at all critical, major points (activities) during the closure. These might include soil sampling, soil removal, backfilling, final cover placement, etc. The frequency of inspections by the independent engineer must be sufficient to determine the adequacy of each critical activity.

The Professional Engineering Practice Act (225 Illinois Compiled Statutes 325/1-325/49) requires that any person who practices professional engineering in the State of Illinois or implies that he (she) is a professional engineer must be licensed under that Act. Therefore, any certification or engineering services which are performed for a closure plan in the State of Illinois must be done by an Illinois P.E.

Plans and specifications, designs, drawings, reports, and other documents rendered as professional engineering services, and revisions of the above must be sealed and signed by a professional engineer in accordance with Paragraph 325/14 of the Professional Engineering Practice Act.

As part of the closure certification, to document the closure activities at your facility in accordance with 35 Ill. Adm. Code 725.215, a Closure Documentation Report must be developed and submitted to Illinois EPA along with the closure certification statement which includes the following:

a. Background information about the facility overall and the overall closure project.

b. A description of the unit(s) closed (include scaled maps showing location of unit(s) within facility and layout of unit(s), information related to construction of the unit(s), identification of wastes managed in the unit(s)).

c. A general discussion of all completed closure activities and what was accomplished as a result of completing these activities.

d. The volume of waste, waste residue and contaminated soil (if any) removed. The term waste includes wastes resulting from decontamination activities.

e. Scaled drawings showing the horizontal and vertical boundaries of the extent of any soil removal effort.

f. Information documenting the results of all sampling/analysis efforts. The goal of presenting this information should be to describe, in a logical manner, the activities and results associated with the sampling/analysis effort. At a minimum, this information must include:

(1) identification of the reason for the sampling/analysis effort and the goals of the effort;

(2) a summary in tabular form of all analytical data, including all quality assurance/quality control data;

(3) a scaled drawing showing the horizontal location from which all soil samples were collected;

(4) identification of the depth and vertical interval from which each sample was collected;

(5) a description of the soil sampling procedures, sample preservation procedures and chain of custody procedures;

(6) identification of the test method used and detection limits achieved, including sample preparation, sample dilution (if necessary) and analytical inferences;

(7) copies of the final laboratory report sheets, including final sheets reporting all quality assurance/quality assurance dates;

(8) visual classification of each soil sample in accordance with ASTM D-2488;

(9) a summary of all procedures used for quality assurance/quality control, including the results of these procedures; and

(10) a discussion of the data, as it relates to the overall goal of the sampling/analysis effort.

g. Color photo documentation of closure. Document conditions before, during and after closure.

h. A chronological summary of closure activities and the cost involved.

i. Survey plat showing location of disposal units (required by 35 Ill. Adm. Code, Subtitle G (725.216 and 725.219).

j. A copy of the document (notation in deed or other document examined during title searches) in which the notification required under 35 Ill. Adm. Code 725.219(b).

The original and two (2) copies of all certifications, logs, or reports which are required to be submitted to the Illinois EPA by the facility should be mailed to the following address:

Illinois Environmental Protection Agency
Bureau of Land -- #33
Permit Section
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

9. The following procedure must be utilized in the collection of all required soil samples:

a. The procedures used to collect the soil samples must be sufficient so that all soil encountered is classified in accordance with ASTM Method D-2488.

b. If a drill rig or similar piece of equipment is necessary to collect required soil samples, then:

1. the procedures specified in ASTM Method D-1586 (Split Spoon Sampling) or D-1587 (Shelby Tube Sampling) must be used in collecting the samples.

2. Soil samples must be collected continuously at several locations to provide information regarding the shallow geology of the area where the investigation is being conducted;

c. Soil samples not collected explicitly for VOC analysis should be field-screened for the presence of VOCs;

d. All soil samples which will be analyzed for volatile organic compounds must be collected in accordance with Attachment A of the Illinois EPA's Guidance for Preparing RCRA Closure Plans (November 1994).

e. All other soil samples must be collected in accordance with the procedures set forth in Test Methods for Evaluating Solid Wastes (SW-846), Third Edition and Finalized Updates;

f. When visually discolored or contaminated material exists within an area to be sampled, horizontal placement of sampling locations shall be adjusted to include such visually discolored and/or contaminated areas. Sample size per interval shall be minimized to prevent dilution of any contamination.

10. Quality assurance/quality control procedures which meet the requirements of SW-846 must be implemented during all required sampling/analysis efforts.

11. All soil samples shall be analyzed individually (i.e., no compositing). Analytical procedures shall be conducted in accordance with USEPA's Test Methods for Evaluating Solid Wastes (SW-846), Third Edition and Finalized Updates. When a SW-846 analytical method is specified, all the chemicals listed in the Quantitation Limits Table for that method shall be reported unless specifically exempted in writing by the Illinois EPA. Apparent visually contaminated material within a sampling interval shall be included in the sample portion of the interval to be analyzed. If possible, your sampling program should be extensive enough to determine the lateral and vertical extent of contamination to the detection limit (PQLs) referenced above.

12. The attached form entitled RCRA Interim Status Closure and Post-Closure Care Plans General Form (LPC-PA18) must be completed and accompany all information submitted to the Illinois EPA associated with the closure activities described in this letter. As noted on this form, two copies must accompany the original of all submittals, so that the information submitted can be distributed, as necessary to Illinois EPA personnel and regional offices.

13. If the Illinois EPA determines that implementation of this closure plan fails to satisfy the requirements of 35 Ill. Adm. Code 725.211, the Illinois EPA reserves the right to amend the closure plan. Revisions of closure plans are subject to the appeal provisions of Section 40 of the Illinois Environmental Protection Act.

14. Under the provisions of 29 CFR 1910, cleanup operations must meet the applicable requirements of OSHA's Hazardous Waste Operations and Emergency Response standard. These requirements include hazard communication, medical surveillance, health and safety programs, air monitoring, decontamination and training. General site workers engaged in activities that expose or potentially expose them to hazardous substances must receive a minimum of 40 hours of safety and health training off site plus a minimum of three days of actual field experience under the direct supervision of a trained experienced supervisor. Managers and supervisors at the cleanup site must have at least an additional eight hours of specialized training on managing hazardous waste operations.

15. Under the provisions of 29 CFR 1910, cleanup operations must meet the applicable requirements of OSHA's Hazardous Waste Operations and Emergency Response standard. These requirements include hazard communication, medical surveillance, health and safety programs, air monitoring, decontamination and training. General site workers engaged in activities that expose or potentially expose them to hazardous substances must receive a minimum of 40 hours of safety and health training off site plus a minimum of three days of actual field experience under the direct supervision of a trained experienced supervisor. Managers and supervisors at the cleanup site must have at least an additional eight hours of specialized training on managing hazardous waste operations.

16. All hazardous wastes that result from this project are subject to annual reporting as required in 35 IAC 722.141 and shall be reported to the Illinois EPA by March 1 of the following year for wastes treated and left on-site or shipped off-site for storage, treatment and/or disposal during any calendar year. All non-hazardous special wastes that are shipped to a facility located outside the State of Illinois that result from this project are subject to annual reporting as required in Section 22.01 of the Illinois Environmental Protection Act and 35 Ill. Adm. Code 809.601(g) and shall be reported to Illinois EPA by February 1 of the following year. Additional information and appropriate report forms may be obtained from the Illinois EPA by contacting:

Administrative Compliance Unit
Division of Land Pollution Control #24
Illinois Environmental Protection Agency
1021 North Grand Avenue East
Springfield, Illinois 62794-9276

Within 35 days after the date of mailing of the Illinois EPA's final decision, the applicant may petition for a hearing before the Illinois Pollution Control Board to contest the decision of the Illinois EPA, however, the 35-day period for petitioning for a hearing may be extended for a period of time not to exceed 90 days by written notice provided to the Board from the applicant and the Illinois EPA within the 35-day initial appeal period.

Work required by this letter, your submittal(s) or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. This letter does not relieve anyone from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

Should you have any questions regarding the groundwater aspects of this project, please contact Terri Blake Myers, LPG (217) 524-3284; questions regarding other aspects of this project should be directed to Karen Nachtwey (217) 524-3273.

Sincerely,

Joyce L. Munie, P.E.
Manager, Permit Section
Bureau of Land

JLM:KEN:bjh\99431S.WPD

cc: USEPA Region V - Harriet Croke
Foth and VanDyke - Steven J. Laszewski, Ph.D.

Attachment 1 - RCRA and SWMU Unit Locations at MPC
Attachment 2 - Description of RCRA and SWMU Units at MPC
Attachment 3 - Tier II Remedial Objectives for the Shawnee Building
Attachment 4 - Map of Areas to be Remediated in the Wetlands Area
Attachment 5 - Tier I Remedial Objectives for the Wetlands Area
Attachment 6 - Groundwater Management Zone Boundaries
Attachment 7 - Groundwater Monitoring Program

Foth & Van Dyke
consultants · engineers · scientists

December 22, 1999

Ms. Karen Natchwey
Illinois Environmental Protection Agency
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276

Dear Ms Natchwey:

Re: Response to Items 6 and 7
Final RCRA Closure Plan and Basis of Design Review Letter -
Work Plan for Investigation of Old Outfall and Sanitary Sewer Line
Modern Plating Corporation

On behalf of Modern Plating Corporation (MPC), Foth and Van Dyke is pleased to present this letter report, containing responses to Items 6 and 7 of the December 2, 1999 review letter for the *Final RCRA Closure Plan and Basis of Design Report.* These responses include the documentation of available information, as well as, confirmation from MPC personnel.

Item 6

Item 6 of the *Final RCRA Closure Plan and Basis of Design* review letter requested additional information on a number of aboveground (ASTs) and underground storage tanks (USTs) displayed on the existing conditions drawing included in the *Plan of Operation for the Corrective Action Management Unit at the MPC Facility.* The letter specifically requested 1) physical characteristics-material of construction, age, capacity, etc., 2) function, and 3) type of waste/product stored in the tanks.

These tanks were located on the drawing by historical records and air photos. The available details are included below and the tank documentation, where available, is included in Attachment 1.

a) Outside Storage Tanks (East of Shawnee Building): According to MPC personnel these were not actually tanks, but vats/troughs that were used in the interior of the Production Plant in MPC processes. These vats/troughs were cleaned prior to deactivation and removal from the building. The vats/troughs were then placed east of the Shawnee Building for temporary storage prior to disposal. No records on the contents or capacity of the former vats/troughs is available.

b) Five Tanks (Northwest of Production Plant): These tanks are no longer in existence, according to MPC personnel, and no records of their contents or construction are available.

c) 8,000-gallon Tank (Northeast of Production Building): According to MPC personnel it is believed that this is a plastic tank previously used to store sulfuric acid for plant processes. The tank has been empty and unused for a number of years. The tank remains only for emergency storage purposes. No records exist to correlate the tank on the drawing to the aforementioned tank, but according to information from MPC personnel this appears to be the most likely scenario.

d) Storage Tank on Foundation (North of Production Plant): This location contains two ASTs which are currently in use. These tanks are located outside the north wall of Building 24. These are 6,000-gallon tanks most likely made of steel and lined with either glass or rubber. They are equipped with secondary containment consisting of a concrete base and dike with drainage to the WWTP in the event of a spill/release. These AST's are currently used to store hydrochloric acid.

e) Diesel Fuel Tank (North of Production Building): This location is the old tank pit for a 1,000-gallon gasoline and 2,000-gallon USTs. These tanks were reported as both being 1,000-gallon in the Plan for Closure, but review of documents indicates the diesel tank was a 2,000-gallon UST. These tanks were removed from the facility during December 1987 and January 1989. Documentation indicates both tanks were made of steel. The age of these tanks was not available. Closure documentation indicated the tanks had not leaked. This documentation is included in Attachment 1.

f) Cyanide Sludge Tank, Chromium Batch Treatment Tanks and Underground Concentrated Waste Neutralizing-Chromium Sludge (all in/outside the WWTP): These tanks are or where related to the treatment of MPC's waste stream. Much of this description is taken from the Part B RCRA Application. The cyanide batch treatment tanks consist of two 25,000-gallon poured concrete, epoxy lined, Flexicore covered tanks. These tanks have 12- in minimum thickness on the floors and walls. Further details on these tanks are included in Attachment 1.

The cyanide sludge tank located inside the WWTP was removed according to MPC personnel. No records of this tank are available.

The chromium batch treatment tanks consist of two 6,000-gallon epoxy lined concrete tanks with 12- in floors and walls. Further details on these tanks are available in Attachment 1. Both the cyanide and chromium batch tanks are lined with "Trowelon 411-50" .

The two underground concentrated waste neutralizing tanks located just south of the WWTP were made of fiberglass and removed during December 1991. Soil sampling was conducted during the removal. At the time of removal no indication of leakage or spillage was indicated, as well as, no potential impact from VOC related compounds. Details are included in Attachment 1.

Item 7

Item 7 concerns the existence of an old outfall line to the Pecatonica River and a sanitary sewer line as potential pathways for release of heavy metals waste/wastewater to the soil prior to operation of the WWTP. No records are available for the construction or location of these lines. However, it is believed that they are the same lines as those shown on Drawing No. 2 (Attachment 2). Due to the uncertainty in location and construction a two-phased investigation is proposed for these lines.

MPC personnel visually field checked the outfall line location to aid in determining a course of action for investigating potential release areas. A manhole was discovered along the outfall line approximately two-thirds of the distance to the river. However, at this time it is not confirmed if this manhole is part of the outfall line. The manhole is approximately 15-ft deep and the line appeared to be constructed of clay tile. The discharge end of the outfall line at the Pecatonica River is collapsed.

Investigation-Phase I

The first phase of the proposed investigation consists of locating and identifying the outfall and old sanitary sewer lines. A sewer televising contractor will be used to televise the lines. Televising the lines will accomplish several objectives: first, to help identify the line construction; second, to identify locations of holes, cracks, or collapse to better locate potential areas for soil sampling along the outfall line; third, the televised line route can be marked on the ground surface to optimize in the selection of sampling locations. At this time, unless evidence is found of potential contaminant release, such as obvious visual contamination in the pipe, cracks or breaks in the pipe, sampling along the sanitary sewer line is not planned. Foth & Van Dyke will have a person on-site to observe the line televising. A sewer televising contractor has been contacted and the plan is to proceed with this portion of the investigation in early January 2000.

Investigation-Phase 2

The second phase of the investigation will consist of soil sampling along the outfall line. A geoprobe will be used to collect soil samples along the path of the outfall line. The exact

location and number of geoprobe holes will be dependant upon the results of the line televising. The geoprobe method provides continuous samples with minimal disturbance. All soil samples will be classified in accordance with ASTM D-2488 by a qualified geologist or soil scientist and field screened with a photo ionization detector (PID).

At this time we anticipate five geoprobe hole locations. Soil samples for analytical analysis will be selected from near the base of the outfall, below the base of the outfall and/or in areas of suspected impact. Two to three soil samples per geoprobe hole will be collected for analysis. Selected samples will be analyzed for cadmium, chromium, copper, lead, nickel, and zinc according to SW-846 and for volatile organic compounds (VOC's) using EPA Method 8260.

All sampling equipment will be decontaminated between sampling events and geoprobe hole locations. Decontamination will consist of a non-phosphatic soap wash and double rinse. All geoprobe holes will be abandoned with bentonite upon completion.

Report

Upon receipt of the laboratory results a letter report will be prepared. The report will provide the methods and results of the outfall and sanitary sewer line investigation.

MPC would like to move ahead expeditiously on implementing the sewer televising and soil sampling. Therefore, we will call you in the near future to discuss this letter. If you have any questions regarding this letter please contact Erik Silvola at 651-452-4396 or Janis Kesy at 920-497-2500.

Sincerely,

Foth & Van Dyke

Erik A. Silvola

Erik A. Silvola, P.G.
Lead Hydrogeologist/Geologist

Janis Schallhorn Kesy

Janis Schallhorn Kesy, P.G.
Senior Project Manager

EAS:JSK:lmc

cc: Mr. Craig Skolrood, Modern Plating Corporation
Mr. Jim Moore, IEPA
Mr. Ronald Meister, Foth & Van Dyke
Mr. Steve Laszewski, Foth & Van Dyke

LMC\J:\scopes\97M015\l-response 6 -7.wpd\4000

Scope 97MO15 Classification: BOP 1000
Copy To SJLT, NKP, REM, MRS, TJC

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276

THOMAS V. SKINNER, DIRECTOR

217/524-3300

CERTIFIED MAIL
P 344 306 003

February 9, 2000

Mr. Craig Skolrood
Modern Plating Corporation
701 South Hancock Avenue
P.O. Box 838
Freeport, Illinois 61032

Re: 1770200010 -- Stephenson County
Modern Plating Corporation
Log No. C-259-M-10
Date Received:
RCRA Closure

Dear Mr. Skolrood:

This is in response to the January 17, 2000 closure plan modification request regarding the "Wetlands Area" submitted by Foth & Van Dyke (FVD) on behalf of Modern Plating Corporation (MPC). On December 2, 1999 the Illinois EPA approved a final RCRA closure modification approval letter to close four RCRA hazardous waste management units - *Lagoon 1, Lagoon 2, Lagoon 3*, and *Shawnee Building*; and four solid waste management units - *Lagoon 0, Lagoon 1A, Cyanide Treatment Vault and Wetlands Area* at the Modern Plating Corporation in Freeport, Illinois.

With regard to the Wetland Area, the approved plan required that excavation of impacted wetlands soils to meet 35 IAC Section 742 TACO- Tier I remedial objectives. Contaminated wetland soils were to be placed directly into the on-site Corrective Management Unit (CAMU) for which the Illinois EPA will issue a draft RCRA permit. Construction of the CAMU is scheduled to begin in the Spring of 2000.

The subject submittal requests that MPC be allowed to: 1) perform wetland excavation activities ahead of schedule, during the winter of 2000; and 2) store excavated impacted wetland soils in a Temporary Storage Unit (TSU) at the location of former Lagoon 1A and Lagoon 0 (if needed). The procedures for carrying out this effort were also described in the subject submittal.

The proposed construction/operation of a Temporary Storage Unit (TSU) for storage of excavated wetland soil as set forth in the January 17, 2000 submittal is hereby approved as a request to modify the afore-mentioned RCRA closure plan, subject to the following conditions and modifications:

1. Except as modified, RCRA closure must be completed in accordance with the conditions and modification of the December 2, 1999 RCRA Closure Plan (Log No. C-259-M-8) approval letter from the Illinois EPA and Illinois EPA's letter approving with conditions and modifications a December 22, 1999 closure plan modification request (Log No. C-259-M-9);

2. Permits must be obtained form the U.S. Army Corps of Engineers and Illinois EPA Water Pollution Division regarding the excavation activities in the wetlands area; DONE

3. The TSU shall be in operation for a time frame not to exceed 8 months;

4. Construction of the TSU will require the excavation of an existing 2 feet of low permeability clay cover over the lagoon. Clay will still remain to act as a liner. The 2 feet of clay will be placed and compacted around the perimeter of lagoon 1A to raise the exterior berms to a minimum of 3 feet;

5. Excavated wetland soil placed in the TSU Unit shall be covered at the end of each day with a 12- mil impermeable geosynthetic cover/tarp and anchored with sand bags or tires;

6. The TSU constructed at the location of former Lagoon 1A shall accommodate a total of no more than 2,500 cubic yards of impacted wetlands soils;

7. Construction of an additional TSU at Lagoon 0, in the same manner as described in the subject submittal for Lagoon 1A shall be allowed if volume capacity is exceeded at Lagoon 1A;

8. Stormwater which accumulates in the TSU drainage ditch during the 1-2 week stockpiling will be pumped to the MPC on-site WTP. After final placement of the tarp, drainage of stormwater from the tarp surface will gravity drain from within each bermed area and discharge via a lined spillway to the wetland north of the lagoon as shown on Figure 3 (Lagoon 1A) and Figure 4 (Lagoon 0) of the subject submittal;

9. The perimeter berm and tarps must be inspected immediately after a rainfall event of ½ inch or more. Containment structures shall be maintained and repaired as necessary to their effectiveness.

The attached form entitled RCRA Interim Status Closure and Post-Closure Care Plans General Form (LPC-PA18) must be completed and accompany all information submitted to the Illinois EPA associated with the closure activities described in this letter. As noted on this form, two copies must accompany the original of all submittals, so that the information submitted can be distributed, as necessary to Illinois EPA personnel and regional offices.

This action shall constitute Illinois EPA's final decision on the subject submittals.

Within 35 days of the date of mailing of the Illinois EPA's final decision, the applicant may petition for a hearing before the Illinois Pollution Control Board to contest the decision of the Illinois EPA, however, the 35-day period for petitioning for a hearing may be extended for a period of time not to exceed ninety days by written notice provided to the Board from the applicant and the Illinois EPA within the 35-day initial appeal period.

All submittals must be accompanied by the attached Illinois Corrective Action Certification form. In addition, work required by this letter, your submittal or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. This letter does not relieve anyone from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

If you have any questions regarding this letter please contact Karen Nachtwey at (217) 524-3273.

Sincerely,

Joyce L. Munie, P.E.
Manager, Permit Section
Bureau of Land

JLM:KEN:bjh\3273S.WPD

Attachment: LPC-PA18 Form
Corrective Action Certification Form

cc: Foth and VanDyke - Ron E. Meister, P.G.
Steve Laszewski, Ph.D.
Nandakumaran Paruvakat, Ph.D., P.E.

Foth & Van Dyke
consultants · engineers · scientists

May 17, 2000

Ms. Joyce L. Munie, P.E.
Manager, Permit Section
Illinois Environmental Protection Agency
1021 North Grand Avenue East, P.O. Box 19276
Springfield, IL 62794-9276

Dear Ms. Munie:

Re: Request for Revised RCRA Part B Permit for the Modern Plating Corporation
1770200010– Stephenson County
Modern Plating Corporation
Log No. B-167

As per our recent telephone conversation with Mr. Jerry Kuhn, P.E. of your office, we are requesting a "revised" RCRA Part B Permit document which contains the revisions which are listed in Attachment 1 to this letter. The requested revisions are largely typographical in nature, yet we feel they are important in order to ensure that the permit record is accurate and complete.

The intent of this request is to have a single RCRA Part B Permit on file which is consistent with past conversations with IEPA regulators. Implementation of the RCRA Part B Permit will begin on May 16, 2000 when the selected contractor, TERRA Engineering and Construction, Inc of Madison, Wisconsin begins the Remediation and CAMU Landfill construction work. As such, final modifications to this permit will trail implementation of the permit.

It is our understanding that IEPA is in agreement with the modifications listed in Attachment 1 and ask that these be incorporated into the final RCRA Part B Permit for the final record. If you have any questions or require additional information, please feel free to call the undersigned.

LAJ\J:\scopes\97M015\l-munie revised rcra part b.wpd

2737 South Ridge Road · P.O. Box 19012 · Green Bay, WI 54307-9012 · 920-497-2500 · Fax: 920-497-8516

Sincerely,

Foth & Van Dyke

Steven J. Laszewski, Ph.D.
Technical Director

Ronald E. Meister, P.G.
Project Manager

SJL1:REM:laj

Attachment

cc: Mr. Craig Skolrood, Modern Plating Corporation

LAJ\J:\scopes\97M015\l-munie revised rcra part b.wpd

Attachment 1

Modification to April 11, 2000 RCRA Part B Permit

Modification to April 11, 2000
RCRA Part B Permit

Section	Page	Item No.	Modification
I	I-10	G.5.	There are two "G.5."; The "G.5." on page I-10 should be designated as G.6.
I	I-5	E.3.	The first sentence should read "in compliance".
III	III-1	A.d.	Please reword item d. to clarify this condition. We suggest that the condition be reworded so that it is consistent with page III-8, E.3. and page III-3, C.4.
IV	IV-6	C.2.	The remedial objective is incorrectly stated starting on page IV-6. This item should read as follows: "....objective and a remedial objectives of 200 mg/kg for Cadmium."
IV	IV-6	D.1.	The cost to complete the corrective action is not consistent with the cost listed on page I-10 I.1. or the estimates in Attachment D. The internal cost to complete the corrective action should be listed as **$1,519,726.00**
VI	VI-3	III.I.2.	Condition III.I.2. has incorrect groundwater sample collection dates which should be as follows: Samples Collected During Months of — Results to Illinois EPA By Second Quarter — April 15 Fourth Quarter — October 15

RECEIVED
MAY 19 2000
FOTH & VAN DYKE

bcc: Mr. Marty Cieslik, Foth & Van Dyke - Madison, WI
Mr. Brain Stanul, Foth & Van Dyke - Madison, WI
Mr. Nandu Paruvakat, Foth & Van Dyke - Green Bay, WI

LAJ\J:\scopes\97M015\l-munie revised rcra part b.wpd

Foth & Van Dyke
consultants · engineers · scientists

June 2, 2000

Jeffery W. Sniadach
Project Manager
U.S. Army Corps of Engineers- Rock Island District
Clock Tower Building- P.O. Box 2004
Rock Island, IL 61204-2004

Dear Mr. Sniadach:

Re: CEMVR-RD-383470- Modern Plating Corporation Wetland Remediation

The purpose of this letter is to update you on the status of the wetland remediation and to request a modification to the permit conditions.

Project Status

An early spring and spring thaw prevented us from completing the excavation of the wetland areas as originally anticipated. Only the small northwestern most wetland referred to as Wetland I has been excavated and the contaminated soils temporarily stored as proposed (refer to Attachment A). The remaining two contaminated wetland areas are scheduled to be excavated in the late summer or early fall of 2000. The contaminated soils will be disposed of directly in the CAMU Landfill and as a result temporary storage will not be required. We are delaying the excavation of the remaining two areas until late summer or early fall to take advantage of the dry conditions which should exist in the wetland areas at that time.

Modification Request

We are proposing two modifications to our original proposal which we request that you review and approve. The two modifications can generally be explained as follows:

1. After careful review of the alternatives of leaving the wetland excavation as water filled depressions versus filling the areas back to the original grade with wetland soils. We have determined that refilling the wetlands is the best option. Our primary reason for making this determination is due to the concern for wildlife coming into contact with potential residual contamination if water is allowed to pond over the excavated areas. We have located a nearby source of contaminated free wetland soils which will be used for backfill. The backfilled areas will then be seeded, fertilized (if required) and mulched after refilling is completed.

2737 South Ridge Road · P.O. Box 19012 · Green Bay, WI 54307-9012 · 920-497-2500 · Fax: 920-497-8516

2. As part of the clearing and grubbing of the project site, the trees and brush have been chipped and the wood chips are now piled on the site. The contractor has proposed to use these wood chips to construct the temporary haul road to access the eastern most wetland, Wetland III which is located north of Lagoon No. 3 (refer to the sketch in Attachment A). The road will be constructed in a slightly elevated area outside the areas mapped as wetland. The temporary road will be approximately 15-ft wide at the top and will have a total length of approximately 220 ft. The final approximately 20 ft of the road will be in a mapped wetland. We propose to leave the wood chips in-place in all areas except those mapped as wetland. The area where the wood chips are to be removed is shown on Attachment 1.

Note that on June 1, 2000 Mr. Mike Mc Cauley of the Illinois Department of Natural Resources was contacted concerning the above modification. At that time Mr. Mc Cauley expressed no objection to our proposal to leave the woodchips in-place in all areas except for the mapped wetland areas.

Since construction is presently in progress, your prompt attention to this matter would be appreciated. Based on our recent telephone conversation we understand that you are amendable to allowing us to proceed with the modifications discussed in this letter. We request that you contact us by phone to confirm your concurrence.

Sincerely,

Foth & Van Dyke

Ronald E. Meister, P.G.
Project Manager

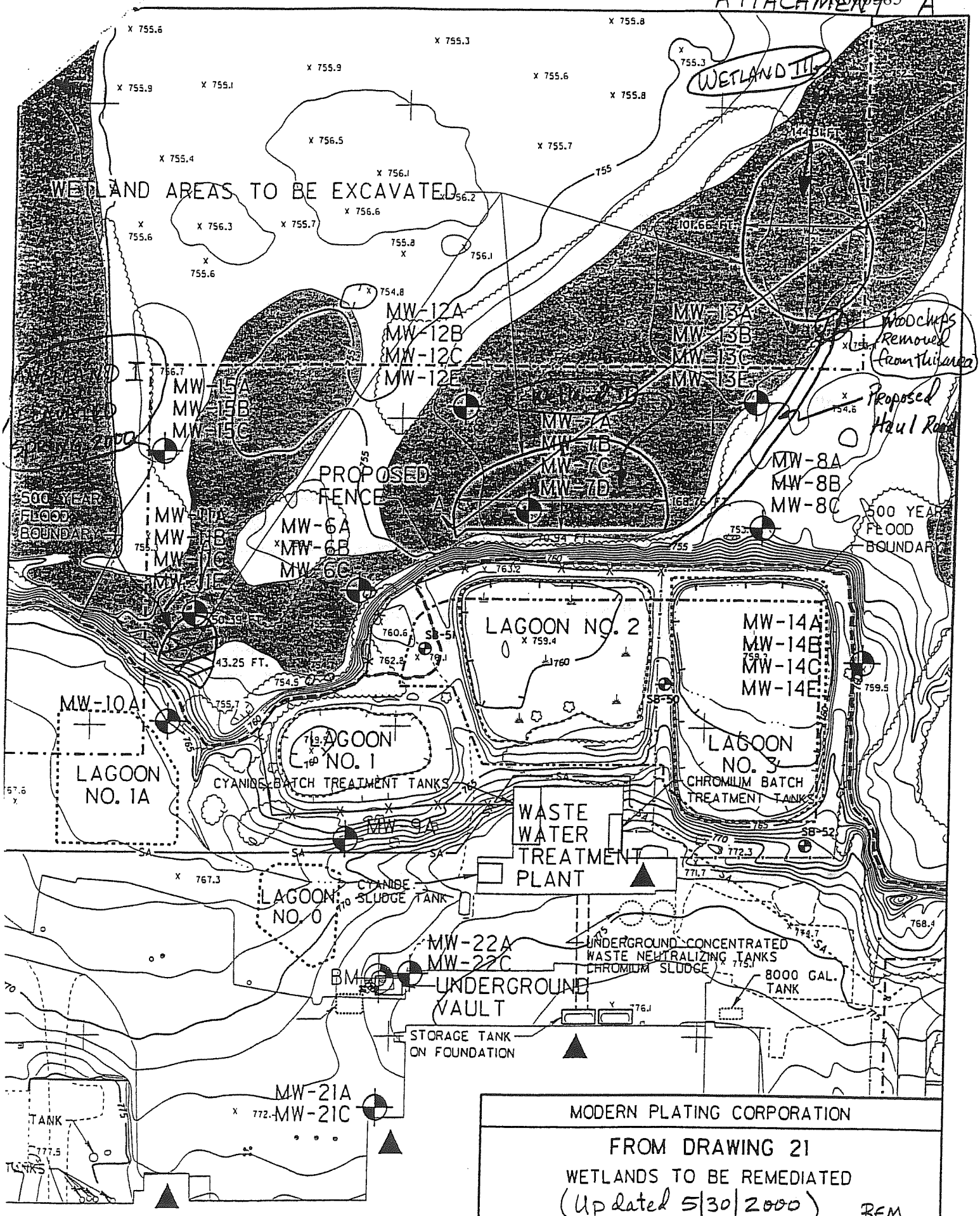
REM:lmc

Attachment

cc: Mr. Mike Mc Cauley, Illinois DNR
Mr. Jim Allison, Illinois EPA
Mr. Craig Skolrood, Modern Plating Corp.
Mr. Nandu Paruvakat, Foth & Van Dyke
Mr. Steve Laszewski, Foth & Van Dyke

LMC\J:\scopes\97M015\l-sniadach wetland remed.wpd\4000

ATTACHMENT A



PRODUCTION PLANT

MODERN PLATING CORPORATION

FROM DRAWING 21

WETLANDS TO BE REMEDIATED

(Updated 5/30/2000) REM

Scale: 0 50' 100'

Date: DECEMBER 1999

Prepared By: Foth & Van Dyke | By: DAT | 97M015

Foth & Van Dyke
consultants · engineers · scientists

July 17, 2000

Ms. Joyce L. Munie, P.E.
Manager, Permit Section, Bureau of Land
Illinois Environmental Protection Agency
1021 North Grand Avenue East, P.O. Box 19276
Springfield, IL 62794-9276

Dear Ms. Munie:

Re: Construction Certification For Modern Plating Corporation Phase 1 CAMU Landfill,17702000010-Stephenson County, Log No. B-167, RCRA Part B Permit

The purpose of this letter is provide the construction certification required by the April 11, 2000 RCRA Part B Permit Condition No. Section I, E. 1. and 2. We have completed the construction, quality control and quality assurance testing of the liner, leak detection and leachate collection systems for Phase 1 of the CAMU Landfill. The liner and associated work was started on Tuesday, July 11, 2000 and completed on Saturday July, 15, 2000. As you may be aware, representatives from the Illinois Environmental Protection Agency (IEPA) including Ms. Keri Hanson and Mr. Rob Watson, P.E. visited the site for several days during the liner construction. During the construction activities we kept Ms. Hanson and Mr. Watson up to date on the ongoing construction activities.

Condition No. Section I, E. 1. requires that an exception report identify any changes to the design or construction. The only change which was made was in the leachate collection\ leak detection sump (sump). When excavated to the correct design grade (i.e. 753.5) we encountered what was believed to be perched or mounded groundwater. We believe this groundwater came from recent rain water which became trapped behind the Phase 1 south berm. To remedy this situation we raised the subgrade elevation at the sump to approximate 754.5 and moved the slope intercept for the top of the sump out to the northwest approximately 5 feet to compensate for the sump volume lost. We have completed survey of record elevations for Phase 1 and will present the plan and section views of the completed sump with the final construction documentation report which will be submitted approximately 30 days after Phase 2 of the CAMU Landfill is completed.

Attachment 1 contains the Construction Certification form which must accompany this cell certification as per Section I, E. 1. which is signed and stamped by the certifying engineer, Mr. Marten Cieslik, P.E. and the operator, Mr. Craig Skolrood. The following is the wording of Illinois Administrative Code 35 IAC 702.126(d) which certifies that Phase 1 of

406 Science Drive, Suite 400 · Madison, WI 53711-1068 · 608-238-4761 · Fax: 608-238-4633

the CAMU Landfill was constructed in accordance with the June 11, 2000 IEPA approval letter and the plans and specifications for the construction.

> *"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons that manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for known violations."*

As you are aware, time is of the essence with respect to receiving approval for the CAMU Phase 1 construction since placement of waste can not proceed until IEPA Certification has been received. We respectfully ask that the required approvals be faxed or e-mailed to us at the earliest possible date so that the remediation project including the CAMU Landfill construction, filling and closure can be completed during the 2000 construction season.

Should you have and questions or wish to discuss this construction certification feel free to call either of the undersigned.

Sincerely,

Foth & Van Dyke

Marten J. Cieslik

Marten J. Cieslik, P.E., DEE
Certifying Engineer

Ronald E. Meister/MJC

Ronald E. Meister, P.G.
Project Manager

Attachment

cc: Ms. Kari Hanson, IEPA, Rockford, IL
Mr. Craig Skolrood, MPC
Mr. Scott Zimmerman, TERRA Construction and Engineering, Inc.
Mr. Nandu Paruvakat, Foth & Van Dyke
Mr. Steve Laszewski, Foth & Van Dyke
Mr. Brian Stanul, Foth & Van Dyke
Mr. Marty Sturzl, Foth & Van Dyke

CONSTRUCTION CERTIFICATION

This statement is to be completed by both the responsible officer and the registered professional engineer upon completion of construction in accordance with 35 IAC Section 702.126. Submit one copy of the certification with original signatures and two additional copies (four additional copies for UIC wells). Forward these certification statements and any information required by the permit to the following address:

Illinois Environmental Protection Agency
Bureau of Land - #33
Permit Section
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

FACILITY NAME: Modern Plating Corporation - Phase 1 CAMU Landfill

IEPA SITE CODE: 1 7 7 0 2 0 0 0 1 0

U.S. EPA ID NO.: IL D 0 0 5 1 7 2 3 2 5

PART B PERMIT LOG #/UIC PERMIT #: B-167

PERMIT (OR MODIFICATION) ISSUANCE DATE: April 11, 2000

PERMIT CONDITION NO. REQUIRING CERTIFICATION: Section I, E.1. and 2.

The CAMU Landfill Phase 1 has been constructed in accordance with the specifications in the Part B/UIC Permit. Documentation that the construction was in accordance with the permit is contained in the enclosed report. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

MJC 7/17/00

Signature of Owner/Operator

Craig Skolrood, Pres.

Craig Skolrood, President
Name and Title

Signature of Registered P.E.

Marten J. Cieslik, PE #062-045897
Name of Registered P.E. and Illinois Registration Number

July 17, 2000
Date

(P.E. SEAL)

STATE OF ILLINOIS
MARTEN J.
CIESLIK
062-045897

This Agency is authorized to require this information under Illinois Revised Statutes, 1979. Chapter 111 ½, Section 1039. Disclosure of this information is required under that Section. Failure to do so may prevent this form from being processed and could result in your application being denied. This form has been approved by the Forms Management Center.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276

217-524-3300

THOMAS V. SKINNER, DIRECTOR

July 25, 2000

CERTIFIED MAIL
7099 3400 0006 5938 2267

Mr. Craig Skolrood
Manager, Regulatory Compliance
Modern Plating Corporation
701 South Hancock Ave.
Freeport, IL 61032-0838

Re: 1770200010 – Stephenson County
Modern Plating Corporation
Log No. B-167
RCRA Permit Record

Dear Mr. Skolrood:

The Illinois EPA has completed its review of the Cell Construction Certification (CCC) for Phase 1 of the Corrective Action Management Unit (CAMU) landfill dated July 17, 2000 and received July 19, 2000.

The Illinois EPA inspected the Phase 1 construction on June 8, 14, 29, 2000 and July 12, 13, 24, 2000. The inspections revealed that Phase 1 was constructed in accordance with the approved plans. While the CCC is hereby approved, during the July 12, 2000 site visit, Illinois EPA personnel observed several conditions during the Phase 1 construction that should not be repeated in the construction of Phase 2.

1. Although the subbase soils in Phase 1 were smooth rolled prior to installation of the GCL, we observed portions of the rolled surface (particularly the slope on the north side) that were disturbed during the installation of some of the GCL panels. Foot prints and depressions in the subbase soils were observed. It is not acceptable to damage the smooth rolled surface of the subbase during construction of the liner system.

   The requirement to maintain a smooth surface on the subbase soils is also reflected in CETCO's (the GCL manufacturer) Technical Data Sheet (TR-403dn, revised 5/99), Sections 3.3 and 3.4. These sections indicate that the smooth rolled surface of the subgrade must remain in this condition throughout the installation of the GCL. It also notes that if the installation equipment causes rutting of the subbase, the subbase must be returned to its originally accepted condition before installation continues.

   The surface of the subbase was easily impacted because the soil used in the subbase appeared to be a silty sand with very little clay, or cohesion. Therefore, in order to better withstand the

installation activities, firmer, more cohesive soils (e.g. soils with a higher clay content) should be used for the subbase of Phase 2 when it is constructed in Lagoon #3.

2. We observed that GCL panels were pulled up the slope of the Phase 1 cell. This activity impacted the smooth rolled surface of the subbase soils to some extent and has the potential to damage the GCL.

   The Construction Quality Assurance Plan (CQAP) in Appendix E; Section 7.1.2 Panel Placement, item 4.f states that quality assurance monitoring for panel placement includes verifying the material is rolled, not dragged, into place. The GCL panels should be rolled down the slopes when Phase 2 is constructed.

3. We observed that several of the seams on the north slope had wrinkles in them. The Construction Quality Assurance Plan (CQAP) in Appendix E; Section 7.1.2 Panel Placement, item 4.e requires there to be monitoring and documentation to verify that there are no wrinkles > 1 inch high and wider than 6 inches. The Construction Specifications in Appendix Q; Section 02455, Section 3.4 GCL Installation, item E.2: Seam Overlap, also states the edges of GCL panels are to be smooth or free of wrinkles or creases. The edges of GCL panels should be smooth or free of wrinkles or creases when they are installed in Phase 2.

Damage to the subbase soils during the installation of the liner components in Phase 2 of the CAMU landfill could result in the requirement to remove one or more of the liners and rework the subbase soils, and/or disapproval of the Cell Construction Certification for Phase 2. Improper installation of the GCL panels may also result in disapproval of the Cell Construction Certification for Phase 2.

If you have any questions regarding this letter, please feel free to call Rob Watson, P.E. at 217-524-3265.

Sincerely,

Joyce L. Munie, P.E.
Manager Permit Section,
Bureau of Land

JLM:WRW\mls\001592.WPD

MASTER FILE COPY
R000591
Scope 9 1M012 Classification 4000
Copy To SJLI, NXD, MJCI, BJS1, KSK
REM. MASTER FILE

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276

THOMAS V. SKINNER, DIRECTOR

217/524-3300

RECEIVED
AUG 16 2000
FOTH & VAN DYKE

August 8, 2000

CERTIFIED MAIL
7099 3400 0006 5938 1604

Mr. Craig Skolrood
Modern Plating Corporation
701 South Hancock Avenue
P.O. Box 838
Freeport, Illinois 61032

Re: 17702000010 -- Stephenson County
Modern Plating Corporation
ILD005172325
Log No. C-259-M-12
RCRA Closure

Dear Mr. Skolrood:

This is in response to the July 7, 2000 letter report from Ron Meister, P.G. of Foth and VanDyke, sent on behalf of Modern Plating Corporation (MPC) providing the results of the Phase II investigation of a former outfall line at the MPC facility. A site layout map showing the location of this outfall line is attached. The investigation is being conducted as part of an approved final RCRA closure plan (Log No. C-259 and associated modifications) for four RCRA hazardous waste management units (referred to as Lagoons 1, 2 and 3 and the Shawnee Building) and four solid waste management units (referred to as Lagoons 0 and 1A, the Cyanide Treatment Vault, and the Wetlands Area) at the above-referenced facility.

Illinois EPA's February 9, 2000 letter (Log No.C-259-M-9) approved MPC's proposal to perform a Phase I investigation of an old drainage oufall line and sanitary sewer as part of RCRA closure efforts at the facility. The Illinois EPA's June 8, 2000 (Log No. 259-M-11) approval letter commented on the Phase I investigation and approved a Phase II workplan to sample soil at 5 locations along the outfall pipeline. Mr. Meister's submittal provided the soil test results for samples taken along the former outfall pipeline.

Illinois EPA's review of these results has determined that with the exception of SB-Of-05, soil along the former outfall pipeline meets 35 IAC Section 742 TACO Tier 1 industrial/commercial and construction worker ROs. In addition, MPC's proposal to excavate soil in the vicinity of SB-OF-05 in order to meet Tier I ROs is approved with the following conditions and modifications:

1. Soil in the vicinity of SB-OF-05 shall be excavated along the pipeline 15 feet on either side of SB-OF-05 to a depth of seven feet. Soil from the top of the pipe to the seven-foot depth shall be disposed of in the on-site Corrective Action Management Unit. Soil above the pipeline will be returned to the excavation and covered with clean fill from off-site.

2. Three (3) confirmation soil samples shall be taken from the excavation at 5-foot intervals and analyzed for Cyanide, Chromium, Cadmium, Lead, Nickel, Zinc and also Arsenic. The results from this analysis must be submitted to the Illinois EPA for review within 60 days from the date of this letter.

3. Closure activities completed for the former outfall pipeline must be included in the final Closure Certification/Documentation Report required for the eight units previously mentioned. This document must be prepared in accordance with Condition 8 of the Illinois EPA's December 2, 1999 final RCRA closure plan approval letter (Log No. C-259-M-8).

4. An institutional control meeting the requirements of 35 Ill. Adm. Code 742 Subpart I must be established as part of this remediation project to ensure the use of the site remains industrial/commercial in the future. A proposed institutional control meeting these requirements should be submitted to Illinois EPA for review and approval within 60 days of the date of this letter.

5. The attached LPC-PA18 Certification Form must accompany all submittals.

6. Except as modified herein, (1) RCRA closure activities must be carried out in accordance with previous Illinois EPA approval letter (Log No. C-259 and associated modifications; and (2) the RCRA corrective action provisions of the RCRA permit (Log No. B-167) issued to MPC.

Within 35 days of the date of mailing of the Illinois EPA's decision, the applicant may petition for a hearing before the Illinois Pollution Control Board to contest the decision of the Illinois EPA, however, the 35 day period for petitioning for a hearing may be extended for a period of time not to exceed ninety days by written notice provided to the Board and the Illinois EPA within the 35 day initial appeal period.

In addition, work required by this letter, your submittal or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Practice Act of 1989. This letter does not relieve anyone from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

Should you have any questions regarding this matter, please contact Karen Nachtwey at (217) 524-3273 of my staff.

Sincerely,

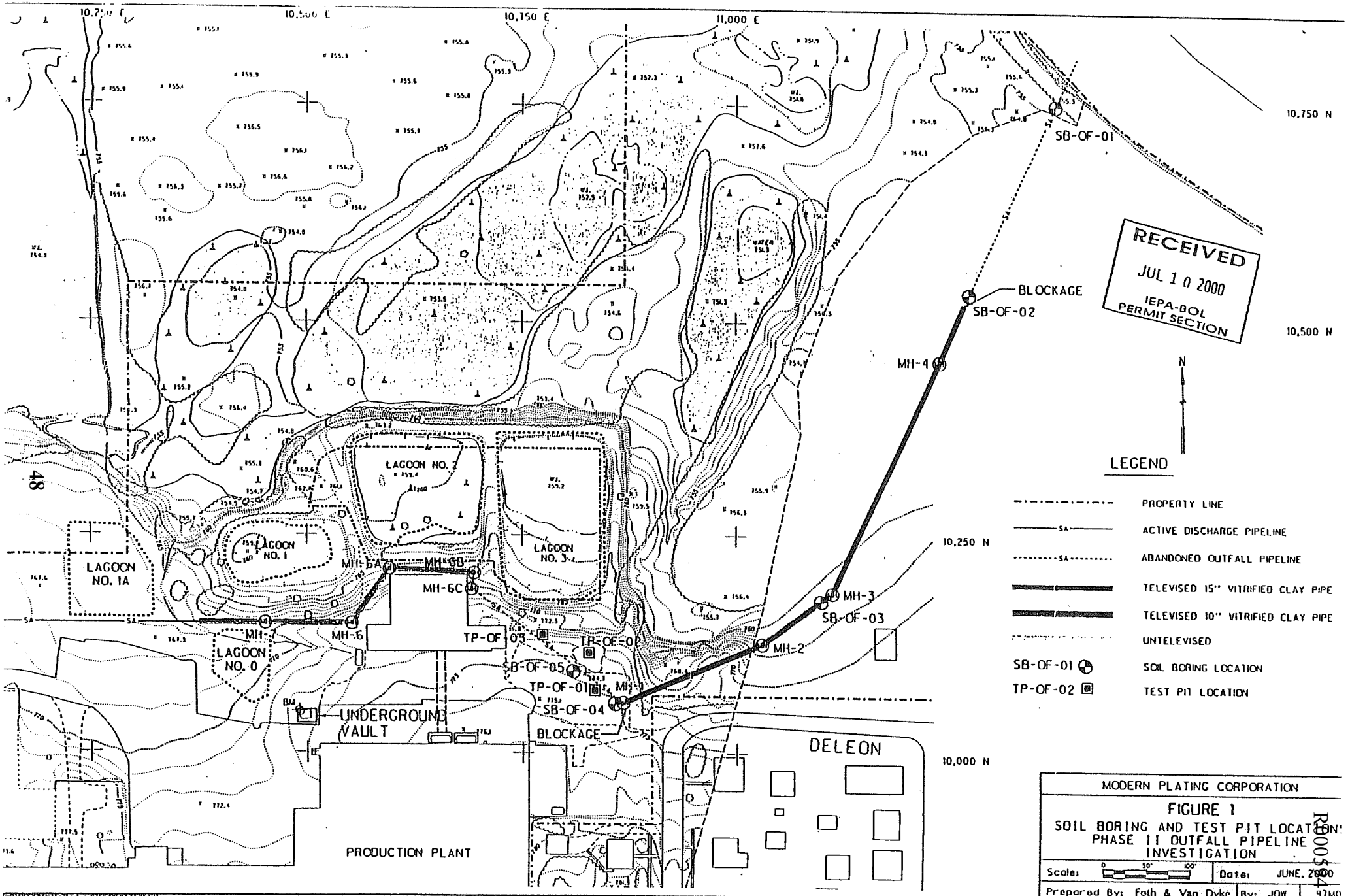
Jerry Hatchett, P.E.
for

Joyce L. Munie, P.E.
Manager, Permit Section
Bureau of Land

JLM:KEN\mls\0015213.doc
JLM

Attachment A - Site Layout Map
Attachment B - Form LPC-PA18

cc: Foth & VanDyke - Ronald E. Meister, P.G.



RECEIVED
JUL 10 2000
IEPA-BOL
PERMIT SECTION

MODERN PLATING CORPORATION

FIGURE 1
SOIL BORING AND TEST PIT LOCATIONS
PHASE II OUTFALL PIPELINE INVESTIGATION

Scale: 0 50' 100' | Date: JUNE, 2000

Prepared By: Foth & Van Dyke | By: JOW | 97M0

R0005564

48

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Foth & Van Dyke
consultants · engineers · scientists

August 18, 2000

Mr. W. Robert Watson, P.E.
Environmental Protection Engineer
Illinois Environmental Protection Agency
1001 North Grand Avenue East, P.O. Box 19276
Springfield , IL 62794-19276

Dear Rob:

Re: Response to IEPA Request for Information Concerning Disposal in the CAMU Landfill of Remediation Waste from a Recent Release at the Modern Plating Corporation

The purpose of this letter is to provide the information and justification requested by the Illinois Environmental Protection Agency (IEPA) received via an e-mail dated July 28, 2000, regarding a proposal by Modern Plating Corporation (Modern) to place a small volume of remediation waste in the CAMU landfill.

The e-mail from Mr. Rob Watson (IEPA) listed three items needed for IEPA to consider the disposal of the remediation waste from the recent release in the CAMU Landfill. This letter responds to the numbered items in this letter by repeating the numbered item from the e-mail in *italics* which is followed by our responses typed in regular font.

1. *Provide a detailed description of the incident and how it was remediated. Include a scale drawing of the facility that shows the location and extent of the incident. Also provide the incident number from IEMA and Illinois EPA Emergency Response Unit, and copies of the notification required by the Contingency Plan and Section IV. E. 1 in the RCRA permit.*

Response No. 1.

On July 20, 2000, Modern was performing repairs on the pipeline corridor which transfers wastewater from the manufacturing plant to the wastewater treatment plant. At approximately 10:30 AM, during the course of the repair work, the contractor, Fisher Excavating, discovered that the containment seal at the end of the wastewater pipeline just south of the wastewater treatment plant had failed. Due to this failure, a release of approximately 500 to 800 gallons of chromate rinse water occurred, which was contained within the excavation made for the pipeline repair. The location of this incident is shown on Figure 1. The flow was shut down immediately and the released wastewater was

2737 South Ridge Road · P.O. Box 19012 · Green Bay, WI 54307-9012 · 920-497-2500 · Fax: 920-497-8516

pumped directly to the wastewater treatment plant. At 1:15 p.m. approximately 3 cubic yards of soil which had come in contact with the wastewater was excavated, hauled and temporarily placed in Lagoon No. 1. On the same day, July 20, 2000, Modern reported the incident to the Illinois Environmental Protection Agency Emergency Response Unit.

The IEMA incident number is 20001377. A copy of the Non-Compliance Advisory Letter received from the IEPA Emergency Response Unit is included as Attachment 1. The notification requested, which is required by RCRA Part B Permit Section IV E. 1, is contained in the responses in this letter.

Brian Stanul, a Foth & Van Dyke on-site construction engineer present at the site at the time conducting oversight work associated with the construction of the CAMU, observed the excavation of the contaminated soil. The release was contained in an area approximately 7 ft long and 3 ft wide. This area was excavated to a depth of approximately 4 ft and soil which appeared wet from contact due to the release was removed and placed in Lagoon No. 1.

2. *Describe how representative samples of the waste and the excavation were collected and analyzed. Demonstrate that the USEPA and/ or ASTM approved sampling and analytical methodologies were followed. Also provide copies of the analytical results.*

Response No. 2

Following the IEPA emergency incident sampling guidelines, Mr. Stanul collected a confirmatory sample after excavation of the contaminated soils was completed. Since the area impacted was small (i.e. ~ 21 sq ft), one sample was field judged to be adequate to evaluate whether the soil contaminated with the chromate rinse water had been sufficiently removed. Mr. Stanul collected the soil sample from the bottom of the excavation using a decontaminated trowel and placed the soil sample in two 4-ounce sterile plastic containers.

As requested by the IEPA environmental protection specialist, Ms. Kari Hanson, the soil sample from the release area was tested for TCLP RCRA metals, hexavalent chromium, trivalent chromium and total chromium. The sample was handled under chain-of-custody procedures and delivered by Mr. Stanul to the Rockford office of TestAmerica Inc. The laboratory test results, laboratory methods, and the chain-of-custody forms are contained in Attachment 2. In addition, on July 22, 2000 Mr. Stanul used the same methodology to obtain a sample of the contaminated soil stockpiled in Lagoon No. 1. The test results for this sample are also included in Attachment 2.

The soil sample taken from the base of the excavation of the contaminated soils shows low levels of chromium compounds as follows:

- Total Chromium- 9.9 mg/kg which is below the mean site-specific background of 10.6 mg/kg, the IEPA background of 52 mg/kg, and the IEPA TACO Industrial Commercial Standard of 420 mg/kg (Source : Foth & Van Dyke , 1999 *Final RCRA Closure Plan and Basis of Design, Modern Plating Corporation, Freeport, IL).*

- Chromium, Trivalent- <12 mg/kg (IEPA TACO Construction Worker Standard 330,000 mg/kg).

- Chromium, Hexavalent- <12 mg/kg (IEPA TACO Industrial Commercial Standard of 420 mg/kg).

Similarly, the TCLP on the RCRA metals resulted in values which were below the IEPA TACO standards as shown in Table 1.

Table 1

Tier 1 Soil Remediation Objectives for Industrial/Commercial Properties TCLP Results

Chemical Name	Excavated Confirmation Sample (mg/l)	Class II Soil Component of Groundwater Standards (mg/l)
Arsenic	<0.20	0.2
Barium	0.423	2.0
Cadmium	0.018	0.05
Chromium	<0.040	1.0
Lead	<0.100	0.1
Mercury	<0.0002	0.01
Selenium	<0.05	0.05
Silver	<0.050	0.05

A sample of the excavated soil, also tested for chromium, produced a result of 74 mg/kg total chromium. IEPA's TACO Industrial Commercial Standard is 420 mg/kg.

3. *Identify the conditions and criteria in the RCRA permit for placing waste in the CAMU Landfill and demonstrate how this material meets these criteria.*

Response No. 3

Section I, C. 1. Of the RCRA Part B Permit reads as follows: " The Permittee is only allowed to place the following types of wastes generated during remediation of the on-site hazardous and solid waste management units in the CAMU: Electroplating Sludge (F006), soil contaminated with cadmium, chromium and cyanide and trichloroethylene (F002), including soils from the Shawnee building, cyanide vault, wetland areas, and any other areas where similar remediation wastes are located during the closure and corrective actions at the facility."

We maintain that the contaminated soil resulting from the chromium rinse water release is remediation waste, specifically soil contaminated with chromium. As such, the Permittee is allowed to place this type of waste in the CAMU. This remediation waste, is located on the facilities property, and can be placed in the CAMU consistent with the intent of a CAMU in a manner which is protective, reliable and cost effective. Since this waste was generated during the repair of pollution control facilities at the site, it is therefore part of the greater effort to remediate the solid and hazardous waste units used in the past.

In addition we maintain that the remediation waste quantity is small (i.e., approximately 3 cu yd) and the concentration of chromium low (i.e., 74 mg/kg). As a result the placement of the waste in the CAMU does not have an impact on the volumes to be disposed of in the CAMU nor will disposal of this remediation waste have any overall impact on the quantity of contaminants placed in the CAMU landfill.

Based on our interpretation of the referenced section of the RCRA Part B Permit, we request that IEPA grant us approval to place the remediation wastes generated from the chromium release in the CAMU Landfill.

Should you have any questions *or* wish to discuss this matter, please feel free to call the undersigned at (920) 497-2500.

Sincerely,

Foth & Van Dyke

Ronald E. Meister, P.G.
Project Manager

Steven J. Laszewski, Ph.D.
Technical Director

REM:SJL1:lmc

Attachments

cc: Mr. Craig Skolrood, Modern Plating Corporation
Mr. Darrell Hill, Modern Plating Corporation
Mr. Gene Fox, Fehr-Graham Associates
Mr. Marten Cieslik, Foth & Van Dyke
Mr. Brian Stanul, Foth & Van Dyke
Ms. Janis Kesy, Foth & Van Dyke

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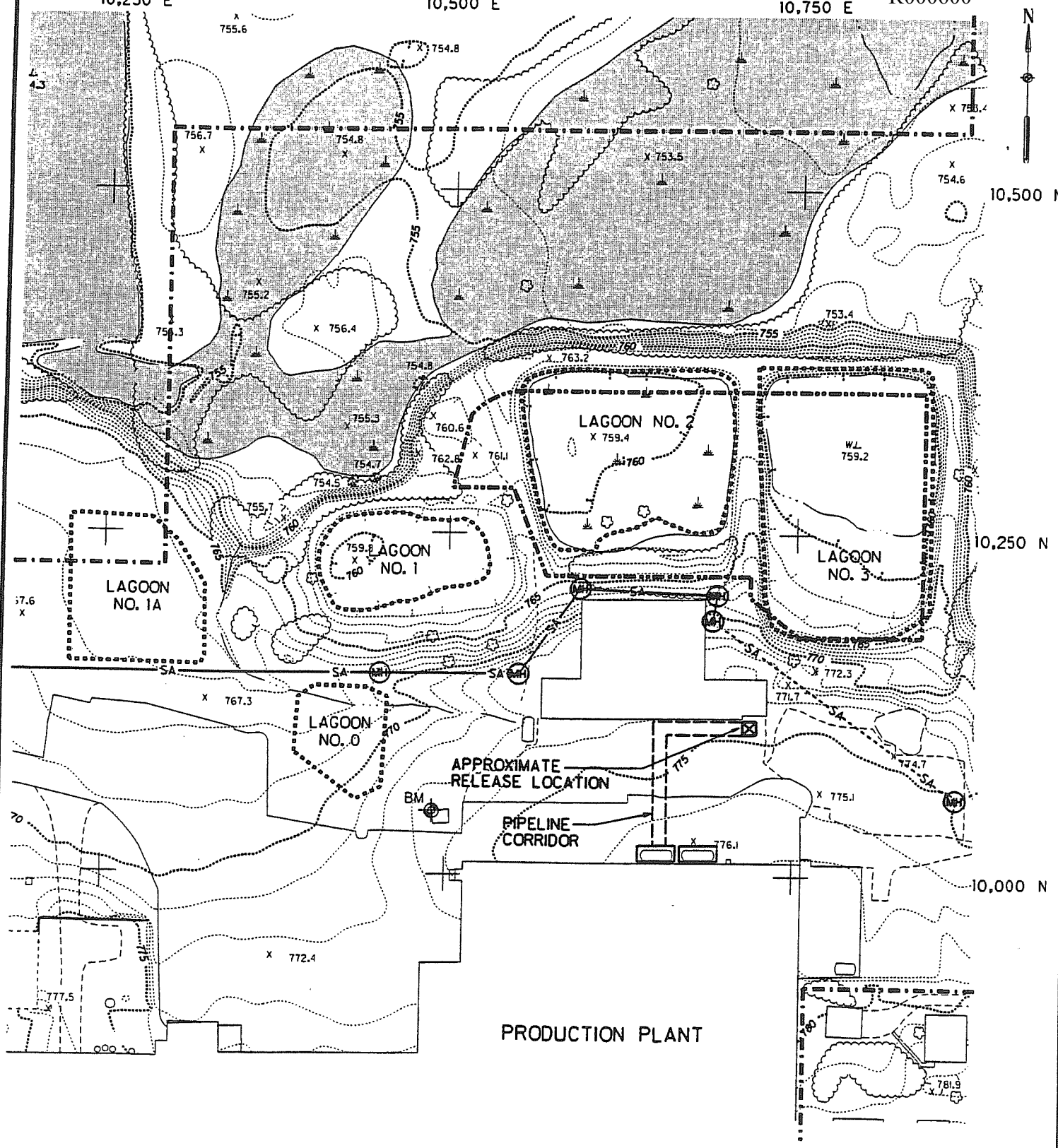

LEGEND

- PROPERTY LINE
- SA — ACTIVE DISCHARGE PIPELINE
- SA — ABANDONED OUTFALL PIPELINE

MODERN PLATING CORPORATION

FIGURE 1

MODERN PLATING REMEDIATION RELEASE LOCATION

Scale: 0 50' 100'		Date: AUGUST, 2000	
Prepared By: Foth & Van Dyke	By: JOW	97M015	

\97m015\PDO\m15225c.dgn 08/16/2000 09:37:32 AM

Attachment 1

IEPA Non-Compliance Advisory Letter Dated July 27, 2000

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276

THOMAS V. SKINNER, DIRECTOR

Non-Compliance Advisory Letter JUL 3 1 2000

217/782-3637

July 27, 2000

Mr. Dave Serzatius
Modern Plating Corp.
P.O. Box 838
Freeport, IL 61032

Re: 20001377

Dear Mr. Serzatius

On July 20, 2000, this office received information that you or an organization that you represent were involved in an environmental incident, which occurred at or near 701 S. Hancock Ave., Freeport, IL on or before July 20, 2000. Our records currently indicate the involvement of 500-800 gallons of Chrome rinse water.

The purpose of this Non-Compliance Advisory Letter is to notify you that the information currently available indicates that violations of environmental laws or regulations may have occurred and may be ongoing. The Illinois Environmental Protection Agency needs further information to evaluate whether compliance has been or will be achieved relative to the above referenced incident or whether to proceed with enforcement. Please address the specific information requested in the enclosed Advisory 2.

A written response to this Non-Compliance Advisory Letter is expected by September 20, 2000. The incident number should be noted in all correspondence about this incident. Please submit one original to the Springfield, Illinois address listed below and one copy to the Maywood, Illinois address listed below, of your response to this Non-Compliance Advisory Letter to:

Illinois Environmental Protection Agency
Emergency Response Unit, Mail Drop #29
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276

Illinois Environmental Protection Agency
Emergency Response Unit
1701 First Avenue
Maywood, Illinois 60153

JUL 3 1 2000

This Non-Compliance Advisory Letter is not a violation notice as specified in Section 31(a)(1) of the Illinois Environmental Protection Act (415 ILCS 5/31(a)(1): However, if you do not adequately respond to this Non-Compliance Advisory Letter, the Illinois EPA may issue a formal violation notice pursuant to Section 31(a)(1) of the Act.

If you have any questions regarding any of the above, please contact the undersigned at 708/338-7900.

Sincerely,

Edward Osowski

Edward Osowski, Senior Emergency Responder
Emergency Response Unit
Office of Chemical Safety

cc: Incident File 20001377
Maywood ERU
G. Tod Rowe
John Waligore

JUL 3 1 2000

ADVISORY 2

For releases of any contaminant to land and/or water

The spillage of any amount of material, as listed in the cover letter, may result in environmental contamination. Such environmental contamination is a violation of the Illinois Environmental Protection Act, when: into the waters of the state [415 ILCS 5/12(a)]; onto a highway or other public property [415 ILCS 5/21(b)]; or onto land in such a manner so as to create a water pollution hazard [415 ILCS 5/12(d)]. Waters of the state include groundwater, drainage ditches and intermittent streams as well as the more obvious bodies of surface water.

Consequently the Illinois Environmental Protection Agency expects such a spill to be cleaned up by the party who was in control of the material at the time it was spilled. Cleanup criteria are found at 35 Ill. Adm. Code 742 (the Tiered Approach to Corrective Action Objectives or TACO). The complete text of TACO can be found on the internet at *http:www.ipcb.state.il.us/title/#g*.

We expect you to:

☐ **Incident Causation Investigation**

A thorough investigation by knowledgeable personnel should be initiated by the responsible party. The scope of the investigation must be sufficient to determine the root cause(s) as well as the proximate cause of the release. At a minimum the investigation should specifically address each of the following potential causal factors: equipment, procedures, personnel error, extraordinary weather conditions, actions by a third party. The investigation should result in findings and recommendations for preventive and corrective actions. In developing recommendations the following topical areas should be specifically considered: material substitutions that reduce or eliminate hazards, equipment design and installation, maintenance type and frequency, adequacy of procedures, provision of adequate secondary containment, as well as personnel training and evaluation (both initial and periodic). A prevention implementation schedule should be developed and implemented promptly.

☐ Submit a Remedial Action Completion Report by the date listed in the cover letter or propose an alternate date for submittal of a Remedial Action Completion Report. At a minimum the Remedial Action Completion Report should include the following:

1) Executive Summary. This section of the report should identify the overall objectives of the remedial action that was implemented and the technical approach utilized to meet those objectives, including:

☐A brief description of the site and surroundings area affected by the release, including the facts and circumstances about the release.

☐A statement of the scope of the problem corrected or mitigated by the remedial action.

☐The anticipated post-remediation uses of the incident site and areas immediately adjacent to the incident site property and any institutional controls that are being relied upon to set

TACO objectives for the site.

2) Field Activities. This section should provide a narrative description of the :
- ❑Field activities conducted during the remediation;
- ❑Remedial actions implemented at the incident site and the performance of each remedial technology utilized: and
- ❑A brief description of any unanticipated events that impacted the nature or rate of the remediation activity.

3) Confirmation Sampling. This section should demonstrate the effectiveness of the remedial action by comparing the soil and/or groundwater sample results for the chemical parameters given above to the appropriate cleanup criteria from 35 Ill. Adm. Code 742 (TACO). Appropriate sampling and analytical test methods are those promulgated by USEPA in SW-846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods"Third Edition, Final update III (Doc. # 955-001-00000-1 available from the U.S. Government Printing Office). The number and location of samples needed to verify cleanup is a site specific decision. You may submit a written sampling plan and site sketch with proposed sample locations to us for our approval or feel free to contact us by phone (217-782-3637) to discuss what we will accept under specific circumstances. For further guidance consult Table 1 below. The data should:
- ❑Be summarized and presented in a table or graphical format;
- ❑Include summary tables which should include the appropriate cleanup criteria as a column (or row as applicable);
- ❑Be referenced to a site map showing the locations of the confirming samples relative to the extent of contamination;

4) Special Conditions. This section should provide a description of:
- ❑If the appropriate cleanup criteria were not taken from the TACO tables. Then provide details (including all calculations) on how the appropriate cleanup criteria were developed;
- ❑Amount and types of material disposed of or treated in response to the incident. This should include name and location of disposal or treatment facility. Disposal manifests or shipping papers are acceptable documentation.

5) Conclusion. This section should:
- ❑ evaluate the degree of success of the remedial action in meeting the cleanup criteria.

6) Appendices. References and data sources should be incorporated in the appendices. These would likely include:
- ❑ Photographs,
- ❑ Field logs,
- ❑ geological boring logs,
- ❑ monitoring or recovery well completion reports, and
- ❑ reports of laboratory analyses should be organized and presented logically.

Table 1

EMERGENCY INCIDENT SAMPLING GUIDE
TO VERIFY REMEDIATION COMPLETION
FOR SUDDEN SPILLS TO SOIL SURFACES

Surface Soil

The IEPA suggests, but does not require, the following process for determining the number of samples and their placement at spill sites. A grid sampling layout is suggested that uses a regular and repeated pattern of areally distributed sampling locations with the soil samples collected at the grid intersections, including the intersections along the boundaries. A circular pattern of equal spacing may also be used. The boundaries of the grid system need not be square, but may be adjusted to fit the area of study. Grid intervals may be determined using the following equation:

$$GI = [(A/\pi)^{0.5}] + 2$$

Where, "GI" is the grid interval in feet, "A" is the area to be gridded in square feet and $\pi = 3.14$.

Subsurface Soil (when native soil and not sand and/or gravel)

1. Following Expeditious Removal (usually less than one month after spill)

☐A minimum of two sampling locations for every 0.5 acres of contaminated area placed where migration to groundwater is most likely or if that is equivocal then at representative locations in the centroid of the contaminated area.

☐Discrete samples should be obtained at each sampling location at every two feet of depth, begining six inches below ground and continuing through the zone of contamination. If the zone of contamination is not precisely known, one of the three approaches described below may be used:

a). Direct reading field instrumentation or test kits can be used to estimate the zone of contamination contemporaneously with the collection of samples,

b). Samples can continue to be collected from the surface at every two feet of depth until groundwater is encountered, or

c). An estimate of extent can be made to limit the number of samples with the understanding that a second round of sampling may be necessary if the results of the first do not demonstrate that the extent of the zone of contamination was encountered.

2. Following Longer Remediation (greater than one month)

The number and placement of sampling locations should be determined as specified above for surface soil sampling. At each sampling location discrete samples should be obtained at every two feet of depth, beginning six inches below ground and continuing through the zone of contamination.

Post-Cleanup Sampling of Excavations

Use the surface soil spacing criteria to sample all walls and floor of the excavation. The usual minimum is one sample on each wall and two on the floor of an excavation deeper than two feet.

THE ABOVE SUGGESTIONS ARE PROVIDED TO HELP EXPEDITE SAMPLING OF COMMON SPILL SITUATIONS. SEE 35 ILL. ADM. CODE 742.225 REGARDING DEMONSTRATION OF COMPLIANCE WITH SOIL REMEDIATION OBJECTIVES AS WELL AS ALLOWABLE USES OF COMPOSITED SAMPLES AND AVERAGING OF SAMPLE RESULTS.

60

TOTAL P.06

R000606

Attachment 2

Laboratory Test Data

TestAmerica
INCORPORATED

Mr. Ron Meister
FOTH & VAN DYKE
2737 S. Ridge Road
P.O. Box 19012
Green Bay, WI 54307

07/25/2000

Job Number: 00.07828

IEPA Cert. No.: 100221
WDNR Cert. No.: 999447130

Enclosed is the Analytical and Quality Control reports for the following samples submitted to Bartlett Division of TestAmerica for analysis.

Project Description: Modern Plating Corp./97M015

Sample Number	Sample Description	Date Taken	Date Received
589810	WWTP-1	07/20/2000	07/21/2000

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. These results apply only to the samples analyzed. Reproduction of this report only in whole is permitted. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Procedures used follow TestAmerica Standard Operating Procedures which reference the methods listed on your report. Should you have questions regarding procedures or results, please do not hesitate to call. TestAmerica has been pleased to provide these analytical services for you.

This Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

Approved by:

Mary Pearson

Mary Pearson
Project Manager

850 W. Bartlett Rd. / Bartlett, IL 60103-4400 / 630-289-3100 / Fax: 630-289-5445 / 800-378-5700

TestAmerica
INCORPORATED

ANALYTICAL REPORT

Mr. Ron Meister
FOTH & VAN DYKE
2737 S. Ridge Road
P.O. Box 19012
Green Bay, WI 54307

07/25/2000

Sample No. : 589810

Job No.: 00.07828

Sample Description: WWTP-1
Modern Plating Corp./97M015

Date Taken: 07/20/2000
Time Taken: 13:20

Date Received: 07/21/2000
Time Received: 07:00

Parameter	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Analytical Method
Solids, Total	86.7		%	0.1	07/24/2000	kmt	SM 2540
Chromium, ICP	9.9		mg/kg dw	2.3	07/25/2000	kdw	SW 6010B
Chromium, Trivalent	<12		mg/kg dw	4.6	07/25/2000	jtt	Calculation
Chromium, Hexavalent	<12		mg/kg dw	1.2	07/24/2000	jrr	SWII 3060

850 W. Bartlett Rd. / Bartlett, IL 60103-4400 / 630-289-3100 / Fax: 630-289-5445 / 800-378-5700

TestAmerica, Bartlett Division

TestAmerica
INCORPORATED

KEY TO ABBREVIATIONS and METHOD REFERENCES

<	:	Less than; When appearing in the results column indicates the analyte was not detected at or above the reported value.
mg/L	:	Concentration in units of milligrams of analyte per liter of sample. Measurement used for aqueous samples. Can also be expressed as parts per million (ppm).
ug/g	:	Concentration in units of micrograms of analyte per gram of sample. Measurement used for non-aqueous samples. Can also be expressed as parts per million (ppm) or mg/Kg.
ug/L	:	Concentration in units of micrograms of analyte per liter of sample. Measurement used for aqueous samples. Can also be expressed as parts per billion (ppb).
ug/Kg	:	Concentration in units of micrograms of analyte per kilogram of sample. Measurement used for non-aqueous samples. Can also be expressed as parts per billion (ppb).
TCLP	:	These initials appearing in front of an analyte name indicate that the Toxicity Characteristic Leaching Procedure (TCLP) was performed for this test.
Surr:	:	These initials are the abbreviation for surrogate. Surrogates are compounds that are chemically similar to the compounds of interest. They are part of the method quality control requirements.
%	:	Percent; To convert ppm to %, divide the result by 10,000. To convert % to ppm, multiply the result by 10,000.
ICP	:	Indicates analysis was performed using Inductively Coupled Plasma Spectroscopy.
AA	:	Indicates analysis was performed using Atomic Absorption Spectroscopy.
GFAA	:	Indicates analysis was performed using Graphite Furnace Atomic Absorption Spectroscopy.
PQL	:	Practical Quantitation Limit; the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions.

Method References

(1) Methods 1000 through 9999: see "Test Methods for Evaluating Solid Waste", USEPA SW-846, 3rd Edition, 1986.

(2) ASTM "American Society for Testing Materials"

(3) Methods 100 through 499: see "Methods for Chemical Analysis of Water and Wastes", USEPA, 600/4-79-020, Rev. 1983.

(4) See "Standard Methods for the Examination of Water and Wastewater", 17th Ed, APHA, 1989.

(5) Methods 600 through 625: see "Guidelines Establishing Test Procedures for the Analysis of Pollutants", USEPA Federal Register Vol. 49 No. 209, October 1984.

(6) Methods 500 through 599: see "Methods for the Determination of Organic Compounds in Drinking Water," USEPA 600/4-88/039, Rev. 1988.

(7) See "Methods for the Determination of Metals in Environmental Samples", Supplement I EPA-600/R-94/111, May 1994.

(8) See "Standard Methods for the Examination of Water and Wastewater", 18th Ed., APHA, 1992.

(9) Methods 1000 through 9999: see "Test Methods for Evaluating Solid Waste", USEPA SW-846, 3rd Edition, 1986, Including Updates I and II.

(10) This method is from the 2nd Edition of "Test Methods for Evaluating Solid Waste", USEPA SW-846. It has been dropped from the 3rd Edition, 1986.

CHAIN OF CUSTODY RECORD

TestAmerica INCORPORATED

602 Commerce Drive / Watertown, WI 53094
Phone: (920) 261-1660 / Fax: (920) 261-8120

COMPANY: Foth & Van Dyk
ADDRESS: 2737 S. Ridge Rd., Green Bay, WI 54307
PHONE: (920) 497-2500 FAX: (920) 497-8516
PROJECT DESCRIPTION/NO.: Modern Plating Corp. / 97M015
PROJECT MANAGER: Ron Meister

REPORT TO: Ron Meister
INVOICE TO: Foth & Van Dyke
P.O. NO.:
QUOTE NO.:

SAMPLED BY: Brian Stanul
NAME
NAME

Fax Results? X QC w/Results? X

Which regulations apply?
NPDES/Wastewater ____ RCRA X UST ____
Drinking Water ____ Other ____ None ____

DATE	TIME	SAMPLE ID/DESCRIPTION	FILTERED	MATRIX	GRAB	COMP	# and Type of Containers: HCl	NaOH	HNO_3	H_2SO_4	NONE	METHANOL	OTHER	ANALYSES: TRIVALENT CHROMIUM	HEXAVALENT CHROMIUM	TCLP Metals *	COMMENTS
7/20/10	13:20	WWTP-1	N	S	X						X			X	X		

LAB USE ONLY

CONDITION OF SAMPLE: BOTTLES INTACT? YES / NO VOLATILES FREE OF HEADSPACE? YES / NO BOTTLES SUPPLIED BY LAB? YES / NO TEMPERATURE UPON RECEIPT: Cooler 24 °C on ice

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED FOR LAB BY:
Brian Stanul	7/20/10	15:37	[signature] 7-20-10 15:37	→	7/21/10	7:00	Mary Pearson

METHOD OF SHIPMENT:
TestAmerica Courier ✓
Client ____
Courier ____

REMARKS: * TCLP metals added 7/21 by Ron Meister Lab

CR000611

TestAmerica
INCORPORATED

Mr. Ron Meister
FOTH & VAN DYKE
2737 S. Ridge Road
P.O. Box 19012
Green Bay, WI 54307

07/25/2000

Job Number: 00.07829

IEPA Cert. No.: 100221
WDNR Cert. No.: 999447130

Enclosed is the Analytical and Quality Control reports for the following samples submitted to Bartlett Division of TestAmerica for analysis.

Project Description: Modern Plating Corp./97M015

Sample Number	Sample Description	Date Taken	Date Received
589811	WWTP-1	07/20/2000	07/21/2000

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. These results apply only to the samples analyzed. Reproduction of this report only in whole is permitted. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Procedures used follow TestAmerica Standard Operating Procedures which reference the methods listed on your report. Should you have questions regarding procedures or results, please do not hesitate to call. TestAmerica has been pleased to provide these analytical services for you.

This Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

Approved by:

Mary Pearson
Project Manager

850 W. Bartlett Rd. / Bartlett, IL 60103-4400 / 630-289-3100 / Fax: 630-289-5445 / 800-378-5700

TestAmerica
INCORPORATED

ANALYTICAL REPORT

REVISED REPORT

Mr. Ron Meister
FOTH & VAN DYKE
2737 S. Ridge Road
P.O. Box 19012
Green Bay, WI 54307

07/25/2000

Sample No. : 589811

Job No.: 00.07829

Sample Description: WWTP-1
Modern Plating Corp./97M015

Date Taken: 07/20/2000
Time Taken: 13:20

Date Received: 07/21/2000
Time Received: 07:00

Parameter	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Analytical Method
TCLP Metals Extraction	Leached				07/22/2000	kar	SW 1311
TCLP-Arsenic, ICP	<0.20		mg/L	0.20	07/24/2000	kdw	SW 6010B
TCLP-Barium, ICP	0.423		mg/L	0.020	07/24/2000	kdw	SW 6010B
TCLP-Cadmium, ICP	0.018		mg/L	0.010	07/24/2000	kdw	SW 6010B
TCLP-Chromium, ICP	<0.040		mg/L	0.040	07/24/2000	kdw	SW 6010B
TCLP-Lead, ICP	<0.100	MDL	mg/L	0.200	07/24/2000	kdw	SW 6010B
TCLP-Mercury, CVAA	<0.0002		mg/L	0.0002	07/25/2000	vgm	SW 7470A
TCLP-Selenium, ICP	<0.05	MDL	mg/L	0.20	07/24/2000	kdw	SW 6010B
TCLP-Silver, ICP	<0.050		mg/L	0.050	07/24/2000	kdw	SW 6010B

MDL : Analyte reported to the Method Detection Limit.

850 W. Bartlett Rd. / Bartlett, IL 60103-4400 / 630-289-3100 / Fax: 630-289-5445 / 800-378-5700

TestAmerica, Bartlett Division

TestAmerica INCORPORATED

KEY TO ABBREVIATIONS and METHOD REFERENCES

<	:	Less than; When appearing in the results column indicates the analyte was not detected at or above the reported value.
mg/L	:	Concentration in units of milligrams of analyte per liter of sample. Measurement used for aqueous samples. Can also be expressed as parts per million (ppm).
ug/g	:	Concentration in units of micrograms of analyte per gram of sample. Measurement used for non-aqueous samples. Can also be expressed as parts per million (ppm) or mg/Kg.
ug/L	:	Concentration in units of micrograms of analyte per liter of sample. Measurement used for aqueous samples. Can also be expressed as parts per billion (ppb).
ug/Kg	:	Concentration in units of micrograms of analyte per kilogram of sample. Measurement used for non-aqueous samples. Can also be expressed as parts per billion (ppb).
TCLP	:	These initials appearing in front of an analyte name indicate that the Toxicity Characteristic Leaching Procedure (TCLP) was performed for this test.
Surr:	:	These initials are the abbreviation for surrogate. Surrogates are compounds that are chemically similar to the compounds of interest. They are part of the method quality control requirements.
%	:	Percent; To convert ppm to %, divide the result by 10,000. To convert % to ppm, multiply the result by 10,000.
ICP	:	Indicates analysis was performed using Inductively Coupled Plasma Spectroscopy.
AA	:	Indicates analysis was performed using Atomic Absorption Spectroscopy.
GFAA	:	Indicates analysis was performed using Graphite Furnace Atomic Absorption Spectroscopy.
PQL	:	Practical Quantitation Limit; the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions.

Method References

(1) Methods 1000 through 9999: see "Test Methods for Evaluating Solid Waste", USEPA SW-846, 3rd Edition, 1986.

(2) ASTM "American Society for Testing Materials"

(3) Methods 100 through 499: see "Methods for Chemical Analysis of Water and Wastes", USEPA, 600/4-79-020, Rev. 1983.

(4) See "Standard Methods for the Examination of Water and Wastewater", 17th Ed, APHA, 1989.

(5) Methods 600 through 625: see "Guidelines Establishing Test Procedures for the Analysis of Pollutants", USEPA Federal Register Vol. 49 No. 209, October 1984.

(6) Methods 500 through 599: see "Methods for the Determination of Organic Compounds in Drinking Water," USEPA 600/4-88/039, Rev. 1988.

(7) See "Methods for the Determination of Metals in Environmental Samples", Supplement I EPA-600/R-94/111, May 1994.

(8) See "Standard Methods for the Examination of Water and Wastewater", 18th Ed., APHA, 1992.

(9) Methods 1000 through 9999: see "Test Methods for Evaluating Solid Waste", USEPA SW-846, 3rd Edition, 1986, Including Updates I and II.

(10) This method is from the 2nd Edition of "Test Methods for Evaluating Solid Waste", USEPA SW-846. It has been dropped from the 3rd Edition, 1986.

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TestAmerica
INCORPORATED

Mr. Ron Meister
FOTH & VAN DYKE
2737 S. Ridge Road
Green Bay, WI 53407

07/31/2000

Job Number: 60.08077

IEPA Cert. No.: 100221
WDNR Cert. No.: 999447130

Enclosed is the Analytical and Quality Control reports for the following samples submitted to Bartlett Division of TestAmerica for analysis.

Project Description: 97M015; Modern Plating

Sample Number	Sample Description	Date Taken	Date Received
590612	WWTP-2 (Soil Pile)	07/27/2000	07/27/2000

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. These results apply only to the samples analyzed. Reproduction of this report only in whole is permitted. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Procedures used follow TestAmerica Standard Operating Procedures which reference the methods listed on your report. Should you have questions regarding procedures or results, please do not hesitate to call. TestAmerica has been pleased to provide these analytical services for you.

This Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

Approved by:
Mary Pearson
Mary Pearson
Project Manager

TestAmerica
INCORPORATED

ANALYTICAL REPORT

Mr. Ron Meister
FOTH & VAN DYKE
2737 S. Ridge Road
Green Bay, WI 53407

07/31/2000

Sample No. : 590612

Job No.: 00.08077

Sample Description: WWTP-2 (Soil Pile)
97M015; Modern Plating

Date Taken: 07/27/2000
Time Taken: 09:25

Date Received: 07/27/2000
Time Received: 13:45

Parameter	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Analytical Method
Solids, Total	88.1		%	0.1	07/28/2000	kmt	SM 2540
Chromium, ICP	74		mg/kg dw	2.3	07/28/2000	kdw	SW 6010B

TestAmerica, Bartlett Division

TestAmerica
INCORPORATED

KEY TO ABBREVIATIONS AND METHOD REFERENCES

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ug/L	:	Concentration in units of micrograms of analyte per liter of sample. Measurement used for aqueous samples. Can also be expressed as parts per billion (ppb).
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TCLP	:	These initials appearing in front of an analyte name indicate that the Toxicity Characteristic Leaching Procedure (TCLP) was performed for this test.
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(6) Methods 500 through 599: see "Methods for the Determination of Organic Compounds in Drinking Water," USEPA 600/4-88/039, Rev. 1988.

(7) See "Methods for the Determination of Metals in Environmental Samples", Supplement I EPA-600/R-94/111, May 1994.

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(10) This method is from the 2nd Edition of "Test Methods for Evaluating Solid Waste", USEPA SW-846. It has been dropped from the 3rd Edition, 1986

Chain of Custody Record

TESTAMERICA INC.

☐ Asheville, NC (A) (828) 254-5169 ☒ Bartlett, IL (C) (630) 289-3100 ☐ Cedar Falls, IA (E) (319) 277-2401 ☐ Charlotte, NC (G) (704) 392-1164 ☐ Dayton, OH (I) (937) 294-6856 ☐ Lumberton, NC (K) (910) 738-6190 ☐ Nashville, TN (M) (615) 726-0177 ☐ Pontiac, MI (O) (248) 332-1940 ☐ Rockford, IL (Q) (815) 874-2171
☐ Atlanta, GA (B) (770) 368-0636 ☐ Brighton, CO (D) (303) 659-0497 ☐ Charleston, SC (F) (843) 849-6550 ☐ Columbia, SC (H) (803) 796-8989 ☐ Davenport, IA (J) (319) 323-7944 ☐ Indianapolis, IN (L) (317) 842-4261 ☐ Macon, GA (N) (912) 757-0811 ☐ Orlando, FL (P) (407) 851-2560 ☐ Watertown, WI (R) (920) 261-1660

Client: FOTH & VAN DYKE

Report Address: 2737 S. RIDGE RD.

GREEN BAY, WI 54307

Attn: RON MEISTER

Phone No.: (920) 497-2500

Fax No.: (920) 497-8516

Project No.: 97M015

Invoice Address: SAME

Attn:

Sampled By: BRIAN STANUL

P.O. No:

Quote No.

State Samples Collected

TURNAROUND TIME

☐ Standard

☒ Rush (surcharges may apply)

Date Needed: 7/28/00

REQUESTED PARAMETERS

Is this work being conducted for regulatory compliance monitoring? Yes___ No___

Is this work being conducted for regulatory enforcement action? Yes___ No___

Which regulations apply:
RCRA X NPDES Wastewater___
UST___ Drinking Water___
Other___ None___

Sample ID	Date	Time	Comp (C) Grab (G)	Matrix	Lab Use	TOTAL CHROMIUM	# and type of containers: HCl	NaOH	HNO_3	H_2SO_4	Other	None	REMARKS
WWTP-2 (SILPILE)	7/27/00	08:25	G	S		X						1	

72

QC Deliverables: ☐ None ☐ Level 2 / Batch QC ☒ Level 3 ☐ Level 4 ☐ Other

N/A In Lab Temp

received Rec Lab Temp

COMMENTS:

* 24-HOUR TURN-AROUND TIME

18°C actual sample temp

Relinquished By:	Brian J. Stanul	Date 7/27/00	10:17 Time	Received By:	Paul E. Howe	Date 7/28/00	10:17 Time
Relinquished By:	Paul E. Howe	Date 7/27/00	12:45 Time	Received By:	B R Johnson	Date 7/27	12 Time
Relinquished By:	B R Johnson	Date 7/27	13 45 Time	Received By:	P Merrill	Date 7/27/00	1345 Time
Relinquished By:		Date	Time	Received By:		Date	Time

LAB USE ONLY:

Custody Seal: ☐ Yes ☐ No ☑ N/A

R000618

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Scope 97M015 Classification 4000
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REM, JSK, MASTER File

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276

THOMAS V. SKINNER, DIRECTOR

217-524-3300

RECEIVED
OCT 5 2000
FOTH & VAN DYKE

September 19, 2000

CERTIFIED MAIL
7099 3400 0006 5938 0348

Mr. Craig Skolrood
Manager, Regulatory Compliance
Modern Plating Corporation
701 South Hancock Ave.
Freeport, Illinois 61032-0838

Re: 1770200010 -- Stephenson County
Modern Plating Corporation
Log No. B-167
RCRA Permit File

Dear Mr. Skolrood:

The Illinois EPA has completed its review of the letter submitted on your behalf by Foth & Van Dyke (F&VD) dated August 18, 2000 and received August 21, 2000. In that letter F&VD described the July 20, 2000 release of approximately 800 gallons of chromate rinse water at the Modern Plating Company (MPC) facility in Freeport, Illinois as well as how the remediation waste from the spill was managed.

Based on the information provided in the August 18, 2000 letter, the Illinois EPA has determined that the release area would constitute a newly identified solid waste management unit (SWMU). In addition, it is acceptable to place the approximately 3 cubic yards of remediation waste that was generated during remediation of the spill in the CAMU landfill described in the RCRA Post-Closure Permit for MPC.

The issue of whether the spill was adequately remediated is the responsibility of the Illinois EPA's Emergency Response Unit (ERU). This portion of the remedial action needs to be coordinated with ERU when MPC responds to the July 31, 2000 Non-Compliance Advisory Letter regarding incident No 20001377.

If you have any questions regarding this letter, please feel free to call Rob Watson, P.E. at 217-524-3265.

Sincerely,

Joyce L. Munie, P.E.
Manager Permit Section,
Bureau of Land

JLM:WRW:bjh\1092s.doc
JKK
WRW JSK

bcc: Bureau File
Rockford Region
Jim Moore
Jerry Kuhn
Terri Blake Myers
Rob Watson
Karen Nachtwey
G. Tod Rowe, ERU
Ed Osowski, ERU – Maywood Region

Foth & Van Dyke
consultants · engineers · scientists

RECEIVED
DEC 7 2000
FOTH & VAN DYKE

December 6, 2000

Mr. Rob Watson, P.E.
Environmental Protection Engineer
Illinois Environmental Protection Agency
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276

Dear Mr. Watson:

Re: Status of Construction of the Modern Plating Corporation CAMU Landfill

The purpose of this letter is to document our telephone conversation of December 6, 2000 concerning the status of the CAMU Landfill construction at the Modern Plating remediation project and the submittal of the required documentation reports. As we discussed, we expect that all the wastes placement and grading will be completed by Monday, December 11, 2000. At that time we will begin the placement of the sand venting layer portion of the final cover. We expect that placement of the Geosynthetics and other components of the final cover will begin on or after December 13, 2000 and be completed in about two weeks, weather permitting. As you are aware, at this point in time the pumps for the leachate collection system (LCS) and leak detection system (LDS) have not been permanently installed nor are the pumps fully operational. Thus, at this time the filling of the CAMU Landfill is completed but the construction is not.

We expect that the construction will be completed by the end of the year and will keep you informed as to when the LCS and LDS are operational. When this occurs the major components of the CAMU Landfill, including the final cover, will be completed and we will prepare and submit the construction documentation report within 30 days as required under RCRA Part B Permit Condition I., E., 5. The final cover documentation report will be submitted as required in Condition I., H. 5. within 60 days after the closure is completed. We anticipate no problems in meeting this schedule.

Sincerely,

Foth & Van Dyke

Ronald E. Meister

Ronald E. Meister, P.G.
Project Manager

REM:lmc

cc: Mr. Craig Skolrood, MPC
Ms. Kathy Geyer, IEPA Rockford Office
Mr. Steve Laszewski, Foth & Van Dyke
Mr. Marty Cieslik, Foth & Van Dyke
Mr. Brain Stanul, Foth & Van Dyke

REM\LMC\J:\scopes\97M015\liepacdrschdl.wpd\4000

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ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276

THOMAS V. SKINNER, DIRECTOR

217/524-3300

December 21, 1999

CERTIFIED MAIL
Z 416 146 544
Z 416 146 545

Owner
Lucille Miller
Modern Plating Corporation
701 South Hancock Avenue
P.O. Box 838
Freeport, Illinois 61032-0838

Operator
Craig Skolrood
Modern Plating Corporation
701 South Hancock Avenue
P.O. Box 838
Freeport, Illinois 61032-0838

Re: 1770200010 -- Stephenson County
Modern Plating Corporation
ILD #005172325
RCRA Log No. B-167
RCRA Part B -- Administrative Record

Dear Ms. Miller & Mr. Skolrood:

Enclosed is a draft RCRA Hazardous Waste Management Part B permit and fact sheet. The draft permit is based on the administrative record contained in the Illinois EPA's files. The contents of the administrative record are described in 35 Illinois Administrative Code (I.A.C.) Section 705.144.

Under the provisions of 35 Illinois Adm. Code 705.141(d), the draft permit and administrative record must be publicly noticed and made available for public comment. The Illinois EPA must also provide an opportunity for a public hearing. Copies of the draft decision and fact sheet are available for review at the Freeport Public Library. The Illinois EPA has not scheduled a public hearing at the current time. However, any interested party may request a public hearing. The public comment period will close on February 14, 2000.

During the comment period, the applicant or any interested party may submit comments to the Illinois EPA on the draft permit. At the close of the comment period, the Illinois EPA will prepare a response to significant comments. Comments on the draft permit may be submitted to Mara McGinnis at the following address:

Mara McGinnis, Office of Comunity Relations, #33
Illinois Environmental Protection Agency
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

The Illinois EPA will issue a final permit after the close of the public comment period unless the Illinois EPA decides to reverse the tentative decision. The appeal process and limitations are addressed in 35 Illinois Adm. Code 705.212.

If you have any questions concerning this draft permit, please contact Rob Watson, P.E. at 217/524-3300.

Sincerely,

Joyce L. Munie, P.E.
Manager, Permit Section
Bureau of Land

JLM:WRW\mls\990104S.WPD

cc: Foth & VanDyke

RCRA POST-CLOSURE PERMIT

MODERN PLATING CORP

FREEPORT, ILLINOIS

IEPA No. ID #1770200010

USEPA ID No. 005172325

Log No. B-167

December, 1999

1770200010
Modern Plating Corp.
RCRA Log No. B-167

December, 1999

TABLE OF CONTENTS

SECTION		PAGES
Map of Facility		Figure 1
I.	Design, Construction, Operation, & Closure of Corrective Action Management Unit	I-1 to I-9
II.	Post-Closure Care	II-1 to II-4
III.	Groundwater Monitoring	III-1 to III-11
IV.	Corrective Action	IV-1 to IV-9
V.	Standard Conditions	V-1 to V-10
VI.	Reporting and Notification Requirements	VI-1 to VI-6

1770200010
Modern Plating Corp.
RCRA Log No. B-167

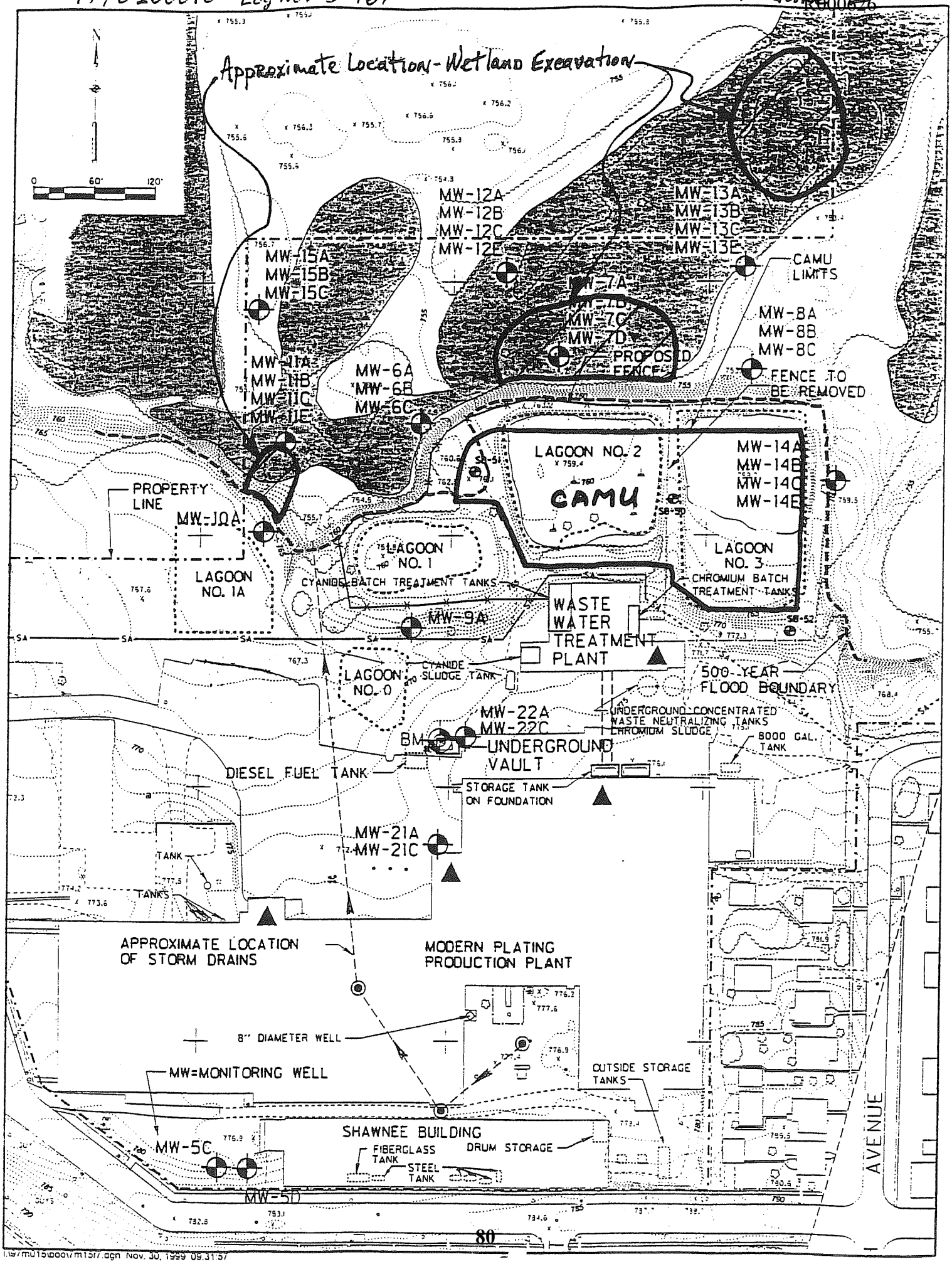
December, 1999

LIST OF ATTACHMENTS

ATTACHMENT		No. of Pages
A.	Construction Certification Form & Instructions	2
B.	Inspection Schedule	3
C.	Closure Certification Form	1
D.	Closure & Post Closure cost estimates	4
E.	Post-Closure Inspection and Maintenance Schedule	6
F.	Groundwater Monitoring Program Attachments	6

1770200010 Log No. B-167

FIGURE 1



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1770200010
Modern Plating Corp.
RCRA Log No. B-167

December, 1999
Page I-1 of I-9

SECTION I

DESIGN, CONSTRUCTION, OPERATION, & CLOSURE of the CORRECTIVE ACTION MANAGEMENT UNIT

A. AUTHORIZATION OF CAMU

For the purpose of implementing remedies under 35 IAC 724.201, the Illinois EPA is designating a new unit at the Modern Plating facility as a Corrective Action Management Unit (CAMU), as defined in 35 IAC 720.110. The design, construction, operation, and maintenance of the CAMU shall be conducted in accordance with the approved permit application, the requirements contained in this permit, and the regulations at 35 IAC 724.652. Placement of remediation waste into or within a CAMU does not constitute land disposal of hazardous wastes. Consolidation or placement of remediation wastes into or within a CAMU does not constitute creation of a unit subject to minimum technology standards.

Approval of this RCRA permit for the CAMU does not constitute approval of the closure performance standards for the surface impoundments proposed in the permit application.

B. UNIT IDENTIFICATION

The CAMU shall be located north of the waste water treatment plant. The general location of the CAMU is shown in Figure 1 of this permit. Remediation wastes from the facility will be disposed in a landfill which will be constructed in the same location that Lagoons 2 and 3 currently occupy. Remediation wastes which can not be placed directly in the landfill, shall be placed in either Lagoon 1 or 3 during construction of the landfill. The CAMU landfill will cover about 1.2 acres and will hold remediation wastes generated from the closure and remediation of hazardous waste and solid waste management units at the Modern Plating facility.

C. WASTE IDENTIFICATION

1. The Permittee is only allowed to place the following types of wastes generated during remediation of the on-site hazardous and solid waste management units in the CAMU: Electroplating Sludge (F006), soils contaminated with cadmium, chromium, cyanide, and trichloroethylene (F002).

2. The Permittee is prohibited from placing wastes in the CAMU that are not included in Condition C.1 above without prior authorization from the Illinois EPA via a permit modification.

3. Wastes which contain free liquids as determined by the Paint Filter Liquids Test (Method 9095 in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods", EPA Publication No. SW-846, latest edition) shall not be placed in the CAMU Landfill. The determination of whether the waste contains free liquids shall be performed before the waste is placed in the CAMU Landfill.

D. DESIGN, CONSTRUCTION, AND OPERATING REQUIREMENTS

1. The Permittee shall construct, operate, and maintain the CAMU in accordance with the plans and specifications contained in the approved permit application and the conditions in this permit. Any changes to the CAMU described in the approved permit application shall be pre-approved by the Illinois EPA before they can be implemented by the permittee.

2. The CAMU shall not be constructed below elevation 757.0. The sumps in the CAMU shall not be constructed below elevation 753.5. The side slopes in the CAMU shall not be steeper than 3:1 (3 feet horizontal to 1 foot vertical). The slopes of the cover on the CAMU shall not be steeper than 6:1 (6 feet horizontal to 1 foot vertical). The horizontal extent and location of the CAMU is identified in Figure 1 of this permit. Any modification to these design parameters in order to accommodate additional remediation wastes shall be the subject of a permit modification.

3. Prior to placement of the bottom component of the liner system (e.g. the GCL), the subbase soils under the CAMU shall meet all of the criteria specified in the approved permit application and this permit including the following:

   a. A minimum of 1 foot of recompacted fine-grained soils.

   b. The in place density of the soils shall be at least 95% of the maximum dry density as measured by the standard proctor test.

   c. The hydraulic conductivity shall be a maximum of 1×10^{-6} cm/sec.

   d. The surface of the subbase soils shall be rolled with a smooth drum roller to insure there are no ruts larger than 1 inch.

e. The top 6 inches of subbase soils which will be in contact with the GCL shall be free of all stones, sticks, dirt balls, or any other sharp objects larger than 1/4 inch in size.

4. The liner system on the bottom and sides of the CAMU shall be constructed of the following layers, described from the top to bottom:

- geocomposite drainage material (high density polyethylene (HDPE) drainage net sandwiched between two layers of geotextile material) with a minimum transmissivity of 3×10^{-5} m^2/sec
- 60 mil HDPE geomembrane (textured on both sides)
- HDPE drainage net (geocomposite on the sideslopes) with a minimum transmissivity of 3×10^{-5} m^2/sec
- 60 mil HDPE geomembrane (textured on both sides)
- geosynthetic clay liner (GCL)

5. The cover system on the top of the CAMU shall be constructed of the following layers, described from the top to bottom:

- 6 inches of topsoil (vegetative layer)
- 18 inches of cover soil (rooting layer)
- geocomposite drainage material (HDPE drainage net sandwiched between two layers of geotextile material)
- 40 mil HDPE geomembrane (textured on both sides)
- geosynthetic clay liner (GCL)
- 6 inches of grading/venting layer

6. The leachate collection and removal system shall be designed and operated to ensure that the depth of leachate over the liner does not exceed more than 1 foot (30 cm). The leachate collection pump shall be automatically turned on when the leachate in the sump reaches an elevation of 757.0 feet as indicated on Drawing 11 in the approved permit application.

7. The GCL used as the bottom liner in the CAMU shall be a geotextile encased needle punched GCL that can withstand moisture adsorption without any loss of integrity.

8. The Geomembrane panels made of polyethylene resins shall be welded by double-tracked, fusion welding machines for all linear seams. Corners, butt seams and long repairs shall be fusion welded where possible. Extrusion or fusion welding shall be used for all other repairs, detail work and patches. Illinois EPA Bureau of Land Permit

Section approval shall be obtained prior to use of any other welding method for either panel seaming, repairs or construction details.

9. The CAMU shall be constructed in accordance with the Construction Quality Assurance Plan in Appendix E and the Construction Specifications in Appendix Q, both in the approved permit application.

10. The Illinois EPA Bureau of Land Permit Section shall be notified anytime a deviation the design plans and specifications, or non-conforming work, is observed by the CQA personnel. This notification of the problem, its proposed resolution, and any proposed design change must be made prior to resuming work impacted by the deviation or non-conformance.

11. Remediation wastes shall be placed in the CAMU in accordance with the procedures specified in the approved permit application. Every effort shall be made to protect the liner materials on the bottom, sides and top of the CAMU during the construction, operation, and closure of the CAMU.

12. The Permittee shall provide groundwater monitoring for the CAMU in accordance with the approved permit application, and with Section III of this permit.

E. CONSTRUCTION CERTIFICATION

1. Within 30 days after completing construction and prior to the placement of any waste in the CAMU, the permittee shall submit to the Illinois EPA, Bureau of Land, Permit Section by certified mail or hand delivery a Construction Certification Report from a qualified, registered professional engineer, demonstrating that the CAMU meets the requirements of 35 IAC 724.652, the requirements in this permit, and the approved permit application. This report shall contain all of the information required in Attachment A. It shall also include a certification signed by the CQA officer, using the wording at 35 IAC 702.126(d), that the CAMU was constructed in accordance with the approved CQA plan.

2. The permittee shall not place any waste in the CAMU until the Construction Certification Report is approved by the Illinois EPA.

F. INSPECTION OF CAMU

1. The Permittee shall inspect the components, structures, and equipment at the site in accordance with the Approved Permit Application and the inspection schedule in Attachment B of this permit.

2. The date of the first inspection shall be on the effective date of this permit.

3. The Permittee shall continue to follow the inspection procedures in Condition F.1 until the closure certification for the CAMU is submitted to the Illinois EPA and the conditions for the post-closure care period in Section II of this permit are implemented.

G. CONTINGENCY PLAN

1. A release of hazardous waste or hazardous constituents from the CAMU Landfill shall constitute an incident which requires implementation of the Contingency Plan.

2. When the Contingency Plan is implemented, the permittee shall immediately notify either the local government official designated as the on-scene coordinator for that geographical area, or the National Response Center (using their toll free number 800-424-8803). The following information must be provided:

   Name and telephone number of reporter;
   Name and address of facility;
   Time and type of incident (release, fire or explosion);
   Name and quantity of material involved, to the extent known;
   The extent of injuries, if any; and
   The possible hazards to human health or the environment outside the facility.

3. Within 24 hours of implementation of the Contingency Plan, the Permittee shall also contact the Illinois Emergency Management Agency (IEMA), the Bureau of Land's Regional Office in Rockford, IL and the Permit Section (in addition to the other entities identified in the permit application).

4. Any incident associated with the CAMU Landfill which requires implementation of the contingency plan shall be recorded in the facilities operating record in an incident log which is maintained separate from the facility's other operating records. The incident log must include a copy of each incident report. In addition to the information identified in the approved application, the incident report must include, the cause of the release and the measures taken to correct the situation and prevent a reoccurrence.

5. Within sixty (60) days of the effective date of this permit, the Permittee shall provide documentation to the Agency of the agreements and arrangements made with local police and fire departments, hospitals, contractors, and state and local emergency response teams to familiarize them with the facility and actions needed in case of emergency. If necessary, documentation must be provided that any Agency identified in 35 Ill. Adm. Code 724.153(b) declined to enter an agreement or arrangement.

6. Within sixty (60) days of the effective date of this permit, the Permittee shall provide documentation (e.g. a copy of the cover letter) to the Agency that copies of the contingency plan have been sent to local police and fire departments, hospitals, contractors, and state and local emergency response teams to familiarize them with the facility and actions needed in case of emergency.

H. CLOSURE

1. The CAMU shall be closed in accordance with the approved permit application and the conditions in this permit.

2. If the cover system for the CAMU is not completed by November 1, 2000, the permittee shall submit a plan to protect the waste piles in lagoons 1 and 3 and/or the CAMU from the effects of the winter weather. This plan shall be provided as a modification to this permit no later than November 1, 2000.

3. The permittee shall prepare a survey plat indicating the location and dimensions of the CAMU and any other hazardous waste disposal units with respect to permanently surveyed benchmarks. This plat shall be prepared and certified by a professional land surveyor. The plat shall contain a note, prominently displayed, which states the owner's and operator's obligation to restrict disturbance of the CAMU in accordance with the applicable Subpart G regulations and shall state the following:

   a. The corrective action management unit (CAMU) contains the remediation wastes generated during the closure of hazardous waste and solid waste units at the Modern Plating facility in accordance with an Illinois EPA approved closure plan (Log No. C-259-M-8).

   b. The waste materials contained in the CAMU are considered RCRA hazardous wastes. They include electroplating sludges (F006), wastes with trichloroethylene (F002) and wastes containing cadmium, chromium, and cyanide.

c. Any fill material removed from the CAMU during future activities must be managed as a hazardous waste in accordance with 35 Ill. Adm. Code Subtitle G: Waste Disposal.

The permittee shall file this survey plat with any local zoning authority, or authority with jurisdiction over local land use, and record with land titles, no later than the date the certification of closure of the CAMU is submitted to the Illinois EPA. The permittee shall submit the survey plat to the Illinois EPA Bureau of Land Permit Section with the certification of closure for the CAMU.

4. As part of the closure activities, Modern Plating shall:

a. Record a notation on the deed to the facility property, or on some other instrument which is normally examined during title search that will in perpetuity notify any potential purchaser of the property that:

(1) The waste material in the CAMU is considered a RCRA hazardous waste;

(2) Use of the area is restricted; and

(3) A survey plat and record of the type, location and quantity of waste material in the CAMU have been filed with the IEPA, the County Recorder, and any local zoning authority or authority with jurisdiction over local land use.

b. Attach the survey plat specified in Condition I.H.3 above to the deed for the subject property, or on some other instrument which is normally examined during title search, which will in perpetuity notify any potential purchaser of the property of the requirements set forth in the notation on the survey plat.

c. Submit the survey plat specified in Condition I.H.3 above to the County Recorder, any local zoning authority and any other authority over local land use.

5. When closure is complete the owner or operator shall submit to the Illinois EPA Bureau of Land Permit Section certification both by the owner or operator and by an independent registered professional engineer that the facility has been closed in accordance with the specifications in the approved permit application and the conditions in this permit. This certification must be received at the Illinois EPA within sixty (60) days after closure, or by January 1, 2001. These dates may be revised if Modern Plating finds that additional time is necessary to complete all required closure activities and demonstrates to the Illinois EPA that it is attempting to complete closure in a timely manner.

The closure certification form provided as Attachment C must be used. Signatures must meet the requirements of 35 Ill. Adm. Code Section 702.126. The independent engineer should be present at all critical, major points (activities) during the closure. These might include soil sampling, soil removal, backfilling, final cover placement, etc. The frequency of inspections by the independent engineer must be sufficient to determine the adequacy of each critical activity.

The Professional Engineering Practice Act of 1989 (225 ILCS 325/1 et. seq.) requires that any person who practices professional engineering in the State of Illinois or implies that he/she is a professional engineer must be registered under the Professional Engineering Practice Act of 1989 (225 ILCS 325.4). Therefore, any certification or engineering services which are performed in the State of Illinois must be done by a professional engineer licensed in the State of Illinois.

Plans and specifications, designs, drawings, reports, and other documents rendered as professional engineering services, and revisions of the above must be sealed and signed by a professional engineer in accordance with Section 14 of the Professional Engineering Practice Act of 1989 (225 ILCS 325.14).

As part of the closure certification, to document the closure activities at your facility, the permittee shall submit a Closure Documentation Report which includes:

a. A certification signed by the owner or operator, that the owner or operator has recorded the notation on the deed (or other instrument) as specified in Condition I.H.4 above, including a copy of the document in which the notification has been placed, to the Illinois EPA.

b. A copy of the survey plat required by Conditions I.H.3 and I.H.4 above as well as documentation indicating that the requirements of Condition I.H.4 above have been met.

c. The volume of waste placed in the CAMU. The term waste includes wastes resulting from decontamination activities.

d. Scaled drawings showing the horizontal and vertical boundaries of the CAMU.

e. A chronological summary of closure activities.

f. Color photo-documentation of closure. Document conditions before, during, and after closure.

g. Information documenting the results of all data collected as part of the Construction Quality Assurance Plan in Appendix E of the approved permit application which was not provided as part of the Construction Certification Report.

5. Under the provisions of 29 CFR 1910 (51 FR 15, 654, December 19, 1986), cleanup operations must meet the applicable requirements of OSHA's Hazardous Waste Operations and Emergency Response standard. These requirements include hazard communication, medical surveillance, health and safety programs, air monitoring, decontamination and training. General site workers engaged in activities that expose or potentially expose them to hazardous substances must receive a minimum of 24 hours of safety and health training off site plus a minimum of one day of actual field experience under the direct supervision of a trained experienced supervisor. Managers and supervisors at the cleanup site must have at least an additional eight hours of specialized training on managing hazardous waste operations.

I. FINANCIAL ASSURANCE

1. Within 30 days of the effective date of this permit, the permittee shall provide written documentation to the Illinois EPA Bureau of Land Permit Section which demonstrates the trust fund, or other financial mechanism as specified in 35 IAC Part 724, contains sufficient funds to meet the financial assurance requirements for closure at 35 IAC 724.243. The trust fund must contain at least $1,262,000 in order to cover the site development and closure costs identified in Attachment D of this permit.

2. As part of the closure documentation report and closure certification, the permittee shall provide to the Illinois EPA Bureau of Land Permit Section copies of the letter of credit, the standby trust, and other documentation required to meet to meet the post-closure financial assurance requirements at 35 IAC 724.245. The amount of the post-closure financial assurance shall be sufficient to cover the long term care costs of $25,840 per year as identified in Attachment D to this permit.

3. Within 30 days of the effective date of this permit, the permittee shall provide written documentation to the Illinois EPA Bureau of Land Permit Section which demonstrates that Modern Plating Company has obtained liability insurance pursuant to the requirements of 35 IAC 724.247 or attempted to obtain liability insurance within the past 180 days pursuant to Consent Decree 87-C-20315.

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Modern Plating Corp.
RCRA Log No. B-167

December, 1999
Page II-1 of II-4

SECTION II

POST-CLOSURE CARE

A. SUMMARY

Hazardous waste management units where waste is left in place must receive post-closure care for at least 30 years after the unit is closed. Activities required during post-closure care include, but are not limited to (1) maintenance of final cover, (2) monitoring of the groundwater, and (3) providing financial assurance for post-closure activities pursuant to 35 IAC Part 724.

B. UNIT IDENTIFICATION

The Permittee shall provide post-closure care for the following hazardous waste management unit, in accordance with the approved permit application and the conditions of this permit:

Name and Type of Unit	Approximate Capacity*	Description of Wastes Contained in the Unit
CAMU	17,000-21,000 yd^3	Electroplating Sludge (F006), soil with trichloroethylene (F002), soil with cadmium, chromium, cyanide.

*Final capacity will be based on total volume of remediation wastes generated at the facility.

C. MONITORING, MAINTENANCE, AND RECORDKEEPING

1. The Permittee shall implement the Post-Closure Plan contained in the Approved Permit Application. All post-closure care activities shall be conducted in accordance with the provisions of the approved permit application and the conditions in this permit.

2. The post-closure care period shall begin upon completion of closure of the unit (the date the permittee submits the certification of closure to the Illinois EPA) and continue for thirty (30) years after that date.

3. The Permittee shall maintain the components, structures, and equipment at the site in accordance with the maintenance plan in Attachment E of this permit.

4. The Illinois EPA may include restrictions upon the future use of the site if necessary to protect public health and the environment, including permanent prohibition of the use of the site for purposes which may create an unreasonable risk of injury to human health or the environment. After administrative and judicial challenges to such restrictions have been exhausted, the Illinois EPA shall file such restrictions of record in the Office of the Recorder of the county in which the unit is located.

5. The Permittee shall not allow any use of the CAMU designated in Section II.B above to be used in a manner that will disturb the integrity of the final cover, liners any components of the containment system, or function of the facility's monitoring systems during the post-closure care period unless such use is necessary to protect public health or the environment.

6. The permittee shall comply with the requirements for landfills as follows:

   a. Maintain the integrity and effectiveness of the final cover, including making repairs to the cap as necessary to correct the effects of settling, subsidence, erosion, cracking or other events.

      Corrective action shall be taken if ponding has been observed, if cracks or erosion channels greater than one inch wide have formed for whatever reason and if gas, odor, vegetative or vector problems arise, if leachate popouts or seeps are present, or if vegetation with tap roots is found to be growing in areas which are not designed to accommodate such.

   b. Prevent run-on and run-off from eroding or otherwise damaging the final cover.

   c. Maintain and monitor the groundwater monitoring system in accordance with the approved permit application and Section III of this permit.

   d. Protect and maintain surveyed benchmarks used in complying with surveying and recordkeeping requirements.

E. INSPECTIONS

1. The Permittee shall inspect the components, structures, and equipment at the site in accordance with the inspection schedule in Attachment E of this permit. The term "major rainfall event" as used in the inspection schedule shall be defined as any storm event of ½ inch of rain or more.

2. The date of the first inspection shall be on the date the closure certification for the CAMU is submitted to the Illinois EPA Bureau of Land Permit Section.

3. The Permittee shall continue to follow the inspection procedures in Condition II.E.1 until the post-closure care period for the CAMU is ended.

F. CONTINGENCY PLAN

1. A release of hazardous waste or hazardous constituents from the CAMU Landfill shall constitute an incident which requires implementation of the Contingency Plan.

2. When the Contingency Plan is implemented, the permittee shall immediately notify either the local government official designated as the on-scene coordinator for that geographical area, or the National Response Center (using their toll free number 800-424-8803). The following information must be provided:

   Name and telephone number of reporter;
   Name and address of facility;
   Time and type of incident (release, fire or explosion);
   Name and quantity of material involved, to the extent known;
   The extent of injuries, if any; and
   The possible hazards to human health or the environment outside the facility.

3. Within 24 hours of implementation of the Contingency Plan, the Permittee shall also contact the Illinois Emergency Management Agency (IEMA), the Bureau of Land's Regional Office in Rockford, IL and the Permit Section (in addition to the other entities identified in the permit application).

4. Any incident associated with the CAMU Landfill which requires implementation of the contingency plan shall be recorded in the facilities operating record in an incident log which is maintained separate from the facility's other operating records. The incident log must include a copy of each incident report. In addition to the information identified in the approved application, the incident report must include, the cause of the release and the measures taken to correct the situation and prevent a reoccurrence.

G. NOTICES AND CERTIFICATION

1. A request to change the Post-Closure Plan must be submitted in the form of a permit modification request. This request must be in accordance with applicable requirements of 35 Ill. Adm. Code Parts 702, 703 and 724 and must include a copy of the amended Post-Closure Plan for approval by the Illinois EPA.

2. If the Permittee or any subsequent owner or operator of the land upon which the CAMU is located wishes to remove hazardous wastes and hazardous waste residues, the liner, or contaminated soils, they must request a modification to this RCRA post-closure permit in accordance with the applicable requirements in 35 IAC Parts 703, 705 and 724. At a minimum, the owner or operator must demonstrate that the removal of hazardous wastes will satisfy the criteria of 35 IAC 724.217(c).

3. No later than sixty (60) days after completion of the established post-closure care period for the CAMU, the Permittee shall submit to the Illinois EPA Bureau of Land Permit Section, by registered mail, a certification that the post-closure care for the CAMU was performed in accordance with the specifications in the approved post-closure plan in the approved permit application and the conditions in this permit. The certification must be signed by the owner and operator and an independent registered professional engineer. Documentation supporting the independent registered professional engineer's certification must be furnished to the Illinois EPA upon request until the Illinois EPA releases the Permittee from the financial assurance requirements for post-closure care.

4. Within 60 days after receiving certifications from the owner or operator and an independent registered professional engineer that the post-closure care period has been completed for the CAMU in accordance with the approved post-closure plan, the Agency shall notify the owner or operator that it is no longer required to maintain financial assurance for post-closure care of that unit unless the Illinois EPA determines that post-closure care has not been in accordance with the approved post-closure plan. The Illinois EPA shall provide the owner or operator with a detailed written statement of any such determination that post-closure care has not been in accordance with the approved post-closure plan.

H. FINANCIAL ASSURANCE

1. The permittee shall maintain sufficient funds in the letter of credit, the standby trust, or other approved financial instrument to meet the post-closure financial assurance requirements at 35 IAC 724.244 and 724.245.

SECTION III
GROUNDWATER CORRECTIVE ACTION PROGRAM

A. SUMMARY

Hazardous waste constituents have been detected in groundwater monitoring wells, at the MPC facility, in the vicinity of HWMUs and SWMUs above the groundwater protection standard and background values. Therefore, a corrective action program meeting the requirements of 35 Ill. Adm. Code 724.200 must be implemented at the MPC facility in Freeport, Illinois.

The groundwater corrective action program required by this Permit includes:

a. The construction of the CAMU which serves as the corrective action and subsequently the basis for the establishment of the Groundwater Management Zone (GMZ).

b. Determining the quality of groundwater, within the GMZ and in the vicinity of the MPC facility, by comparing analytical results for the specified hazardous constituents to the concentration limits that comprise the groundwater protection standard.

c. Evaluating the effectiveness of the corrective action based on the quality of groundwater within the GMZ and in the vicinity of the MPC facility.

d. The establishment and monitoring of the point of compliance at the time in which the monitoring wells in the program have attained the applicable concentration limits that comprise the groundwater protection standard and the GMZ expires.

B. DEFINITIONS

As used herein, the words or phrases set forth below shall have the following definitions:

1. "Uppermost Aquifer" refers to the geologic formation nearest the natural ground surface that is an aquifer, as well as lower aquifers that are hydraulically connected with this aquifer in the vicinity of the facility. The uppermost aquifer in the vicinity of the MPC facility has been identified as the unconsolidated aquifer consisting of permeable alluvial sand and gravel.

2. "GMZ" refers to the three (3) dimensional region containing groundwater being managed to mitigate impairment caused by the release of contaminants from a site.

3. "Point of Compliance" refers to the vertical surface located at the hydraulically down-gradient limits of the waste management area (the CAMU) extending down into the uppermost aquifer underlying the regulated unit.

4. "Ft - bgs" refers to the number of feet below the ground surface.

5. "Ft-MSL" refers to the number of feet below the ground surface referenced to mean sea level.

6. "Detected" shall mean a concentration equal to or above the PQL listed in USEPA's SW-846 (Third Edition) for the applicable analytical methods specified in the approved Sampling and Analysis Procedures, which are incorporated by reference in Condition III.H of the Permit.

7. "Progressive Increase" shall mean an increase in the concentration of a constituent in successive sampling events.

8. "Stick-up" refers to the height of the reference survey datum. This point is determined within $\pm$ 0.01 foot in relation to mean sea level, which in turn is established by reference to an established National Geodetic Vertical Datum.

C. IMPLEMENTATION

1. The Permittee shall begin implementation of the correction action program upon the effective date of this Permit. On that date, the groundwater monitoring and corrective action requirements set forth in this Permit shall supersede those established in the 35 Ill. Adm. Code Part 725 interim status closure and post-closure plan previously approved by the Illinois EPA.

2. The Permittee shall carry out the corrective action monitoring program specified in this Permit on the groundwater beneath the MPC facility in Freeport, Illinois. The uppermost aquifer in the vicinity of the MPC facility has been identified as the unconsolidated aquifer consisting of permeable alluvial sand and gravel.

3. Groundwater monitoring wells at the facility are identified as A through E, referring to the specific screened intervals. These are:

   A: Screened in the water table in the upper portion of the unconsolidated materials

   B: Screened in the lower portion of the unconsolidated materials

C: Screened at the surface of the dolomite aquifer

D: Screened 20 feet (ft) into the dolomite

E: Screened 40 ft into the dolomite

For the purposes of this Permit and in accordance with 35 Ill. Adm. Code Part 620 regulations: (1) the unconsolidated materials have been designated Class II: General Resource Groundwater; and (2) the dolomite aquifer has been designated Class I: Potable Resource Groundwater. The analytical results obtained from these groundwater monitoring wells shall be compared to the appropriate Class I or Class II concentration limits that comprise the groundwater protection standard found in Condition III.E.1.

4. At this time, the establishment of the point of compliance will be postponed until such time that the monitoring wells at the facility have attained the applicable concentration limits that comprise the groundwater protection standard found in Condition III.E.1 and the GMZ expires. At that time, MPC must submit a proposal for the establishment of a point of compliance which satisfies the regulatory requirements found in 35 Ill. Adm. Code 724, Subpart F and reflects the current conditions at the facility.

D. WELL AND SUMP LOCATIONS AND CONSTRUCTION

1. The Permittee shall maintain the groundwater monitoring wells identified in the table below to allow for the collection of groundwater samples. The location of these wells is specified in Drawing No. 20R of the approved permit application.

IEPA Well No.	MPC Well No.	Well Depth (ft-bgs)	Well Depth Elevation (ft MSL)	Well Screen Interval (ft MSL)
"A" Groundwater Monitoring Wells				
G06S	MW-6A	12.5	742.1	747.1 - 742.1
G07S	MW-7A	12.5	740.7	745.7 - 740.7
G08S	MW-8A	13.0	741.4	746.4 - 741.4
G09S	MW-9A	23.0	745.8	755.8 - 745.8
G10S	MW-10A	21.5	743.8	753.8 - 743.8
G11S	MW-11A	12.0	742.4	747.7 - 742.7
G12S	MW-12A	12.0	741.6	746.6 - 741.6
G13S	MW-13A	12.2	740.6	745.9 - 740.9

G14S	MW-14A	18.5	740.1	751.6 - 741.6
G15S	MW-15A	12.0	743.8	749.1 - 744.1
G17S	MW-17A	17.9	737.9	743.8 - 738.8
G18S	MW-18A	16.0	738.6	743.6 - 738.6
G19S	MW-19A	14.0	740.7	745.7 - 740.7
GA1S	MW-21A	25.8	747.2	757.2 - 747.2
GA2S	MW-22A	25.8	748.4	758.4 - 748.5

"B" Groundwater Monitoring Wells

G06U	MW-6B	27.0	727.5	737.5 - 727.5
G07U	MW-7B	27.0	726.2	736.2 - 726.2
G12U	MW-12B	28.0	725.6	735.6 - 725.6
G13U	MW-13B	28.0	724.8	734.8 - 724.8
G14U	MW-14B	22.4	736.2	741.6 - 736.6
G15U*	MW-15B*	31.2	724.6	734.6 - 724.6
G17U*	MW-17B*	37.2	718.8	729.3 - 719.3
G18U*	MW-18B*	37.4	717.3	727.3 - 717.3
G19U	MW-19B	36.9	717.9	727.9 - 717.9

"C" Groundwater Monitoring Wells

G05M	MW-5C	23.0	755.1	760.1 - 755.1
G06M	MW-6C	43.5	710.9	715.9 - 710.9
G07M	MW-7C	40.0	713.3	718.3 - 713.3
G08M	MW-8C	72.0	682.7	687.7 - 682.7
G11M	MW-11C	66.3	688.0	693.8 - 688.8
G12M	MW-12C	53.0	700.6	705.6 - 700.6
G13M	MW-13C	84.0	669.0	674.0 - 669.0
G14M	MW-14C	80.5	678.3	683.3 - 678.3
G15M*	MW-15C*	104.5	651.2	657.7 - 652.7
G16M*+	MW-16C*+	29.0	752.6	764.6 - 754.6
G17M*	MW-17C*	108.0	648.0	653.0 - 648.0
G19M*	MW-19C*	110.3	644.6	650.6 - 644.6
GA0M	MW-20C			
GA1M	MW-21C	57.3	715.8	772.5 - 717.5
GA2M	MW-22C	62.5	711.8	718.5 - 713.5
GA3M*	MW-23C*			

"D" Groundwater Monitoring Wells				
G05L	MW-5D	40.0	738.2	749.5 - 739.5
G07L	MW-7D	50.0	703.3	713.3 - 703.3
G17L*	MW-17D*	121.1	634.8	644.8 - 634.8
G18L*	MW-18D*	146.6	608.0	615.0 - 608.0
G19L*	MW-19D*	149.9	604.7	616.7 - 604.7
"E" Groundwater Monitoring Wells				
G11D	MW-11E	101.0	653.3	665.8 - 655.8
G12D	MW-12E	87.2	666.3	676.3 - 666.3
G13D	MW-13E	117.9	634.9	645.8 - 635.8
G14D	MW-14E	114.0	644.7	654.7 - 644.7

\+ Denotes Upgradient Well
* Denotes GMZ Wells

Within thirty (30) days of the date that installation of groundwater monitoring wells MW-20C and MW-23C is completed, the Permittee shall submit the following information:

1. Well Depth (ft-bgs)
2. Well Depth Elevation (ft-MSL)
3. Well Screen Interval (ft-MSL)

2. Construction of each monitoring well/piezometer must be in accordance with the diagram contained in Attachment F to this Permit or details and diagrams approved by the Illinois EPA. All new monitoring wells/piezometers to be installed must be continuously sampled and logged on Illinois EPA boring logs as shown in Attachment F unless otherwise approved by the Illinois EPA.

3. The Permittee shall notify the Illinois EPA within thirty (30) days in writing if any of the wells identified in Condition III.D.1 are damaged or the structural integrity has been compromised. A proposal for the replacement of the subject well shall accompany this notification. The well shall not be plugged until the new well is on-line and monitoring data has been obtained and verified, unless the well is extremely damaged or would create a potential route for groundwater contamination. Prior to replacing the subject well, the Permittee shall obtain written approval from the Illinois EPA regarding the proposed installation procedures and construction.

4. Should any well become consistently dry or unserviceable, a replacement well shall be provided within ten (10) feet of the existing well. This well shall monitor the same zone as the existing well and be constructed in accordance with the current Illinois EPA groundwater monitor well construction standards at the time that the well is replaced. A replacement well which is more than ten (10) feet from the existing well or which does not monitor the same geologic zone must be approved by the Illinois EPA and designated as a new well.

5. The Permittee shall submit boring logs, construction diagrams, and data sheets from installation and development of a new or replacement well to the Illinois EPA at the address below within thirty (30) days of the date that the installation of the well is completed. In addition, the Permittee shall submit certification that plugging and abandonment of a well was carried out in accordance with the approved procedures to the Illinois EPA at the address below within thirty (30) days of the date that the well is plugged and abandoned. All information should be submitted to the appropriate State Agencies.

   Illinois Environmental Protection Agency
   Planning and Reporting Section
   Bureau of Land
   1021 North Grand Avenue East
   Post Office Box 19276
   Springfield, Illinois 62794-9276

6. All wells/piezometers shall be equipped with protective caps and locks. Monitoring wells or piezometers located in high traffic areas must be protected with bumper guards.

7. All groundwater monitoring wells and piezometers not utilized in the approved groundwater monitoring system, but retained by the facility, must be constructed and maintained in accordance with 77 Ill. Adm. Code 920 regulations. Monitoring wells and piezometers that are improperly constructed must be abandoned in accordance with Condition III.D.3.

E. GROUNDWATER PROTECTION STANDARD

1. The following hazardous constituents and concentration limits comprise the groundwater protection standard in the vicinity of the MPC facility. (Total (unfiltered) values, derived from the applicable USEPA SW-846 (Third Edition) method, will be used for comparison with the concentration limits)

Field Parameters	Storet	Units
pH	00400	
Specific Conductance	00094	micromos/cm
Temperature of Water Sample	00011	(^{O}F)
Turbidity	45626	Ntus
Depth to Water (below land surface)	72019	Feet
Depth to Water (below measuring point)	72109	Feet
Elevation of Groundwater Surface	71993	Ft MSL
Elevation of Bottom of Well #	72020	Ft MSL
Elevation of Measuring Point (Top of casing) ##	72110	Ft MSL

\# Shall be determined during the second sampling event each year
Shall be surveyed once every five (5) years, or at the request of the Illinois EPA, or whenever the elevation changes as required by Condition III.I.5.

Hazardous Waste Constituents	Storet Number	Concentration Limits (mg/l) Class I	Class II
Volatile Organic Compounds			
Tetrachloroethylene	34475	0.005	0.025
Trichloroethene	39180	0.005	0.025
Cis-1,2-Dichloroethene	77093	0.07	0.2
Vinyl Chloride	39175	0.002	0.01
Inorganics (Totals)			
Cadmium	01027	0.005	0.05
Chromium	01034	0.1	1.0
Lead	01051	0.0075	0.1
Nickel	01067	0.1	2.0

2. Alternate concentration limits may be established where the Permittee can determine a constituent will not pose a substantial hazard to human health or the environment.

   a. Where a hazardous constituent has a standard in 35 Ill. Adm. Code 620, the facility must apply for an adjusted standard as outlined in Section 28.1 of the Environmental Protection Act or reapply once corrective measures have been implemented pursuant to 35 Ill. Adm. Code 620.450.

b. For those hazardous constituents without a 35 Ill. Adm. Code 620 standard, the alternative concentration limits proposed by the facility must be approved by the Illinois EPA.

3. The compliance period (post-closure period) during which the groundwater protection standard applies shall be extended until the Permittee demonstrates that the groundwater protection standard has not been exceeded at the point of compliance for three consecutive years.

F. CORRECTIVE ACTION PROGRAM

The Permittee shall conduct the corrective action program and perform groundwater monitoring detailed in this section, in accordance with the following:

1. Upon initiation of the corrective action program the GMZ shall be monitored and maintained. The GMZ is delineated by the groundwater monitoring wells found in Condition III.D.1.

2. The Permittee shall collect, preserve, analyze groundwater samples pursuant to Condition III.H.

3. The Permittee shall determine groundwater quality at each of the groundwater monitoring wells identified in Condition III.D.1 semi-annually during the active life (including closure and post-closure care period).

4. Samples collected during the second and fourth quarters shall be analyzed for the constituents identified in Condition III.E.1.

5. The Permittee shall determine the groundwater flow rate and direction in the uppermost aquifer at least annually from the monitoring wells listed in Condition III.D.1.

6. The Permittee shall evaluate the results of the analyses required by Condition III.F.3 above and identify:

   a. The concentration of any organic constituent detected which is equal to or greater than the appropriate concentration limit listed in Condition III.E.1.

   b. The concentration of any total (unfiltered) inorganic constituent detected which is equal to or greater than the appropriate concentration limit listed in Condition III.E.1.

c. The concentration of any constituent detected which was not detected during the previous sampling event.

d. The concentration of any constituent which exhibits a progressive increase over two (2) consecutive sampling events.

G. GROUNDWATER ELEVATIONS

1. The Permittee shall determine the groundwater surface elevation referenced to MSL at each well each time groundwater is sampled in accordance with Condition III.I.3.

2. The Permittee shall determine the surveyed evaluation of the "stick-up" referenced to MSL once every five (5) years, or at the request of the Illinois EPA, or whenever the elevation changes in accordance with Condition III.I.5.

3. Elevation, as referenced to MSL, of the bottom of each monitoring well (Storet 72020) is to be reported at least annually. The mandatory measurement shall be taken during the second semi-annual sampling event each year.

H. SAMPLING AND ANALYSIS PROCEDURES

The Permittee shall use the techniques and procedures described in Section E of the approved permit application, except as modified below, when obtaining and analyzing samples from the groundwater monitoring wells described in Condition III.D.1 above:

1. Samples shall be collected by the techniques described in Section E of the approved permit application.

2. Samples shall be preserved, shipped, and handled in accordance with the procedures specified in Section E of the approved permit application.

3. Samples shall be analyzed according to the procedures specified in Section E of the approved permit application.

4. Samples shall be tracked and controlled using the chain of custody procedures specified in Section E of the approved permit application.

I. REPORTING AND RECORDKEEPING

1. The Permittee shall enter all monitoring, testing and analytical data obtained in accordance with Conditions III.E, III.F, and III.G in the operating record.

2. Samples collected to meet the requirements of the groundwater monitoring program described in Conditions III.E and III.F shall be collected and reported, as identified in the table below. The result of the analyses conducted on the groundwater quality samples shall be submitted in accordance with this schedule. All additional data collected for the groundwater monitoring program (as specified in Conditions III.E, III.F, and III.G) shall also be submitted to the Illinois EPA in accordance with this schedule.

Samples to be Collected During the Months of	Results Submitted to the Illinois EPA by the Following	Constituents
Second Quarter	July 15	III.E.1
Fourth Quarter	January 15	III.E.1

3. Groundwater surface elevation data, measured pursuant to Condition III.G.1 shall be collected at least semi-annually and submitted to the Illinois EPA as identified in the table above.

4. The Permittee shall report the groundwater flow rate and direction in the uppermost aquifer, as required by Condition III.F.5 during the second semi-annual sampling event of each year.

5. The Permittee shall report the surveyed elevation, as required by Condition III.G.2, of the top of the well casing ("stick-up"), referenced to MSL, in accordance with the following schedule:

   a. For wells identified in Condition III.D.1 above, every five years (during the second sampling event), or at the request of the Illinois EPA, or whenever the elevation changes. The initial "re-survey" of these wells shall be conducted during the second semi-annual sampling event following the effective date of the Permit.

   b. For any new wells, at the time of installation and reported in the as-built diagrams. Subsequent measurements shall be made every five years (during the second quarter sampling event) or whenever the elevation changes.

6. Elevation of the bottom of each monitoring well identified in Condition III.D.1, referenced to MSL, is to be reported annually. This measurement shall be taken during the second quarter sampling event. (Storet 72020)

7. Information required by Conditions III.I.2, III.I.3, III.I.5, and III.I.6 shall be submitted on the chemical analysis forms (Attachment F) or in another format/media pre-approved by the Illinois EPA.

8. The Permittee shall report all information to the Illinois EPA in a form which can be easily reviewed. All submittals must contain tables of data, drawings, and text (as necessary) to accurately describe the information contained in the submittal.

9. The Permittee shall submit a written report to the Illinois EPA, in accordance with this schedule the schedule found in Condition III.I.2 above, which discusses the effectiveness of the corrective action program.

J. REQUEST FOR PERMIT MODIFICATION

1. If the Permittee determines that the corrective action monitoring program no longer satisfies the requirements of 35 Ill. Adm. Code 724.200, then within ninety (90) days, the Permittee must submit an application for a permit modification to the Bureau of Land of the Illinois EPA to make any appropriate changes to the program which will satisfy the regulations.

2. Conditions in this section of the Permit may be modified in accordance with 35 Ill. Adm. Code 705.128 if there is cause for such modification, as defined in 35 Ill. Adm. Code 702.184. Causes for modification identified in this section include, but are not limited to, alterations to the permitted facility, additional information which would have justified the application of different permit conditions at the time of issuance, and new regulations.

SECTION IV

CORRECTIVE ACTION SOLID WASTE MANAGEMENT UNITS

A. INTRODUCTION

In accordance with Section 3004 of RCRA and 35 Ill. Adm. Code 724.201, the Permittee, Modern Plating Corporation, shall institute such corrective action as necessary to protect human health and the environment from all releases of hazardous wastes or hazardous constituents, listed in 35 Ill. Adm. Code 721. Appendix H and any solid waste management unit at their facility in Freeport, Illinois.

1. Modern Plating Corporation (MPC) has been addressing soil and groundwater contamination associated with releases from eight units at the facility: Lagoon 1, Lagoon 2, Lagoon 3, the Shawnee Building, Cyanide Treatment Vault, Lagoon 0, Lagoon 1A, and the Wetlands Area. The first four of these are RCRA hazardous waste management units and the second four are Solid Waste Management Units (SWMUs). Figure 1 shows the location of these units.

2. MPC has been carrying out RCRA closure/corrective action for the above units under USEPA's and Illinois EPA's oversight. Initially these efforts were carried out in accordance with an Illinois EPA RCRA interim status closure plan. Illinois EPA placed MPC on the Site Remedial Activities Priorities List on July 24, 1985 and then issued a 4 (q) Notice on June 20, 1986. On December 31, 1987, the USEPA issued a Administrative Order of Consent (AOC) which superseded the interim status closure plan. The efforts overseen by Illinois EPA and USEPA under these documents mainly focused on characterizing the nature and extent of soil and groundwater at the units identified above.

   In December 1996, the USEPA informed MPC that the selection and implementation of corrective action activities required at the MPC facility would be deferred to the Illinois EPA through the RCRA interim status closure plans already in place for the facility. Illinois EPA has addressed proposed remedial activities in letters to MPC dated May 23, 1997 (comments on a proposed outline for a closure plan modification request); September 15, 1997 (approval of a revised groundwater monitoring program); November 21, 1997 (comments on a proposed outline for a RCRA permit application);

March 2, 1998 (comments on a proposed RCRA closure plan modification request); June 1, 1998 (comments on a RCRA permit application); and November 18, 1998 (comments on the Revision 1 of the proposed RCRA closure plan).

A final RCRA closure plan for MPC was approved on December 2, 1999. The closure plan describes the procedures to be used to remediate waste and contaminated soil at the eight units identified above. A groundwater management zone was also established in the approved closure plan for this facility. Post-closure care of these units, including groundwater monitoring, will be established in the closure plan and this permit.

The waste and contaminated soil, removed in accordance with the approved plan, are to be placed in an on-site Corrective Action Management Unit (CAMU). Section II of this permit contains requirements associated with the design and operation (**post-closure care**) of the CAMU. Section III of this permit contains requirements associated with groundwater monitoring, and remediation if necessary, for the CAMU and the facility overall.

3. Illinois EPA has authority for imposing corrective action requirements at RCRA permitted facilities and will be responsible for overseeing future corrective activities at this facility.

4. MPC may conduct interim measures to minimize the impact of a release from any unit at the facility, provided such measures are approved in accordance with the terms and conditions of this permit.

5. The Permittee must provide corrective action, as appropriate, for any future releases from SWMUs present at the facility.

6. The Permittee must provide financial assurance for completing corrective action, as required by 35 Ill. Adm. Code 724.201.

7. The requirements of 35 Ill. Adm. Code 742 (TACO) must be met in determining remediation objectives for all corrective action activities.

B. REMEDIAL EFFORTS COMPLETED TO DATE

MPC entered a Consent Agreement and Final Order with the USEPA on November 23, 1985 which required the facility to submit: (1) a revised RCRA Part A application identifying all

hazardous waste management units at the facility including the Shawnee Building; (2) a RCRA closure plan and a RCRA interim status groundwater monitoring plans for Lagoons 1,2 and 3. The Illinois EPA approved a RCRA closure plan for Lagoons 1,2, and 3 to close as landfills on January 23, 1987.

The MPC was placed on Illinois EPA's Site Remedial Action Priorities List on July 24, 1985. On June 20, 1986 Illinois EPA issued a 4(q) Notice which required clean up of the MPC facility. An Administrative Order of Consent (AOC) was negotiated to combine Federal and State enforcement and permit actions on December 31, 1987. The AOC required MPC to perform a RCRA Facility Investigation (RFI) and Corrective Measure Study (CMS) for all the solid and hazardous waste management units at the facility and to implement corrective action.

During the RFI, it was determined through the investigations described below, that a total of eight units required remediation. These units included four hazardous waste management units (the Shawnee Building, Lagoon 1, Lagoon 2 and Lagoon 3) and four solid waste management units (Cyanide Treatment Vault, Lagoon 0, Lagoon 1A and the Wetlands Area).

In the Shawnee Building soil investigations were performed concurrently with the RFI/CMS at MPC. A RCRA closure plan for the hazardous waste storage areas (Area A, Area B and Area C) in the Shawnee Building was approved by the Illinois EPA in 1989. In 1993, soil cleanup objectives were established (compounds of concern include cadmium, cyanide, and trichloroethylene) and groundwater monitoring wells were installed. The extent of soil contamination has been defined and soil remediation has been incorporated into RCRA corrective action activities.

During RFI soil investigation soil borings BA-1A through B-6A were taken in order to verify the boundaries of the two buried lagoons, Lagoons 0 and Lagoon 1A. These results were mapped by an electromagnetic soil survey. Two (2) soil borings were completed in all five lagoons (LG-1-LG-10) to sample the depth of waste sludge. Twenty-three (23) soil samples were collected from the wetland area adjacent to the lagoons. Four (4) surface samples were taken at four of these locations to assess human exposure to soil. Soil data coupled with groundwater monitoring data described below indicated that the lagoons were the principle source of contamination.

Sediment samples taken from the Pecatonica River during the RFI indicated no measurable impact on sediment quality at the sampling stations. Surface water samples found elevated cadmium, chromium, and nickel concentrations relative to background in the meander lake.

However, the RFI environmental risk assessment performed in 1990 indicated that the potential exposure posed by the concentrations in the meander lake presented no health risk.

During the RFI, 13 additional monitoring wells were installed, 9A, 10A and well nests 17, 18 and 19 were installed. Well nests 17, 18, and 19 were installed to determine: (1) the extent of contamination in the unconsolidated and upper dolomite aquifers north of the lagoon area; and (2) the effect of the river on groundwater elevation in the aquifers near the river. Wells 9A and 10A were installed to determine: (1) groundwater contamination in the upper unconsolidated aquifer down-gradient of Lagoons 0 and Lagoon 1A; and (2) whether or not the water table was in contact with the bottoms of the lagoons.

The focus of investigation efforts from 1991 and 1993 was development of an acceptable corrective action measures study. During this time it was determined that additional soil samples and monitoring wells were necessary in order to: (1) determine if a release of hazardous waste or hazardous constituents into the soils, sediments, and/or groundwater had occurred during the operation of the underground cyanide treatment vault; and (2) to characterize the nature and extent of groundwater and soil contamination east and northeast of Lagoon 3. These investigative activities were completed in 1994.

Additional work on a corrective measures study for the facility was completed in 1995 and 1996. On December 24, 1996, USEPA sent MPC a letter stating that the AOC was terminated and the selection and implementation of a corrective action measure would be taken over by the Illinois EPA.

Illinois EPA and MPC met several times and exchanged several correspondences in 1997 and early 1998 in an effort to establish an acceptable plan for a remedial action at the eight units of concern. On June 26, 1998, Foth and Van Dyke (FVD), consultants for MPC, submitted to the Illinois EPA a report entitled "Modification to RCRA Closure Plan and Basis of Design Report (Revision 1)." This submittal contained: (1) a history of the investigative/remedial activities completed to date; (2) the anticipated steps for completing remedial activities at the eight units of concern at the site, including an evaluation of the site using the procedures in 35 Ill. Adm. Code 742 (TACO); and (3) remediation cost estimates and a post-closure care and monitoring program.

Illinois EPA indicated it could not approve the proposed closure plan in a November 18, 1998 letter and identified the deficiencies (in Attachments III through IV) found in the proposed plan. MPC/FVD submitted a series of letters in March, April and May 1999 in order to conceptually address the major issues raised in the November 18, 1998 letter from

the Illinois EPA. Illinois EPA responded to these submittals in a May 25, 1999 letter to MPC. This letter indicated that the majority of the deficiencies in the November 18, 1998 letter were adequately addressed in concept and also approved groundwater management zone. The letter also contained those items still not adequately addressed and requested a final revised RCRA closure plan.

C. CURRENT/FUTURE REMEDIAL ACTIVITIES

On July 22, 1999 Foth & Van Dyke submitted, on behalf of Modern Plating Corporation (MPC) a document entitled "Final RCRA Closure Plan and Basis Design Report" (Volume I and Volume II). The final RCRA closure plan stated that remediation activities for the eight units of concern must be performed in accordance with the July 22, 1999 final RCRA closure plan and is summarized below:

1. Lagoons 0, Lagoon 1, Lagoon 1A, Lagoon 2, and Lagoon 3 and the Cyanide Treatment Vault Area

   a. At Lagoons 0, 1, 1A, 2, and 3, MPC will over-excavate 1 foot of the base and 1 foot of interior side slopes. Excavated soil (an estimated 15,250 cubic yards) will be removed from the lagoons and be placed in a Corrective Action Management Unit (CAMU) to be constructed at the location of Lagoon 2 and Lagoon 3.

   b. In the Cyanide Treatment Vault Area, 2 feet of contaminated soil will be excavated from the floor and side walls of the former vault (approximately 200 cubic yards) and placed in the CAMU.

   c. After excavation activities, soil samples will be obtained in the lagoon areas and Cyanide Treatment Vault Area to define the amount of residual contamination.

   d. An engineered barrier meeting the requirements of 35 Ill. Adm. Code 724.328 will be placed over these areas. Institutional controls and 30 year post-closure monitoring will be present for all units not achieving clean closure. Clean closure is not the goal of remediation efforts at the Lagoons or the Cyanide Treatment Tank Area.

2. Shawnee Building

   At the Shawnee Building three areas were used for storage of hazardous waste. Remediation requires that soil meets 35 Ill. Adm Code 742 TACO Tier II remedial

objectives and a remedial objectives of 400 mg/kg for Lead. An estimated 30 cubic yards of soil will be removed in order to achieve these remedial objectives and meet the clean closure requirements of 35 Ill. Adm Code 725 Subpart G. Contaminated soil will be placed in the on-site CAMU.

3. Wetland Area
In the Wetland Area soil will be removed in three areas. Two of these areas are on-site areas immediately north of Lagoon 2 and one area is off-site area in the low area northeast of MW-13. Soil shall be excavated to meet 35 IAC Section 742 TACO - Tier I remedial objectives. Contaminated soil will be placed in the on-site CAMU. This effort will meet the clean closure requirements of 35 Ill. Adm Code 725 Subpart G.

4. A Groundwater Management Zone (GMZ) has been established to address contaminated groundwater at the MPC facility. The GMZ was approved in the May 25, 1999 letter from the Illinois EPA. Condition 1 and 2 of that letter were removed from the December 2, 1999 final RCRA closure plan approval. Section III also establishes the requirements for a GMZ at this facility.

5. MPC must place institutional controls meeting the requirements of 35 Ill. Adm. Code 742.1000 - Institutional Controls to restrict: (1) future land use; and (2) direct exposure in the future to soil remaining at the five (5) Lagoons and the Cyanide Treatment Vault unit.

D. FINANCIAL ASSURANCE FOR CORRECTIVE ACTION

1. The Permittee has prepared a cost estimate for completing the corrective action required under this permit, in order to provide financial assurance for completion of corrective action, as required under 35 IAC 724.201(b). The cost estimate was based upon the cost of contamination investigations and assessments for the SWMU(s), and design, construction, operation, inspection, monitoring, and maintenance of the corrective measure(s) to meet the requirements of 35 IAC 724.201. The initial cost to complete corrective action required under this permit. was estimated to be **$1,844,700 (1999 dollars)**. A revised cost estimate must be submitted upon written Illinois EPA request.

2. The Permittee shall demonstrate continuous compliance with 35 IAC 724.201 by providing documentation of financial assurance using a mechanism specified in 35 IAC 724.243, in at least the amount of the cost estimate required under Condition D. 1

above. The words "completion of corrective action" shall be substituted for "closure and/or post-closure", as appropriate in the financial instrument specified in 35 IAC 724.251. The documentation shall be submitted to the Illinois EPA within 30 days after Illinois EPA's approval of the initial or revised cost estimates required under Condition IV.D.1 above. The Illinois EPA may accept financial assurance for completion of corrective action in combination with another financial mechanism that acceptable under 35 IAC 724.246 at its discretion.

E. FUTURE RELEASES FROM SWMUs

1. The Permittee shall notify the Illinois EPA in writing of any newly-identified SWMU(s) or release from an existing SWMU discovered during the course of groundwater monitoring, field investigations, environmental audits, or other means, no later than sixty (60) calendar days after discovery. The notification shall provide the following information, as available:

   a. The location of the newly-identified SWMU in relation to other SWMUs on a scaled map or drawing;

   b. The type and past and present function of the unit;

   c. The general dimensions, capacities, and structural description of the unit (available drawings and specifications provided);

   d. The period during which the unit was operated;

   e. The specifics on all materials, including but not limited to, wastes and hazardous constituents, that have been or are being managed at the SWMU, to the extent available; and

   f. The results of any relevant available sampling and analysis which may aid in determining whether releases of hazardous wastes or hazardous constituents have occurred or are occurring from the unit.

2. If the submitted information demonstrates a potential for a release of hazardous waste or hazardous waste constituents from the newly identified SWMU, the Illinois EPA

may request in writing, that the Permittee prepare a Solid Waste Management Unit (SWMU) Assessment Plan and a proposed schedule of implementation and completion of the Plan for any additional SWMU(s) discovered subsequent to the issuance of this Permit.

3. Within 120 calendar days after receipt of the Illinois EPA request for a SWMU Assessment Plan, the Permittee shall submit a SWMU Assessment Plan to Illinois EPA. The plan shall propose investigations, including field investigations if necessary, to determine the release potential to specific environmental media for the newly-identified SWMU. The SWMU Assessment Plan must demonstrate that the sampling and analysis program, if applicable, is capable of yielding representative samples and must include parameters sufficient to identify migration of hazardous waste and hazardous constituents from the newly-discovered SWMU(s) to the environment.

4. After the Permittee submits the SWMU Assessment Plan, the Illinois EPA shall either approve, approve with conditions or disapprove the Plan in writing. If the plan is approved, the Permittee shall begin to implement the Plan within forty-five (45) calendar days of receiving such written notification. If the Plan is disapproved, the Illinois EPA shall notify the Permittee in writing of the Plan's deficiencies specify a due date for submittal of a revised plan.

5. The Permittee shall submit a report documenting the results of the approved SWMU Assessment Plan to the Illinois EPA in accordance with the schedule in the approved SWMU Assessment Plan. The SWMU Assessment Report shall describe all results obtained from the implementation of the approved SWMU Assessment Plan. Based upon the results of Illinois EPA's review of this submittal, it may be necessary for the Permittee to conduct further investigation, develop final remediation objectives or carry out a corrective measures program.

F. INTERIM MEASURES

At any time during the completion of remedial activities the Permittee may initiate additional interim measures for the purpose of preventing continuing releases and/or mitigating the results of releases and/or mitigating the migration of hazardous wastes or hazardous constituents. It shall not be necessary to conduct all phases of an investigation prior to implementing an interim measure if the Illinois EPA and the Permittee agree that a problem can be corrected, or a release cleaned up, without additional study and/or without a formal Corrective Measure Study.

1. Prior to implementing any interim measures beyond those specified above, the Permittee must submit detailed information regarding the proposed interim measure to the Illinois EPA for approval. This information shall include, at a minimum:

   a. Objectives of the interim measures: how the measure is mitigating a potential threat to human health and the environment and/or is consistent with and integrated into any long-term solution at the facility;

   b. Design, construction, and maintenance requirements;

   c. Schedules for design and construction; and

   d. Schedules for progress reports.

2. If the Illinois EPA determines that a release cannot be addressed without additional study and/or a formal CMS, then the Illinois EPA will notify the Permittee that these must be performed. Any proposal made under this provision or any other activity resulting from such proposal, including the invocation of dispute resolution, shall not affect the schedule for implementation of the remedial action plan or of any other portion of the permit.

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SECTION V

STANDARD CONDITIONS

GENERAL REQUIREMENTS

1. EFFECT OF PERMIT. The existence of a RCRA permit shall not constitute a defense to a violation of the Environmental Protection Act or Subtitle G, except for development, modification or operation without a permit. Issuance of this permit does not convey property rights or any exclusive privilege. Issuance of this permit does not authorize any injury to persons or property or invasion of other private rights, or infringement of state or local law or regulations. (35 IAC 702.181)

2. PERMIT ACTIONS. This permit may be modified, reissued or revoked for cause as specified in 35 IAC 703.270 through 703.273 and Section 702.186. The filing of a request by the Permittee for a permit modification or revocation, or a notification of planned changes or anticipated noncompliance on the part of the Permittee does not stay the applicability or enforceability of any permit condition. (35 IAC 702.146)

3. SEVERABILITY. The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby. (35 IAC 700.107)

4. PERMIT CONDITION CONFLICT. In case of conflict between a special permit condition and a standard condition, the special condition will prevail. (35 IAC 702.160)

5. DUTY TO COMPLY. The Permittee shall comply with all conditions of this permit except for the extent and for the duration such noncompliance is authorized by an emergency permit. Any permit noncompliance constitutes a violation of the Environmental Protection Act and is grounds for enforcement action; permit revocation or modification; or for denial of a permit renewal application. (35 IAC 702.141 and 703.242)

6. DUTY TO REAPPLY. If the Permittee wishes to continue an activity allowed by this permit after the expiration date of this permit, the Permittee must apply for a new permit at least 180 days before this permit expires, unless permission for a later date has been granted by the Illinois EPA. (35 IAC 702.142 and 703.125)

7. PERMIT EXPIRATION. This permit and all conditions herein will remain in effect beyond the permit's expiration date if the Permittee has submitted a timely, complete application (see 35 IAC 703.181-703.209) and through no fault of the Permittee the Illinois EPA has not issued a new permit as set forth in 35 IAC 702.125.

8. NEED TO HALT OR REDUCE ACTIVITY NOT A DEFENSE. It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. (35 IAC 702.143)

9. DUTY TO MITIGATE. In the event of noncompliance with the permit, the permittee shall take all reasonable steps to minimize releases to the environment, and shall carry out such measures as are reasonable to prevent significant adverse impacts on human health or the environment. (35 IAC 702.144)

10. PROPER OPERATION AND MAINTENANCE. The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory, and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit. (35 IAC 702.145)

11. DUTY TO PROVIDE INFORMATION. The Permittee shall furnish to the Illinois EPA, within a reasonable time, any relevant information which the Illinois EPA may request to determine whether cause exists for modifying, revoking and reissuing or terminating this permit, or to determine compliance with this permit. The Permittee shall also furnish to the Illinois EPA, upon request, copies of records required to be kept by this permit. (35 IAC 702.148)

12. INSPECTION AND ENTRY. The Permittee shall allow an authorized representative of the Illinois EPA, upon the presentation of credentials and other documents as may be required by law, to:

    a. Enter at reasonable times upon the Permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

d. Sample or monitor, at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the appropriate Act, any substances or parameters at any location. (35 IAC 702.149)

13. MONITORING AND RECORDS. (35 IAC 702.150)

a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a representative sample of the waste must be the appropriate method from Appendix A of 35 IAC 721. Laboratory methods must be those specified in Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-846, latest versions; Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, latest versions; or an equivalent method as specified in the approved Waste Analysis Plan.

b. The Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports and records required by this permit, and records of all data used to complete the application for this permit for a period of at least 3 years from the date of the sample, measurement, report or application. These periods may be extended by request of the Illinois EPA at any time. The permittee shall maintain records from all groundwater monitoring wells and associated groundwater surface elevations, for the active life of the facility, and for disposal facilities for the post-closure care period as well.

c. Records of monitoring information shall include:

i. The date(s), exact place, and time of sampling or measurements;

ii. The individual(s) who performed the sampling or measurements;

iii. The date(s) analyses were performed;

iv. The individual(s) who performed the analyses;

v. The analytical technique(s) or method(s) used; and

vi. The result(s) of such analyses. (35 IAC 702.150)

14. REPORTING PLANNED CHANGES. The permittee shall give written notice to the Illinois EPA as soon as possible of any planned physical alterations or additions to the permitted facility. In general, proposed changes to the facility will need to be submitted to the Illinois EPA as permit modification request that complies with the requirements of 35 IAC 703.280. (35 Ill. Adm. Codes 702.152(a))

15. CONSTRUCTION CERTIFICATION. For a new hazardous waste management facility, the permittee shall not commence treatment, storage or disposal of hazardous waste; and for a facility being modified the permittee shall not treat, store or dispose of hazardous waste in the modified portion of the facility, until:

a. The permittee has submitted to the Illinois EPA by certified mail or hand delivery a letter signed by the permittee and a registered professional engineer stating that the facility has been constructed or modified in compliance with the permit; and

b. 1. The Illinois EPA has inspected the modified or newly constructed facility and finds it is in compliance with the condition of the permit; or

2. If, within 15 days of the date of submission of the letter in paragraph (a), the permittee has not received notice from the Illinois EPA of its intent to inspect, prior inspection is waived and the permittee may commence treatment, storage or disposal of hazardous waste. (35 Ill. Adm. Code 703.247)

16. ANTICIPATED NONCOMPLIANCE. The Permittee shall give advanced written notice to the Illinois EPA of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements, regulations, or the Act. (35 Ill. Adm. Code 702.152(b))

17. TRANSFER OF PERMITS. This permit may not be transferred by the permittee to a new owner or operator unless the permit has been modified or reissued pursuant to 35 IAC 703.260(b) or 703.272. Changes in the ownership or operational control of a facility must be made as a Class 1 modification with the prior written approval of the Illinois EPA. The new owner or operator shall submit a revised permit application no later than 90 days prior to the scheduled change. (35 Ill. Adm. Code 703.260)

18. MONITORING REPORTS. Monitoring results shall be reported at the intervals specified in the permit. (35 IAC 702.152(d))

19. COMPLIANCE SCHEDULES. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than specified in 35 IAC 702.162. (35 IAC 702.152(e))

20. TWENTY-FOUR HOUR REPORTING.

    a. The Permittee shall report to the Illinois EPA any noncompliance with the permit which may endanger health or the environment. Any such information shall be reported orally within 24 hours from the time the Permittee becomes aware of the following circumstances. This report shall include the following:

        i. Information concerning the release of any hazardous waste that may cause an endangerment to public drinking water supplies.

        ii. Information concerning the release or discharge of any hazardous waste or of a fire or explosion at the HWM facility, which could threaten the environment or human health outside the facility.

    b. The description of the occurrence and its cause shall include:

        i. Name, address, and telephone number of the owner or operator;

        ii. Name, address, and telephone number of the facility;

        iii. Date, time, and type of incident;

        iv. Name and quantity of material(s) involved;

        v. The extent of injuries, if any;

        vi. An assessment of actual or potential hazards to the environment and human health outside the facility, where applicable; and

        vii. Estimated quantity and disposition of recovered material that resulted from the incident.

c. A written submission shall also be provided within 5 days of the time the Permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance including exact dates and times and if the noncompliance has not been corrected; the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. The Illinois EPA may waive the five day written notice requirement in favor of a written report within fifteen days. (35 IAC 702.152(f) and 703.245(b))

21. OTHER NONCOMPLIANCE. The Permittee shall report all instances of noncompliance not otherwise required to be reported under Standard Conditions 16, 19, and 20, at the time monitoring reports, as required by this permit, are submitted. The reports shall contain the information listed in Standard Condition 20. (35 IAC 702.152(g))

22. OTHER INFORMATION. Where the Permittee becomes aware that it failed to submit any relevant facts in the permit application, or submitted incorrect information in a permit application or in any report to the Illinois EPA, the Permittee shall promptly submit such facts or information. (35 IAC 702.152(h))

23. ANNUAL REPORT: An annual report must be submitted covering facility activities during the previous calendar year. (35 IAC 724.175)

24. SUBMITTAL OF REPORTS OR OTHER INFORMATION. All written reports or other written information required to be submitted by the terms of this permit shall be sent to:
    Illinois Environmental Protection Agency
    Bureau of Land
    Planning and Reporting Section - #24
    1021 North Grand Avenue East
    Post Office Box 19276
    Springfield, Illinois 62794-9276

25. SIGNATORY REQUIREMENT. All permit applications, reports or information submitted to the Illinois EPA shall be signed and certified as required by 35 IAC 702.126. (35 IAC 702.151)

26. CONFIDENTIAL INFORMATION. Any claim of confidentiality must be asserted in accordance with 35 IAC 702.103 and 35 IAC 161.

27. DOCUMENTS TO BE MAINTAINED AT FACILITY SITE. The Permittee shall maintain at the facility, until closure is complete, the following documents and amendments, revisions and modifications to these documents:

a. Waste analysis plan as required by 35 IAC 724.113(b) and this permit.

b. Personnel training documents and records as required by 35 IAC 724.116(d) and this permit.

c. Contingency plan as required by 35 IAC 724.153(a) and this permit.

d. Closure plan as required by 35 IAC 724.212(a) and this permit.

e. Cost estimate for facility closure as required by 35 IAC 724.242(d) and this permit.

f. Operating record as required by 35 IAC 724.173 and this permit.

g. Inspection schedules as required by 35 IAC 724.115(b) and this permit.

28. WASTE MINIMIZATION. The Permittee shall certify at least annually that the Permittee has a program in place to reduce the volume and toxicity of hazardous waste that he generates to the degree determined by the Permittee to be economically practicable, and the proposed method of treatment, storage, or disposal is that practicable method currently available to the Permittee which minimizes the present and future threat to human health and the environment, in accordance with 35 IAC 724.173(b)(9).

GENERAL FACILITY STANDARDS

29. GENERAL WASTE ANALYSIS. The Permittee shall comply with the procedures described in the approved waste analysis plan. (35 IAC 724.113)

30. SECURITY. The Permittee shall comply with the security provisions of 35 IAC 724.114(b) and (c).

31. GENERAL INSPECTION REQUIREMENTS. The Permittee shall follow the approved inspection schedule. The Permittee shall remedy any deterioration or malfunction discovered by an inspection as required by 35 IAC 724.115(c). Records of inspections shall be kept as required by 35 IAC 724.115(d).

32. PERSONNEL TRAINING. The Permittee shall conduct personnel training as required by 35 IAC 724.116 and shall maintain training documents and records as required by 35 IAC 724.116(d) and (e).

PREPAREDNESS AND PREVENTION

33. DESIGN AND OPERATION OF FACILITY. The Permittee shall maintain and operate the facility to minimize the possibility of fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment. (35 IAC 724.131)

34. REQUIRED EQUIPMENT. The Permittee shall equip the facility with the equipment set forth in the approved contingency plan, as required by 35 IAC 724.132.

35. TESTING AND MAINTENANCE OF EQUIPMENT. The Permittee shall test and maintain the equipment specified in condition 36 as necessary to assure its proper operation in time of emergency. Such testing and maintenance activities are set forth in the approved inspection schedule. (35 IAC 724.133)

36. ACCESS TO COMMUNICATIONS OR ALARM SYSTEM. The Permittee shall maintain access to the communications or alarm system as required by 35 IAC 724.134.

37. ARRANGEMENTS WITH STATE AND LOCAL AUTHORITIES AND EMERGENCY RESPONSE CONTRACTORS. The Permittee shall attempt to make emergency response arrangements with State and local authorities and agreements with State emergency response teams and emergency response contractors and equipment suppliers as required by 35 IAC 724.137. If State or local officials refuse to enter in preparedness and prevention arrangements with the Permittee, the Permittee must document this refusal in the operating record.

CONTINGENCY PLAN

38. IMPLEMENTATION OF PLAN. The provisions of the contingency plan must be carried out by the Permittee immediately whenever there is a fire, explosion or release of hazardous waste or hazardous waste constituents which could threaten human health or the environment (35 IAC 724.151(b)). At a minimum, this includes any fire or explosion which occurs in an area where hazardous waste is being managed (treated, stored or disposed) (35 IAC 703.241). Within 15 days of any incident that requires implementation of the contingency plan, the owner or operator must submit a written report to the Illinois EPA as required by 35 IAC 724.156(j).

39. COPIES OF PLAN. A copy of the contingency plan, including any revisions, must be maintained at the facility and submitted to all local police and fire departments, hospitals and state and local emergency response teams as required by 35 IAC 724.153.

40. AMENDMENTS TO PLAN. The Permittee shall review and immediately amend, if necessary, the contingency plan, as required by 35 IAC 724.154.

41. EMERGENCY COORDINATOR. A trained emergency coordinator shall be available at all times in case of an emergency as required by 35 IAC 724.155 and 724.156.

RECORD KEEPING AND REPORTING

42. OPERATING RECORD. The Permittee shall maintain a written operating record at the facility in accordance with 35 IAC 724.173.

43. ANNUAL REPORT. The Permittee shall prepare and submit an annual report to the Illinois EPA prior to March 1st of each year in accordance with the requirements of 35 IAC 724.175.

CLOSURE

44. PERFORMANCE STANDARD. The Permittee shall close the facility as required by 35 IAC 724.211 and in accordance with the approved closure plan.

45. AMENDMENT TO CLOSURE PLAN. The Permittee must amend the closure plan whenever there is a change in the expected year of closure or whenever a change in the facility operation plans or facility design affects the closure plan pursuant to 35 IAC 724.212(c).

46. NOTIFICATION OF CLOSURE. The Permittee shall notify the Illinois EPA at least 60 days prior to the date it expects to begin closure. (35 IAC 724.212(d))

47. TIME ALLOWED FOR CLOSURE. After receiving the final volume of hazardous waste, the Permittee shall treat or remove from the site all hazardous waste and complete closure activities in accordance with the schedule(s) specified in the closure plan. (35 IAC 724.213)

48. DISPOSAL AND/OR DECONTAMINATION OF EQUIPMENT. When closure is completed, the Permittee shall decontaminate and/or dispose of all facility equipment and structures as required by the approved closure (35 IAC 724.214) plan.

49. CERTIFICATION OF CLOSURE. When closure is completed, the Permittee shall submit certification to the Illinois EPA in accordance with 35 IAC 724.215 that the facility has been closed as specified by the approved closure plans.

50. COST ESTIMATE FOR FACILITY CLOSURE. The Permittee's original closure cost estimate, prepared in accordance with 35 Ill. Adm. Code 724.242, must be:

    a. Adjusted for inflation either 60 days prior to the anniversary date of the establishment of the financial instrument(s) used to comply with Section 724.243. If the owner/operator is using the financial test or corporate guarantee, it must be updated for inflation within 30 days after close of the firm's fiscal year, and before the submission of updated information to the Illinois EPA as specified in Section 724.243(f).

    b. Revised no later than 30 days after the Illinois EPA has approved a request to modify the closure plan, if the change in the closure plan increases the cost of closure.

    c. Kept on record at the facility and updated. (35 Ill. Adm. Code 724.242)

    d. Made immediately available to Illinois EPA personnel upon Illinois EPA request.

51. FINANCIAL ASSURANCE FOR FACILITY CLOSURE. The Permittee shall demonstrate compliance with 35 IAC 724.243 by providing documentation of financial assurance, as required by 35 IAC 724.251, in at least the amount of the cost estimates required by the previous Permit Condition. Changes in financial assurance mechanisms must be approved by the Illinois EPA pursuant to 35 IAC 724.243.

52. LIABILITY REQUIREMENTS. The Permittee shall demonstrate continuous compliance with the requirements of 35 IAC 724.247 and the documentation requirements of 35 IAC 724.251.

53. INCAPACITY OF OWNERS OR OPERATORS, GUARANTORS, OR FINANCIAL INSTITUTIONS. The Permittee shall comply with 35 IAC 724.248 whenever necessary.

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1770200010
Modern Plating Corp.
RCRA Log No. B-167

December, 1999
Page VI-1 of VI-6

SECTION VI

REPORTING AND NOTIFICATION REQUIREMENTS

The reporting and notification requirements of each section of the RCRA permit are summarized below. This summary is provided to highlight the various reporting and notification requirements of this permit.

CONDITION	SUBMITTAL	DUE DATE
CAMU Construction, Operation, and Closure		
I.D.10	Notification of deviation of design plans or non-conforming work observed by CQA officer.	Prior to resuming work in the impacted area.
I.E.1	Construction Certification Report	Within 30 days after completing construction and prior to placement of waste in the CAMU.
I.G.2	Notify appropriate state and local officials	Immediately when Contingency Plan is implemented.
I.G.3	Notify appropriate IEMA and IEPA	Within 24 hours of implementing the Contingency Plan.
I.G.5	Documentation that arrangements have been made with local response teams in case of an emergency.	Within 60 days of the effective date of this permit.
I.G.6	Documentation that copies of the Contingency Plan have been provided to local response teams.	Within 60 days of the effective date of this permit.
I.H.2	Plan to protect the CAMU from winter weather.	No later than November 1, 2000 if the CAMU is not closed by that date.

1770200010
Modern Plating Corp.
RCRA Log No. B-167

December, 1999

CONDITION	SUBMITTAL	DUE DATE
I.H.3	File the survey plat with any local zoning authority, or authority with jurisdiction over local land use, and record with land titles.	No later than the date the certification of closure of the CAMU is submitted to the Illinois EPA.
I.H.5	Certification of Closure	Within sixty (60) days after closure, or by January 1, 2001.
I.H.5.a	Certify to Illinois EPA that the notation required in I.H.4.a has been recorded.	Within 60 days after closure, or by January 1, 2001.
I.I.1	Documentation of financial assurance for closure.	Within 30 days of the effective date of this permit.
I.I.2	Documentation of financial assurance for post-closure.	As part of the closure documentation report and closure certification
I.I.3	Documentation of liability insurance.	Within 30 days of the effective date of this permit.
CAMU Post-Closure		
II.F.2	Notify appropriate state and local officials	Immediately when Contingency Plan is implemented.
II.F.3	Notify appropriate IEMA and IEPA	Within 24 hours of implementing the Contingency Plan.
II.G.3	Certify to the Illinois EPA that post-closure care was performed in accordance with the specifications.	Within 60 days after completion of the post-closure care period.
Groundwater Monitoring		

1770200010
Modern Plating Corp.
RCRA Log No. B-167

December, 1999
Page VI-3 of VI-6

CONDITION	SUBMITTAL	DUE DATE
III.D.1	The Well Depth (ft-bgs), Well Depth Elevation (ft-MSL), and Well Screen Interval (ft-MSL).	Within thirty (30) days of the date installation of groundwater monitoring wells MW-20C and MW-23C is completed.
III.D.3	Notify IEPA if any of the wells identified in Condition III.C.1 are damaged or the structural integrity has been compromised.	Within thirty (30) days of the date the damage is detected.
III.D.5	Provide Illinois EPA boring logs, construction diagrams and data sheets from new or replacement wells.	Within 30 days of the date installation is complete.
III.I.2	Groundwater monitoring data required each quarter and statistical calculations.	Samples Collected During Months of: Second Quarter, Fourth Quarter — Results to Illinois EPA by: July 15, January 15
III.I.3	Semi-annual groundwater surface elevation data.	According to the table in Condition III.I.2
III.I.4	Groundwater flow rate and direction in the uppermost aquifer.	Annually during the 2nd semi-annual sampling event.
III.I.5	Surveyed elevation of the top of the well casing ("stick-up")	At time of installation for new wells. For all wells: every 5 years during the 2nd sampling event, at the request of IEPA, or when the elevation changes.
III.I.6	Elevation of the bottom of each monitoring well.	Annually during the second quarter sampling event.

1770200010
Modern Plating Corp.
RCRA Log No. B-167

December, 1999
Page VI-4 of VI-6

CONDITION	SUBMITTAL	DUE DATE
III.J.1	Apply for permit modification to modify the corrective action monitoring program.	Within 90 days of determining the program no longer meets the requirements of 35 IAC 724.200.
Corrective Action		
IV.D.1	Revised cost estimate	Upon written request by Illinois EPA.
IV.D.2	Documentation of financial assurance	Within 30 days after Illinois EPA's approval of the initial or revised cost estimates required under Condition IV.D.1.
IV.E.1	Notify Illinois EPA in writing of any newly-identified SWMU(s) or release from an existing SWMU.	No later than sixty (60) calendar days after discovery.
IV.E.3	Submit a SWMU Assessment Plan to Illinois EPA.	Within 120 calendar days after receipt of the Illinois EPA request.
IV.E.5	Submit a report documenting the results of the approved SWMU Assessment Plan to the Illinois EPA	In accordance with the schedule in the approved SWMU Assessment Plan.
IV.F.1	Submit detailed information regarding the proposed interim measure to the Illinois EPA for approval.	Prior to implementing any interim measures beyond those specified in this permit.
Standard Conditions		
6	Complete application for new permit.	At least 180 days prior to permit expiration.

1770200010
Modern Plating Corp.
RCRA Log No. B-167

December, 1999
Page VI-5 of VI-6

CONDITION	SUBMITTAL	DUE DATE
11	Information requested by Illinois EPA and copies of records required to be kept by this permit.	Reasonable time.
14	Notify Illinois EPA of planned physical alterations or additions.	As soon as possible.
15	Construction Certification	Upon construction of a new or modified unit.
16	Notify Illinois EPA of changes which may result in permit noncompliance.	Prior to the planned change.
17	Application for permit modification indicating permit is to be transferred.	90 days prior to the planned change of ownership.
18	Monitoring reports	The intervals specified in the permit.
19	Submission of any information required in a compliance schedule.	Within 14 days after each schedule date.
20	Report to Illinois EPA any non-compliance which may endanger health or environment. By telephone In writing	 Within 24 hours after discovery. Within 5 days after discovery.
21	Report all other instances of noncompliance.	At the time monitoring reports, as required by this permit, are submitted
23	Annual Report	March 1 of each year.

1770200010
Modern Plating Corp.
RCRA Log No. B-167

December, 1999
Page VI-6 of VI-6

CONDITION	SUBMITTAL	DUE DATE
38	Report to Illinois EPA details regarding incident which required implementation of contingency plan.	Within 15 days after event.
43	Submit annual report required by 35 IAC 724.175.	March 1 of each year.
46	Notify Illinois EPA that expecting to close.	At least 60 days prior to beginning closure.
50(a)	Adjust closure cost estimate for inflation.	Within 30 days after anniversary date.
50(b)	Revision of closure cost estimate.	As needed.
53	Notify Illinois EPA of commencement of voluntary or involuntary bankruptcy proceedings.	Within 10 days after commencement of proceeding.

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ATTACHMENT A

CONSTRUCTION CERTIFICATION FORM and INSTRUCTIONS

MODERN PLATING CORPORATION

1770200010

RCRA LOG NO. B-167

CONSTRUCTION CERTIFICATION

This statement is to be completed by both the responsible officer and the registered professional engineer upon completion of construction in accordance with 35 IAC Section 702.126. Submit one copy of the certification with original signatures and two additional copies (four additional copies for UIC wells). Forward these certification statements and any information required by the permit to the following address:

Illinois Environmental Protection Agency
Bureau of Land - #33
Permit Section
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

FACILITY NAME: _____

IEPA SITE CODE: ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___

U.S. EPA ID NO.: IL___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___

PART B PERMIT LOG #/UIC PERMIT #: _____

PERMIT (OR MODIFICATION) ISSUANCE DATE: _____

PERMIT CONDITION NO. REQUIRING CERTIFICATION: _____

The _____ has been constructed in accordance with the specifications in the Part B/UIC Permit. Documentation that the construction was in accordance with the permit is contained in the enclosed report. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

_____ _____
Signature of Owner/Operator Name and Title

_____ _____
Signature of Registered P.E. Name of Registered P.E. and Illinois Registration Number

_____
Date (P.E. SEAL)

This Agency is authorized to require this information under Illinois Revised Statutes, 1979. Chapter 111 ½, Section 1039. Disclosure of this information is required under that Section. Failure to do so may prevent this form from being processed and could result in your application being denied. This form has been approved by the Forms Management Center.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276

THOMAS V. SKINNER, DIRECTOR

DATE: February 23, 1996

TO: Facilities Permitted Under the IEPA RCRA and UIC Programs

FROM: DLPC Permit Section

SUBJECT: Certification Documentation for Construction Required by IEPA-Issued Permits

When submitting certification required by a Part B or UIC permit for construction of any newly developed areas or units, please complete the attached certification form. Modifications to the construction of UIC wells should be certified with this form, but the installation of groundwater monitoring wells does not require this certification (unless specifically required by the permit). This will help to ensure that the submittal reaches its proper destination and that the certification will meet the regulatory requirements. Sending the Field Operations Section (F.O.S.) copy directly to the Field Office is acceptable as long as all copies have a completed copy of the enclosed form attached and you advise the Permit Section, in writing, that a copy has been sent to F.O.S.

A documentation report and as-built drawings (sealed and signed by an Illinois Professional Engineer) must be included with this certification. Information necessary to document the construction of the unit or area and to support the certification must be contained within the report. This report should include a thorough description of all construction data and drawings and should be formatted in a logical and orderly manner. The construction documentation report must contain at least the following items:

1. An introduction and summary which describes the scope and purpose of the project;

2. A description of all construction activities, including quality assurance and quality control;

3. As-built drawings of the area or unit and a description of any deviations from the plans and specifications approved in the permit;

4. A description of the test methods used and justification for any deviations from standard test methods;

5. A summary of test results, identification of any samples which did not meet the specifications and the corrective action and retesting which was undertaken in response to any failing test results;

6. Any necessary information associated with construction of the area or unit to document that construction was in accordance with the plans and specifications approved by the permit;

7. Information specifically required by the permit; and

8. Any available photographs of the area or unit.

If you have any questions, please contact a member of the DLPC Permit Section at 217/782-6762.

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Enclosure

ATTACHMENT B

INSPECTION SCHEDULE

MODERN PLATING CORPORATION

1770200010

RCRA LOG NO. B-167

Figure F-1

Modern Plating Corporation
CAMU Landfill
RCRA Part B Inspection Log
for Waste Pile Construction and Operation

Equipment or Area	Description	Activity Description	Frequency	Date	Time	Comments
F-2b(4)(c) - Wind Dispersal	Sludge Waste Piles	1. Check for visible dust generated by winds or vehicular traffic.	Weekly except daily if wind speed exceeds 10 mph. Check continually throughout the day under dry windy conditions.			
Facility Freeboard	Temporary Dewatering Sump	1. Check for proper operation and potential clogging. 2. Check dewatering sump for clogging. 3. Check dewatering pump for proper operation.	Weekly plus after each storm event of ½ inch of precipitation or more.			
F-2b(4)(a) Surface Water Management and Erosion Control Structure	Sedimentation Pond	1. Check for erosion; washouts 2. Check water and sediment depth 3. Check outfall water clarity 4. Remove sediments as required to maintain capacity.	For all semiannually and after each storm event of ½ inch or more			
	Ditches, Culverts, Spillways, etc.	1. Check for erosion, washouts 2. Check for siltation. 3. Check vegetated areas for washouts, rills, etc.	For all semiannually and after each storm event of ½ inch or more			
	Others	1. Check roads for mud tracking. 2. Check roads for washouts.	After each storm event of ½ inch or more.			

R000680

Revised Figure F-2

Modern Plating Corporation
CAMU Landfill
RCRA Part B Inspection Schedule and Log for Landfill Operations

Equipment or Area	Description	Activity Description	Frequency	Date	Time	Comments
F-b(7)(d) Leachate Collection System (LCS)	Side Slope Riser (SSR) Pump and Piping	1. Remove pump and clean pipeline	Annually			
		2. Check for leaks	5 days after start-up, repair leaks within 15 days.			
		3. Check for leaks weekly thereafter	As per manufacturer's O&M manual[1,2]			
		4. Service pumps	As per manufacturer's O&M manual[1,2]			
		5. Check pressure transducer for proper operation	As per manufacturer's O&M manual[1,2]			
		6. Check flow meters and pump controls for proper operation	15 days			
		7. Check alarms and alarm lights, etc., for proper operation				
2b(7)(b) Leachate Detection System (LDS)		1. Check liquid levels and remove liquids above pumping level. Record liquid level and leachate quantity in sump.[3]	Weekly during active site life; monthly after closure.			
		2. Check liquid levels and remove liquids above pumping level. Refer to 35 IAC 724.403 for frequencies if leakage does not occur.				
		3. Check pressure transduces for proper operation.	As per manufacturer's O&M manual			
		4. Check alarm lights for proper operation.	Weekly during active site life; monthly after closure.			
Geosynthetic Clay Liner (GCL)	Soil Liner/Cap	1. Inspect as per 35 IAC 724.403 and construction CQA plan	During, prior to placement and during covering.			Construction QA/QC activity
Geomembranes	Thermo-plastic Liners	1. Inspect as per 35 IAC 724.403 and construction CQA plan.	During, prior to placement and during covering.			Construction QA/QC activity
Exterior of CAMU Landfill	Berms	1. Check for wet spots and leaks.	Semiannually			
		2. Check for settlement, slumping or sloughing	Semiannually			
		3. Check for erosion and bare sod areas.	Semiannually and after each major rainfall event			

R000681

Revised Figure F-2 *(Continued)*

Equipment or Area	Description	Activity Description	Frequency	Date	Time	Comments
Security Devices	Means to Control Entry	1. Review condition of fencing and gates 2. Check for locks in operating order.	Semiannually Semiannually			
	Exterior Lighting	1. Check for proper light operation.	Semiannually			
F-2b(7)(a) Surface Water Management and Erosion Control Structure	Sedimentation Pond	1. Check for erosion; washouts 2. Check water and sediment depth 3. Check outfall water clarity 4. Remove sediments as required to maintain capacity.	For all semiannually and after each storm event of ½ inch or more			
	Ditches, Culverts, Spillways, etc.	1. Check for erosion, washouts 2. Check for siltation. 3. Check vegetated areas for washouts, rills, etc.	For all semiannually and after each storm event of ½ inch or more			
	Others	1. Check roads for mud tracking. 2. Check roads for washouts.	After each storm event of ½ inch or more.			
Erosion Control Devices		1. Riprap - inspect for washout and/or undercutting. 2. Erosion matting - inspect for washout and/or undercutting. 3. Erosion bales or silt fencing - inspect for washout or undercutting. 4. Ditches - inspect for erosion or siltation. 5. Velocity Breaks - Inspect for washout, undercutting, or siltation	After each storm event of ½ inch or more. After each storm event of ½ inch or more. After each storm event of ½ inch or more. After each storm event of ½ inch or more. After each storm event of ½ inch or more.			
F-2b(7)(c) Wind Dispersal	Landfilled Sludge and Contaminated Soil	1. Check for visible dust generated by winds or vehicular traffic.	Weekly except daily if wind speeds exceed 10 mph. Check continually throughout the day under dry, windy conditions.			

Signatures Date

Shift I Operator _____

Manager _____

[1]O&M Manual - Operations and Maintenance Manual.
[2]O&M Manual log for all mechanical equipment should be attached to this log.
[3]To be compared with the action leakage rate of 4,680 gal/day.

R000682

ATTACHMENT C

CLOSURE CERTIFICATION FORM

MODERN PLATING CORPORATION

1770200010

RCRA LOG NO. B-167

1770200010
Modern Plating Corporation
RCRA Log No. B-167

This statement is to be completed by both the responsible officer and by the registered professional engineer upon completion of closure. Submit one copy of the certification with original signatures and three additional copies.

Closure Certification Statement

The Corrective Action Management Unit (CAMU) at the Modern Plating facility in Freeport, Illinois as described in RCRA permit application Log No. B-176 has been closed in accordance with the specifications and requirements in the Illinois EPA approved permit application.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

USEPA ID Number	Facility Name
Signature of Owner	Name and Title
Signature of Operator	Name and Title
Signature of Registered P.E.	Name of Registered P.E. and Illinois Registration Number
Date	P.E. Seal and Expiration Date of License

ATTACHMENT D

CLOSURE & POST CLOSURE COST ESTIMATES

MODERN PLATING CORPORATION

1770200010

RCRA LOG NO. B-167

Modern Plating Company - CAMU Landfill

Phase 1 Site Development

By: MRS Date: 2/12/98 Checked By: Date:

Item	Units	No. of of Units (in-place)	Cost/Unit	Extension
1. Initial Site Preparation				
a. Construct berm around temporary storage area (imported)	cubic yard (cy)	300	$10.00	$3,000
b. Install temporary dewatering sump	lump sum (ls)	1	$1,000	$1,000
c. Excavate sludge from Lagoon 2 and place in storage area	cy	3,615	$23.00	$83,145
d. Cut/fill to subbase grades	cy	8,000	$8.00	$64,000
2. Double Liner System Construction				
a. GCL installation	square feet (sf)	28,400	$0.60	$17,040
b. 60 mil HDPE secondary geomembrane (textured)	sf	28,400	$0.60	$17,040
c. Geonet secondary drainage layer	sf	8,300	$0.45	$3,735
d. Geocomposite secondary drainage layer (sideslopes)	sf	20,800	$0.82	$17,056
e. 60 mil HDPE primary geomembrane (textured)	sf	28,400	$0.60	$17,040
f. Geocomposite primary drainage layer	sf	28,400	$0.82	$23,288
3. Leachate extraction system construction				
a. Leachate extraction sump & piping	lump sum (ls)	1	$5,000	$5,000
b. Leachate pump, controls, valves & flow meter	ls	1	$10,000	$10,000
c. Leachate forcemain (double-encased)	lf	60	$25	$1,500
d. Pump building	ls	1	$15,000	$15,000
4. Filling and closure construction				
a. Excavation and placement of sludge & soil from Lagoon 3	cy	6,850	$23.00	$157,550
b. 6" grading layer (imported)	cy	300	$10.00	$3,000
c. GCL installation	sf	19,600	$0.60	$11,760
d. 40 mil HDPE geomembrane (textured)	sf	19,600	$0.60	$11,760
e. 18" rooting zone layer (imported)	cy	900	$10.00	$9,000
f. 6" topsoil layer (imported)	cy	400	$14.00	$5,600
g. Sedimentation basin construction	ls	1	$1,000	$1,000
h. Seed, fertilizer & mulch	acre	0.45	$2,500	$1,125
i. Topsoil, seed, fertilizer & mulch areas outside berms	acre	0.40	$5,000	$2,000
5. Engineering and Documentation	ls	1	$50,000	$50,000
6. Permit review fees and legal fees	ls	1	$5,000	$5,000
			Subtotal =	**$536,000**
			15% Contingency =	**$80,000**
			Total Estimated Phase 1 Site Development Construction Cost =	**$616,000**

Modern Plating Company - CAMU Landfill

Phase 2 Site Development

By: MRS Date: 2/12/98 Checked By: Date:

Item	Units	No. of of Units (in-place)	Cost/Unit	Extension
1. Initial Site Preparation				
a. Fill to subbase grades (imported)	cubic yard (cy)	6,070	$10.00	$60,700
2. Double Liner System Construction				
a. GCL installation	square feet (sf)	25,400	$0.60	$15,240
b. 60 mil HDPE secondary geomembrane (textured)	sf	25,400	$0.60	$15,240
c. Geonet secondary drainage layer	sf	7,700	$0.45	$3,465
d. Geocomposite secondary drainage layer (sideslopes)	sf	17,700	$0.82	$14,514
e. 60 mil HDPE primary geomembrane (textured)	sf	25,400	$0.60	$15,240
f. Geocomposite primary drainage layer	sf	25,400	$0.82	$20,828
3. Leachate extraction system construction				
a. Leachate extraction sump & piping	lump sum (ls)	1	$5,000	$5,000
b. Leachate pump, controls, valves & flow meter	ls	1	$10,000	$10,000
4. Filling and closure construction				
a. Excavation and placement of sludge from Lagoon No.1	cy	7,060	$23.00	$162,380
b. Excavation and placement of sludge from Lagoon No.1a	cy	1,700	$23.00	$39,100
c. Excavation and placement of sludge from Lagoon No.0	cy	650	$23.00	$14,950
d. Excavation and placement of soil from Shawnee Building	cy	30	$8.00	$240
e. Excavation and placement of material from vault	cy	200	$8.00	$1,600
f. 6" grading layer (imported)	cy	600	$8.00	$4,800
g. GCL installation	sf	35,700	$0.60	$21,420
h. 40 mil HDPE geomembrane (textured)	sf	35,700	$0.60	$21,420
i. 18" rooting zone layer (imported)	cy	2,100	$10.00	$21,000
j. 6" topsoil layer (imported)	cy	700	$14.00	$9,800
k. Sedimentation basin construction	ls	1	$1,000	$1,000
l. Seed, fertilizer & mulch	acre	0.82	$2,500	$2,050
m. Replacement of fill in excavated areas	cy	2,600	$10.00	$26,000
n. Topsoil, seed, fertilizer & mulch areas outside berms	acre	0.6	$5,000	$3,000
o. Gas venting trench	lineal feet	200	$15.00	$3,000
p. Gas vents	each	4.0	$200	$800
q. Fencing	lineal feet	950.0	$15.00	$14,250
5. Engineering and Documentation	ls	1	$50,000	$50,000
6. Permit review fees and legal fees	ls	1	$5,000	$5,000
			Subtotal =	**$562,000**
			15% Contingency =	**$84,000**
			Total Estimated Phase 2 Site Development Construction Cost =	**$646,000**

Table I-2

Annual Long-Term Care Costs Estimate
Proposed CAMU Landfill
Modern Plating Corporation

Item/Description	Estimated Quantity	Unit Cost ($)	Cost ($)/Year
1. Site Inspections and Report (annual) (1 per year)	1 per yr	$1,000 ea	$1,000
2. Land Surface Care			
♦ Erosion Damage Repair (.9 cy/ac/yr on 2 ac)	1.8 cy	$50/cy	$90
♦ Revegetation and Soil Amendments (assume 10%/yr x 2.0 ac/yr)	.2 ac	$2,500/ac	$500
♦ Snow Plowing (assume 2 snowfall events)	2 ea	$200/ea	$400
3. Leachate Treatment[3]	44,000[5] gal/yr	$0.02/gal	$880
4. Leachate Hauling[4]	44,000 gal/yr	$0.20/gal	$8,800
5. Environmental Monitoring (semi-annually)			
♦ Groundwater (8 wells for metals and 14 wells for VOC, 2 times/year)	2 smpl events per year	$4,760/event	$9,520
♦ Leak Detection System (LDS) Monitoring (1 location, 12 times/year)	12 events	$100/event	$1,200
♦ Leachate Monitoring (1 location, 2 time/yr)	2 smpls	$140/smpl	$280

142

R000688

Table I-2 *(Continued)*

Item/Description	Estimated Quantity	Unit Cost ($)	Cost ($)/Year
♦ Stormwater Monitoring (2 locations, 2 times/year)	4 smpls	$40/smpl	$160
6. Mowing (2 ac per year)	2 ac	$50/ac	$100
7. Landfill Sump Pump (replace each pump every 5 yrs)	12 pumps	$1,400/ea	$560[2]
	Subtotal		$23,490
	Contingency (10%)		$2,350
	Total Cost per Year		$25,840

ac = acre
cy = cubic yard
mil = million
ea = each
ft = foot
gal = gallon
yr = year
smpl = sample

Prepared by: REM
Checked by: MRS

[1]Annual leachate volume will be estimated and cost calculated during the final design.
[2]Prorated to an annual cost over the 30-year long-term care period.
[3]Assumes treatment at a publicly owned wastewater treatment.
[4]Assumes on-site wastewater treatment plant is no longer operating and leachate must be trucked off-site.
[5]Assume leachate generation is equal to the quantity of water generated by the sludge itself.
As per Appendix N $\frac{1{,}300{,}000 \text{ gal}}{30 \text{ yrs}} \sim 44{,}000$ gal/yr

143

R000689

ATTACHMENT E

POST CLOSURE
INSPECTION & MAINTENANCE SCHEDULE

MODERN PLATING CORPORATION

1770200010

RCRA LOG NO. B-167

Revised Figure I-2a

Modern Plating Corporation
CAMU Landfill
RCRA Part B Inspection Schedule and Log for Post-Closure Period

Equipment or Area	Description	Activity Description	Frequency	Date	Time	Comments
Leachate Collection System (LCS)	Side Slope Riser (SSR) Pump and Piping	1. Remove pump and clean pipeline	Annually			
		2. Check for leaks	5 days after start-up, repair leaks within 15 days.			
		3. Check for leaks weekly thereafter	As per manufacturer's O&M manual			
		4. Service pumps	As per manufacturer's O&M manual			
		5. Check pressure transducer for proper operation	As per manufacturer's O&M manual			
		6. Check flow meter and pump controls for proper operation	Weekly during active life, monthly after closure			
		7. Check alarms and alarm lights for proper operation				
Leachate Detection System (LDS)		1. Check liquid levels and remove liquids above pumping level. Record liquid level and leachate quantity in sump.[1]	Weekly during active site life; monthly after closure.			
		2. Check liquid levels and remove liquids above pumping level. Refer to 35 IAC 724.403 for frequencies if leakage does not occur.				
		3. Check pressure transducers for proper operation	As per manufacturer's O&M manual			
		4. Check alarms and alarm lights for proper operation	Weekly during active site life, monthly after closure			
Geosynthetic Clay Liner (GCL)	Soil Liner/Cap	1. Inspect as per 35 IAC 724.403 and construction CQA plan	During, prior to placement and during covering.			Construction QA/QC activity

R000091

Revised Figure I-2a *(Continued)*

Equipment or Area	Description	Activity Description	Frequency	Date	Time	Comments
Geomembranes	Thermo-plastic Caps	1. Inspect as per 35 IAC 724.403 and construction CQA plan.	During, prior to placement and during covering.			Construction QA/QC activity
Final Cover (completed)	Vegetation of the final surface	1. Check for distress or bare soil areas. 2. Check for erosion. 3. Check slumping, settlement, subsidence, and/or displacement	Semiannually Semiannually and after each major rainfall event. Same as above			
Exterior of CAMU Landfill	Berms	1. Check for wet spots and leaks. 2. Check for settlement, slumping or sloughing 3. Check for erosion and bare sod areas.	Semiannually Semiannually Semiannually and after each major rainfall event			
Final Cover System Function	Geocomposite	1. Check for clogging and proper function	Semiannually and after each rainfall event			
	Geomembrane	1. Check areas where settlement or slumping is evident for geomembrane damage	Semiannually and after each rainfall event			
Run-on and Run-Off Control	Erosion Control Devices	1. Riprap - inspection for washout or undercutting 2. Ditches - inspect for siltation and/or erosion 3. Erosion bales or silt fencing - inspect for washout or undercutting 4. Culverts - inspect for washout/siltation at inlet and outlet	Quarterly and after each major rainfall event. Quarterly and after each major rainfall event. Quarterly and after each major rainfall event. Quarterly and after each major rainfall event.			

R000692

Revised Figure I-2a *(Continued)*

Equipment or Area	Description	Activity Description	Frequency	Date	Time	Comments
	Sedimentation Basins	1. Inspect berms for erosion, scouring and slumping	Quarterly and after each major rainfall event.			
		2. Inspect pond bottom for build-up of sediment	Quarterly and after each major rainfall event.			
		3. Inspect inlet and outlet for erosion and sedimentation	Quarterly and after each major rainfall event.			
		4. Inspect trash rack and rock filter	Quarterly and after each major rainfall event.			
Final Cover Surface	Vegetation	1. Inspection for growth and overall health	Quarterly and after each major rainfall event.			
		2. Evidence of stress	Quarterly and after each major rainfall event.			
		3. Bare spots from erosion, washout or die-offs, etc.	Quarterly and after each major rainfall event.			
	Final Cover	1. Erosion resulting in rills, gullies or bare soil.	Quarterly and after each major rainfall event.			
		2. Settlement resulting in loss of grade and/or water standing on the final cover.	Quarterly and after each major rainfall event.			
		3. Slumping or sloughing of final cover.	Quarterly and after each major rainfall event.			
Security Control Devices	Fences, Gates and Locks	1. Inspection for proper function. 2. Replace and repair as required	Semiannually			
Gas Venting System	Risers	1. Inspect for plugging.	Semiannually			
Groundwater Monitoring Wells	Protective Tops	1. Inspect protective tops and seal for integrity and function	Semiannually			
	Well	2. Record well condition, including well depth, siltation, water depth, well pipe condition and water quality.	Semiannually			

R000693

Revised Figure I-2a *(Continued)*

Equipment or Area	Description	Activity Description	Frequency	Date	Time	Comments
Horizontal and Vertical Control	Benchmarks	1. Check for disturbance and remark (i.e., flag and/or paint).	Annually			

[1] To be compared with the action leakage rate of 4,680 gal/day.

R000694

Figure I-2

Modern Plating Corporation
CAMU Landfill
Maintenance Plan
Post-Closure Periods

Equipment or Area	Description	Preventive Maintenance	Corrective Maintenance Procedures	Equipment Requirements	Material Needs
Leachate Collection System (LCS)	Side Slope Riser (SSR) Pump and Piping	1. Service pumps in accordance with the manufacturer's requirements 2. Clean pump according to the manufacturer's recommendations 3. Clean interior piping annually 4. Inspect liquid level sensor as per manufacturer's O&M manual	1. Refer to O&M manual 2. Repair leaks immediately after they are observed	1. Refer to O&M Manual 2. Refer to O&M Manual	Refer to O&M Manuals
Leachate Detection System (LDS)		1. Service pumps in accordance with the manufacturer's requirements 2. Clean pump according to the manufacturer's recommendations 3. Clean interior piping annually 4. Inspect liquid level sensor as per manufacturer's O&M manual	1. Refer to O&M manual 2. Repair leaks immediately after they are observed	1. Refer to O&M Manual 2. Refer to O&M Manual	Refer to O&M Manuals
Final Cover	Surface Water Management System	1. Clean culverts of debris	1. Correct erosion problems by installing erosion control devices	Truck, bobcat, shovel	Erosion mat, riprap, topsoil, etc.
	Cover Settlement		1. Fill settled areas and grade to drain 2. Revegetate filled areas	Truck, small bulldozer, seeder	Fill soil, topsoil, seed, fertilizer amd mulch
	Vegetation Final Surface	1. Mow grass semiannually 2. Revegetate bare spots and eroded areas	1. Repair eroded areas by filling with soil to grading and adding erosion mat prior to seeding 2. Seed, fertilize and mulch	Truck, small bulldozer, seeder and mower	Fill soil, topsoil, seed, fertilizer, mulch and erosion matting

R000695

Figure I-2 *(Continued)*

Equipment or Area	Description	Preventive Maintenance	Corrective Maintenance Procedures	Equipment Requirements	Material Needs
Berms	Exterior Berms	1. Mow grass semiannually 2. Revegetate bare spots and eroded areas	1. Repair eroded areas by filling with soil to grading and adding erosion mat prior to seeding 2. Seed, fertilize and mulch	Truck, small bulldozer, seeder	Fill soil, topsoil, seed, fertilizer, mulch and erosion matting
Environmental Monitoring Devices	Groundwater Monitoring Wells	1. Mark wells with flag to prevent damage during other maintenance.	1. Repair/replace broken protector pipes, surface seals and locks	Shovel	Protector pipes, bentonite lock/key set, PVC pipe
Security Devices	Means to Control Entry Exterior Lighting	1. Repaint rusted or scratched areas. 1. Replace burnt out bulbs.	1. Repair or replace worn or rusty fences.	Hand tools	Fence/gate parts and locks
Surface Water Management and Erosion Control Structure	Sedimentation Pond	1. Clean sediment from ponds. 2. Remove debris from pipes and trash rock.	1. Repair eroded inlet/outlet, dikes, etc. 2. Repair eroded or silted in areas. 3. Clean trash rack, inlet and outlet pipes.	Backhoe, truck, shovel	Fill soil, erosion control materials (e.g., riprap), pipes
	Ditches, Culverts, Spillways, etc.	1. Clean sediment from ditches.	1. Replace rusted culverts. 2. Repair eroded areas and install erosion control measures.	Backhoe, truck, shovels	Fill soil erosion control materials (e.g., riprap), pipes
Access Roads		1. Remove mud tracking.	1. Repair ruts, pot holes, etc.	Truck, shovels	Road gravel
Final Cover	Gas Vents	1. Clean vents.	1. Repair, replace damaged vents and surface seals.	Shovel	Piping, glue, etc.

R000696

ATTACHMENT F

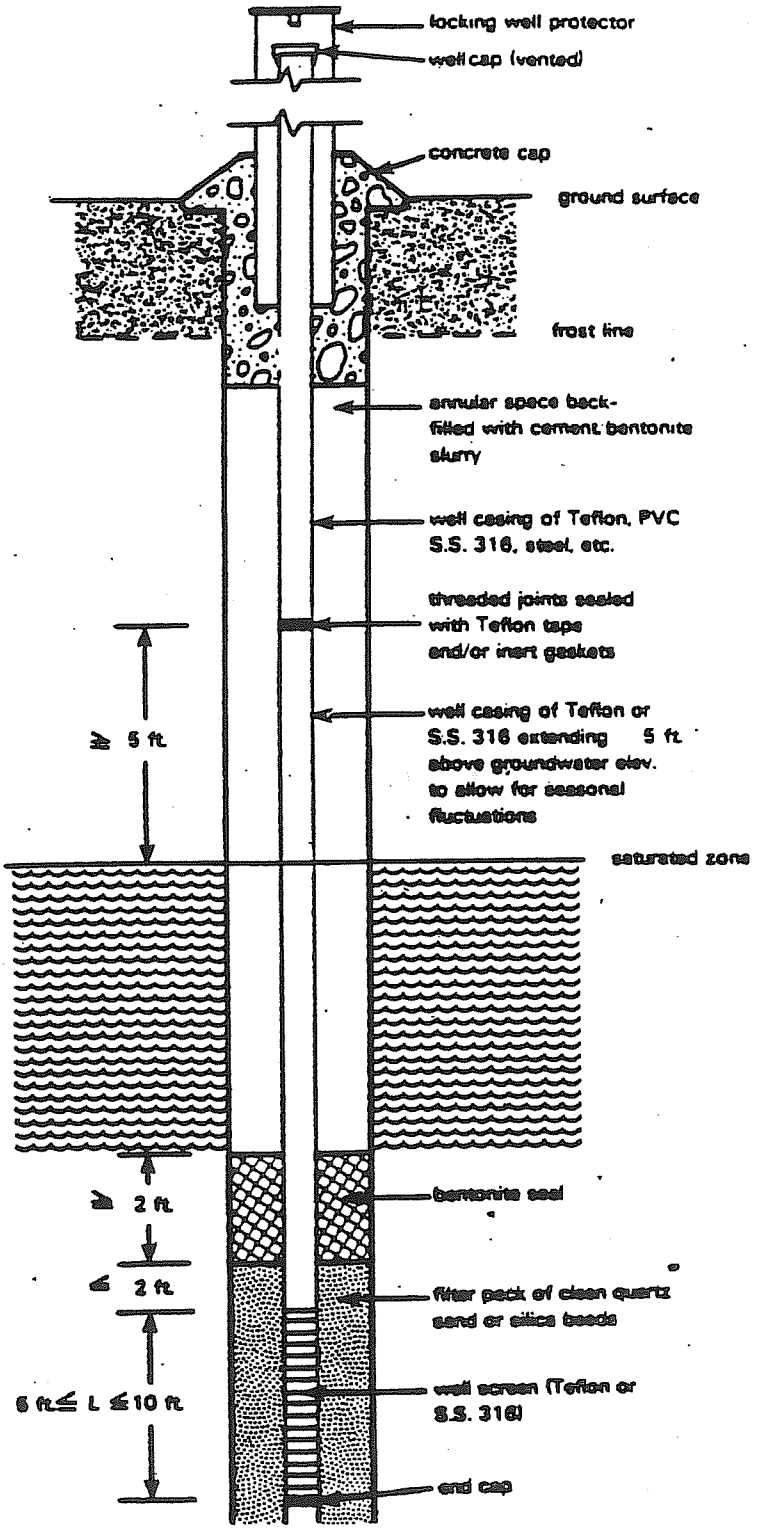
GROUNDWATER MONITORING PROGRAM ATTACHMENTS

MODERN PLATING CORPORATION

1770200010

RCRA LOG NO. B-167

Monitoring Well Diagram



Illinois Environmental Protection Agency — Field Boring Log

Page ____ of ____

Site File No.: _____ County _____ Boring No. _____ Monitor Well No. _____

Site File Name _____ Surface Elevation _____ Completion Depth _____

Fed. ID. No. _____ Auger Depth _____ Rotary Depth _____

Quadrangle _____ Sec. ____ T. ____ R. ____ Date: Start _____ Finish _____

UTM (or State Plane) Coord. N.(X) _____ E.(Y) _____

Latitude ° ' " Longitude ° ' "

Boring Location _____

Drilling Equipment _____

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth In Feet	SAMPLES: Sample No.	Sample Type	Sample Recovery (%)	Penetrometer	N Values (Blow Counts)	OVA or HNU Readings	Personnel: G – D – H – H –	REMARKS

(BSCZZE)

Illinois Environmental Protection Agency — Well Completion Report

B000700

SITE #: _____ COUNTY: _____ WELL #: _____

SITE NAME: _____ BOREHOLE #: _____

STATE PLANE COORDINATE: X _____ Y _____ (or) LATITUDE: ____° ____' ____" LONGITUDE: ____° ____' ____"

SURVEYED BY: _____ ILL. REGISTRATION #: _____

DRILLING CONTRACTOR: _____ DRILLER: _____

CONSULTING FIRM: _____ GEOLOGIST: _____

DRILLING METHOD: _____ DRILLING FLUIDS (TYPE): _____

LOGGED BY: _____ DATE STARTED: _____ DATE FINISHED: _____

REPORT FORM COMPLETED BY: _____ DATE: _____

ANNULAR SPACE DETAILS

TYPE OF SURFACE SEAL: _____

TYPE OF ANNULAR SEALANT: _____

INSTALLATION METHOD: _____

SETTING TIME: _____

TYPE OF BENTONITE SEAL – GRANULAR, PELLET, SLURRY (CIRCLE ONE)

INSTALLATION METHOD: _____

SETTING TIME: _____

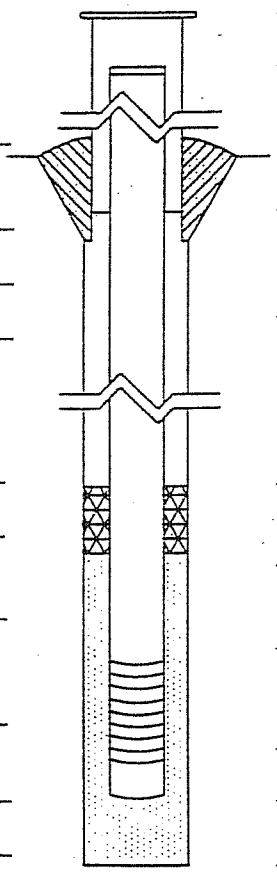
TYPE OF SAND PACK: _____

GRAIN SIZE: _____ (SIEVE SIZE)

INSTALLATION METHOD: _____

TYPE OF BACKFILL MATERIAL: _____ (IF APPLICABLE)

INSTALLATION METHOD: _____



ELEVATIONS (MSL)*	DEPTHS (BGS) (.01 ft)	
_____	_____	TOP OF PROTECTIVE CASING
_____	_____	TOP OF RISER PIPE
_____	_____	GROUND SURFACE
_____	_____	TOP OF ANNULAR SEALANT
_____	_____	STATIC WATER LEVEL (AFTER COMPLETION)
_____	_____	TOP OF SEAL
_____	_____	TOP OF SANDPACK
_____	_____	TOP OF SCREEN
_____	_____	BOTTOM OF SCREEN
_____	_____	BOTTOM OF WELL
_____	_____	BOTTOM OF BOREHOLE

* REFERENCED TO A NATIONAL GEODETIC VERTICAL DATUM

WELL CONSTRUCTION MATERIALS

(CIRCLE ONE)

PROTECTIVE CASING	SS304, SS316, PTFE, PVC OR OTHER:
RISER PIPE ABOVE W.T.	SS304, SS316, PTFE, PVC OR OTHER:
RISER PIPE BELOW W.T.	SS304, SS316, PTFE, PVC OR OTHER:
SCREEN	SS304, SS316, PTFE, PVC OR OTHER:

CASING MEASUREMENTS

DIAMETER OF BOREHOLE (in)	
ID OF RISER PIPE (in)	
PROTECTIVE CASING LENGTH (ft)	
RISER PIPE LENGTH (ft)	
BOTTOM OF SCREEN TO END CAP (ft)	
SCREEN LENGTH (1st SLOT TO LAST SLOT) (ft)	
TOTAL LENGTH OF CASING (ft)	
SCREEN SLOT SIZE **	

** HAND-SLOTTED WELL SCREENS ARE UNACCEPTABLE

(941014)

TABLE 1

IEPA MONITOR WELL PLUGGING PROCEDURES (test boring)

	Well Construction	Plugging Procedure
I. Unconsolidated Sediment Wells SCI	I-A. ...if backfilled with cement grout above bentonite seal and/or sandpack:	1. Cut casing off at desired depth. 2. Mix neat cement slurry (5 gal. water per 94 lb. bag cement) 3. Insert tremi pipe (1" i.d. pvc) into well and extend to bottom. 4. Slowly pump slurry under low pressure through tremi pipe. 5. Slowly withdraw tremi pipe - making sure bottom of pipe remains below pure slurry. 6. Continue slow pumping until all formation water and the watery slurry mix is displaced from top of casing.
	I-B. ...if backfilled with soft sediments (cuttings) above bentonite seal and/or sandpack:	1. Knock out and remove thin surface concrete plug, if present. 2. Re-auger entire length of well. 3. Remove well casing from re-augered borehole. 4. Mix neat cement slurry (5 gal. water per 94 lb. bag cement). 5. Insert tremi pipe (1" i.d. pvc) into augers and extend to bottom. 6. Slowly pump slurry under low pressure through tremi pipe. 7. Continue slow pumping until all formation water and the watery slurry mix is displaced from top of casing. 8. Slowly withdraw tremi pipe - making sure bottom of pipe remains below pure slurry. 9. Pull a flight of augers (5' if in unstable materials and hole collapse is likely or 10' if in competent material and collapse is unlikely). 10. Top off cement slurry after each flight is removed.
	I-C. ...if monitor well construction is unknown:	1. Follow procedures in I-A.
II. Bedrock Wells	II-A. ...All bedrock monitor wells:	1. Cut casing off at desired depth. 2. Mix neat cement slurry (5 gal. water per 94 lb. bag cement). 3. Insert tremi-pipe (1" i.d. pvc) into well and extend to bottom. 4. Slowly pump slurry under low pressure through tremi pipe. 5. Slowly withdraw tremi pipe making sure bottom of pipe remains below pure slurry. 6. Continue slow pumping until all formation water and the watery slurry mix is displaced from top of casing.

JM:tk:2/6/31

R000701

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF LAND POLLUTION CONTROL
CHEMICAL ANALYSIS FORM

R000702 Page 1 of _____

RECORD CODE: L P C S M 0 1 (cols 1–7) TRANS CODE: A (col 8)

REPORT DUE DATE ___/___/___ (cols 36 M D Y 41)

FEDERAL ID NUMBER _____

SITE INVENTORY NUMBER _____ (cols 9–18)

MONITOR POINT NUMBER (see Instructions) _____ (cols 19–22)

REGION _____ CO. _____

DATE COLLECTED ___/___/___ (cols 23 M D Y 28)

FACILITY NAME _____

FOR IEPA USE ONLY

LAB _____ (col 29)

DATE RECEIVED ___/___/___ (cols 42 M D Y 47)

BACKGROUND SAMPLE (X) _____ (col 54)

TIME COLLECTED (24 Hr. Clock) ___:___ (cols 55 H M 58)

UNABLE TO COLLECT SAMPLE (see Instructions) _____ (col 59)

MONITOR POINT SAMPLED BY (see Instructions) _____ (col 60) OTHER (SPECIFY) _____

SAMPLE FIELD FILTERED — INORGANICS (X) _____ (col 61) ORGANICS (X) _____ (col 62)

SAMPLE APPEARANCE _____ (cols 63–102)

COLLECTOR COMMENTS _____ (cols 103–142)

LAB COMMENTS _____ (cols 150–199)

RECORD CODE L P C S M 0 2 (cols 1–7) TRANS CODE A (col 8) (COLUMNS 9-29 FROM ABOVE)

	FIELD MEASUREMENTS CONSTITUENT DESCRIPTION AND REQUIRED UNIT OF MEASURE	STORET NUMBER (cols 30–34)	Remarks See Inst. (col 35)	Replicate (col 36)	< or > (col 37)	VALUE (cols 38–47)
Q	TEMP OF WATER (unfiltered °F)	00011				
Q	SPEC COND (unfiltered umhos)	00094				
Q	pH (unfiltered units)	00400				
Q	ELEV OF GW SURF (ft ref MSL)	71993				
Q	DEPTH OF WATER (ft below LS)	72019				
A	BTM WELL ELEV (ft ref MSL)	72020				
Q	DEPTH TO WATER FR MEA PT (ft)	72109				

This Agency is authorized to require this information under Illinois Revised Statutes, 1979, Chapter 111 1/2, Section 1004 and 1021. Disclosure of this information is required. Failure to do so may result in a civil penalty up to $25,000 for each day the failure continues, a fine up to $1,000.00 and imprisonment. This form has been approved by the Forms Management Center. *Only Remarks with Data in Columns 38 or Columns 38-47

IL 532-121

IEPA/DLPC

CHEMICAL ANALYSIS FORM

Page ___ of ____

RECORD CODE | L | P | C | S | M | 0 | 2 | (1–7) TRANS CODE | A | (8)

SITE INVENTORY NUMBER _ _ _ _ _ _ _ _ _ (9–18)

MONITOR POINT NUMBER _ _ _ _ (19–22)

CO. _____

DATE COLLECTED ___/___/___ (23 M D Y 28)

_____
FACILITY NAME

LAB _____ (29)

	LAB MEASUREMENTS CONSTITUENT DESCRIPTION AND REQUIRED UNIT OF MEASURE	STORET NUMBER (30–34)	Remarks See Inst. (35)	Replicate (36)	< or > (37)	VALUE (38–47)

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276

THOMAS V. SKINNER, DIRECTOR

217/524-3300

MASTER FILE COPY
Scope 97M015 Classification 4000
Copy To SJLI, NXD, TJC, MRS, JBH

December 29, 1999

CERTIFIED MAIL
P 344 335 472

Mr. Craig Skolrood
Modern Plating Corporation
701 South Hancock Avenue
P.O. Box 838
Freeport, Illinois 61032

Re: 1770200010 -- Stephenson County
Modern Plating Company
Log No: B-167
Administrative Record File
Closure File

Dear Mr. Skolrood:

This is in response to the December 6, letter from Ron Meister of Foth & Van Dyke sent on behalf of Modern Plating Corporation (MPC) regarding certain aspects of the RCRA closure and RCRA corrective action activities being carried out at the above referenced facility. Specifically, Mr. Meister's letter discussed: 1) the advantages for the immediate removal of soils from the wetlands area during the winter of 1999-2000; 2) the procedures for excavation of the wetlands soils; 3) a proposal for temporary storage (seven months) of wetland soils at the location of former Lagoon 1A, and possibly Lagoon 0, until an on-site CAMU is constructed; 4) a proposal for a CAMU volume contingency; and 5) a proposed approach to deal with additional waste volume.

The purpose of this letter is to address; (A) the proposed plan for management of the impacted wetland soils at the MPC facility, and (B) the need for additional waste volume in the CAMU. The resolution of these issues will involve two documents recently approved by the Illinois EPA: the RCRA closure plan for the five lagoons, Shawnee Building, Cyanide Treatment Vault and wetlands area approved on December 2, 1999; and the DRAFT RCRA permit for the construction and post-closure care of the CAMU dated December 21, 1999.

A. Management of Wetland Soils

The Agency agrees that it would be advantageous to excavate soil in the three wetland areas during the winter months prior to the construction of the CAMU. In addition, the proposal to

temporarily store the excavated wetland soils at the location of either former Lagoon 1A or Lagoon 0 until the on-site CAMU is constructed was found acceptable in concept.

In order to proceed with these proposed activities, MPC must submit a request to modify the RCRA closure plan to include the temporary storage or stockpiling of wetland soil (January to August 2000) under the approved plan. The modification request needs to include the following:

1. A detailed description of the proposed construction activities in Lagoon 1A and/or Lagoon 0 in order to accommodate the total volume, an estimated 2,120 cubic yards of impacted wetlands soils.

2. The Illinois EPA wants to insure that the hazardous constituents in the wetland soils are not allowed to migrate from the stockpiled soils in the temporary storage area. A tarp should be used to cover the temporary storage area at the end of each day soil is placed on the stockpile and after all soil is in place. At a minimum, the closure plan modification request should discuss why this should, or should not, be part of the run-off management plan.

3. Calculations and scale drawings which demonstrate the area of the former lagoon(s) has the capacity to store the impacted wetlands soil;

4. A detailed description and the necessary calculations to show how the precipitation from a 25 year, 24 hour storm will be managed in the temporary soil storage area(s). Specifically, demonstrate that the area(s) have the capacity to hold this volume of rainwater and describe how it will be removed. Include a demonstration that the soils in the berms have a low enough permeability to hold the water. Conversely, the proposal can describe how the rainwater will be collected and pumped to MPC's Wastewater Treatment Plant in an expeditious manner such that no more than 6 inches of rainwater is allowed to accumulate in the area at any time.

5. The inspection and maintenance procedures followed during the time the temporary storage units are in operation. At a minimum, the area(s) must be inspected during, or immediately after, rainfall events of ½ inch of rain or more.

6. Provisions for "closing" the temporary storage areas after the wetland soils are placed in the CAMU. Specifically, if the soils in the berms around the temporary storage areas become contaminated by the hazardous constituents in the wetland soils, these soils may also need to be placed in the CAMU.

7. The enclosed form entitled RCRA Interim Status Closure and Post-Closure Plans General Form (LPC-PA18) must be completed and accompany all information submitted to the Illinois EPA associated with the RCRA closure activities described in this letter. As noted

on the form, two copies must accompany the original of all submittals, so that the information can be distributed to the appropriate IEPA personnel, including regional offices.

B. Additional Waste Volume in the CAMU

The CAMU described in the RCRA permit application was designed to hold approximately 15,480 cy. The December 6, 1999 letter and conversations with Foth & Van Dyke identified the need to increase the design capacity of the CAMU in order to incorporate the volume of remediation wastes from the wetlands, and possibly soils from around the abandoned industrial outfall pipeline at the MPC facility. It is our understanding that Foth & Van Dyke estimates the CAMU will need to hold between 17,000 and 21,000 cubic yards of remediation waste.

In order to increase the design capacity of the CAMU, MPC must submit a request to revise the RCRA permit application. If this request is not submitted during the comment period for the DRAFT RCRA permit, it will need to be submitted as a permit modification request pursuant to the provisions at 35 IAC Part 703. The request to revise the RCRA permit application needs to include the following:

1. The format of the submittal needs to be the same as the RCRA permit application. It needs to include revised pages which will be inserted into the permit application. Each page needs to include a page number and revision date. Pages throughout the application which discuss the capacity and wastes going into the CAMU will need to be revised.

2. A certification statement signed by the owner, operator and professional engineer registered in Illinois. The certification statement must contain the wording specified at 35 IAC 702.126.

3. Most, if not all, drawings of the CAMU in the application will need to be revised to indicate the new design.

4. Engineering analyses which demonstrate the revised design is structurally sound. These analyses must include all of the calculations provided in the application for the current design such as loads on the liner in Section D-6c(3) and slope stability, differential settlement, bearing capacity, etc. in Section D-6d(4) and the respective appendices.

5. Describe the changes to the run-off collection and control system design and any revised run-off calculations in Section D-6h(2).

6. Revised portions of the Construction Quality Assurance Plan (CQAP), as necessary.

7. Revised closure cost estimates to account for the increased volume.

If you have any questions please contact Karen Nachtwey (217) 524-3273 regarding RCRA closure issues. For issues regarding the CAMU design, please contact Rob Watson, P.E. at 217/524-3265.

Sincerely,

Joyce L. Munie, P.E.
Manager, Permit Section
Bureau of Land

JLM:WRW\mls\990082S.WPD
Enclosure

cc: USEPA Region V, Harriet Croke
Foth & Van Dyke, Ron E. Meister, P.G.
Foth & Van Dyke, Steven J. Laszewski, Ph.D.

MASTER FILE COPY R009708
Scope Primary Classification 7000
Copy To Keith, master file

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276

THOMAS V. SKINNER, DIRECTOR

217/782-0610

January 27, 2000

Mr. Craig Skolrood
Modern Plating Corporation
701 S. Hancock Ave.
P.O. Box 838
Freeport, IL 61032

Re: Modern Plating Corporation (Stephen County)
Remove of hazardous material from wetlands
Log# C-1597-99 [CoE appl.# 383470]

Dear Mr. Skolrood:

We received your application for Section 401 water quality certification and supporting documents concerning the above referenced project on December 8, 1999. The documents, as submitted, have been reviewed by the Watershed Management Section staff, and based on that review, the following items are offered for your consideration and appropriate action.

Please provide a schedule for work in the wetlands. Include the anticipated time of temporary storage of dredge material before loading into trucks to haul to temporary storage. Please indicate the protection to prevent contaminates from leaching or draining from such activities to the wetlands or "Waters of the State."

Please describe the loading process to include its relationship to the excavation site, cofferdam, and silt fencing in terms of sediment control.

Please provide a cross-section of the access road to be constructed and a diagram of the location.

Please provide an erosion control plan including diagrams. The plan should address prevention of soil and runoff into the wetlands and the Pecatonica River associated with the work to be performed in the wetlands including excavation, construction and removal of access roads, and construction of the CAMU. The erosion control plan must include a revegetation plan for the site.

Please indicate if cofferdams will contain the temporary stockpiles. Please provide a diagram for their location.

Please indicate if the excavated area will be filled and if so please indicate the source of the fill material and the condition of the material.

Please be advised that this work is subject to regulation under 35 Ill. Adm. Code Subtitle G. These regulations address the methods of work performed, transportation of material, and the construction and operations of the temporary storage.

Please be advised that the handling and transportation of sediments must not cause a discharge to the "Waters of the State."

Section 401 certification will be held in abeyance pending a review of the requested information. Upon receipt of a satisfactory written reply and supplemental information required, we shall finalize our review of this subject. Your response should be submitted to this office within thirty (30) days.

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Should you have any questions or comments regarding the content of this letter, please contact James Allison of my staff at the above telephone number and address.

Sincerely,

Bruce J. Yurdin
Manager, Watershed Management Section
Bureau of Water

RECEIVED
JAN 3 1 2009
FOTH & VAN DYKE

cc: Records Unit
CoE, Rock Island District
IDNR, OWR, DWRM, Springfield
Foth & Van Dyke

97/70015
4000 R000710
cc: JSK, SJL/
REM,
EAS

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276

THOMAS V. SKINNER, DIRECTOR

217/524-3300

CERTIFIED MAIL
P 344 306 005

February 9, 2000

Mr. Craig Skolrood
Modern Plating Corporation
701 South Hancock Avenue
P.O. Box 838
Freeport, Illinois 61032

Re: 1770200010 --Stephenson County
Modern Plating Corporation
Log No. C-259-M-9
Date Received: December 27, 1999
RCRA Closure

Dear Mr. Skolrood:

This is in response to the December 22, 1999 letter report submitted by Foth & Van Dyke (FVD) responding to Items 6 and 7 of the Illinois EPA's December 2, 1999 RCRA closure modification approval letter (Log No. C-259-M-8) to close four RCRA hazardous waste management units - *Lagoon 1, Lagoon 2, Lagoon 3*, and *Shawnee Building*; and four solid waste management units - *Lagoon 0, Lagoon 1A, Cyanide Treatment Vault and Wetlands Area* at the Modern Plating Corporation in Freeport, Illinois. Item 6 of the December 6, 1999 letter requested additional information regarding several tanks shown in Drawing No. 2 (revised) of MPC's final RCRA closure plan and Item 7 requested an investigation of potential release(s) from secondary sanitary sewer and discharge (old outfall) lines at MPC.

The subject submittal was reviewed as a request to modify the approved closure plan for the above-referenced units and is hereby approved subject to the following conditions and modifications:

1. Except as modified herein, closure activities should be carried out in accordance with Illinois EPA's December 22, 1999 closure plan approval letter (Log No. C-259-M-8) and Illinois EPA's letter approving with conditions and modifications a January 17, 2000 closure plan modification request (Log No. C-259-M-10).

2. The following conditions/modification are set forth regarding the information provided in response to Item 6 of the December 2, 1999 letter:

a. For the *Outside Storage Tanks* (East of Shawnee Building), MPC/FVD stated that these were actually empty vats/troughs cleaned prior to deactivation and removal from the building that were used in the production plant. The vats were placed on the east side of the Shawnee Building for temporary disposal. This information was found adequate, no further documentation is needed.

b. For the *Five Tanks* (Northwest of Production Plant), given there is no record of what was contained in the former tanks, the Illinois EPA has considered this tank area tanks a potential Area of Concern (AOC), AOC # 1. As such the Illinois EPA requests that MPC submit a plan to investigate this area that would include soil sampling and testing samples for potential site contaminants. This plan should be submitted along with the plan required by Condition 3.

c. For the *8,000 gallon Tank* (Northeast of Production Building), MPC/FVD stated that this tank is empty and unused. MPC believes that this tank was previously used for the storage of sulfuric acid for plant processes. This additional information is adequate, no further documentation is needed regarding this tank.

d. For the *Storage Tanks on Foundation* (North of Production Plant), MPC/FVD stated that the two above ground tanks are steel and lined with either glass or rubber and are currently used to used to store hydrochloric acid; a secondary containment system for these tanks drains to the WWTP. The information provided for these tanks is adequate, no further documentation is needed.

e. For the *Diesel Fuel Tank* (North of Production Building), a report dated February 1988 prepared by FIW Inc., Underground Storage Tank Closure Report, was provided in Attachment 1 to the December 22, 1999 letter from FVD. This report indicated that these tanks were removed. In addition, soil test results indicated that the tanks were not leaking. The documentation provided is adequate, no further documentation is needed for this tank.

f. For the *Cyanide Sludge Tank, Chromium Batch Treatment Tanks and Underground Concentrated Wast Neutralizing-Chromium Sludge* (all in or outside of WWTP), MPC stated in Attachment 1 that these tanks were removed (with the exception of the chromium batch treatment tanks). In addition, soil test results indicated that these tanks were not leaking. The documentation provided for these tanks is adequate, no further documentation is needed.

3. The proposed investigation of the old outfall and sanitary sewer lines at the MPC facility as required by Condition 7 of the December 2, 1999 letter is approved as follows:

Does this refer to the MPC WTP discharge to the Freeport area?

a. During Phase I investigation, the old drainage outfall line and sanitary sewer line will be televised to identify: 1) line construction; 2) the locations of holes, cracks or collapse to locate potential areas of soil sampling and 3) the ground surface to optimize in the selection of sampling locations. Unless evidence of potential contamination of a release is found, sampling along the sanitary sewer line shall not be required.

b. During Phase II investigation, soil will be sampled along the out-fall line using a Geoprobe. The location and number of samples will depend upon the results of the line televising. Soil will be classified and field screened. At least five locations will be sampled by Geoprobe. Two to three soil samples per Geoprobe will be collected for analysis. Soil will be tested for heavy metals and VOCs. A report will be submitted once laboratory results are obtained.

c. The results of the Phase I televising, along with a Phase II workplan for investigation, must be submitted to the Illinois EPA for review and approval prior to the Phase II investigation. This will ensure Illinois EPA and MPC/FVD be in agreement with the locations selected and number of Geoprobes that will be taken along the outfall line and potentially along the sewer line.

4. The workplans for additional investigations required by Condition 2 and 3 above should be developed in general accordance with Illinois EPA's draft RCRA closure guidance document, dated November 1994.

5. Remedial activities must be carried out at the areas of concern, identified in Conditions 2 and 3 above, as necessary to ensure the requirements of 35 Ill. Adm. Code 742 are met.

The attached form entitled RCRA Interim Status Closure and Post-Closure Care Plans General Form (LPC-PA18) must be completed and accompany all information submitted to the Illinois EPA associated with the closure activities described in this letter. As noted on this form, two copies must accompany the original of all submittals, so that the information submitted can be distributed, as necessary to Illinois EPA personnel and regional offices.

This action shall constitute Illinois EPA's final decision on the subject submittal.

Within 35 days of the date of mailing of the Illinois EPA's final decision, the applicant may petition for a hearing before the Illinois Pollution Control Board to contest the decision of the Illinois EPA, however, the 35-day period for petitioning for a hearing may be extended for a period of time not to exceed ninety days by written notice provided to the Board from the applicant and the Illinois EPA within the 35-day initial appeal period.

All submittals must be accompanied by the attached Illinois Corrective Action Certification form. In addition, work required by this letter, your submittal or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. This letter does not relieve anyone from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

Should you have any question regarding this letter, please contact Karen Nachtwey at 217/524-3300

Sincerely,

Joyce L. Munie, P.E.
Manager, Permit Section
Bureau of Land

JLM:KEN:bjh\3272S.WPD
JLM

Attachment: LPC-PA18 Form
Corrective Action Certification Form

cc: Foth & VanDyke - Erik A. Sivola, P.G./Janis Schallhorn Kesy, P.G.

MASTER FILE COPY R000114
Scope TTM015 Classification 4000
Copy To SJLI REM, NXP, JSK, TJC
MRS

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276

THOMAS V. SKINNER, DIRECTOR

217/782-0610

February 9, 2000

Rock Island District
Corps of Engineers
Clock Tower Building
Rock Island, IL 61201

Re: Modern Plating Corporation (Stephenson County)
Removal of hazardous material from wetlands
Log # C-1597-99 [CoE appl.# 383470]

Gentlemen:

This Agency received a request on December 8, 1999 from Modern Plating Corporation requesting necessary comments concerning the removal of hazardous material from wetlands and placement into a Corrective Action Management Unit (CAMU). We offer the following comments.

Based on the information included in this submittal, it is our engineering judgment that the proposed project may be completed without causing water pollution as defined in the Illinois Environmental Protection Act, provided the project is carefully planned and supervised.

These comments are directed at the effect on water quality of the construction procedures involved in the above described project and are not an approval of any discharge resulting from the completed facility, nor an approval of the design of the facility. These comments do not supplant any permit responsibilities of the applicant toward the Agency.

This Agency hereby issues certification under Section 401 of the Clean Water Act (PL 95-217), subject to the applicant's compliance with the following conditions:

1. The applicant shall not cause:

   a. violation of applicable water quality standards of the Illinois Pollution Control Board, Title 35, Subtitle C: Water Pollution Rules and Regulation;

   b. water pollution defined and prohibited by the Illinois Environmental Protection Act; or

   c. interference with water use practices near public recreation areas or water supply intakes.

2. The applicant shall provide adequate planning and supervision during the project construction period for implementing construction methods, processes and cleanup procedures necessary to prevent water pollution and control erosion.

3. Any spoil material excavated, dredged or otherwise produced must not be returned to the waterway but must be deposited in a self-contained area in compliance with all state statutes, regulations and permit requirements with no discharge to waters of the State unless a permit has been issued by this Agency. Any backfilling must be done with clean material and placed in a manner to prevent violation of applicable water quality standards.

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FEB 14 2003
FOTH & VAN DYKE

4. All areas affected by construction shall be mulched and seeded as soon after construction as possible. The applicant shall undertake necessary measures and procedures to reduce erosion during construction. Interim measures to prevent erosion during construction shall be taken and may include the installation of staked straw bales, sedimentation basins and temporary mulching. All construction within the waterway shall be conducted during zero or low flow conditions. The applicant shall be responsible for obtaining an NPDES Storm Water Permit prior to initiating construction if the construction activity associated with the project will result in the disturbance of 5 (five) or more acres, total land area. An NPDES Storm Water Permit may be obtained by submitting a properly completed Notice of Intent (NOI) form by certified mail to the Agency's Division of Water Pollution Control, Permit Section.

5. The applicant shall implement erosion control measures consistent with the "Illinois Urban Manual" (IEPA/USDA, NRCS; 1995).

6. The proposed work shall be constructed with adequate erosion control measures (i.e., silt fences, straw bales, etc.) to prevent transport of sediment and materials to the adjoining wetlands and river.

7. All material excavated which is not being used as backfill shall be stored or disposed in self-contained areas with no discharge to waters of the State. Material shall be disposed of appropriately under the regulations at 35 Il. Adm. Code Subtitle G.

8. The excavation in wetlands shall be done under dry conditions.

9. Backfill shall be clean, uncontaminated material and all disturbed wetland areas shall be revegetated immediately after excavation and backfilling are complete for each area.

This certification becomes effective when the Department of the Army, Corps of Engineers, includes the above condition # 1 through # 9 as conditions of the requested permit issued pursuant to Section 404 of PL 95-217.

This certification does not grant immunity from any enforcement action found necessary by this Agency to meet its responsibilities in prevention, abatement, and control of water pollution.

Very truly yours,

Bruce J. Yurdin
Manager, Watershed Management Section
Bureau of Water

cc: IEPA, Records Unit
IEPA, DWPC, FOS, Rockford
IDNR, OWR, Springfield
USEPA, Region 5
Modern Plating Corporation
Foth & Van Dyke

R000716
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Scope Illinois Classification 4002
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ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276

THOMAS V. SKINNER, DIRECTOR

217/524-3300

CERTIFIED MAIL
P 344 306 003

February 9, 2000

Mr. Craig Skolrood
Modern Plating Corporation
701 South Hancock Avenue
P.O. Box 838
Freeport, Illinois 61032

Re: 1770200010 -- Stephenson County
Modern Plating Corporation
Log No. C-259-M-10
Date Received:
RCRA Closure

Dear Mr. Skolrood:

This is in response to the January 17, 2000 closure plan modification request regarding the "Wetlands Area" submitted by Foth & Van Dyke (FVD) on behalf of Modern Plating Corporation (MPC). On December 2, 1999 the Illinois EPA approved a final RCRA closure modification approval letter to close four RCRA hazardous waste management units - *Lagoon 1, Lagoon 2, Lagoon 3*, and *Shawnee Building*; and four solid waste management units - *Lagoon 0, Lagoon 1A, Cyanide Treatment Vault and Wetlands Area* at the Modern Plating Corporation in Freeport, Illinois.

With regard to the Wetland Area, the approved plan required that excavation of impacted wetlands soils to meet 35 IAC Section 742 TACO- Tier I remedial objectives. Contaminated wetland soils were to be placed directly into the on-site Corrective Management Unit (CAMU) for which the Illinois EPA will issue a draft RCRA permit. Construction of the CAMU is scheduled to begin in the Spring of 2000.

The subject submittal requests that MPC be allowed to: 1) perform wetland excavation activities ahead of schedule, during the winter of 2000; and 2) store excavated impacted wetland soils in a Temporary Storage Unit (TSU) at the location of former Lagoon 1A and Lagoon 0 (if needed). The procedures for carrying out this effort were also described in the subject submittal.

The proposed construction/operation of a Temporary Storage Unit (TSU) for storage of excavated wetland soil as set forth in the January 17, 2000 submittal is hereby approved as a request to modify the afore-mentioned RCRA closure plan, subject to the following conditions and modifications:

1. Except as modified, RCRA closure must be completed in accordance with the conditions and modification of the December 2, 1999 RCRA Closure Plan (Log No. C-259-M-8) approval letter from the Illinois EPA and Illinois EPA's letter approving with conditions and modifications a December 22, 1999 closure plan modification request (Log No. C-259-M-9);

2. Permits must be obtained form the U.S. Army Corps of Engineers and Illinois EPA Water Pollution Division regarding the excavation activities in the wetlands area;

3. The TSU shall be in operation for a time frame not to exceed 8 months;

4. Construction of the TSU will require the excavation of an existing 2 feet of low permeability clay cover over the lagoon. Clay will still remain to act as a liner. The 2 feet of clay will be placed and compacted around the perimeter of lagoon 1A to raise the exterior berms to a minimum of 3 feet;

5. Excavated wetland soil placed in the TSU Unit shall be covered at the end of each day with a 12- mil impermeable geosynthetic cover/tarp and anchored with sand bags or tires;

6. The TSU constructed at the location of former Lagoon 1A shall accommodate a total of no more than 2,500 cubic yards of impacted wetlands soils;

7. Construction of an additional TSU at Lagoon 0, in the same manner as described in the subject submittal for Lagoon 1A shall be allowed if volume capacity is exceeded at Lagoon 1A;

8. Stormwater which accumulates in the TSU drainage ditch during the 1-2 week stockpiling will be pumped to the MPC on-site WTP. After final placement of the tarp, drainage of stormwater from the tarp surface will gravity drain from within each bermed area and discharge via a lined spillway to the wetland north of the lagoon as shown on Figure 3 (Lagoon 1A) and Figure 4 (Lagoon 0) of the subject submittal;

9. The perimeter berm and tarps must be inspected immediately after a rainfall event of ½ inch or more. Containment structures shall be maintained and repaired as necessary to their effectiveness.

The attached form entitled RCRA Interim Status Closure and Post-Closure Care Plans General Form (LPC-PA18) must be completed and accompany all information submitted to the Illinois EPA associated with the closure activities described in this letter. As noted on this form, two copies must accompany the original of all submittals, so that the information submitted can be distributed, as necessary to Illinois EPA personnel and regional offices.

This action shall constitute Illinois EPA's final decision on the subject submittals.

Within 35 days of the date of mailing of the Illinois EPA's final decision, the applicant may petition for a hearing before the Illinois Pollution Control Board to contest the decision of the Illinois EPA, however, the 35-day period for petitioning for a hearing may be extended for a period of time not to exceed ninety days by written notice provided to the Board from the applicant and the Illinois EPA within the 35-day initial appeal period.

All submittals must be accompanied by the attached Illinois Corrective Action Certification form. In addition, work required by this letter, your submittal or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. This letter does not relieve anyone from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

If you have any questions regarding this letter please contact Karen Nachtwey at (217) 524-3273.

Sincerely,

Joyce L. Munie, P.E.
Manager, Permit Section
Bureau of Land

JLM:KEN:bjh\3273S.WPD

Attachment: LPC-PA18 Form
Corrective Action Certification Form

cc: Foth and VanDyke - Ron E. Meister, P.G.
Steve Laszewski, Ph.D.
Nandakumaran Paruvakat, Ph.D., P.E.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276

THOMAS V. SKINNER, DIRECTOR

217/524-3300

MASTER FILE COPY
Scope 91M015 (33) Classification 4000
Copy To SJLI, NXP, MRS, MJCI, REM(2)

April 11, 2000

CERTIFIED MAIL
P 344 306 060

Mr. Craig Skolrood, President
Modern Plating Company
701 South Hancock Avenue
Freeport, Illinois 61032-0838

Re: 1770200010 -- Stephenson County
Modern Plating Corporation
Log No. B-167
Admin. Record File

Dear Mr. Skolrood:

Enclosed is a RCRA Hazardous Waste Management Post-Closure permit for the Corrective Action Management Unit (CAMU) landfill at the Modern Plating Corp. facility. The final permit is based on the administrative record contained in the Agency's files. The contents of the administrative record are described in 35 Illinois Administrative Code (Ill. Adm. Code) Section 705.211. Read this document carefully. Failure to meet any portion of the permit could result in civil and/or criminal penalties.

Within 35 days after the notification of a final permit decision, the permittee may petition the Illinois Pollution Control Board to contest the issuance of the permit. The petition shall include a statement of the reasons supporting a review, including demonstration that any issues raised in the petition, were previously raised during the public comment period. In all other respects the petition shall be in accordance with the requirements for permit appeals as set forth in 35 Ill. Adm. Code Part 105. Nothing in this paragraph is intended to restrict appeal rights under Section 40(b) of the Environmental Protection Act (35 Ill. Adm. Code 705.212(a)).

A copy of Illinois EPA's responses to comments on the Draft Permit issued on December 21, 1999, is also attached to this letter. Only Foth & Van Dyke (on behalf of Modern Plating Corp.) submitted comments on the Draft Permit. The Agency's responses were developed as a result of reviewing the comments submitted by Foth & Van Dyke dated February 10, 2000 and received by Illinois EPA on February 14, 2000. Revised pages to the application dated March 10, 2000 and April 5, 2000, and received on March 13, 2000 and April 6, 2000 were incorporated into the application. This information served to clarify issues in the application and did not result in changes to the conditions in the permit or the responses to comments.

If you have any questions concerning this RCRA Post-Closure permit, please contact Rob Watson, P.E. at 217/524-3300.

Sincerely,

Joyce L. Munie, P.E.
Manager, Permit Section
Bureau of Land

JLM:WRW\mls\002692S.WPD

Attachments: Final RCRA Post-Closure Permit
IEPA's Response to Comments

cc: Harriet Croke, USEPA -- Region V
Ron Meister, Foth & Van Dyke

ATTACHMENT 1

RCRA POST-CLOSURE PERMIT

for

Modern Plating Corporation

1770200010
Log No. B-167

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276

THOMAS V. SKINNER, DIRECTOR

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

RCRA POST-CLOSURE PERMIT

IEPA #1770200010 -- Stephenson County
Modern Plating Corporation
ILD #005 172 325
RCRA -- Administrative Record
RCRA Log No. B-167

Issue Date: April 11, 2000
Effective Date: May 16, 2000
Expiration Date: May 16, 2010

Owner
Lucille Miller
Modern Plating Corporation
701 South Hancock Avenue
P.O. Box 838
Freeport, Illinois 61032-0838

Operator
Craig Skolrood
Modern Plating Corporation
701 South Hancock Avenue
P.O. Box 838
Freeport, Illinois 61032-0838

A RCRA post-closure permit is hereby granted pursuant to the Resource Conservation and Recovery Act (RCRA), Illinois Environmental Protection Act, and Title 35 Illinois Administrative Code (IAC) 702, 703, 705, and 720 through 729 to Modern Plating Corporation (MPC) to construct, operate, and provide post-closure maintenance for a corrective action management unit (CAMU). Only remediation wastes generated during RCRA closure and/or corrective action activities at the Modern Plating facility shall be placed in the CAMU. The Modern Plating Corporation is located at 701 South Hancock Avenue in Freeport, Illinois.

This permit is based on the representations made in the approved permit application dated December 1, 1999 and received December 2, 1999, the comments provided on the Draft Permit dated February 10, 2000 and received February 14, 2000, and revised pages to the application dated March 10, 2000 and April 5, 2000 and received March 13, 2000, and April 6, 2000. The permit consists of the conditions contained herein (including those in any attachments and appendices) and applicable regulations contained in the Illinois Environmental Protection Act and 35 IAC 702, 703, 705 and 720 through 729 in effect on the effective date of this permit. The Environmental Protection Act (Ill. Rev. Stat., Chapter 111 ½, Section 1039) grants the Illinois Environmental Protection Agency the authority to impose conditions on permits which are issued.

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If you have any questions regarding this permit, please contact Rob Watson, P.E. at 217/524-3300.

Sincerely,

Joyce L. Munie, P.E.
Manager, Permit Section
Bureau of Land

JLM:WRW\mls\002721S.WPD

cc: Harriet Croke, USEPA -- Region V
Ron Meister, Foth & Van Dyke