BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

PETITION BY HAYDEN WRECKING CORPORATION FOR AN ADJUSTED STANDARD FROM 35 ILL. ADM. CODE § 620.410(a)	)))))	Docket No.: AS 04-003 (Adjusted Standard)

NOTICE OF FILING

TO: Dorothy M. Gunn, Clerk
Illinois Pollution Control Board
James R. Thompson Center
100 West Randolph Street
Suite 11-500
Chicago, Illinois 60601

Kyle Nash Davis, Esq.
Assistant Counsel
Illinois Environmental Protection
Agency, Division of Legal Counsel
1021 North Grand Avenue East
PO Box 1976
Springfield, Illinois 62794-9276

PLEASE TAKE NOTICE that I have today filed with the Office of the Clerk of the Illinois Pollution Control Board the Amended Petition of Hayden Wrecking Corporation for Adjusted Standard from 35 Ill. Adm. Code 620.410(a), copies of which are herewith served upon you.

Dated: July 19, 2004

GREENSFELDER, HEMKER, & GALE, P.C.

By Christina L Archer

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BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

PETITION BY HAYDEN WRECKING CORPORATION FOR AN ADJUSTED STANDARD FROM 35 ILL. ADM. CODE § 620.410(a)	)))))	Docket No. AS 04-3

AMENDED PETITION FOR ADJUSTED STANDARD

COMES NOW, Hayden Wrecking Corporation ("Hayden"), through its undersigned counsel, and pursuant to Section 28.1 of the Illinois Environmental Protection Act (the "Act"), 415 ILCS 5/28.1, and 35 Ill. Adm. Code § 104.406, amends its Petition to the Illinois Pollution Control Board (the "Board") for an Adjusted Standard from the Class I groundwater quality standards for four inorganic chemicals codified at 35 Ill. Adm. Code § 620.410(a). This Amended Petition is being submitted in response to the Board's June 4, 2004 Order and addresses additional information that has become available since Hayden filed its initial Petition for Adjusted Standard. Incorporated by reference to this Amended Petition is Hayden's Petition for Adjusted Standard, filed on April 27, 2004, and its Response to the Illinois Environmental Protection Agency's ("IEPA") Recommendation to Petition for Adjusted Standard, filed on June 3, 2004.[1]

A. Board's June 3, 2004 Order

In its June 3, 2004 Order, the Board requests that Hayden provide additional information on six categories in support of its Petition for Adjusted Standard: (1) off-site environmental impacts; (2) downgradient properties and anticipated groundwater uses; (3) location of potable/public water supply wells; (4) site map; (5)

[1] It should be noted that the Board's Order was issued on the same day that Hayden filed its Response to IEPA Recommendation. While the Board's Order does raise several issues different from what was contained in Hayden's Response, Hayden's Response does address some of the informational deficiencies cited by the Board, especially regarding costs of compliance and compliance alternatives.

groundwater monitoring information; and (6) compliance costs/compliance alternatives. This Amended Petition addresses those six categories as follows.

1. Off-Site Environmental Impact - 35 Ill. Adm. Code 104.406(g)

The Board requests additional information from Hayden regarding the off-site environmental impacts of arsenic, iron, lead, and manganese pursuant to 35 Ill. Adm. Code 104.406(g). It is important to note that the increased levels of these four inorganic constituents do not originate from Hayden's property, and the levels found on Hayden's property are also off-site impacts from the originating source.

Hayden's consultant, Environmental Operations, Inc. ("EOI"), has modeled the potential off-site impacts of arsenic, iron, lead and manganese based on groundwater flow towards the southwest. Based on the modeling runs, there are no off-site environmental impacts from arsenic. Iron, lead and manganese show only slight off-site impacts that do not extend further south or southwest than the highway right-of-way for Illinois State Route 203 and/or the Interstate 55/70 interchange. The results of the modeling runs are attached hereto as Attachment 1 to **Exhibit 1**, EOI's Report dated July 16, 2004.

EOI's modeling runs were based on very conservative transport calculations. The modeling runs do not take into account retardation, degradation or attenuation factors. Regardless, the only potential off-site impacts appear on property south and southwest of Hayden's property that is unlikely to be developed because of the presence of the highways.

2. Downgradient Properties and Anticipated Groundwater Uses – 35 Ill. Adm. Code 104.406(d)

As stated above, the groundwater flow in the vicinity of Hayden's site is towards the southwest. Off-site properties downgradient of Hayden's site include the lower southeast corner of property owned by Gateway Midstate Truck Plaza, the state-owned rights-of-way for State Route 203 and for Interstate 55-70, and the Gateway International Raceway property. See Figure 1, Site Location and Surrounding Properties Map, from EOI's Report, attached hereto as **Exhibit 1**.

The portion of the Gateway Midstate Truck Plaza downgradient from Hayden's property is used for a parking lot, therefore there are no existing or anticipated uses of groundwater at that property. There are no existing or anticipated uses of groundwater from the state-owned rights-of-way for State Route 203 and for Interstate 55-70 directly south and southwest of Hayden's property. The Gateway International Raceway Property, west of State Route 203, is more than 1000 ft downgradient of the Hayden's site. Properties south of Interstate 55-70 are also more than 1000 ft downgradient of the site. The modeling runs conducted by EOI demonstrate that all four inorganic constituents met the groundwater quality standards within 616 feet of Hayden's site boundaries to the south and southwest. Therefore, no properties west of Rt. 203 or south of Interstate 55-70 are impacted.

3. Location of Potable/Public Water Supply Wells

The Board requests that Hayden clarify whether there are any potable or public water supply wells within 2500 feet of the site. Hayden notes that Exhibit C to its initial Petition for Adjusted Standard contained an Illinois Water Well Report prepared by Environmental Data Resources, Inc. ("EDR"), which provided this information.

Hayden is also re-providing this information in Attachment 2 of **Exhibit 1**. Attachment 2 also provides the results of an Illinois State Geological Survey search. Both the EDR Illinois Water Well Report and Illinois State Geological Survey search indicate that there are no potable or public water supply wells located within 2500 feet of Hayden's site.

For further clarification, Figure 4 to **Exhibit 1** identifies all wells within a 2500 foot radius of Hayden's site. The only wells within 2500 feet of Hayden's property are monitoring wells, which are all upgradient. There are no potable or public water supply wells identified on any downgradient properties within 2500 feet that may be affected based on the modeling runs discussed in Section A.1 above.

4. Site Map – 35 Ill. Adm. Code 104.406(d)

The Board requests that Hayden provide a site map clearly identifying all water wells within 2500 feet of the site, all groundwater monitoring wells, the Milam Landfill, Gateway International Raceway, and all relevant downgradient properties. Figure 1 to **Exhibit 1** identifies the location of Hayden's site, the Milam Landfill, the Gateway Midwest Truck Plaza, the Gateway International Raceway, and the State Route 203 and Interstate 55/70 interchanges. As stated above, only the Gateway Midwest Truck Plaza and the State Route 203 and Interstate 55/70 interchanges can be considered relevant downgradient properties, and their lack of impacts was stated in Section A.1. above. Figure 4 to **Exhibit 1** identifies all water wells within 2500 feet of the site and all groundwater monitoring wells. As stated in Section A.3 above, there are no potable or public water supply wells within 2500 feet of the site.

5. Groundwater Monitoring Information – 35 Ill. Adm. Code 104.406(d)

The Board requests that Hayden clarify whether Hayden monitored the groundwater at the site before 1991 or after 2001. Hayden has not monitored the

groundwater before 1991 or after 2001. All available groundwater monitoring results were included in Exhibit C to Hayden's initial Petition for Adjusted Standard.

6. Compliance Costs/Compliance Alternatives – 35 Ill. Adm. Code 104.406(e)

The Board requests additional information on the efforts and corresponding costs that would be necessary to comply with the regulation of general applicability and any compliance alternatives. As stated throughout Hayden's initial Petition for Adjusted Standard, Hayden's Response to the IEPA's Recommendation, and this Amended Petition, Hayden is not the source of the groundwater exceeding the Class I groundwater quality standards contained in 35 Ill. Adm. Code 620.410(a). The groundwater is emanating from an off-site, upgradient source. Therefore it is extremely difficult for Hayden to attempt to quantify what would be necessary for Hayden to comply with 35 Ill. Adm. Code 620.410(a) unless and until the source of the groundwater is addressed.[2] The IEPA also recognized this and stated in its Recommendation that the lack of cost information did not affect its decision to recommend that the Board grant the adjusted standard.

Hayden's consultant, EOI, has identified two other possible options to comply with 35 Ill. Adm. Code 620.410(a). One option is to install a hydraulic barrier either upgradient of the Hayden site or around the entire Hayden site, and the other option is to pump and treat the groundwater to meet the Class I groundwater quality standards. EOI states that the hydraulic barrier is technically impractical because the location of the

[2] Hayden's Response to IEPA Recommendation also details other compliance options which include a judicial/administrative action either by Hayden or the state or federal governments, which are all unquantifiable, speculative, resource intensive and cost prohibitive. It is also unknown whether the source of the groundwater will be able to meet the standards through remediation of its on and off-site groundwater.

site in the Mississippi Bottoms area and the stratigraphy of the area consists of very sandy soils. EOI estimates that a barrier would have to be constructed at least 80 to 100 feet deep to effectively control groundwater flow in such sandy soils and that such a barrier within sandy soils and to that depth is not feasible and/or would be prohibitively expensive. Finally, EOI states that a hydraulic barrier may minimize any potential groundwater impacts directly downgradient of the Hayden site, but would have no impact on the upgradient sources or contaminants.

The pump and treat option is also prohibitively expensive. EOI estimates that the capital costs involved in designing and installing a pump and treat system would be approximately $330,000 and the annual operation and maintenance costs would be approximately $225,000/year. EOI estimates operation and maintenance costs for 15 years, for an estimated total of just over $3.5 million. Because the source(s) of the inorganic constituents in the groundwater are located off-site, remediation of impacted groundwater on Hayden's site via a pump and treat system would not address the off-site source. Impacted groundwater would be continually renewed from the off-site source(s), requiring that remedial efforts be continual without prospect of completion.

Although groundwater pump and treat systems vary in the length of time they are needed to fully remediate a site, there is no guarantee when treatment could stop at the Hayden site. Annual costs for such a pump and treat system exceed the worth of the property, which is $475,000 in the proposed sale to Gateway (see Exhibit A to Hayden's initial Petition for Adjusted Standard), with no guarantee of remediation. Additionally, any groundwater pump and treat system could disrupt the transportation and parking structure of the Raceway and potentially result in lost revenues for St. Clair

County. Therefore, it is cost prohibitive and technically infeasible to comply with 35 Ill. Adm. Code 620.410.

B. Additional Information – Proposed Adjusted Standard – 35 Ill. Adm. Code 104.406(f)

When Hayden filed its initial Petition for Adjusted Standard and Response to IEPA Recommendation, Hayden believed that the eight monitoring wells were installed on Hayden's property (MW 1-8). Of those 8 monitoring wells, MW-5, MW-6 and MW-7 were believed to be located on the southern edge of Hayden's property boundary. See, e.g., Exhibit D to Hayden's initial Petition for Adjusted Standard, Site Plan from SCI. However, in preparing its report for this Amended Petition, EOI noticed that the site boundaries as delineated by SCI were actually the highway right-of-way south and parallel to the southern property boundary along a fence line. A revised SCI site boundary map is being provided as **Exhibit 2** which shows Hayden's correct site boundary and the right-of-way fence line.

This information only affects one portion of Hayden's request for adjusted standard. Hayden requested the alternate, adjusted levels for arsenic, iron, lead and manganese based upon the highest concentrations for each inorganic constituent previously found at Hayden's site. The requested alternate, adjusted levels for iron and manganese were previously found at MW 5-7, which Hayden now believes are off-site wells. Therefore, based on the highest concentrations of iron and manganese previously found on-site in MW 1-4 and MW 6-8, Hayden requests the following adjusted standard:

620.410 Groundwater Quality Standards for Class I: Potable Resource Groundwater

a) Inorganic Chemical Constituents: Except due to natural causes or as provided in Section 620.450, concentrations of the following chemical constituents must not be exceeded in Class I groundwater **(those limitations marked with an * shall apply only**

to Hayden Wrecking Corporation's former landfill sites located near the intersection of Illinois Route 203 and Interstate 55/70 in Madison, St. Clair County, Illinois):

Constituent	Units	Standard
Antimony	mg/L	0.006
Arsenic	mg/L	0.05 **(* 0.082)**
Barium	mg/L	2.0
Beryllium	mg/L	0.004
Boron	mg/L	2.0
Cadmium	mg/L	0.005
Chloride	mg/L	200.0
Chromium	mg/L	0.1
Cobalt	mg/L	1.0
Copper	mg/L	0.65
Cyanide	mg/L	0.2
Fluoride	mg/L	4.0
Iron	mg/L	5.0 **(* ~~735~~)(* 373)**[3]
Lead	mg/L	0.0075 **(* 0.220)**
Manganese	mg/L	0.15 **(*~~24.2~~)(* 9.12)**[3]
Mercury	mg/L	0.002
Nickel	mg/L	0.1
Nitrate as N	mg/L	10.0

[3] Those limits marked with a strike-through represent the limits Hayden previously requested for iron and manganese in Exhibit G to its initial Petition for Adjusted Standard and in its Response to IEPA Recommendation. Hayden hereby requests that those portions of the pleadings be superceded by the limits marked with an * herein.

Radium-226	pCi/l	20.0
Radium-228	pCi/l	20.0
Selenium	mg/L	0.05
Silver	mg/L	0.05
Sulfate	mg/L	400.0
Thallium	mg/L	0.002
Total Dissolved Solids (TDS)	mg/L	1,200
Zinc	mg/L	5.0

C. Hearing Waiver

Pursuant to 35 Ill. Adm. Code § 104.422(a)(1), Hayden reserves its right to request a hearing at this time. Additionally, Hayden is prepared to participate in a hearing if the Board determines one is necessary pursuant to 35 Ill. Adm. Code § 104.422(a)(3).

D. Conclusion

The Class I groundwater quality standards for arsenic, iron, lead, and manganese should be adjusted for Hayden because those constituents detected in Hayden's groundwater are emanating from an upgradient, off-site source. Even if Hayden remediates its onsite groundwater, groundwater with levels of those inorganics in excess of the Class I standards will continue to flow beneath its property from the off-site source. There are no downgradient off-site impacts that would affect any potable or public water supply wells, and any costs of attempting to comply with 35 Ill. Adm. Code 620.410(a) or any other compliance alternatives, other than the requested adjusted standard, are cost-prohibitive and technically-infeasible.

WHEREFORE, Hayden prays that the Board grant its Amended Petition for Adjusted Standard from 35 Ill. Adm. Code § 620.410(a).

Dated: July 19, 2004

Respectfully submitted,

GREENSFELDER, HEMKER, & GALE, P.C.

By _____

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Attorneys for Hayden Wrecking Corp.

CERTIFICATE OF SERVICE

The undersigned certifies that a copy of Hayden's Amended Petition for Adjusted Standard was deposited in an envelope with postage fully prepaid, and that said envelope was deposited in a U.S. Post Office mailbox in St. Louis, Missouri, on the 19th day of July, 2004, addressed to the following persons:

Dorothy M. Gunn, Clerk
Illinois Pollution Control Board
James R. Thompson Center
100 West Randolph Street
Suite 11-500
Chicago, Illinois 60601

Kyle Nash Davis, Esq.
Assistant Counsel
Illinois Environmental Protection
Agency, Division of Legal Counsel
1021 North Grand Avenue East
PO Box 1976
Springfield, Illinois 62794 9276

Christine D. Archer

Exhibit 1

Environmental Operations, Inc.

July 16, 2004

Ms. Anna Chesser Smith
Greensfelder, Hemker & Gale
2000 Equitable Building
10 South Broadway
St. Louis, MO 63102-1774

Subject: Additional Information Requested by IPCB
In Support of Petition for Adjusted Standard
Hayden Landfill
Hayden Wrecking Corp.
Madison, IL

Dear Ms. Smith:

At your request, Environmental Operations, Inc. (EOI) is providing the attached additional information requested by the Illinois Pollution Control Board in support of your petition for an adjusted groundwater standard.

If you have any questions or require additional information, please contact me at (314) 241-0900.

Sincerely,
Environmental Operations, Inc.

Jill A Witts

Jill A. Witts
Senior Project Manger

Environmental Operations, Inc.

HAYDEN LANDFILL
ADDITIONAL INFORMATION REQUESTED BY THE ILLINOIS POLLUTION CONTROL BOARD
IN SUPPORT OF GROUNDWATER ADJUSTED STANDARD PETITION

The Board found that the petition did not fully satisfy informational requirements contained in Section 28.1(c) of the Act (415 ILCS 5/28.1(c) (2002)) and the Board's rules at 35 Ill. Adm. Code 104.406. The following information is provided to address the Board's findings, repeated below:

1. Under Section 28.1(c)(3) of the Act (415 ILCS 28.1(c)(3) (2002)) and 35 Ill. Adm. Code 104.406(g), the petition does not address the off-site environmental impact of migration from the Hayden site of groundwater with levels of certain inorganic contaminants above the Class I groundwater standards.

The following constituents of interest (COI) were identified as exceeding Tier 1 Class I groundwater remedial objectives (ROs) in the 2001 monitoring event: arsenic, iron, lead, and manganese. In order to address the off-site environmental impact from the Hayden site of groundwater migration with levels of COI above the Class I groundwater standards, simulations of downgradient concentrations of the COI were calculated using the TACO Plus! Software package (ATR, 2001) and Equation R-26, pursuant to 35 IAC 742.810. R-26 provides a very conservative solution for groundwater transport of these inorganic COI. The simulations are considered conservative because the model does not include retardation, degradation or attenuation factors. Modeling input parameters including applicable calculated and default site-specific input parameters are summarized below:

Site-Specific Information for R-26 Modeling at Hayden Landfill:

Monitoring Well	Hydraulic Gradient (ft/ft)	Distance to Compliance Point (m)	Source Width (S_w) (m)
MW-1	0.00088	115.4	77.5
MW-2	0.00086	198.0	107.5
MW-3	0.00124	257.9	65.5
MW-4	0.00090	170.1	49.8
MW-5	0.00064	100	68.0
MW-6	0.00097	100	68.9
MW-7	0.00097	100	96.6
MW-8	0.00076	100	29.9

Hydraulic gradient is based on a groundwater elevation change from the monitoring well to the compliance point or southern-most elevation line along the path of groundwater flow as shown in Figure 2. The compliance point is the site boundary for upgradient monitoring wells. For downgradient wells, the compliance point was arbitrarily set at 100 m for the purposes of running the model. Source width (S_w) is conservatively set to reflect the midpoint of the distance between each monitoring well and the adjacent well or site boundary perpendicular to groundwater flow.

In that way, each well represents a portion of the site's groundwater that it could be expected to monitor, and the groundwater from the entire site and downgradient of the site is represented. For wells on the eastern and western edges, the S_w for the outer half (where there is no adjacent well) was set equal to the S_w for the inner half as described above. Gradients, distances to the compliance point, and S_w are shown above and on Figure 2.

The soil type is sand. The hydraulic conductivity (K) is based on the published general hydraulic conductivity for fine-grained sandy soils (Freeze and Cherry, 1979). The direction of groundwater flow is generally to the southwest. The model default natural organic carbon fraction (f_{oc}) values for surface and subsurface soils were used (6,000 and 2,000 mg/kg, respectively).

Results of the modeling are presented below and in Attachment 1. Arsenic, found in the upgradient wells only in 2001, met the Tier 1 RO within the distance to the compliance point (site boundary). Other COI in the upgradient wells also met the Tier 1 ROs within the distance to the compliance point, except for manganese. For wells already at the downgradient site boundary, the greatest migration distance was for manganese from MW-8, 187.75 m. The simulated migration plumes for manganese in groundwater from downgradient monitoring wells is depicted on Figure 3. The plume length for the other COI from the downgradient wells are less than the manganese plumes shown; therefore only manganese is shown on Figure 3. Based on these migration distances, impacted groundwater has potentially migrated onto the adjacent properties south and southwest of the site. COI potentially exceeding ROs on the downgradient properties include iron, lead, and manganese.

Groundwater COI	Tier 1 RO (mg/L)	Concentration in 2001 (mg/L) Exceeding Tier 1 RO	Tier 1 RO Compliance Distance from Source (meters)	In Compliance at Site Boundary?	Predicted Concentration at Compliance Point (Site Boundary) (mg/L)
UPGRADIENT WELLS					
MW-1					
Iron	5.0	28	82.42	YES	3.11
Lead	0.0075	0.014	27.33	YES	0.00155
Manganese	0.15	3.4	198.63	NO	0.377
MW-2					
Arsenic	0.05	0.082	23.28	YES	0.00462
Iron	5.0	54	145.57	YES	3.05
Lead	0.0075	0.0099	17.11	YES	0.000558
Manganese	0.15	3.4	229.57	NO	0.192
MW-3					
Iron	5.0	7.7	21.43	YES	0.180
Manganese	0.15	2.2	144.58	YES	0.0513
MW-4					
Iron	5.0	7.1	19.13	YES	0.285
Manganese	0.15	6.9	234.22	NO	0.277
DOWNGRADIENT WELLS					
MW-5					
Manganese	0.15	0.640	64.29	*	0.0824
MW-6					
Iron	5.0	13	39.77	*	1.69
Lead	0.0075	0.015	29.65	*	0.00194
Manganese	0.15	1.7	127.15	*	0.220
MW-7					
Manganese	0.15	2.1	165.37	*	0.312
MW-8					
Iron	5.0	10	28.25	*	0.693
Lead	0.0075	0.014	26.40	*	0.000971
Manganese	0.15	7.3	187.75	*	0.506

* - Not applicable –compliance point is site boundary. Predicted concentration for downgradient wells is at 100 m downgradient.

Based on the modeling results presented above, the offsite environmental impact is summarized as follows:

- **Arsenic** – Arsenic was only detected at concentrations exceeding the Class I RO in upgradient monitoring well MW-2 in 2001. Modeling results showed that the arsenic concentration met the Class I RO at a distance of 23.28 m, well within the distance to the site boundary along the downgradient flow line (198 m). Therefore, arsenic does not have any environmental impact on off-site properties based on these modeling results.
- **Iron** - Iron was detected at concentrations exceeding the Class I RO in upgradient monitoring wells MW-1, MW-2, MW-3 and MW-4, and in downgradient wells MW-6 and MW-8 in 2001. The greatest concentrations were detected in upgradient wells MW-1 and MW-2. Groundwater migration simulations indicated that the Class I groundwater RO was met for all upgradient monitoring wells at distances considerably less than the distance to the point of compliance. For downgradient well MW-6, the iron concentration met the Class I RO within 39.77 m. Therefore, the Class I RO for iron is potentially exceeded in groundwater beneath the property south of the site, on which an Interstate 55-70 interchange is located. For well MW-8 at the

western property boundary, the iron concentration met the Class I RO within 28.25 m. Therefore, the Class I RO for iron is potentially exceeded in groundwater beneath the adjacent property to the west, and the highway right-of-way for Illinois State Route 203.

- **Lead** – Lead was detected at concentrations exceeding the Class I RO in upgradient monitoring wells MW-1 and MW-2, and downgradient wells MW-6 and MW-8. Groundwater migration simulations indicated that the Class I groundwater RO for lead was met for all upgradient monitoring wells at distances considerably less than the distance to the point of compliance. For downgradient well MW-6, the lead concentration met the Class I RO within 29.65 m. Therefore, the Class I RO for lead is potentially exceeded in groundwater beneath the property south of the site, on which an Interstate 55-70 interchange is located. For well MW-8 at the western property boundary, the lead concentration met the Class I RO within 29.65 m. Therefore, the Class I RO for lead is potentially exceeded in groundwater beneath the adjacent property to the west, and the highway right-of-way for Rt. 203.
- **Manganese** – Manganese concentrations exceeded the Class I RO in all monitoring wells at the site. Predicted manganese concentrations exceeded the Class I RO at the compliance point from all wells except MW-3. Therefore, the Class I RO for manganese is potentially exceeded in groundwater beneath the properties west, south and southwest of the site. The simulated plume that extends farthest off site is from MW-8, 187.75 m (616 ft). This distance is still within the state and interstate highway rights-of-way; therefore, the Class I RO for manganese is potentially exceeded in groundwater beneath the adjacent property to the west, and the highway rights-of-way for Rt. 203 and Interstate 55-70. No other offsite properties are potentially impacted, based on the results of the modeling.
- No surface water receptors or natural areas were identified at the offsite properties downgradient of the site within the area of potential impact.

2. Under 35 Ill. Adm. Code 104.406(d), the petition does not address off-site properties *downgradient from the Hayden site or any existing or anticipated uses of the groundwater* from those properties.

Off-site properties downgradient from the Hayden site include the following properties: to the west, Parcel ID # 02-06.0-400-003, owned by Gateway Midstate Truck Plaza; and the state-owned rights-of-way for State Route 203 and for Interstate 55-70 (Figure 1). The Gateway International Raceway property, west of Rt. 203, is more than 1000 ft downgradient of the site. Properties south of Interstate 55-70 are also more than 1000 ft downgradient of the site. Modeling results showed that all COI met the Class I ROs within 616 ft (maximum distance) of the site boundaries. Therefore, no properties west of Rt. 203 or south of Interstate 55-70 are impacted.

Gateway Midstate Truck Plaza operates a gas station, restaurant and truck stop on the property west of the site. The facilities are located on the northern portion of the Gateway property, and the southern two-thirds of the property is a parking area. The portion of the property directly adjacent to the Hayden site is used for parking only, and no facilities are located on that portion.

A well search was conducted through Environmental Data Resources, Inc. (EDR) and the Illinois State Geological Survey, and wells within 2500 ft of the site were identified (Figure 4). The well search results are included in Attachment 2. There are no public water supply wells or potable water wells identified within 2500 ft of the site. There are no water wells identified at any of the downgradient properties identified as potentially impacted. The closest downgradient wells identified as water wells are located approximately 4,500 ft downgradient from the site. Therefore, there is no existing water use on adjacent properties downgradient of the site. Due to the presence of the highways, future property uses are expected to remain the same. Therefore,

there is no anticipated future use of groundwater on the adjacent properties downgradient of the site.

Groundwater at the site is precluded from development as a potable resource due to the establishment of protective institutional controls (a municipal ordinance in the City of Madison and an environmental land use control [ELUC] at the site). These institutional controls prevent the development of groundwater for consumptive purposes.

3. Under 35 Ill. Adm. Code 104.406(d), although the petition states that the site is not within the setback zone of any potable water supply well, Pet. At 5, the petition does not clarify whether there are any potable water wells or public water supply wells within 2500 feet of the site.

In section (h) of Attachment C to the petition, it was stated that there are no public water supply wells or potable water supplies located at the site or within a 2500 ft radius of the site, based on a search of the Illinois Water Survey records conducted by EDR. A copy of the search is attached in Attachment 2. In addition, the Illinois State Geological Survey search did not identify any public water supply wells or potable water wells within 2500 ft of the site. The only wells within 2500 ft of the site were monitoring wells, and those wells were upgradient of the site (Figure 4).

4. Under 35 Ill. Adm. Code 104.406(d) the petition does not include a map of the site clearly identifying the location of the following: all water wells within 2500 feet of the site, groundwater monitoring wells, the Milam Landfill, Gateway International Raceway, and all relevant downgradient properties.

Figure 1 was scanned from an enhanced aerial photo provided by St. Clair County and shows the Milam Landfill, the Gateway International Raceway, and all relevant downgradient properties. Figure 4 shows all water wells and groundwater monitoring wells within 2500 ft of the site.

5. Under 35 Ill. Adm. Code 104.406 (d), the petition does not clarify whether Hayden monitored groundwater at the site before 1991 or after 2001. If Hayden has monitored groundwater at the site before 1991 or after 2001, the petition does not include results of such monitoring.

Hayden did not monitor groundwater at the site before 1991 or after 2001. All available groundwater monitoring results for the site were presented in the petition.

6. Under 35 Ill. Adm. Code 104.406(e), the petition does not describe the efforts and corresponding costs that would be necessary to comply with the regulation of general applicability. Also, the petition does not describe any compliance alternatives and corresponding costs that would be necessary to comply with the regulation of general applicability.

In order to comply with the regulation of general applicability, the following options were identified: 1) attempt to locate the source of the exceeded levels of inorganics constituents and proceed with a judicial/administrative action to force the source to remediate both its on and off-site constituents; 2) attempt to convince the IEPA/U.S. EPA to become involved to force the source to remediate the on and off-site constituents; 3) install a hydraulic barrier either upgradient of the Hayden site or around the entire Hayden site; and 4) pump and treat groundwater to meet the Tier 1 Class I ROs.

For Options 1 and 2 above, the corresponding costs and time frame associated with either option are unquantifiable, speculative and prohibitive (especially if litigation and/or state resource costs are factored in).

Option 3 is technically impractical because the site is located in the American Bottoms area (Mississippi River floodplain). The stratigraphy consists of over 100 ft of alluvium and it is estimated that the barrier would have to be constructed at least 80 to 100 ft deep to effectively control groundwater flow in the sandy soils. Construction of such a barrier within the alluvium and to that depth is not feasible and/or would be prohibitively expensive. A hydraulic barrier would minimize the groundwater impacts directly downgradient of the Hayden site, but would have no impact on the upgradient sources or contaminants.

Option 4, to pump and treat the groundwater, is also prohibitively expensive. A general cost estimate is provided below for a groundwater pump and treat system. The first step would be to install wells and conduct pump tests in order to collect data needed to design the treatment system. The treatment system would consist of groundwater extraction wells, groundwater recovery pumps, piping to the treatment system building, treatment system including system, pipe, fittings and valves, tanks, pumps, controls, heating, heating, insulation and electrical systems for the building, and permitting and system to dispose of treated wastewater. Annual operation and maintenance costs would include weekly system maintenance of the wells, pumps, treatment system, etc., replacement parts, treatment system supplies, utility fees, and reporting.

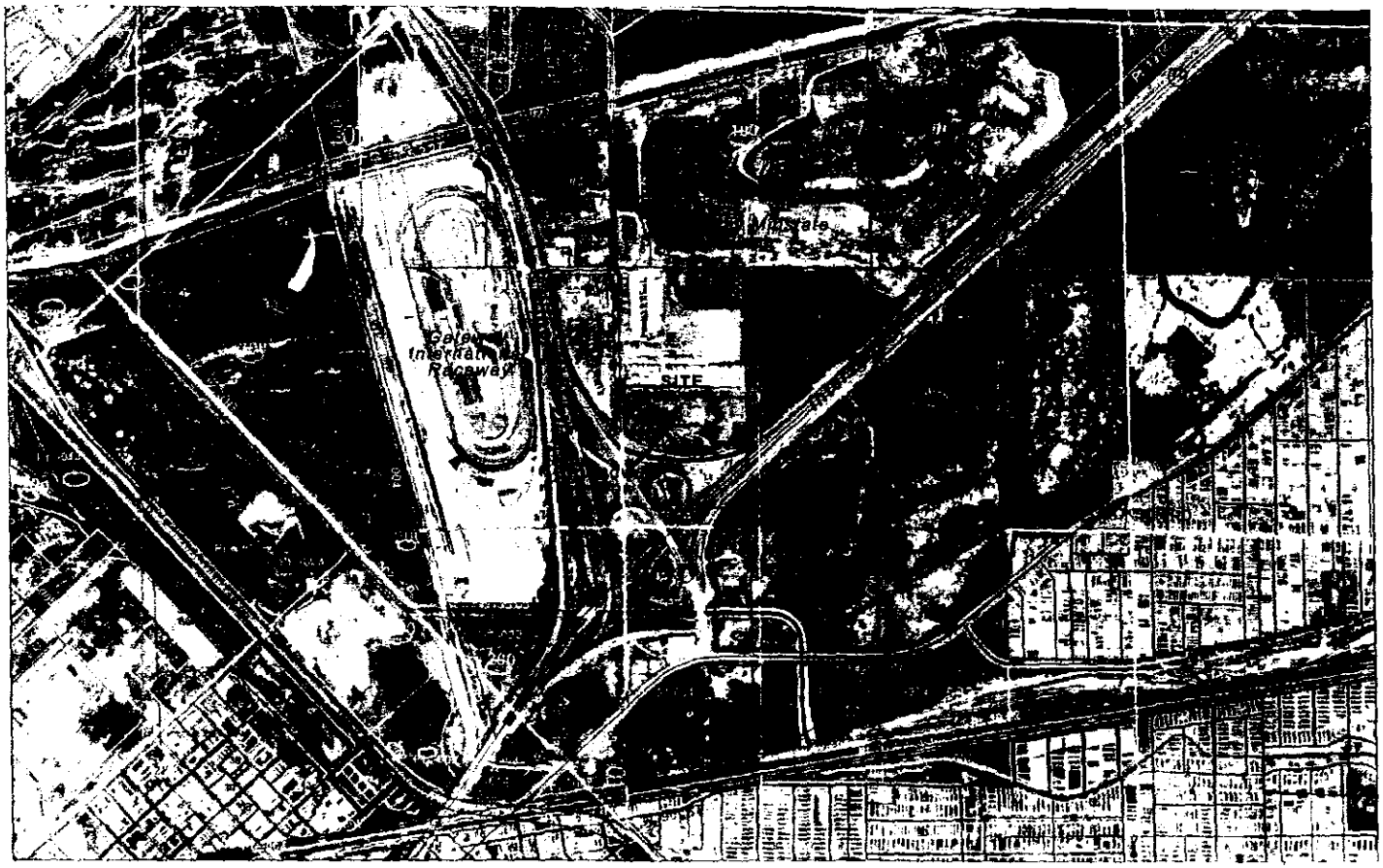
Listed below are estimated general costs for a groundwater pump and treat system.

Item	Estimated Cost
Capital Cost	
System design	$25,000
Extraction wells	$30,000
Pumps	$30,000
Treatment system	$150,000
Building	$50,000
Piping	$30,000
Discharge permit/system	$15,000
Subtotal	**$330,000**
O & M (yearly)	
Maintenance	$90,000
Repairs (parts)	$25,000
Sampling and reporting	$80,000
Utility fees	$30,000
Subtotal	**$225,000**
O & M 15 years	**$3,375,000**
TOTAL	**$3,705,000**

Because the source(s) of COI in the groundwater are believed to be located off-site, remediation of impacted groundwater on site would not address the off-site source. Impacted groundwater would be continually renewed from the off-site source(s), requiring that remedial efforts be continual without prospect of completion. O & M costs in the table above were shown for 15 years; however, there would be no guarantee that treatment could stop after 15 years. Even using the 15-year period, the capital and O & M costs to treat the groundwater are much greater than the total worth of the property ($475,000 in the proposed sale to Gateway).

Compliance alternatives would include the adjustment of the Class I groundwater standards as requested in the petition. There would be no costs associated with meeting the adjusted groundwater standards, other than the one-time costs to petition for the adjusted standards.

Environmental Operations, Inc.



North

0 600 1200 2400

Approximate Scale, feet

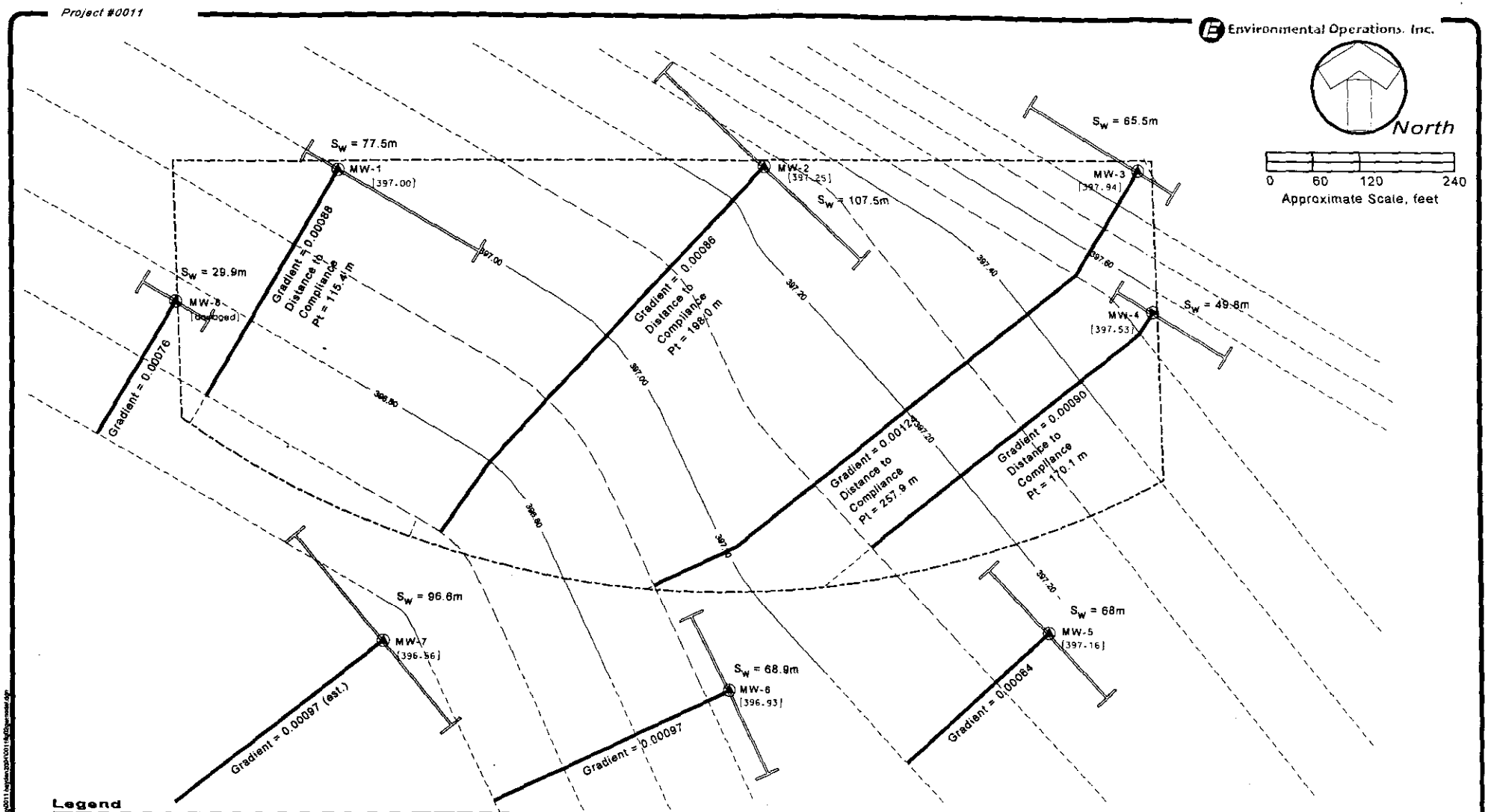
Legend

Site Location and Surrounding Properties Map

Hayden Landfill

Madison, Illinois

Figure 1

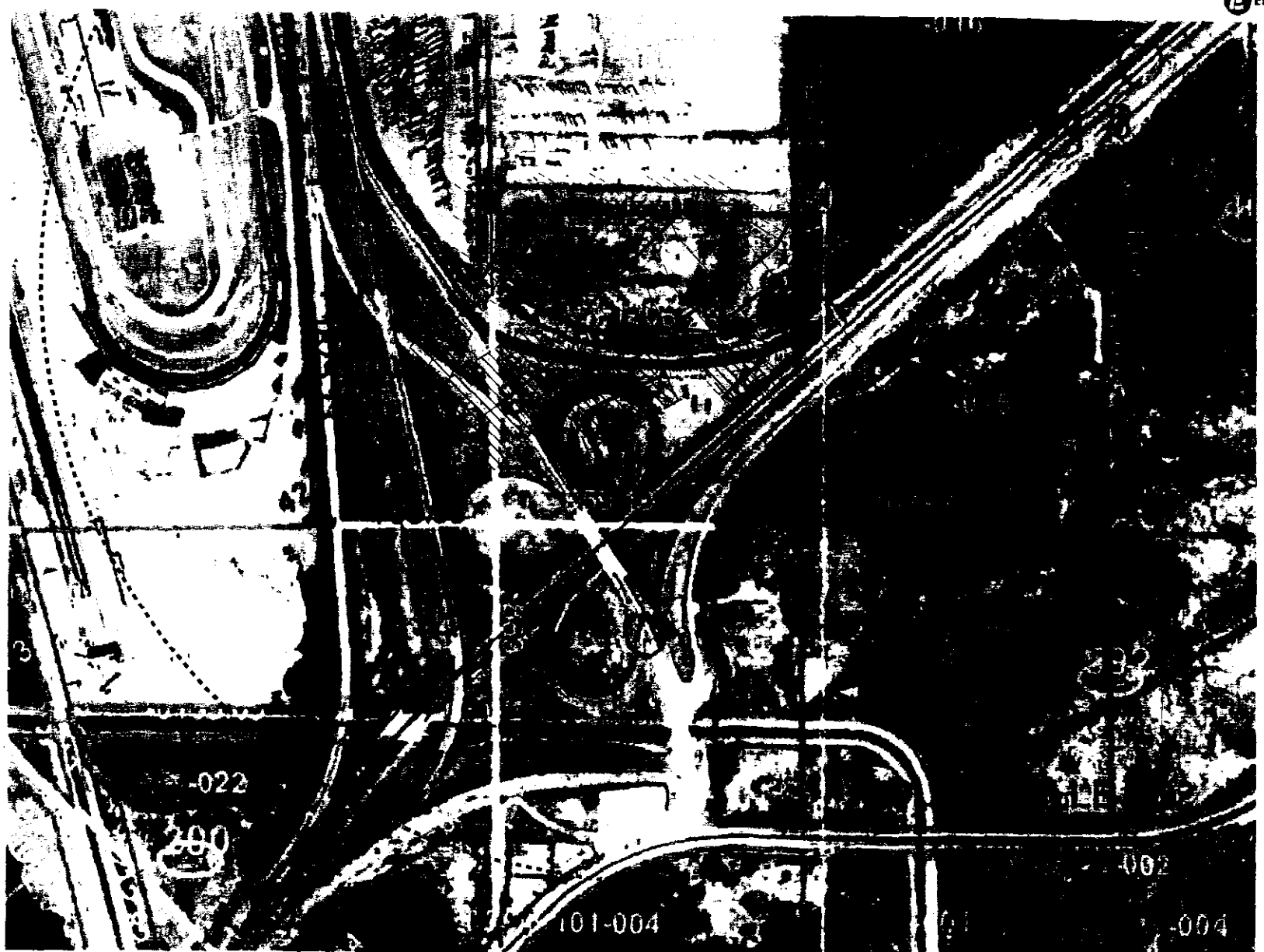


Tier 2 Groundwater Modeling Parameters
Hayden Landfill
Madison, Illinois

Figure 2

Project #0011

Environmental Operations, Inc.



North

0 150 300 600

Approximate Scale, feet

Simulated Manganese Plumes in Groundwater

Hayden Landfill

Madison, Illinois

Figure 3

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Datasheet B: Physical Soil Parameters for the RBCA Equations

Area(s)/Location(s) at the site, if applicable

Predominant Soil Type (e.g., clay, sand, silty clay, etc.

Surface (top 1 meter) or Subsurface (below 1 meter):

Site-specifc values [i.e., field measurements (F=) or calculated values using the SSL equation (S to be reported if they are used in developing the Tier 2 cleanup objectives. Acceptable procedur obtaining these values are identified in Appendix C, Table F of TACO

Parameter	Soil Type	Default Value	Units	Field Measurement or Calculated	Value
ρb (Soil Bulk Density)	Surface and/or Subsurface soils	1.5	g/cm³	F =	
	Gravel	2.0			
	Sand	1.8		Surface	1.50
	Silt	1.6		Subsurface	1.50
	Clay	1.7			
w (Moisture Content)	Surface and/or Subsurface Soils	0.1	*gwater/gsoil* (unitless)		
	Surface Soils	0.1			
	Subsurface Soils	0.2			
f_{oc} (Organic Carbon Content)	Surface Soils	0.006	g/g (unitless)	Surface	0.006
	Subsurface Soils	0.002		Subsurface	0.002
θ_T (Total Soil Porosity)	Surface and/or Subsurface Soils	0.43	cm³/cm³ (unitless)		
	Gravel	0.25			
	Sand	0.32		Surface	0.43
	Silt	0.40		Subsurface	0.43
	Clay	0.36			
θas (Air-filled Soil Porosity)	Surface Soils	0.28	cm³/cm³ (unitless)		
	Subsurface Soils	0.13			
	Gravel	0.05			
	Sand	0.14		Surface	0.28
	Silt	0.24		Subsurface	0.13
	Clay	0.19			
θws (Water-filled Soil Porosity)	Surface	0.15	cm³/cm³ (unitless)		
	Subsurface Soils	0.30			
	Gravel	0.20		Surface	0.15
	Sand	0.18		Subsurface	0.30
	Silt	0.16			
	Clay	0.17			

Datasheet RBCA-VII. Concentration of Contaminant in Groundwater Source

Datasheet RBCA-VII is to be used to predict the groundwater concentration at a specified distance from the source as calculated by the equation in Appendix C of TACO: Equation R26 (residential, industrial/ commercial and construction worker scenarios). Since values listed in Datasheet RBCA-V are used in this evaluation, this datasheet must also be submitted.

Csource (mg/L)	See below	α_y (cm)	385
X (cm)	1,540.00	Sd (cm)	200
α_x (cm)*	1,154	α_z (cm)	58
λ (1/day)***	See below	K (cm/d)	86.40
U (cm/d)*	0.18	i (unitless)	0.00
Sw (cm)	7,750	θ_T (unitless)**	0.43

* αx, αy, αz, and U are reported on Datasheet RBCA-V ** Physical Soil Parameter (see Datasheet B)

*** Chemical Properties (see Datasheet C)

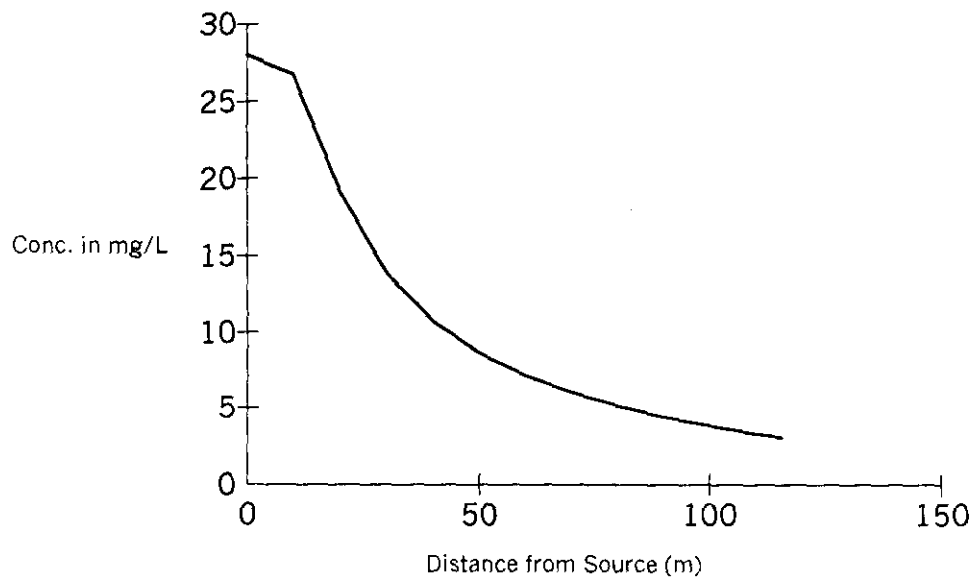
Chemical Name	λ (1/day)	Csource* (mg/L)	$C_{(x)}$ (mg/L)
Iron		28.00000	3.11E+00
Lead		0.01400	1.55E-03
Manganese		3.40000	3.77E-01

* Note: Csource is the measured concentration at the source for this form.

Hayden Landfill MW-1

Calculated Ground Water Information

Iron



Distance to Meet Ground Water Objectives

Class I	Class II
82.42 m.	82.42 m.

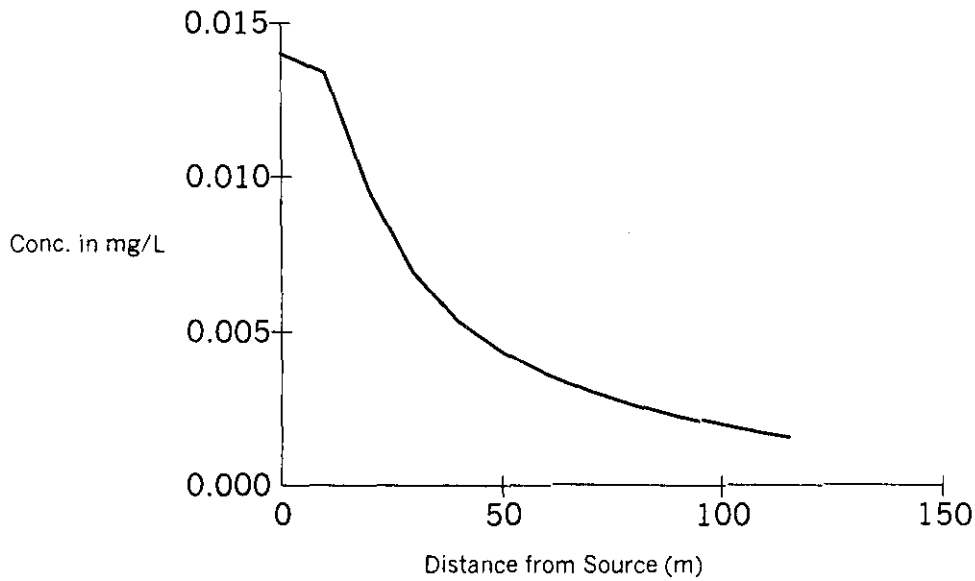
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	2.80E+01
10	2.67E+01
20	1.91E+01
30	1.39E+01
40	1.07E+01
50	8.68E+00
60	7.22E+00
70	6.10E+00
80	5.19E+00
90	4.45E+00
100	3.85E+00
110	3.34E+00
115.4	3.11E+00

Hayden Landfill MW-1

Calculated Ground Water Information

Lead



Distance to Meet Ground Water Objectives

Class I	Class II
27.33 m.	Met

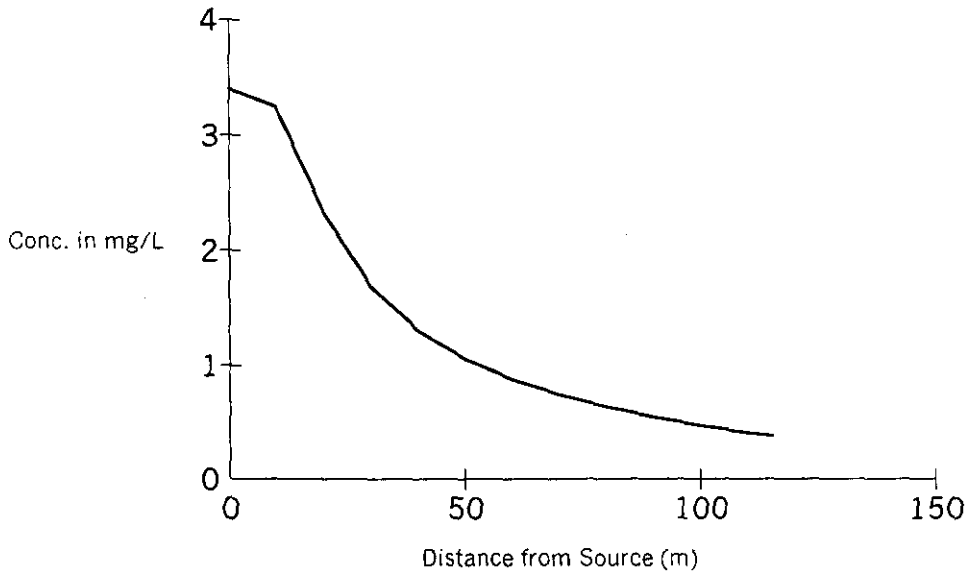
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	1.40E-02
10	1.34E-02
20	9.56E-03
30	6.93E-03
40	5.36E-03
50	4.34E-03
60	3.61E-03
70	3.05E-03
80	2.60E-03
90	2.23E-03
100	1.92E-03
110	1.67E-03
115.4	1.55E-03

Hayden Landfill MW-1

Calculated Ground Water Information

Manganese



Distance to Meet Ground Water Objectives

Class I	Class II
198.63 m.	Met

Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	3.40E+00
10	3.25E+00
20	2.32E+00
30	1.68E+00
40	1.30E+00
50	1.05E+00
60	8.77E-01
70	7.40E-01
80	6.30E-01
90	5.41E-01
100	4.67E-01
110	4.06E-01
115.4	3.77E-01

Datasheet B: Physical Soil Parameters for the RBCA Equations

Area(s)/Location(s) at the site, if applicable

Predominant Soil Type (e.g., clay, sand, silty clay, etc.

Surface (top 1 meter) or Subsurface (below 1 meter):

Site-specifc values [i.e., field measurements (F=) or calculated values using the SSL equation (S to be reported if they are used in developing the Tier 2 cleanup objectives. Acceptable procedur obtaining these values are identified in Appendix C, Table F of TACO

Parameter	Soil Type	Default Value	Units	Field Measurement or Calculated	Value
ρb (Soil Bulk Density)	Surface and/or Subsurface soils	1.5	g/cm³	F =	
	Gravel	2.0			
	Sand	1.8		Surface	1.50
	Silt	1.6		Subsurface	1.50
	Clay	1.7			
w (Moisture Content)	Surface and/or Subsurface Soils	0.1	*gwater/gsoil* (unitless)		
	Surface Soils	0.1			
	Subsurface Soils	0.2			
f_{oc} (Organic Carbon Content)	Surface Soils	0.006	g/g (unitless)	Surface	0.006
	Subsurface Soils	0.002		Subsurface	0.002
θ_T (Total Soil Porosity)	Surface and/or Subsurface Soils	0.43	cm³/cm³ (unitless)		
	Gravel	0.25			
	Sand	0.32		Surface	0.43
	Silt	0.40		Subsurface	0.43
	Clay	0.36			
θ_{as} (Air-filled Soil Porosity)	Surface Soils	0.28	cm³/cm³ (unitless)		
	Subsurface Soils	0.13			
	Gravel	0.05			
	Sand	0.14		Surface	0.28
	Silt	0.24		Subsurface	0.13
	Clay	0.19			
θ_{ws} (Water-filled Soil Porosity)	Surface	0.15	cm³/cm³ (unitless)		
	Subsurface Soils	0.30			
	Gravel	0.20		Surface	0.15
	Sand	0.18		Subsurface	0.30
	Silt	0.16			
	Clay	0.17			

Datasheet RBCA-VII. Concentration of Contaminant in Groundwater Source

Datasheet RBCA-VII is to be used to predict the groundwater concentration at a specified distance from the source as calculated by the equation in Appendix C of TACO: Equation R26 (residential, industrial/ commercial and construction worker scenarios). Since values listed in Datasheet RBCA-V are used in this evaluation, this datasheet must also be submitted.

Csource (mg/L)	See below	α_y (cm)	663
X (cm)	9,900.00	Sd (cm)	200
α_x (cm)*	1,990	α_z (cm)	100
λ (1/day)***	See below	K (cm/d)	86.40
U (cm/d)*	0.17	i (unitless)	0.00
Sw (cm)	10,750	θ_T (unitless)**	0.43

* αx, αy, αz, and U are reported on Datasheet RBCA-V ** Physical Soil Parameter (see Datasheet B)

*** Chemical Properties (see Datasheet C)

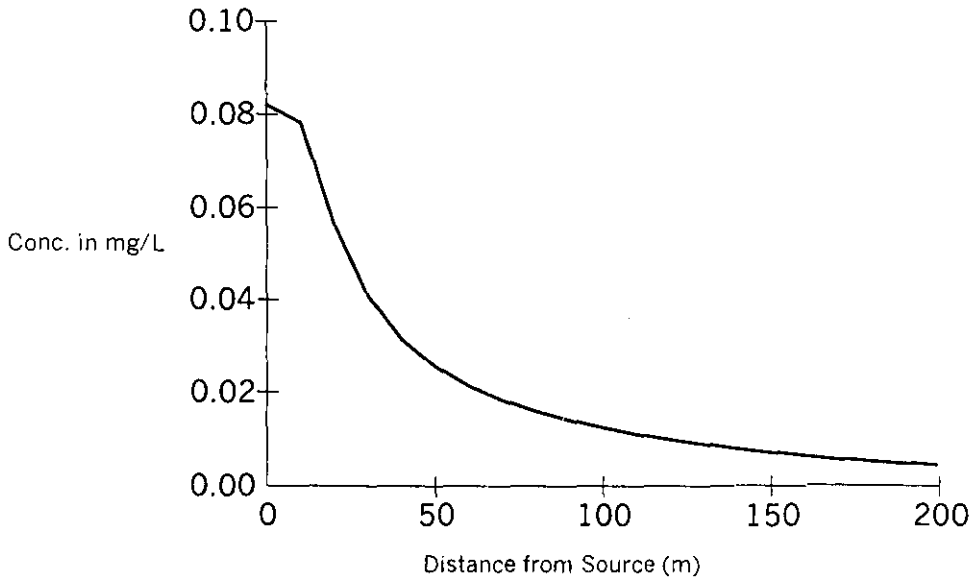
Chemical Name	λ (1/day)	Csource* (mg/L)	C(x) (mg/L)
Arsenic		0.08200	4.62E-03
Iron		54.00000	3.05E+00
Lead		0.00990	5.58E-04
Manganese		3.40000	1.92E-01

* Note: Csource is the measured concentration at the source for this form.

Hayden Landfill MW-2

Calculated Ground Water Information

Arsenic



Distance to Meet Ground Water Objectives

Class I	Class II
23.28 m.	Met

Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	8.20E-02
10	7.83E-02
20	5.60E-02
30	4.06E-02
40	3.14E-02
50	2.55E-02
60	2.14E-02
70	1.84E-02
80	1.60E-02
90	1.41E-02
100	1.25E-02
110	1.11E-02
120	9.96E-03
130	8.93E-03
140	8.04E-03
150	7.26E-03
160	6.58E-03
170	5.98E-03
180	5.46E-03

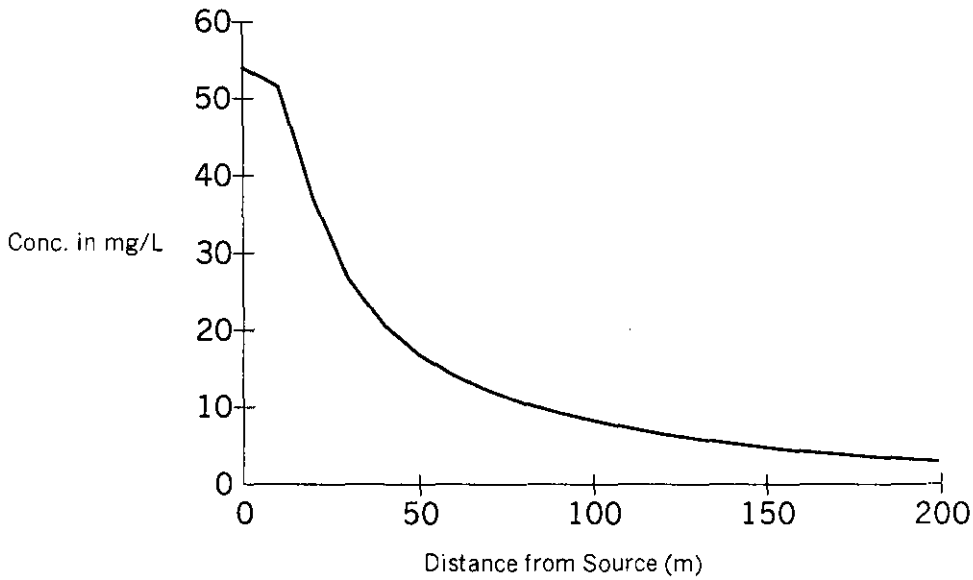
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
190	5.00E-03
199	4.62E-03

Hayden Landfill MW-2

Calculated Ground Water Information

Iron



Distance to Meet Ground Water Objectives

Class I	Class II
145.57 m.	145.57 m.

Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	5.40E+01
10	5.15E+01
20	3.69E+01
30	2.67E+01
40	2.07E+01
50	1.68E+01
60	1.41E+01
70	1.21E+01
80	1.06E+01
90	9.30E+00
100	8.24E+00
110	7.34E+00
120	6.56E+00
130	5.88E+00
140	5.29E+00
150	4.78E+00
160	4.33E+00
170	3.94E+00
180	3.60E+00

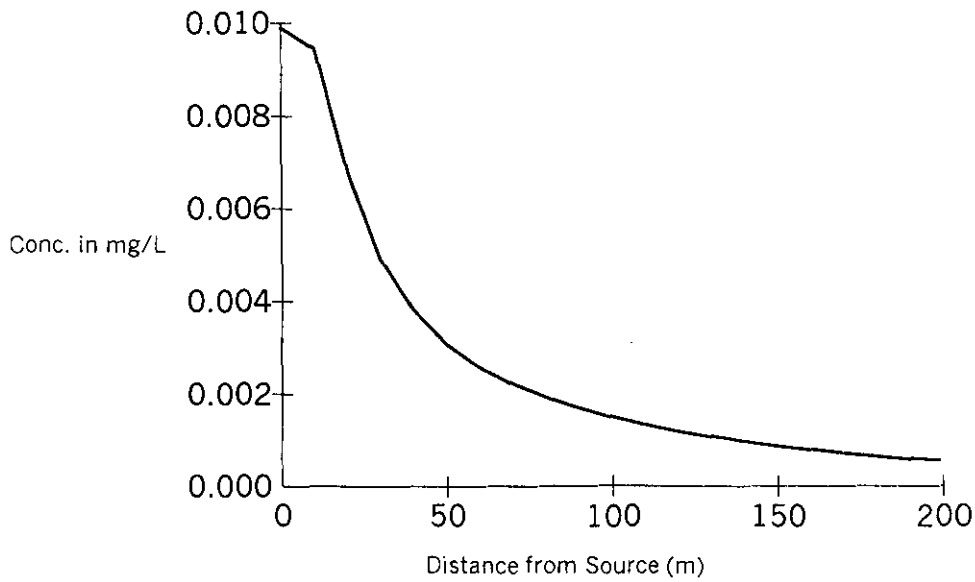
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
190	3.29E+00
199	3.05E+00

Hayden Landfill MW-2

Calculated Ground Water Information

Lead



Distance to Meet Ground Water Objectives

Class I	Class II
17.11 m.	Met

Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	9.90E-03
10	9.45E-03
20	6.76E-03
30	4.90E-03
40	3.79E-03
50	3.08E-03
60	2.58E-03
70	2.22E-03
80	1.94E-03
90	1.70E-03
100	1.51E-03
110	1.34E-03
120	1.20E-03
130	1.08E-03
140	9.71E-04
150	8.77E-04
160	7.95E-04
170	7.22E-04
180	6.59E-04

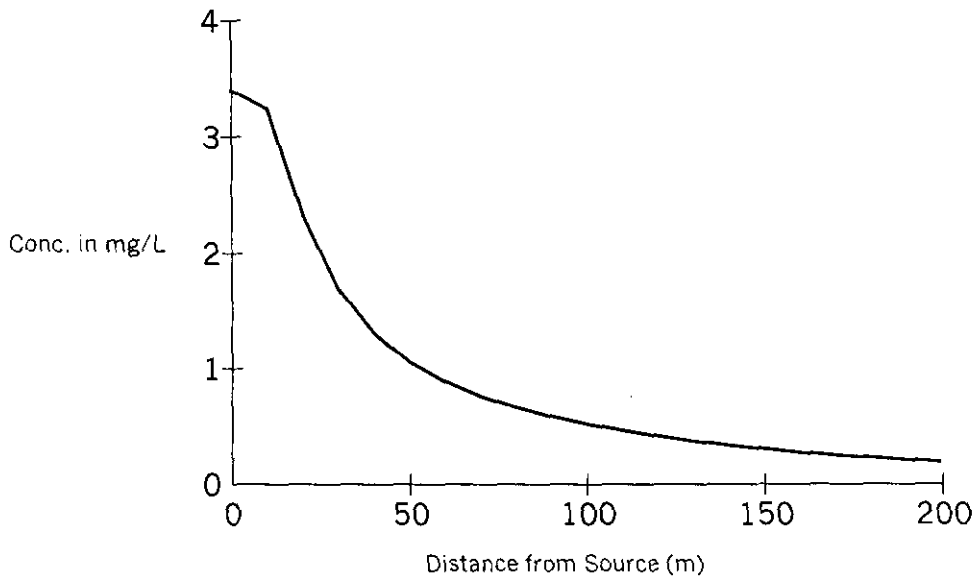
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
190	6.03E-04
199	5.58E-04

Hayden Landfill MW-2

Calculated Ground Water Information

Manganese



Distance to Meet Ground Water Objectives

Class I	Class II
229.57 m.	Met

Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	3.40E+00
10	3.25E+00
20	2.32E+00
30	1.68E+00
40	1.30E+00
50	1.06E+00
60	8.87E-01
70	7.62E-01
80	6.65E-01
90	5.86E-01
100	5.19E-01
110	4.62E-01
120	4.13E-01
130	3.70E-01
140	3.33E-01
150	3.01E-01
160	2.73E-01
170	2.48E-01
180	2.26E-01

Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
190	2.07E-01
199	1.92E-01

Datasheet B: Physical Soil Parameters for the RBCA Equations

Area(s)/Location(s) at the site, if applicable

Predominant Soil Type (e.g., clay, sand, silty clay, etc.

Surface (top 1 meter) or Subsurface (below 1 meter):

Site-specifc values [i.e., field measurements (F=) or calculated values using the SSL equation (S to be reported if they are used in developing the Tier 2 cleanup objectives. Acceptable procedur obtaining these values are identified in Appendix C, Table F of TACO

Parameter	Soil Type	Default Value	Units	Field Measurement or Calculated	Value
ρb (Soil Bulk Density)	Surface and/or Subsurface soils	1.5	g/cm³	F =	
	Gravel	2.0			
	Sand	1.8		Surface	1.50
	Silt	1.6		Subsurface	1.50
	Clay	1.7			
w (Moisture Content)	Surface and/or Subsurface Soils	0.1	g*water*/g*soil* (unitless)		
	Surface Soils	0.1			
	Subsurface Soils	0.2			
f_{oc} (Organic Carbon Content)	Surface Soils	0.006	g/g (unitless)	Surface	0.006
	Subsurface Soils	0.002		Subsurface	0.002
θ_T (Total Soil Porosity)	Surface and/or Subsurface Soils	0.43	cm³/cm³ (unitless)		
	Gravel	0.25			
	Sand	0.32		Surface	0.43
	Silt	0.40		Subsurface	0.43
	Clay	0.36			
θ_{as} (Air-filled Soil Porosity)	Surface Soils	0.28	cm³/cm³ (unitless)		
	Subsurface Soils	0.13			
	Gravel	0.05			
	Sand	0.14		Surface	0.28
	Silt	0.24		Subsurface	0.13
	Clay	0.19			
θ_{ws} (Water-filled Soil Porosity)	Surface	0.15	cm³/cm³ (unitless)		
	Subsurface Soils	0.30			
	Gravel	0.20		Surface	0.15
	Sand	0.18		Subsurface	0.30
	Silt	0.16			
	Clay	0.17			

Datasheet RBCA-VII. Concentration of Contaminant in Groundwater Source

Datasheet RBCA-VII is to be used to predict the groundwater concentration at a specified distance from the source as calculated by the equation in Appendix C of TACO: Equation R26 (residential, industrial/ commercial and construction worker scenarios). Since values listed in Datasheet RBCA-V are used in this evaluation, this datasheet must also be submitted.

Csource (mg/L)	See below	α_y (cm)	860
X (cm)	5,790.00	Sd (cm)	200
α_x (cm)*	2,579	α_z (cm)	129
λ (1/day)***	See below	K (cm/d)	86.40
U (cm/d)*	0.25	i (unitless)	0.00
Sw (cm)	6,550	θ_T (unitless)**	0.43

* αx, αy, αz, and U are reported on Datasheet RBCA-V ** Physical Soil Parameter (see Datasheet B)

*** Chemical Properties (see Datasheet C)

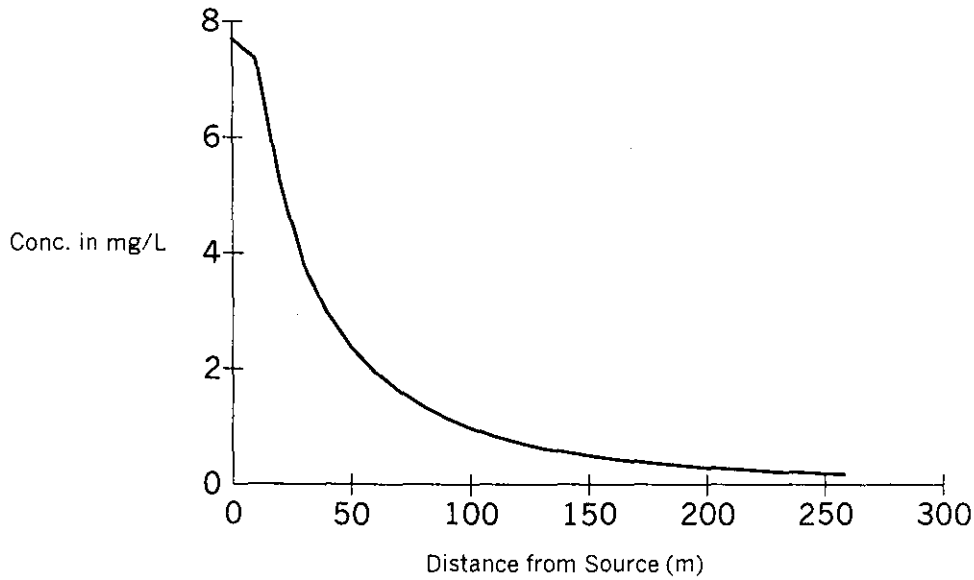
Chemical Name	λ (1/day)	Csource* (mg/L)	$C_{(x)}$ (mg/L)
Iron		7.70000	1.80E-01
Manganese		2.20000	5.13E-02

* Note: Csource is the measured concentration at the source for this form.

Hayden Landfill MW-3

Calculated Ground Water Information

Iron



Distance to Meet Ground Water Objectives

Class I	Class II
21.43 m.	21.43 m.

Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	7.70E+00
10	7.35E+00
20	5.26E+00
30	3.81E+00
40	2.94E+00
50	2.37E+00
60	1.94E+00
70	1.61E+00
80	1.35E+00
90	1.14E+00
100	9.71E-01
110	8.34E-01
120	7.23E-01
130	6.32E-01
140	5.55E-01
150	4.92E-01
160	4.38E-01
170	3.93E-01
180	3.54E-01

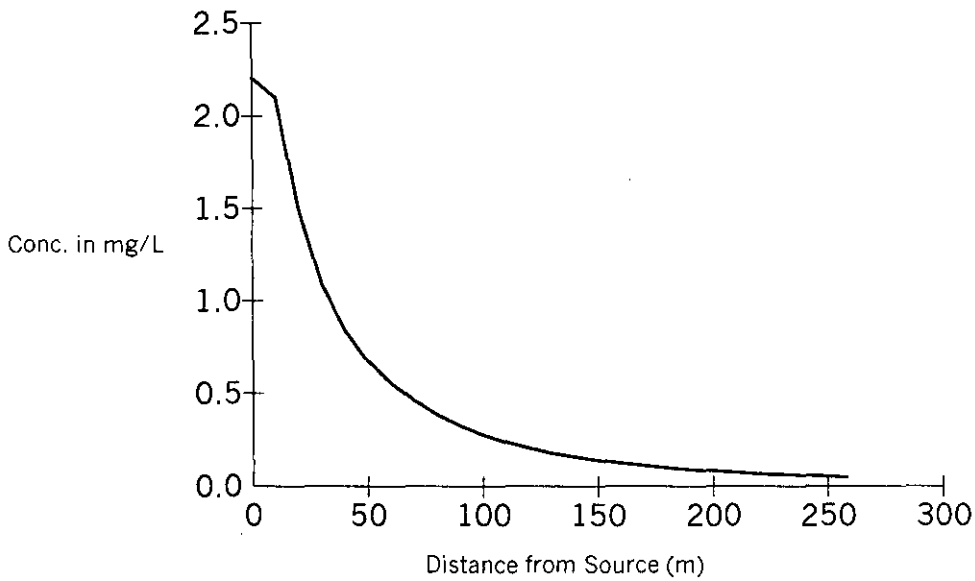
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
190	3.20E-01
200	2.91E-01
210	2.65E-01
220	2.43E-01
230	2.23E-01
240	2.06E-01
250	1.91E-01
257.9	1.80E-01

Hayden Landfill MW-3

Calculated Ground Water Information

Manganese



Distance to Meet Ground Water Objectives

Class I	Class II
144.58 m.	Met

Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	2.20E+00
10	2.10E+00
20	1.50E+00
30	1.09E+00
40	8.41E-01
50	6.76E-01
60	5.55E-01
70	4.60E-01
80	3.85E-01
90	3.25E-01
100	2.77E-01
110	2.38E-01
120	2.07E-01
130	1.80E-01
140	1.59E-01
150	1.41E-01
160	1.25E-01
170	1.12E-01
180	1.01E-01

Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
190	9.14E-02
200	8.31E-02
210	7.58E-02
220	6.94E-02
230	6.38E-02
240	5.89E-02
250	5.44E-02
257.9	5.13E-02

Datasheet B: Physical Soil Parameters for the RBCA Equations

Area(s)/Location(s) at the site, if applicable

Predominant Soil Type (e.g., clay, sand, silty clay, etc.

Surface (top 1 meter) or Subsurface (below 1 meter):

Site-specifc values [i.e., field measurements (F=) or calculated values using the SSL equation (S to be reported if they are used in developing the Tier 2 cleanup objectives. Acceptable procedur obtaining these values are identified in Appendix C, Table F of TACO

Parameter	Soil Type	Default Value	Units	Field Measurement or Calculated	Value
ρb (Soil Bulk Density)	Surface and/or Subsurface soils	1.5	g/cm³	F =	
	Gravel	2.0			
	Sand	1.8		Surface	1.50
	Silt	1.6		Subsurface	1.50
	Clay	1.7			
w (Moisture Content)	Surface and/or Subsurface Soils	0.1	g*water*/g*soil* (unitless)		
	Surface Soils	0.1			
	Subsurface Soils	0.2			
f_{oc} (Organic Carbon Content)	Surface Soils	0.006	g/g (unitless)	Surface	0.006
	Subsurface Soils	0.002		Subsurface	0.002
θ_T (Total Soil Porosity)	Surface and/or Subsurface Soils	0.43	cm³/cm³ (unitless)		
	Gravel	0.25			
	Sand	0.32		Surface	0.43
	Silt	0.40		Subsurface	0.43
	Clay	0.36			
θ_{as} (Air-filled Soil Porosity)	Surface Soils	0.28	cm³/cm³ (unitless)		
	Subsurface Soils	0.13			
	Gravel	0.05			
	Sand	0.14		Surface	0.28
	Silt	0.24		Subsurface	0.13
	Clay	0.19			
θ_{ws} (Water-filled Soil Porosity)	Surface	0.15	cm³/cm³ (unitless)		
	Subsurface Soils	0.30			
	Gravel	0.20		Surface	0.15
	Sand	0.18		Subsurface	0.30
	Silt	0.16			
	Clay	0.17			

Datasheet RBCA-VII. Concentration of Contaminant in Groundwater Source

Datasheet RBCA-VII is to be used to predict the groundwater concentration at a specified distance from the source as calculated by the equation in Appendix C of TACO: Equation R26 (residential, industrial/ commercial and construction worker scenarios). Since values listed in Datasheet RBCA-V are used in this evaluation, this datasheet must also be submitted.

Csource (mg/L)	See below	α_y (cm)	567
X (cm)	7,010.00	Sd (cm)	200
α_x (cm)*	1,701	α_z (cm)	85
λ (1/day)***	See below	K (cm/d)	86.40
U (cm/d)*	0.17	i (unitless)	0.00
Sw (cm)	4,980	θ_T (unitless)**	0.43

* α_x, α_y, α_z, and U are reported on Datasheet RBCA-V ** Physical Soil Parameter (see Datasheet B)

*** Chemical Properties (see Datasheet C)

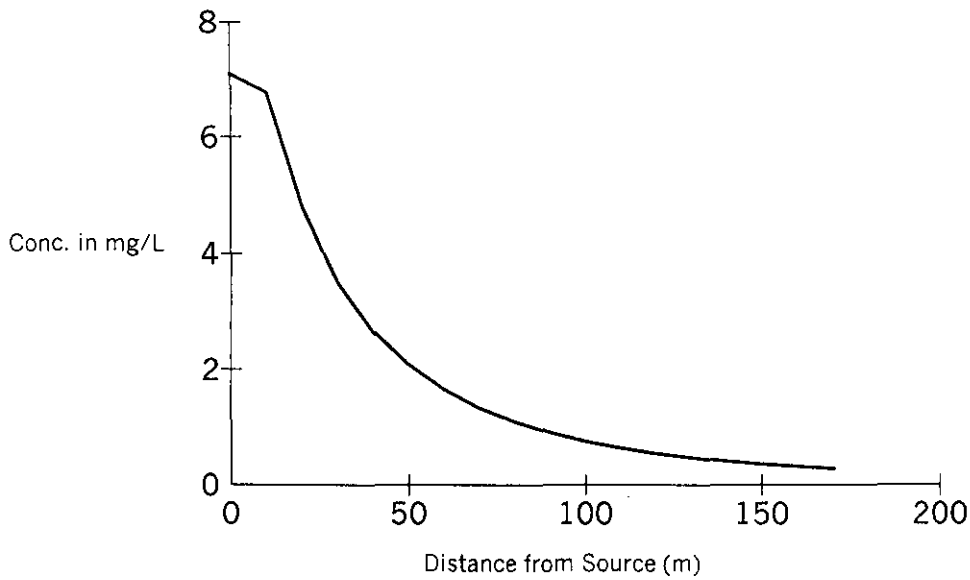
Chemical Name	λ (1/day)	Csource* (mg/L)	C(x) (mg/L)
Iron		7.10000	2.85E-01
Manganese		6.90000	2.77E-01

* Note: C_{source} is the measured concentration at the source for this form.

Hayden Landfill MW-4

Calculated Ground Water Information

Iron



Distance to Meet Ground Water Objectives

Class I	Class II
19.13 m.	19.13 m.

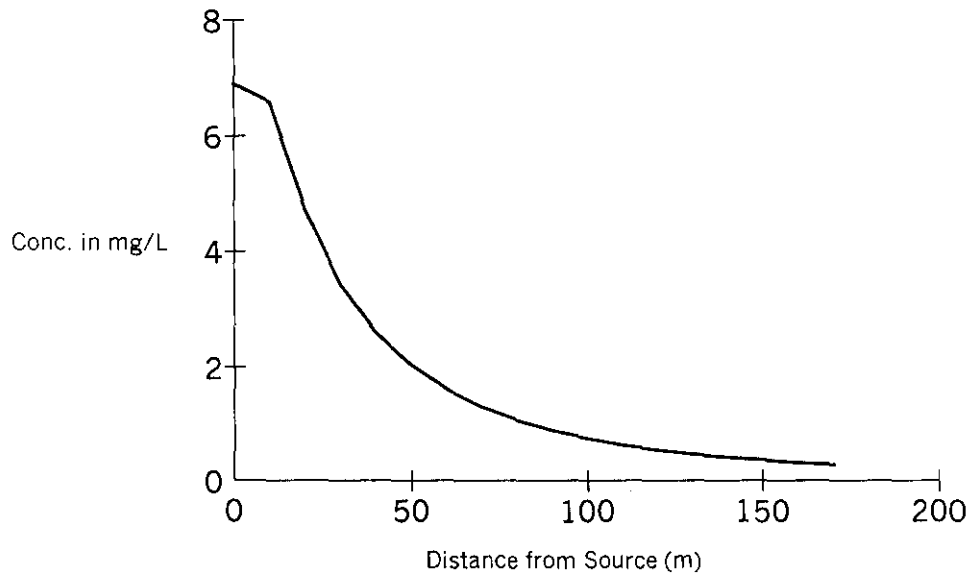
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	7.10E+00
10	6.78E+00
20	4.85E+00
30	3.51E+00
40	2.68E+00
50	2.09E+00
60	1.65E+00
70	1.33E+00
80	1.08E+00
90	8.94E-01
100	7.49E-01
110	6.34E-01
120	5.44E-01
130	4.70E-01
140	4.11E-01
150	3.61E-01
160	3.20E-01
170	2.86E-01
170.1	2.85E-01

Hayden Landfill MW-4

Calculated Ground Water Information

Manganese



Distance to Meet Ground Water Objectives

Class I	Class II
234.22 m.	Met

Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	6.90E+00
10	6.59E+00
20	4.71E+00
30	3.41E+00
40	2.60E+00
50	2.03E+00
60	1.61E+00
70	1.29E+00
80	1.05E+00
90	8.69E-01
100	7.28E-01
110	6.17E-01
120	5.28E-01
130	4.57E-01
140	3.99E-01
150	3.51E-01
160	3.11E-01
170	2.78E-01
170.1	2.77E-01

Datasheet B: Physical Soil Parameters for the RBCA Equations

Area(s)/Location(s) at the site, if applicable

Predominant Soil Type (e.g., clay, sand, silty clay, etc.

Surface (top 1 meter) or Subsurface (below 1 meter):

Site-specifc values [i.e., field measurements (F=) or calculated values using the SSL equation (S to be reported if they are used in developing the Tier 2 cleanup objectives. Acceptable procedur obtaining these values are identified in Appendix C, Table F of TACO

Parameter	Soil Type	Default Value	Units	Field Measurement or Calculated	Value
ρb (Soil Bulk Density)	Surface and/or Subsurface soils	1.5	g/cm³	F =	
	Gravel	2.0			
	Sand	1.8		Surface	1.50
	Silt	1.6		Subsurface	1.50
	Clay	1.7			
w (Moisture Content)	Surface and/or Subsurface Soils	0.1	*gwater/gsoil* (unitless)		
	Surface Soils	0.1			
	Subsurface Soils	0.2			
f_{oc} (Organic Carbon Content)	Surface Soils	0.006	g/g (unitless)	Surface	0.006
	Subsurface Soils	0.002		Subsurface	0.002
θ_T (Total Soil Porosity)	Surface and/or Subsurface Soils	0.43	cm³/cm³ (unitless)		
	Gravel	0.25			
	Sand	0.32		Surface	0.43
	Silt	0.40		Subsurface	0.43
	Clay	0.36			
θ_{as} (Air-filled Soil Porosity)	Surface Soils	0.28	cm³/cm³ (unitless)		
	Subsurface Soils	0.13			
	Gravel	0.05			
	Sand	0.14		Surface	0.28
	Silt	0.24		Subsurface	0.13
	Clay	0.19			
θ_{ws} (Water-filled Soil Porosity)	Surface	0.15	cm³/cm³ (unitless)		
	Subsurface Soils	0.30			
	Gravel	0.20		Surface	0.15
	Sand	0.18		Subsurface	0.30
	Silt	0.16			
	Clay	0.17			

Datasheet RBCA-VII. Concentration of Contaminant in Groundwater Source

Datasheet RBCA-VII is to be used to predict the groundwater concentration at a specified distance from the source as calculated by the equation in Appendix C of TACO: Equation R26 (residential, industrial/ commercial and construction worker scenarios). Since values listed in Datasheet RBCA-V are used in this evaluation, this datasheet must also be submitted.

Csource (mg/L)	See below	α_y (cm)	333
X (cm)	0,000.00	Sd (cm)	200
α_x (cm)*	1,000	α_z (cm)	50
λ (1/day)***	See below	K (cm/d)	86.40
U (cm/d)*	0.13	i (unitless)	0.00
Sw (cm)	6,800	θ_T (unitless)**	0.43

* αx, αy, αz, and U are reported on Datasheet RBCA-V ** Physical Soil Parameter (see Datasheet B)

*** Chemical Properties (see Datasheet C)

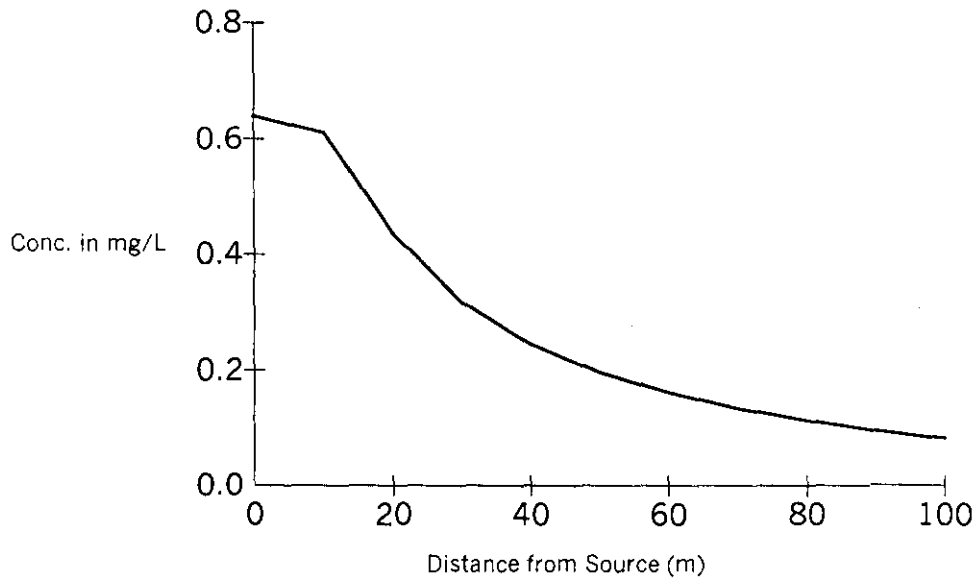
Chemical Name	λ (1/day)	Csource* (mg/L)	C(x) (mg/L)
Manganese		0.64000	8.24E-02

* Note: Csource is the measured concentration at the source for this form.

Hayden Landfill MW-5

Calculated Ground Water Information

Manganese



Distance to Meet Ground Water Objectives

Class I	Class II
64.29 m.	Met

Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	6.40E-01
10	6.11E-01
20	4.37E-01
30	3.17E-01
40	2.45E-01
50	1.97E-01
60	1.62E-01
70	1.35E-01
80	1.14E-01
90	9.64E-02
100	8.24E-02

Datasheet B: Physical Soil Parameters for the RBCA Equations

Area(s)/Location(s) at the site, if applicable

Predominant Soil Type (e.g., clay, sand, silty clay, etc.

Surface (top 1 meter) or Subsurface (below 1 meter):

Site-specifc values [i.e., field measurements (F=) or calculated values using the SSL equation (S to be reported if they are used in developing the Tier 2 cleanup objectives. Acceptable procedur obtaining these values are identified in Appendix C, Table F of TACO

Parameter	Soil Type	Default Value	Units	Field Measurement or Calculated	Value
ρb (Soil Bulk Density)	Surface and/or Subsurface soils	1.5	g/cm³	F =	
	Gravel	2.0			
	Sand	1.8		Surface	1.50
	Silt	1.6		Subsurface	1.50
	Clay	1.7			
w (Moisture Content)	Surface and/or Subsurface Soils	0.1	*gwater/gsoil* (unitless)		
	Surface Soils	0.1			
	Subsurface Soils	0.2			
foc (Organic Carbon Content)	Surface Soils	0.006	g/g (unitless)	Surface	0.006
	Subsurface Soils	0.002		Subsurface	0.002
θ_T (Total Soil Porosity)	Surface and/or Subsurface Soils	0.43	cm³/cm³ (unitless)		
	Gravel	0.25			
	Sand	0.32		Surface	0.43
	Silt	0.40		Subsurface	0.43
	Clay	0.36			
θas (Air-filled Soil Porosity)	Surface Soils	0.28	cm³/cm³ (unitless)		
	Subsurface Soils	0.13			
	Gravel	0.05			
	Sand	0.14		Surface	0.28
	Silt	0.24		Subsurface	0.13
	Clay	0.19			
θws (Water-filled Soil Porosity)	Surface	0.15	cm³/cm³ (unitless)		
	Subsurface Soils	0.30			
	Gravel	0.20		Surface	0.15
	Sand	0.18		Subsurface	0.30
	Silt	0.16			
	Clay	0.17			

Datasheet RBCA-VII. Concentration of Contaminant in Groundwater Source

Datasheet RBCA-VII is to be used to predict the groundwater concentration at a specified distance from the source as calculated by the equation in Appendix C of TACO: Equation R26 (residential, industrial/ commercial and construction worker scenarios). Since values listed in Datasheet RBCA-V are used in this evaluation, this datasheet must also be submitted.

Csource (mg/L)	See below	α_y (cm)	333
X (cm)	0,000.00	Sd (cm)	200
α_x (cm)*	1,000	α_z (cm)	50
λ (1/day)***	See below	K (cm/d)	86.40
U (cm/d)*	0.19	i (unitless)	0.00
Sw (cm)	6,890	θ_T (unitless)**	0.43

* αx, αy, αz, and U are reported on Datasheet RBCA-V ** Physical Soil Parameter (see Datasheet B)

*** Chemical Properties (see Datasheet C)

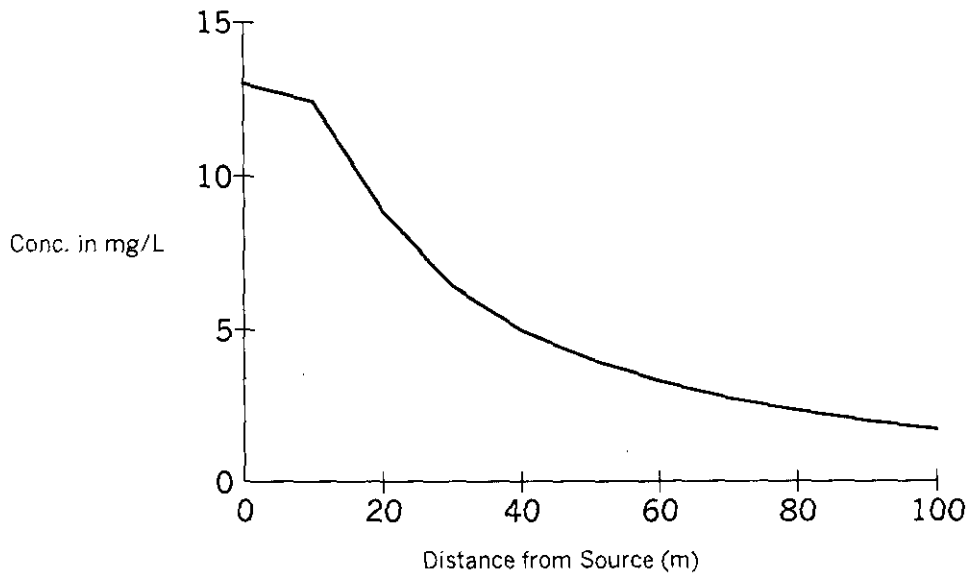
Chemical Name	λ (1/day)	Csource* (mg/L)	$C_{(x)}$ (mg/L)
Iron		13.00000	1.69E+00
Lead		0.01500	1.94E-03
Manganese		1.70000	2.20E-01

* Note: Csource is the measured concentration at the source for this form.

Hayden Landfill MW-6

Calculated Ground Water Information

Iron



Distance to Meet Ground Water Objectives

Class I	Class II
39.77 m.	39.77 m.

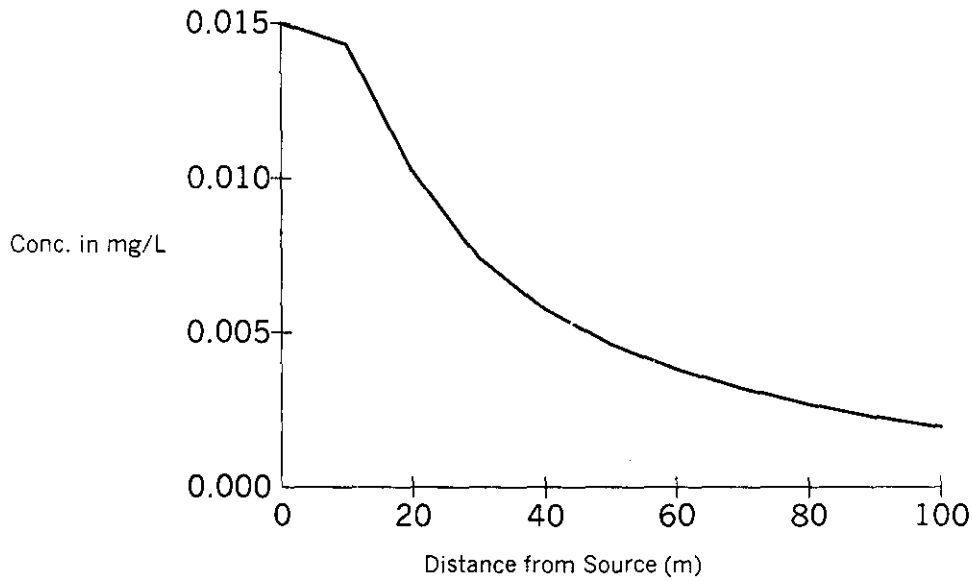
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	1.30E+01
10	1.24E+01
20	8.87E+00
30	6.44E+00
40	4.97E+00
50	4.01E+00
60	3.31E+00
70	2.76E+00
80	2.32E+00
90	1.97E+00
100	1.69E+00

Hayden Landfill MW-6

Calculated Ground Water Information

Lead



Distance to Meet Ground Water Objectives

Class I	Class II
29.65 m.	Met

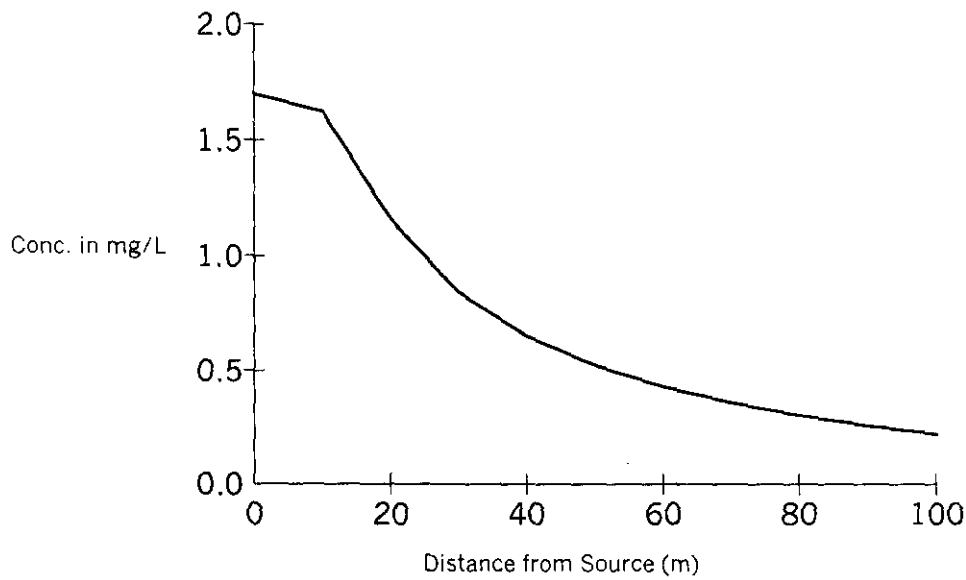
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	1.50E-02
10	1.43E-02
20	1.02E-02
30	7.43E-03
40	5.74E-03
50	4.63E-03
60	3.81E-03
70	3.18E-03
80	2.68E-03
90	2.27E-03
100	1.94E-03

Hayden Landfill MW-6

Calculated Ground Water Information

Manganese



Distance to Meet Ground Water Objectives

Class I	Class II
127.15 m.	Met

Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	1.70E+00
10	1.62E+00
20	1.16E+00
30	8.42E-01
40	6.50E-01
50	5.24E-01
60	4.32E-01
70	3.61E-01
80	3.04E-01
90	2.58E-01
100	2.20E-01

Datasheet B: Physical Soil Parameters for the RBCA Equations

Area(s)/Location(s) at the site, if applicable

Predominant Soil Type (e.g., clay, sand, silty clay, etc.

Surface (top 1 meter) or Subsurface (below 1 meter):

Site-specifc values [i.e., field measurements (F=) or calculated values using the SSL equation (S to be reported if they are used in developing the Tier 2 cleanup objectives. Acceptable procedur obtaining these values are identified in Appendix C, Table F of TACO

Parameter	Soil Type	Default Value	Units	Field Measurement or Calculated	Value
ρb (Soil Bulk Density)	Surface and/or Subsurface soils	1.5	g/cm³	F =	
	Gravel	2.0			
	Sand	1.8		Surface	1.50
	Silt	1.6		Subsurface	1.50
	Clay	1.7			
w (Moisture Content)	Surface and/or Subsurface Soils	0.1	*gwater/gsoil* (unitless)		
	Surface Soils	0.1			
	Subsurface Soils	0.2			
foc (Organic Carbon Content)	Surface Soils	0.006	g/g (unitless)	Surface	0.006
	Subsurface Soils	0.002		Subsurface	0.002
θ_T (Total Soil Porosity)	Surface and/or Subsurface Soils	0.43	cm³/cm³ (unitless)		
	Gravel	0.25			
	Sand	0.32		Surface	0.43
	Silt	0.40		Subsurface	0.43
	Clay	0.36			
θas (Air-filled Soil Porosity)	Surface Soils	0.28	cm³/cm³ (unitless)		
	Subsurface Soils	0.13			
	Gravel	0.05			
	Sand	0.14		Surface	0.28
	Silt	0.24		Subsurface	0.13
	Clay	0.19			
θws (Water-filled Soil Porosity)	Surface	0.15	cm³/cm³ (unitless)		
	Subsurface Soils	0.30			
	Gravel	0.20		Surface	0.15
	Sand	0.18		Subsurface	0.30
	Silt	0.16			
	Clay	0.17			

Datasheet RBCA-VII. Concentration of Contaminant in Groundwater Source

Datasheet RBCA-VII is to be used to predict the groundwater concentration at a specified distance from the source as calculated by the equation in Appendix C of TACO: Equation R26 (residential, industrial/ commercial and construction worker scenarios). Since values listed in Datasheet RBCA-V are used in this evaluation, this datasheet must also be submitted.

Csource (mg/L)	See below	α_y (cm)	102
X (cm)	3,050.00	Sd (cm)	200
α_x (cm)*	305	α_z (cm)	15
λ (1/day)***	See below	K (cm/d)	86.40
U (cm/d)*	0.17	i (unitless)	0.00
Sw (cm)	10,820	θ_T (unitless)**	0.43

* α_x, α_y, α_z, and U are reported on Datasheet RBCA-V ** Physical Soil Parameter (see Datasheet B)

*** Chemical Properties (see Datasheet C)

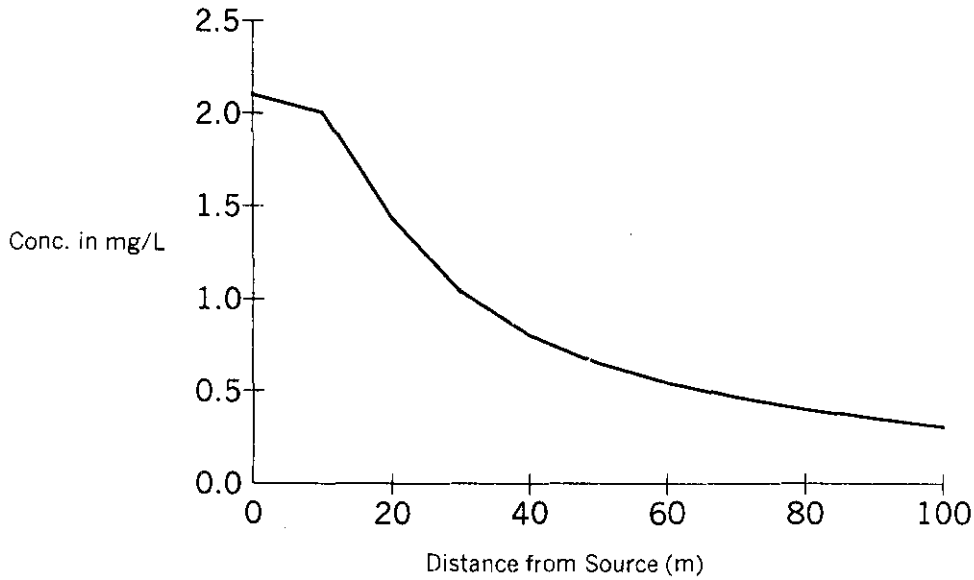
Chemical Name	λ (1/day)	Csource* (mg/L)	$C_{(x)}$ (mg/L)
Manganese		2.10000	3.12E-01

* Note: Csource is the measured concentration at the source for this form.

Hayden Landfill MW-7

Calculated Ground Water Information

Manganese



Distance to Meet Ground Water Objectives

Class I	Class II
165.37 m.	Met

Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	2.10E+00
10	2.00E+00
20	1.43E+00
30	1.04E+00
40	8.04E-01
50	6.53E-01
60	5.47E-01
70	4.69E-01
80	4.07E-01
90	3.55E-01
100	3.12E-01

Datasheet B: Physical Soil Parameters for the RBCA Equations

Area(s)/Location(s) at the site, if applicable

Predominant Soil Type (e.g., clay, sand, silty clay, etc.

Surface (top 1 meter) or Subsurface (below 1 meter):

Site-specifc values [i.e., field measurements (F=) or calculated values using the SSL equation (S to be reported if they are used in developing the Tier 2 cleanup objectives. Acceptable procedur obtaining these values are identified in Appendix C, Table F of TACO

Parameter	Soil Type	Default Value	Units	Field Measurement or Calculated	Value
ρb (Soil Bulk Density)	Surface and/or Subsurface soils	1.5	g/cm³	F =	
	Gravel	2.0			
	Sand	1.8		Surface	1.50
	Silt	1.6		Subsurface	1.50
	Clay	1.7			
w (Moisture Content)	Surface and/or Subsurface Soils	0.1	*gwater/gsoil* (unitless)		
	Surface Soils	0.1			
	Subsurface Soils	0.2			
foc (Organic Carbon Content)	Surface Soils	0.006	g/g (unitless)	Surface	0.006
	Subsurface Soils	0.002		Subsurface	0.002
θ_T (Total Soil Porosity)	Surface and/or Subsurface Soils	0.43	cm³/cm³ (unitless)		
	Gravel	0.25			
	Sand	0.32		Surface	0.43
	Silt	0.40		Subsurface	0.43
	Clay	0.36			
θas (Air-filled Soil Porosity)	Surface Soils	0.28	cm³/cm³ (unitless)		
	Subsurface Soils	0.13			
	Gravel	0.05			
	Sand	0.14		Surface	0.28
	Silt	0.24		Subsurface	0.13
	Clay	0.19			
θws (Water-filled Soil Porosity)	Surface	0.15	cm³/cm³ (unitless)		
	Subsurface Soils	0.30			
	Gravel	0.20		Surface	0.15
	Sand	0.18		Subsurface	0.30
	Silt	0.16			
	Clay	0.17			

Datasheet RBCA-VII. Concentration of Contaminant in Groundwater Source

Datasheet RBCA-VII is to be used to predict the groundwater concentration at a specified distance from the source as calculated by the equation in Appendix C of TACO: Equation R26 (residential, industrial/ commercial and construction worker scenarios). Since values listed in Datasheet RBCA-V are used in this evaluation, this datasheet must also be submitted.

Csource (mg/L)	See below	α_y (cm)	333
X (cm)	0,000.00	Sd (cm)	200
α_x (cm)*	1,000	α_z (cm)	50
λ (1/day)***	See below	K (cm/d)	86.40
U (cm/d)*	0.15	i (unitless)	0.00
Sw (cm)	2,990	θ_T (unitless)**	0.43

* αx, αy, αz, and U are reported on Datasheet RBCA-V ** Physical Soil Parameter (see Datasheet B)

*** Chemical Properties (see Datasheet C)

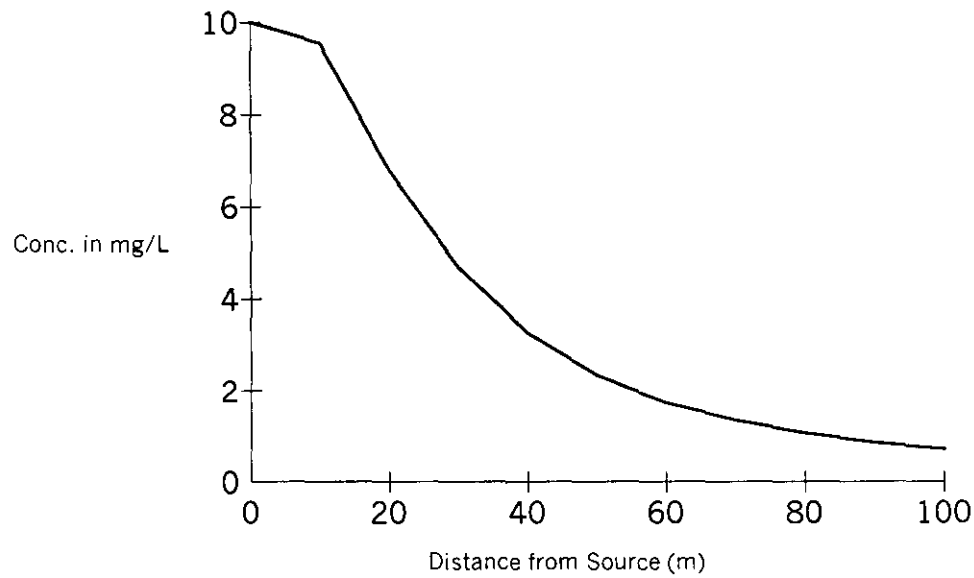
Chemical Name	λ (1/day)	Csource* (mg/L)	$C_{(x)}$ (mg/L)
Iron		10.00000	6.93E-01
Lead		0.01400	9.71E-04
Manganese		7.30000	5.06E-01

* Note: Csource is the measured concentration at the source for this form.

Hayden Landfill MW-8

Calculated Ground Water Information

Iron



Distance to Meet Ground Water Objectives

Class I	Class II
28.25 m.	28.25 m.

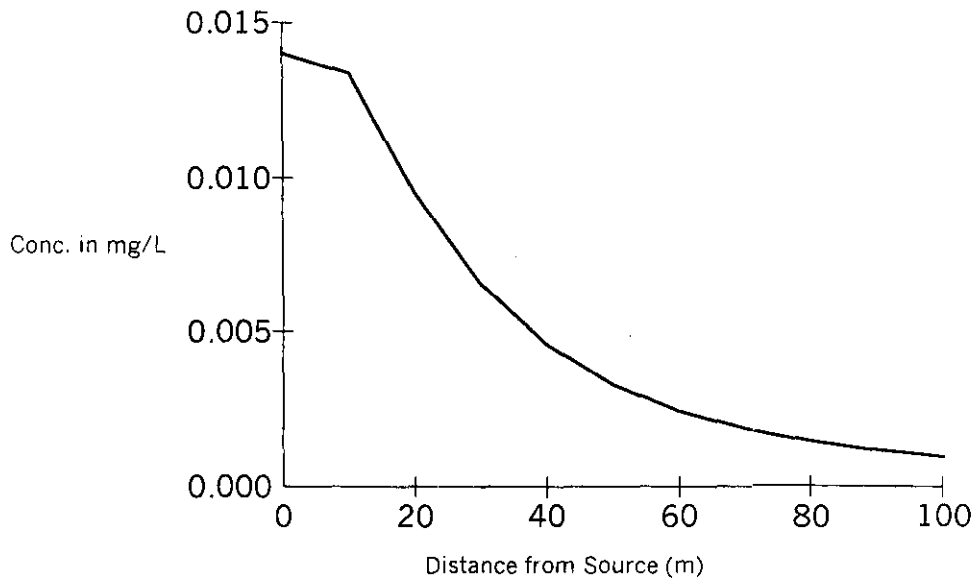
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	1.00E+01
10	9.54E+00
20	6.80E+00
30	4.68E+00
40	3.26E+00
50	2.34E+00
60	1.74E+00
70	1.33E+00
80	1.05E+00
90	8.44E-01
100	6.93E-01

Hayden Landfill MW-8

Calculated Ground Water Information

Lead



Distance to Meet Ground Water Objectives

Class I	Class II
26.40 m.	Met

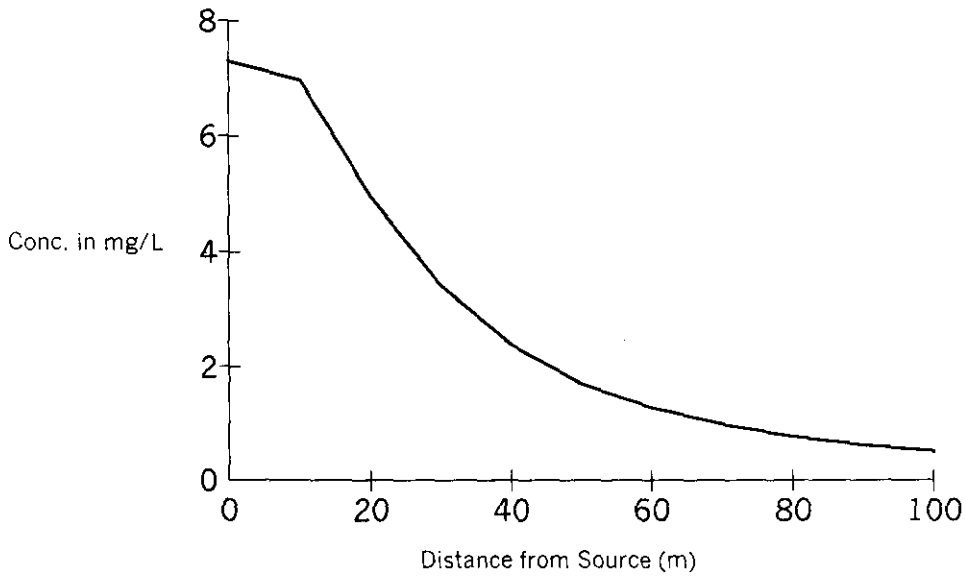
Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	1.40E-02
10	1.34E-02
20	9.52E-03
30	6.56E-03
40	4.57E-03
50	3.28E-03
60	2.43E-03
70	1.86E-03
80	1.47E-03
90	1.18E-03
100	9.71E-04

Hayden Landfill MW-8

Calculated Ground Water Information

Manganese



Distance to Meet Ground Water Objectives

Class I	Class II
187.75 m.	Met

Calculated Ground Water Concentrations

Distance from Source (m)	Calculated Concentration (mg/L)
0	7.30E+00
10	6.97E+00
20	4.96E+00
30	3.42E+00
40	2.38E+00
50	1.71E+00
60	1.27E+00
70	9.72E-01
80	7.65E-01
90	6.16E-01
100	5.06E-01

ATTACHMENT 2

Well Search Results

EDR Illinois Water Well Report

Hayden Landfill
750 Madison Road
Madison, IL 62201

Inquiry Number: 0704556.1r

November 16, 2001

Environmental Data Resources, Inc.

The Source For Environmental Risk Management Data

3530 Post Road
Southport, Connecticut 06490

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

FORM-TWC

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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

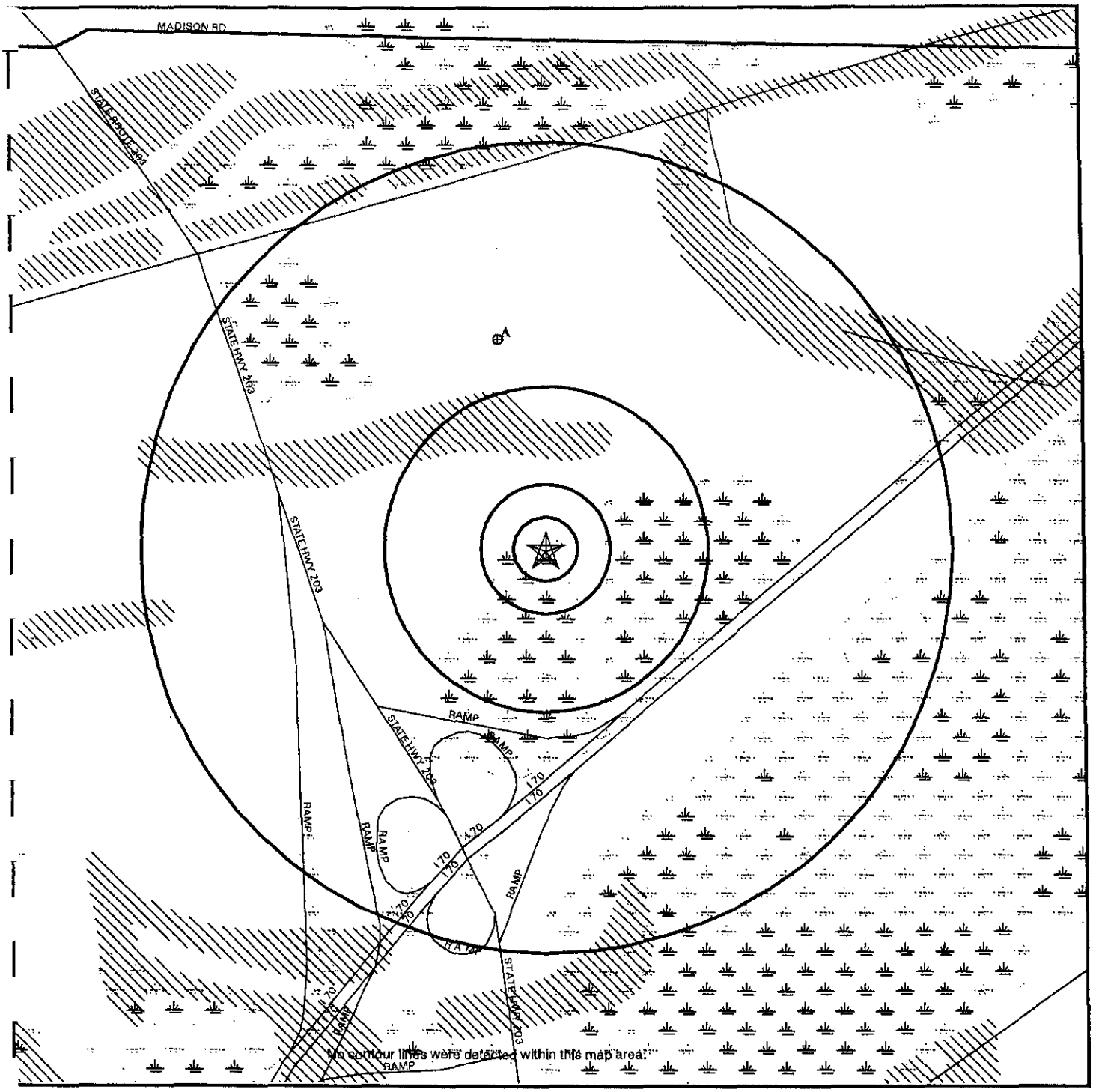
The EDR Illinois Water Well Report

The EDR-Illinois Water Well Report is a screening tool designed to assist in the location of water supply wells in accordance with the Illinois EPA Leaking Underground Storage Tank Program: Site Classification Completion Report.

The EDR-Illinois Water Well Report consists of the following information within 1/2 mile of target property:

- wells
- map displaying concentric rings at 200', 400' 1000' and 2500'
- topography (25 foot intervals unless otherwise shown)
- major roads
- surface water bodies
- railroad tracks
- flood plains (available in selected counties)
- wetlands (available in selected counties)
- geologic data
- radon data

TOPOGRAPHIC MAP - 0704556.1r - Environmental Operations, Inc.



Source: US Geological Survey 1-Degree Digital Elevation Model - Compiled 09/15/92

0 500 1000 2000 ft

- Major Roads
- Contour Lines (25 foot interval unless otherwise shown)
- Waterways
- Water Wells within search distance to Target Property
- Earthquake Epicenters (Richter 5 or greater)
- Power Lines
- Pipe Lines
- Fault Lines
- Rail Roads
- Water Bodies
- Wetlands
- 100-year flood zone
- 500-year flood zone

N

TARGET PROPERTY:	Hayden Landfill	CUSTOMER:	Environmental Operations, Inc.
ADDRESS:	750 Madison Road	CONTACT:	Frank Fick
CITY/STATE/ZIP:	Madison IL 62201	INQUIRY #:	0704556.1r
LAT/LONG:	38.6515 / 90.1266	DATE:	November 16, 2001

WELL SEARCH SUMMARY

GEOLOGIC AGE IDENTIFICATION†

Geologic Code:	M3
Era:	Paleozoic
System:	Mississippian
Series:	Chesterian Series

ROCK STRATIGRAPHIC UNIT†

Category:	Stratified Sequence

SEARCH DISTANCE RADIUS INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal Database	0.500
State Database	0.500
PWS Database	Nearest PWS within 1 mile

FEDERAL DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP

NO WELLS FOUND

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A1	121632745400	1323 Ft. NNW
A2	121632745300	1323 Ft. NNW
A3	121632745500	1323 Ft. NNW
A4	121632745700	1323 Ft. NNW
A5	121632745600	1323 Ft. NNW
A6	121632745200	1323 Ft. NNW
A7	121632744800	1323 Ft. NNW
A8	121632744700	1323 Ft. NNW
A9	121632744900	1323 Ft. NNW
A10	121632745100	1323 Ft. NNW
A11	121632745000	1323 Ft. NNW

PUBLIC WATER SUPPLY SYSTEM INFORMATION

NO WELLS FOUND

AREA RADON INFORMATION

EPA Radon Zone for ST CLAIR County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Not Reported

† Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

Map ID Direction Distance				
A1 NNW 1323 Ft.	Info Source: API ID: Well Type: X Coord:	IL Geological Survey 121632745400 WATER 2822354	Group Number: Boring: Y Coord:	31 0 2052415
A2 NNW 1323 Ft.	Info Source: API ID: Well Type: X Coord:	IL Geological Survey 121632745300 WATER 2822354	Group Number: Boring: Y Coord:	31 0 2052415
A3 NNW 1323 Ft.	Info Source: API ID: Well Type: X Coord:	IL Geological Survey 121632745500 WATER 2822354	Group Number: Boring: Y Coord:	31 0 2052415
A4 NNW 1323 Ft.	Info Source: API ID: Well Type: X Coord:	IL Geological Survey 121632745700 WATER 2822354	Group Number: Boring: Y Coord:	31 0 2052415
A5 NNW 1323 Ft.	Info Source: API ID: Well Type: X Coord:	IL Geological Survey 121632745600 WATER 2822354	Group Number: Boring: Y Coord:	31 0 2052415
A6 NNW 1323 Ft.	Info Source: API ID: Well Type: X Coord:	IL Geological Survey 121632745200 WATER 2822354	Group Number: Boring: Y Coord:	31 0 2052415
A7 NNW 1323 Ft.	Info Source: API ID: Well Type: X Coord:	IL Geological Survey 121632744800 WATER 2822354	Group Number: Boring: Y Coord:	31 0 2052415
A8 NNW 1323 Ft.	Info Source: API ID: Well Type: X Coord:	IL Geological Survey 121632744700 WATER 2822354	Group Number: Boring: Y Coord:	31 0 2052415
A9 NNW 1323 Ft.	Info Source: API ID: Well Type: X Coord:	IL Geological Survey 121632744900 WATER 2822354	Group Number: Boring: Y Coord:	31 0 2052415

WELL SEARCH FINDINGS

Map ID
Direction
Distance

A10	Info Source:	IL Geological Survey		
NNW	API ID:	121632745100	Group Number:	31
1323 Ft.	Well Type:	WATER	Boring:	0
	X Coord:	2822354	Y Coord:	2052415

A11	Info Source:	IL Geological Survey		
NNW	API ID:	121632745000	Group Number:	31
1323 Ft.	Well Type:	WATER	Boring:	0
	X Coord:	2822354	Y Coord:	2052415

ILLINOIS GOVERNMENT WELL RECORDS SEARCHED

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-260-2805
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-260-2805
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

Area Radon Information: The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones: Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

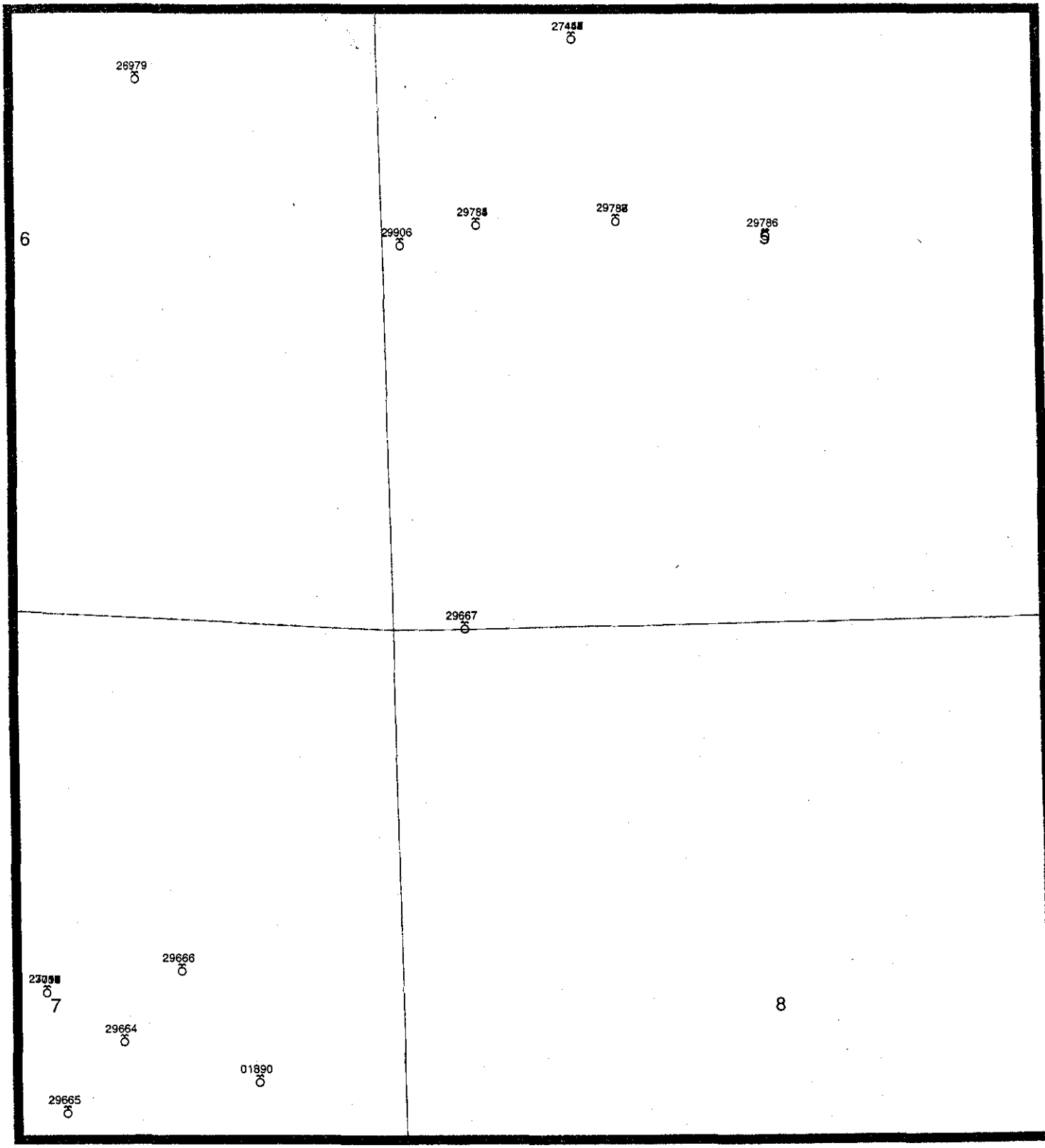
USGS Water Wells: In November 1971 the United States Geological Survey (USGS) implemented a national water resource information tracking system. This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on more than 900,000 wells, springs, and other sources of groundwater.

County Well Data in Illinois: Cook and DuPage Counties
Source: Illinois State Geological Survey
Telephone: 217-244-2387

Illinois Private Well Database and PICS (Public, Industrial, Commercial Survey)
Source: Illinois State Water Survey
Telephone: 217-333-9043

Illinois State Geological Survey Water Wells
Source: Illinois State Geological Survey
Telephone: 217-333-5102
Point data set that shows locations, well type, and well ID for wells in Illinois. Data comes from driller's logs.

Map Area: 2N-9W-7 m3 to 2N-9W-5 m3



Explanation

Oil	Gas Injection	Junked
Oil & Gas	Gas Storage	Temporarily Abandoned
Gas	Salt Water Disposal	Observation
D&A - Oil Show	Water Injection	Other Injection
D&A - Gas Show	Water Supply	Confidential
D&A - Oil & Gas Show	Permit	Other Well Type
D&A	Water	Status Unknown

/ through any symbol indicates well is currently plugged

N

0 935 1870 ft

Illinois State Geological Survey

QuEStoR: Custom Map

Date: 21-JUN-04 Scale: 1:11220

Non Oil and Gas - Wells

121632978800 Geo Engineering,Inc. 5- 2N- 9W
StClair Milam Sanitary Landfill GEI-1
Status: MONIT 2550 NL 1600 WL Elev: 411GL
permit: permit date: comp. date: 01/16/86
Lambert X: 2822637 Lambert Y: 2051189 td: 81
producing formation: td formation:
latitude: 38.652900 longitude: 90.124421
Water from at depth 0 to 0 ft.
Screen: Diam. in. Length: 0 ft. Slot:
Casing and Liner Pipe -
Diam. (in.) Kind and Weight From(ft) To(ft)
Size hole below casing: in.
Static level 0 ft. below casing top which is 0 ft. above grnd level.
Pumping level 0 ft. when pumping at 0 gpm for 0 hours.

121632978600 John Mathes & Assoc.,Inc. 5- 2N- 9W
Milam Sanitary Landfill GEI-1
Status: ENG Elev: 411GL
permit: permit date: comp. date: 02/11/85
Lambert X: 2823688 Lambert Y: 2051086 td: 39
producing formation: td formation:
latitude: 38.652635 longitude: 90.120719

121632978400 Geo Engineering,Inc. 5- 2N- 9W
StClair Milam Sanitary Landfill GEI-17d
Status: MONIT 2600 NL 650 WL Elev: 413GL
permit: permit date: comp. date: 01/16/86
Lambert X: 2821687 Lambert Y: 2051157 td: 82
producing formation: td formation:
latitude: 38.652793 longitude: 90.127765
Water from at depth 0 to 0 ft.
Screen: Diam. in. Length: 0 ft. Slot:
Casing and Liner Pipe -
Diam. (in.) Kind and Weight From(ft) To(ft)
Size hole below casing: in.
Static level 0 ft. below casing top which is 0 ft. above grnd level.
Pumping level 0 ft. when pumping at 0 gpm for 0 hours.

121632978500 Geo Engineering,Inc. 5- 2N- 9W
StClair Milam Sanitary Landfill GEI-17s
Status: MONIT 2600 NL 650 WL Elev: 413GL
permit: permit date: comp. date: 01/28/86
Lambert X: 2821687 Lambert Y: 2051157 td: 62
producing formation: td formation:
latitude: 38.652793 longitude: 90.127765
Water from at depth 0 to 0 ft.
Screen: Diam. in. Length: 0 ft. Slot:
Casing and Liner Pipe -
Diam. (in.) Kind and Weight From(ft) To(ft)
Size hole below casing: in.
Static level 0 ft. below casing top which is 0 ft. above grnd level.
Pumping level 0 ft. when pumping at 0 gpm for 0 hours.

121632978700 John Mathes & Assoc. Inc. 5- 2N- 9W
StClair Milam Sanitary Landfill GEI-1s
Status: MONIT 2550 NL 1600 WL Elev: 410GL
permit: permit date: comp. date: 01/15/86
Lambert X: 2822637 Lambert Y: 2051189 td: 71
producing formation: td formation:
latitude: 38.652900 longitude: 90.124421
Water from at depth 0 to 0 ft.

Screen: Diam. in. Length: 0 ft. Slot:
Casing and Liner Pipe -

Diam. (in.)	Kind and Weight	From(ft)	To(ft)

Size hole below casing: in.
Static level 0 ft. below casing top which is 0 ft. above grnd level.
Pumping level 0 ft. when pumping at 0 gpm for 0 hours.

121632744800 Baldwin, Harvey Thomas 5- 2N- 9W
StClair Waste Management of IL G020
Status: MONIT NW Elev: 405GL
permit: none permit date: comp. date: 06/08/93
Lambert X: 2822354 Lambert Y: 2052415 td: 30
producing formation: td formation:
latitude: 38.656279 longitude: 90.125447
Water from alluvial deposits at depth 8 to 30 ft.
Screen: Diam. 2 in. Length: 10 ft. Slot: .01
Casing and Liner Pipe -

Diam. (in.)	Kind and Weight	From(ft)	To(ft)
2	SCH 40, 304 SS	5	20
2	SCH 40 304 SS SCREEN	20	30

Size hole below casing: 8.25 in.
Static level 8 ft. below casing top which is 5 ft. above grnd level.
Pumping level 8 ft. when pumping at 5 gpm for 1 hours.

Formations Passed Through	Thickness	Bottom
clay w/silt & sand to silty & sand	4	4
silty - sand - clay with rubbish	6	10
fine sand with silt	3	13
fine-med sand, fine-med-coarse sand	17	30

121632744900 Baldwin, Harvey Thomas 5- 2N- 9W
StClair Waste Management of IL G021
Status: MONIT NW Elev: 406GL
permit: none permit date: comp. date: 06/10/93
Lambert X: 2822354 Lambert Y: 2052415 td: 32
producing formation: td formation:
latitude: 38.656279 longitude: 90.125447
Water from alluvial deposits at depth 9 to 31 ft.
Screen: Diam. 2 in. Length: 10 ft. Slot: .01
Casing and Liner Pipe -

Diam. (in.)	Kind and Weight	From(ft)	To(ft)
2	SCH 40, 304 SS	4	21
2	SCH 40 304 SS SCREEN	21	31

Size hole below casing: in.
Static level 9 ft. below casing top which is 4 ft. above grnd level.
Pumping level 9 ft. when pumping at 5 gpm for 1 hours.

Formations Passed Through	Thickness	Bottom
clay with silty & sand	7	7
clay silt sand cinder gravel & rubbish	3	10
silt-sand-clay to silt w/sand & gravel	6	16
fine sand	16	32

121632745000 Baldwin, Harvey Thomas 5- 2N- 9W
StClair Waste Management of IL G022
Status: MONIT NW Elev: 406GL
permit: none permit date: comp. date: 06/08/93
Lambert X: 2822354 Lambert Y: 2052415 td: 31
producing formation: td formation:
latitude: 38.656279 longitude: 90.125447
Water from alluvial deposits at depth 9 to 31 ft.
Screen: Diam. 2 in. Length: 10 ft. Slot: .01
Casing and Liner Pipe -

Diam. (in.)	Kind and Weight	From(ft)	To(ft)
2	SCH 40, 304 SS	4	21
2	SCH 40 304 SS SCREEN	21	31

Size hole below casing: 8.25 in.
Static level 9 ft. below casing top which is 4 ft. above grnd level.
Pumping level 9 ft. when pumping at 5 gpm for 1 hours.

Formations Passed Through	Thickness	Bottom
clay w/sand & silt to silt-sand-clay	6	6
clay w/silt & sand to rubbish	2	8
fine to fine - medium sand	23	31

121632745100 Baldwin, Harvey Thomas 5- 2N- 9W
StClair Waste Management of IL G024
Status: MONIT NW Elev: 409GL
permit: none permit date: comp. date: 05/25/93
Lambert X: 2822354 Lambert Y: 2052415 td: 110
producing formation: td formation:
latitude: 38.656279 longitude: 90.125447
Water from alluvial deposits at depth 11 to 110 ft.
Screen: Diam. 2 in. Length: 10 ft. Slot: .01
Casing and Liner Pipe -

Diam. (in.)	Kind and Weight	From(ft)	To(ft)
2	SCH 40, 304 SS	3	100
2	SCH 40 304 SCREEN	100	110

Size hole below casing: 8.25 in.
Static level 11 ft. below casing top which is 3 ft. above grnd level.
Pumping level 11 ft. when pumping at 5 gpm for 4 hours.

Formations Passed Through	Thickness	Bottom
clay silt & sand to sand w/silt locally	7	7
clay-silt-sand trace rubbish	5	12
fine to coarse sand, trace silt locally	58	70
sand & gravel to weathered limestone	40	110

121632745200 Baldwin, Harvey Thomas 5- 2N- 9W
StClair Waste Management of IL G025
Status: MONIT NW Elev: 414GL
permit: none permit date: comp. date: 06/07/93
Lambert X: 2822354 Lambert Y: 2052415 td: 39
producing formation: td formation:
latitude: 38.656279 longitude: 90.125447
Water from alluvial deposits at depth 17 to 39 ft.
Screen: Diam. 2 in. Length: 10 ft. Slot: .01
Casing and Liner Pipe -

Diam. (in.)	Kind and Weight	From(ft)	To(ft)
2	SCH 40, 304 SS	4	29
2	SCH 40 304 SS SCREEN	29	39

Size hole below casing: 8.25 in.
Static level 17 ft. below casing top which is 4 ft. above grnd level.
Pumping level 7 ft. when pumping at 5 gpm for 1 hours.

Formations Passed Through	Thickness	Bottom
clay w/silt & sand-bricks-gravel-cinders	8	8
sandy clay - clay w/silt, sand interbed	3	11
fine sand with silt	5	16
fine to fine & medium sand	23	39

121632745300 Baldwin, Harvey Thomas 5- 2N- 9W
StClair Waste Management of IL G026
Status: MONIT NW Elev: 410GL
permit: none permit date: comp. date: 06/10/93
Lambert X: 2822354 Lambert Y: 2052415 td: 35
producing formation: td formation:
latitude: 38.656279 longitude: 90.125447
Water from alluvial deposits at depth 12 to 35 ft.
Screen: Diam. 2 in. Length: 10 ft. Slot: .01
Casing and Liner Pipe -

Diam. (in.)	Kind and Weight	From(ft)	To(ft)
2	SCH 40, 304 SS	3	25
2	SCH 40 304 SS SCREEN	25	35

Size hole below casing: 8.25 in.
Static level 12 ft. below casing top which is 3 ft. above grnd level.
Pumping level 2 ft. when pumping at 5 gpm for 1 hours.

Formations Passed Through	Thickness	Bottom
clay w/silt sand cinders & brick debris	2	2

silt w/sand & clay	13	15
fine sand	20	35

121632745400 Baldwin, Harvey Thomas 5- 2N- 9W
StClair Waste Management of IL G027
Status: MONIT NW Elev: 415GL
permit: none permit date: comp. date: 06/09/93
Lambert X: 2822354 Lambert Y: 2052415 td: 40
producing formation: td formation:
latitude: 38.656279 longitude: 90.125447
Water from alluvial deposits at depth 18 to 40 ft.
Screen: Diam. 2 in. Length: 10 ft. Slot: .01
Casing and Liner Pipe -

Diam. (in.)	Kind and Weight	From(ft)	To(ft)
2	SCH 40, 304 SS	3	30
2	SCH 40 304 SS SCREEN	30	40

Size hole below casing: 8.25 in.
Static level 18 ft. below casing top which is 3 ft. above grnd level.
Pumping level 18 ft. when pumping at 5 gpm for 1 hours.

Formations Passed Through	Thickness	Bottom
clay w/silt, sand, wood debris, rubbish	11	11
silt with sand & clay	2	13
fine sand	15	28
fine	4	32
sand & gravel to sand	8	40

121632745500 Baldwin, Harvey Thomas 5- 2N- 9W
StClair Waste Management of IL G028
Status: MONIT NW Elev: 416GL
permit: none permit date: comp. date: 06/07/93
Lambert X: 2822354 Lambert Y: 2052415 td: 41
producing formation: td formation:
latitude: 38.656279 longitude: 90.125447
Water from alluvial deposits at depth 19 to 41 ft.
Screen: Diam. 2 in. Length: 10 ft. Slot: .01
Casing and Liner Pipe -

Diam. (in.)	Kind and Weight	From(ft)	To(ft)
2	SCH 40, 304 SS	4	31
2	SCH 40 304 SS SCREEN	31	41

Size hole below casing: 8.25 in.
Static level 19 ft. below casing top which is 4 ft. above grnd level.
Pumping level 19 ft. when pumping at 5 gpm for 1 hours.

Formations Passed Through	Thickness	Bottom
clay w/silt, sand, gravel brick debris	8	8
sand & silt to silt-sand-clay	5	13
fine sand w/silt to trace silt locally	28	41

121632745600 Baldwin, Harvey Thomas 5- 2N- 9W
StClair Waste Management of IL G029
Status: MONIT NW Elev: 409GL
permit: none permit date: comp. date: 06/04/93
Lambert X: 2822354 Lambert Y: 2052415 td: 34
producing formation: td formation:
latitude: 38.656279 longitude: 90.125447
Water from alluvial deposits at depth 14 to 34 ft.
Screen: Diam. 2 in. Length: 10 ft. Slot: .01
Casing and Liner Pipe -

Diam. (in.)	Kind and Weight	From(ft)	To(ft)
2	SCH 40, 304 SS	4	24
2	SCH 40 304 SS SCREEN	24	34

Size hole below casing: 8.25 in.
Static level 14 ft. below casing top which is 4 ft. above grnd level.
Pumping level 14 ft. when pumping at 5 gpm for 1 hours.

Formations Passed Through	Thickness	Bottom
silt & clay with sand	3	3
fine sand w/silt to sand w/clay & silt	18	21
fine sand tr/silt & gravel, sand & silt	13	34

121632745700 Baldwin, Harvey Thomas 5- 2N- 9W
StClair Waste Management of IL G030
Status: MONIT NW Elev: 408GL
permit: none permit date: comp. date: 06/02/93
Lambert X: 2822354 Lambert Y: 2052415 td: 109
producing formation: td formation:
latitude: 38.656279 longitude: 90.125447
Water from alluvial deposits at depth 12 to 109 ft.
Screen: Diam. 2 in. Length: 10 ft. Slot: .01
Casing and Liner Pipe -

Diam. (in.)	Kind and Weight	From(ft)	To(ft)
2	SCH 40 304 SS	4	99
2	SCH 40 304 SS SCREEN	99	109

Size hole below casing: 8.25 in.
Static level 12 ft. below casing top which is 4 ft. above grnd level.
Pumping level 12 ft. when pumping at 5 gpm for 4 hours.

Formations Passed Through	Thickness	Bottom
clay w/sand to sand with clay & silt	3	3
fine sand w/silt trace clay locally	8	11
clay tr/silt & sand to clay	7	18
fine to fine medium sand	24	42
fine-coarse sand to sand & gravel	67	109

121632744700 Baldwin, Harvey Thomas 5- 2N- 9W
StClair Waste Management of IL R003
Status: MONIT NW Elev: 406GL
permit: none permit date: comp. date: 04/27/94
Lambert X: 2822354 Lambert Y: 2052415 td: 31
producing formation: td formation:
latitude: 38.656279 longitude: 90.125447
Water from alluvial deposits at depth 0 to 31 ft.
Screen: Diam. 2 in. Length: 10 ft. Slot: .01
Casing and Liner Pipe -

Diam. (in.)	Kind and Weight	From(ft)	To(ft)
2	304 SS RISER	4	21
2	304 SS SCREEN	21	31

Size hole below casing: 10.5 in.
Static level 0 ft. below casing top which is 0 ft. above grnd level.
Pumping level 0 ft. when pumping at 0 gpm for 0 hours.

Formations Passed Through	Thickness	Bottom
soft brn-gry clay trace silt & sand	16	16
med gry coarse-fine sand, trace silt	15	31

121632990600 Geotechnology 6- 2N- 9W
StClair Gateway Midstate Truck Plaza
Status: STRAT NW NE SE Elev: 420
permit: permit date: comp. date: 08/06/01
Lambert X: 2821164 Lambert Y: 2051016 td: 0
producing formation: td formation:
latitude: 38.652394 longitude: 90.129603
Water from at depth 0 to 0 ft.
Screen: Diam. in. Length: 0 ft. Slot:
Casing and Liner Pipe -

Diam. (in.)	Kind and Weight	From(ft)	To(ft)

Size hole below casing: in.
Static level 0 ft. below casing top which is 0 ft. above grnd level.
Pumping level 0 ft. when pumping at 0 gpm for 0 hours.

121632697900 Kohnen, Clarence 6- 2N- 9W
StClair Gateway Motorsports Corp
Status: WATER NE SW NE Elev: 0
permit: 009769 permit date: 03/13/89 comp. date: 04/24/89
Lambert X: 2819374 Lambert Y: 2052142 td: 78
producing formation: td formation:
latitude: 38.655468 longitude: 90.135932

Water from brown & gray sand at depth 8 to 77 ft.
Screen: Diam. 6 in. Length: 5 ft. Slot: 30
Casing and Liner Pipe -

Diam. (in.)	Kind and Weight	From(ft)	To(ft)
6	PVC SDR 21	-1	72
6	PVC SCREEN #30 SLOT	72	78

Size hole below casing: in.
Static level 7 ft. below casing top which is 1 ft. above grnd level.
Pumping level 0 ft. when pumping at 0 gpm for 0 hours.

Formations Passed Through	Thickness	Bottom
black gumbo	7	7
brown silty clay	1	8
fine med clean fairly uniform brn sand	20	28
fine med clean fairly uniform gry sand	37	65
bb to pea size clean gray gravel	13	78
gravel at	0	78

121632966400 IL Div. of Highways 7- 2N- 9W
StClair FAI 55/70 over TRRA, CSX & Conrail 18
Status: ENG 2900 NL 1900 EL Elev: 405GL
permit: permit date: comp. date: 10/30/96
Lambert X: 2819227 Lambert Y: 2045593 td: 95
producing formation: td formation:
latitude: 38.637385 longitude: 90.136288

121632966500 IL Div. of Highways 7- 2N- 9W
StClair FAI Route 70 1
Status: ENG 3400 NL 2300 EL Elev: 416GL
permit: permit date: comp. date: 06/25/86
Lambert X: 2818835 Lambert Y: 2045113 td: 51
producing formation: td formation:
latitude: 38.636053 longitude: 90.137656

121632966600 IL Div. of Highways 7- 2N- 9W
StClair FAI Route 70 3
Status: ENG 2400 NL 1500 EL Elev: 406GL
permit: permit date: comp. date: 06/26/86
Lambert X: 2819619 Lambert Y: 2046073 td: 51
producing formation: td formation:
latitude: 38.638718 longitude: 90.134920

121630189000 Watson, Harold L. 7- 2N- 9W
StClair Hunter Packing Co.
Status: WATER 2000 SL 1000 EL SE Elev: 418GL
permit: 0 permit date: comp. date: 03/01/48
Lambert X: 2820132 Lambert Y: 2045312 td: 116
producing formation: td formation:
latitude: 38.636627 longitude: 90.133096
Water from at depth 0 to 0 ft.
Screen: Diam. 12 in. Length: 26 ft. Slot: 30
Casing and Liner Pipe -

Diam. (in.)	Kind and Weight	From(ft)	To(ft)

Size hole below casing: in.
Static level 0 ft. below casing top which is 0 ft. above grnd level.
Pumping level 0 ft. when pumping at 0 gpm for 0 hours.

Formations Passed Through	Thickness	Bottom
SS #23817	0	0
no log	30	30
fine sand	38	68
medium sand	6	74
mud	2	76
medium sand & gravel	4	80
good sand & gravel	10	90
fine sand	5	95
good sand & gravel	21	116

121632705100 Sisk, Gary Drill Co. 7- 2N- 9W
StClair IL Dept. Transportation
Status: WATER Elev: 0
permit: 021179 permit date: 10/18/91 comp. date: 04/06/92
Lambert X: 2818710 Lambert Y: 2045923 td: 113
producing formation: td formation:
latitude: 38.638286 longitude: 90.138116
Water from sand at depth 60 to 113 ft.
Screen: Diam. 16 in. Length: 50 ft. Slot: .07
Casing and Liner Pipe -

Diam. (in.)	Kind and Weight	From(ft)	To(ft)
16	STAINLESS .290	7	63

Size hole below casing: 42 in.
Static level 34 ft. below casing top which is 0 ft. above grnd level.
Pumping level 39 ft. when pumping at 0 gpm for 1 hours.

Formations Passed Through	Thickness	Bottom
silty fine sandy	37	37
edium fine sandy	30	67
coarse sand & cobbles	27	94
cobbles to boulders	19	113
limestone at	0	113

121632705800 Sisk, Gary Drill Co. 7- 2N- 9W
StClair IL Dept. of Trans 11A
Status: WATER Elev: 0
permit: 021183 permit date: 10/18/91 comp. date: 04/06/92
Lambert X: 2818710 Lambert Y: 2045923 td: 100
producing formation: td formation:
latitude: 38.638286 longitude: 90.138116
Water from sand at depth 90 to 100 ft.
Screen: Diam. 16 in. Length: 50 ft. Slot: .05
Casing and Liner Pipe -

Diam. (in.)	Kind and Weight	From(ft)	To(ft)
16	STAINLESS .250	7	50

Size hole below casing: 42 in.
Static level 25 ft. below casing top which is 0 ft. above grnd level.
Pumping level 35 ft. when pumping at 0 gpm for 1 hours.

Formations Passed Through	Thickness	Bottom
silt fine sand	20	20
medium fine sand	30	50
coarse sand to cobbles	30	80
cobbles to boulders	20	100
limestone at	0	100

121632705700 Sisk, Gary Drill Co. 7- 2N- 9W
StClair IL Dept. of Trans. W3A
Status: WATER Elev: 0
permit: 021181 permit date: 10/18/91 comp. date: 04/06/92
Lambert X: 2818710 Lambert Y: 2045923 td: 106
producing formation: td formation:
latitude: 38.638286 longitude: 90.138116
Water from sand at depth 56 to 106 ft.
Screen: Diam. 16 in. Length: 90 ft. Slot: .05
Casing and Liner Pipe -

Diam. (in.)	Kind and Weight	From(ft)	To(ft)
16	STAINLESS .250	7	56

Size hole below casing: 42 in.
Static level 23 ft. below casing top which is 0 ft. above grnd level.
Pumping level 30 ft. when pumping at 0 gpm for 1 hours.

Formations Passed Through	Thickness	Bottom
limestone at	0	0
silt & fine sand	27	27
medium fine sand	30	57
coarse sand & cobbles	27	84
cobbles & boulders	22	106

121632705600 Sisk, Gary Drill Co. 7- 2N- 9W
StClair IL. Dept. Trans W1-A
Status: WATER Elev: 0
permit: 021180 permit date: 10/18/91 comp. date: 04/06/92
Lambert X: 2818710 Lambert Y: 2045923 td: 114
producing formation: td formation:
latitude: 38.638286 longitude: 90.138116
Water from sand at depth 60 to 114 ft.
Screen: Diam. 16 in. Length: 50 ft. Slot: .07
Casing and Liner Pipe -

Diam. (in.)	Kind and Weight	From(ft)	To(ft)
42	STAINLESS .250	7	64

Size hole below casing: 42 in.
Static level 34 ft. below casing top which is 0 ft. above grnd level.
Pumping level 40 ft. when pumping at 0 gpm for 1 hours.

Formations Passed Through	Thickness	Bottom
silt and fine sand	38	38
medium fine sand	30	68
coarse sand to cobbles	27	95
cobbles to boulders	19	114
limestone at	0	114

121632371500 Luhr Brothers, Inc. 7- 2N- 9W
StClair State Of Illinois 8
Status: WATER Elev: 0
permit: NF16957 permit date: comp. date: 03/01/73
Lambert X: 2818710 Lambert Y: 2045923 td: 89
producing formation: td formation:
latitude: 38.638286 longitude: 90.138116
Water from at depth 0 to 0 ft.
Screen: Diam. 16 in. Length: 60 ft. Slot: .08
Casing and Liner Pipe -

Diam. (in.)	Kind and Weight	From(ft)	To(ft)
16	STAINLESS STEEL	0	16

Size hole below casing: in.
Static level 0 ft. below casing top which is 0 ft. above grnd level.
Pumping level 0 ft. when pumping at 0 gpm for 0 hours.

Formations Passed Through	Thickness	Bottom
brown dirt	5	5
brown dirt with fine brown sand	5	10
very fine sand	5	15
very fine gray sand	25	40
coarse sand with small gravel	5	45
medium crs s w/ traces of small gravel	5	50
medium fine sand with small gravel	10	60
med f s w/ sm gvl & trs of cbbls	5	65
medium fine sand	5	70
coarse sand with small gravel	10	80
f s mixed w/ sm & med crs gvl	5	85
f s w/ sm & med crs gvl w/ some cbbls	4	89

121632370800 Luhr Brothers, Inc. 7- 2N- 9W
StClair State of Illinois 1
Status: WATER Elev: 0
permit: permit date: comp. date: 11/28/72
Lambert X: 2818710 Lambert Y: 2045923 td: 114
producing formation: td formation:
latitude: 38.638286 longitude: 90.138116
Water from at depth 0 to 0 ft.
Screen: Diam. 16 in. Length: 60 ft. Slot: .08
Casing and Liner Pipe -

Diam. (in.)	Kind and Weight	From(ft)	To(ft)
16	STAINLESS STEEL	0	52

Size hole below casing: in.
Static level 0 ft. below casing top which is 0 ft. above grnd level.
Pumping level 0 ft. when pumping at 0 gpm for 0 hours.

Formations Passed Through	Thickness	Bottom
SS #58913	0	0

brown clay	5	5
fine tan sand	10	15
gray clay	5	20
gray clay & crs s w/ traces of sm gravel	5	25
medium fine tan sand	11	36
med f gry s w/ traces of gry clay	4	40
fine gray sand	5	45
medium coarse brown sand	5	50
medium fair gray sand	10	60
coarse sand & small gravel	5	65
medium fine gray sand	5	70
med f gry&med crs gvl w/trs of sm cbbls	5	75
coarse sand & medium coarse gravel	5	80
coarse sand & medium cobbles	5	85
med f brn s w/ med crs gravel	5	90
fine gray sand	5	95
vy crs s w/ pea size to med crs gravel	5	100
med f brn s w/ traces of lrg cobbles	5	105
med crs brn s w/ med crs gravel	5	110
vy crs s w/ sm & crs gravel	4	114

121632371700 Luhr Brothers, Inc. 7- 2N- 9W
StClair State of Illinois 10
Status: WATER Elev: 0
permit: NF16959 permit date: comp. date: 11/09/72
Lambert X: 2818710 Lambert Y: 2045923 td: 109
producing formation: td formation:
latitude: 38.638286 longitude: 90.138116
Water from at depth 0 to 0 ft.
Screen: Diam. 16 in. Length: 60 ft. Slot: .08
Casing and Liner Pipe -

Diam. (in.)	Kind and Weight	From(ft)	To(ft)
16	STAINLESS STEEL	0	49

Size hole below casing: 42 in.
Static level 0 ft. below casing top which is 0 ft. above grnd level.
Pumping level 0 ft. when pumping at 0 gpm for 0 hours.

Formations Passed Through	Thickness	Bottom
clay	18	18
very fine sand	32	50
medium sand	3	53
medium coarse gray sand with pea gravel	7	60
medium fine gray sand	5	65
coarse gray sand with pea gravel	10	75
coarse gray sand with gravel to 3/4"	5	80
vy crs gry s w/ gvl to 1 1/2"	5	85
medium coarse sand	5	90
vy crs gry s w/ pea gvl	5	95
vy crs gry s w/ gvl to 3/4"	5	100
med crs gry s w/ gvl to 3/4"	7	107
vy crs gry s w/ gvl to 2"	2	109

121632371800 Luhr Brothers, Inc. 7- 2N- 9W
StClair State of Illinois 11
Status: WATER Elev: 0
permit: NF16960 permit date: comp. date: 04/13/73
Lambert X: 2818710 Lambert Y: 2045923 td: 102
producing formation: td formation:
latitude: 38.638286 longitude: 90.138116
Water from at depth 0 to 0 ft.
Screen: Diam. 16 in. Length: 60 ft. Slot: .08
Casing and Liner Pipe -

Diam. (in.)	Kind and Weight	From(ft)	To(ft)
16	STAINLESS STEEL	0	31

Size hole below casing: in.
Static level 0 ft. below casing top which is 0 ft. above grnd level.
Pumping level 0 ft. when pumping at 0 gpm for 0 hours.

Formations Passed Through	Thickness	Bottom
SS #58942	0	0

brown dirt	5	5
fine tan sand	10	15
gray clay	5	20
fine tan sand	5	25
very fine tan sand	5	30
coarse sand w/ traces of small gravel	10	40
med crs s w/ sm gvl	5	45
vy f s	10	55
med f s w/ sm & med gvl	5	60
coarse sand	5	65
med f s w/ sm to med crs gvl	5	70
med crs s w/ sm & med crs gvl	5	75
crs s w/ trs of sm gvl	5	80
med crs s w/ trs of sm gvl	5	85
f & med f s mxd w/ sm gvl	10	95
crs s w/ sm gvl to cobbles	7	102

121632371900 Luhr Brothers, Inc. 7- 2N- 9W
StClair State of Illinois 12
Status: WATER Elev: 0
permit: NF16961 permit date: comp. date: 04/19/73
Lambert X: 2818710 Lambert Y: 2045923 td: 95
producing formation: td formation:
latitude: 38.638286 longitude: 90.138116
Water from at depth 0 to 0 ft.
Screen: Diam. 16 in. Length: 60 ft. Slot: .08
Casing and Liner Pipe -

Diam. (in.)	Kind and Weight	From(ft)	To(ft)
16	STAINLESS STEEL	0	27

Size hole below casing: in.
Static level 0 ft. below casing top which is 0 ft. above grnd level.
Pumping level 0 ft. when pumping at 0 gpm for 0 hours.

Formations Passed Through	Thickness	Bottom
SS #58943	0	0
brown dirt mixed with gray silt	5	5
very fine tan sand	10	15
medium coarse sand mixed w/ small gvl	5	20
med f s mxd s/ sm gvl	5	25
medium fine tan sand	5	30
fine sand	5	35
medium coarse sand with small gravel	5	40
med f gray sand	5	45
coarse sand	15	60
medium coarse sand mxd w/ small gravel	15	75
med crs s w/ sm & med crs gvl	5	80
fine tan sand with small coarse gravel	5	85
med / crs s w/ sm & med crs gvl	5	90
med f&med crs s w/sm/vy crs gvl (cbbls)	5	95

121632370900 Luhr Brothers, Inc. 7- 2N- 9W
StClair State of Illinois 2
Status: WATER Elev: 0
permit: NF16951 permit date: comp. date: 11/01/72
Lambert X: 2818710 Lambert Y: 2045923 td: 110
producing formation: td formation:
latitude: 38.638286 longitude: 90.138116
Water from at depth 0 to 0 ft.
Screen: Diam. 16 in. Length: 60 ft. Slot: .08
Casing and Liner Pipe -

Diam. (in.)	Kind and Weight	From(ft)	To(ft)
16	STAINLESS STEEL	0	50

Size hole below casing: 42 in.
Static level 0 ft. below casing top which is 0 ft. above grnd level.
Pumping level 0 ft. when pumping at 0 gpm for 0 hours.

Formations Passed Through	Thickness	Bottom
brown silt	5	5
brown silt & small gravel	5	10
brown silt	5	15

gray clay	5	20
coarse sand with small gravel	5	25
fine tan sand	5	30
very fine tan sand	5	35
very fine gray sand	5	40
very fine gray sand	15	55
fine gray sand	5	60
fine sand with a trace of clay	5	65
crs sd w/ small and medium coarse gravel	5	70
medium coarse sand with small gravel	5	75
med f gry sand w/ traces of small gravel	5	80
med f s w/ crs & med crs gravel	5	85
med crs sand w/ crs gravel	5	90
coarse sand with small gravel	5	95
medium coarse tan sand	5	100
medium tan coarse sand	5	105
med crs s w/sm to crs gvl & trs of cbbls	5	110

121632371000 Luhr Brothers, Inc. 7- 2N- 9W
StClair State of Illinois 3
Status: WATER Elev: 0
permit: permit date: comp. date: 01/03/73
Lambert X: 2818710 Lambert Y: 2045923 td: 104
producing formation: td formation:
latitude: 38.638286 longitude: 90.138116
Water from at depth 0 to 0 ft.
Screen: Diam. 16 in. Length: 60 ft. Slot: .08
Casing and Liner Pipe -

Diam. (in.)	Kind and Weight	From(ft)	To(ft)
16	STAINLESS STEEL	0	44

Size hole below casing: 42 in.
Static level 0 ft. below casing top which is 0 ft. above grnd level.
Pumping level 0 ft. when pumping at 0 gpm for 0 hours.

Formations Passed Through	Thickness	Bottom
brown clay	5	5
very fine tan sand	5	10
very fine tan sand	15	25
fine tan sand with gray clay	5	30
fine tan sand with traces of gray clay	5	35
very fine gray sand	10	45
med f s with traces of med crs rock	5	50
coarse sand and small gravel	10	60
medium fine sand with small gravel	5	65
medium coarse sand with small gravel	5	70
medium tan sand	5	75
fine tan sand with very coarse rock	5	80
coarse sand with small and med crs gvl	5	85
pea size gravel with medium coarse rock	5	90
fine tan sand with traces of cobbles	5	95
f tan s w/ sm gvl & traces of crs rock	5	100
very coarse rock cobbles	4	104

121632371100 Luhr Brothers, Inc. 7- 2N- 9W
StClair State of Illinois 4
Status: WATER Elev: 0
permit: NF16953 permit date: comp. date: 05/15/73
Lambert X: 2818710 Lambert Y: 2045923 td: 95
producing formation: td formation:
latitude: 38.638286 longitude: 90.138116
Water from at depth 0 to 0 ft.
Screen: Diam. 16 in. Length: 60 ft. Slot: .08
Casing and Liner Pipe -

Diam. (in.)	Kind and Weight	From(ft)	To(ft)
16	STAINLESS STEEL	0	25

Size hole below casing: in.
Static level 0 ft. below casing top which is 0 ft. above grnd level.
Pumping level 0 ft. when pumping at 0 gpm for 0 hours.
Formations Passed Through Thickness Bottom

Formations Passed Through	Thickness	Bottom
SS #58945	0	0
gray clay	5	5
very fine sand	5	10
gry clay	5	15
very fine sand	15	30
medium fine sand	5	35
fine sand	5	40
fine sand with small gravel	5	45
coarse sand with small gravel	5	50
med f to crs s w/ traces of sm gravel	5	55
med crs s w/ traces of sm gravel	5	60
f to crs s w/ sm to med size gravel	5	65
med crs to crs s w/ sm to med crs gvl	5	70
small to medium coarse gravel	5	75
med f to med crs s w/ sm to med crs gvl	5	80
fine sand to medium coarse sand	5	85
crs s w/ sm to crs gvl (rock)	5	90
crs s w/ sm to crs gravel (rock)	5	95

121632371200 Luhr Brothers, Inc. 7- 2N- 9W
StClair State of Illinois 5
Status: WATER Elev: 0
permit: NF16954 permit date: comp. date: 03/27/73
Lambert X: 2818710 Lambert Y: 2045923 td: 91
producing formation: td formation:
latitude: 38.638286 longitude: 90.138116
Water from at depth 0 to 0 ft.
Screen: Diam. 16 in. Length: 60 ft. Slot: .08
Casing and Liner Pipe -

Diam. (in.)	Kind and Weight	From(ft)	To(ft)
16	STAINLESS STEEL	0	21

Size hole below casing: in.
Static level 0 ft. below casing top which is 0 ft. above grnd level.
Pumping level 0 ft. when pumping at 0 gpm for 0 hours.

Formations Passed Through	Thickness	Bottom
SS #58946	0	0
brown dirt	5	5
fine sand	10	15
coarse sand with small gravel	10	25
crs s w/ sm gvl & trs of med crs gvl	5	30
med f s w/ sm gvl	5	35
fine sand	5	40
crs s w/ trs of sm gravel	15	55
med crs s w/ sm gvl	5	60
med crs s w/ sm gvl & trs of lg gvl	5	65
medium fine sand with small gravel	5	70
med crs s w/ sm & med crs gvl	5	75
vy crs s w/ sm & med crs gvl	5	80
med crs s w/ sm & med crs gvl	5	85
med f s w/ sm gvl to crs rock	6	91

121632371300 Luhr Brothers, Inc. 7- 2N- 9W
StClair State of Illinois 6
Status: WATER Elev: 0
permit: NF16955 permit date: comp. date: 05/10/73
Lambert X: 2818710 Lambert Y: 2045923 td: 94
producing formation: td formation:
latitude: 38.638286 longitude: 90.138116
Water from at depth 0 to 0 ft.
Screen: Diam. 16 in. Length: 60 ft. Slot: .08
Casing and Liner Pipe -

Diam. (in.)	Kind and Weight	From(ft)	To(ft)
16	STAINLESS STEEL	0	22

Size hole below casing: in.
Static level 0 ft. below casing top which is 0 ft. above grnd level.
Pumping level 0 ft. when pumping at 0 gpm for 0 hours.

Formations Passed Through	Thickness	Bottom
SS #58941	0	0

gray clay	5	5
fine sand	5	10
fine sand with small gravel	5	15
med crs to crs s w/ sm gvl	5	20
med fine sand w/traces of small gravel	5	25
med crs to crs sand	5	30
medium coarse sand	5	35
fine sand	5	40
med crs sand	5	45
fine sand	5	50
coarse sand with small gravel	10	60
coarse sand with coarse rock	5	65
medium coarse to coarse sand	5	70
coarse sand mixed with small gravel	5	75
coarse sand with small gravel	5	80
crse s w/ sm gvl w/ trs med crs gvl	5	85
crs s w/ sm to med crs gvl	9	94

121632371400 Luhr Brothers, Inc. 7- 2N- 9W
StClair State of Illinois 7
Status: WATER Elev: 0
permit: NF16956 permit date: comp. date: 02/23/73
Lambert X: 2818710 Lambert Y: 2045923 td: 90
producing formation: td formation:
latitude: 38.638286 longitude: 90.138116
Water from at depth 0 to 0 ft.
Screen: Diam. 16 in. Length: 60 ft. Slot: .08
Casing and Liner Pipe -

Diam. (in.)	Kind and Weight	From(ft)	To(ft)
16	STAINLESS STEEL	0	20

Size hole below casing: in.
Static level 0 ft. below casing top which is 0 ft. above grnd level.
Pumping level 0 ft. when pumping at 0 gpm for 0 hours.

Formations Passed Through	Thickness	Bottom
brown dirt & gray silt	5	5
fine sand with small gravel	10	15
f s & vy sm gvl w/ trs of gry sl	5	20
very fine sand	5	25
medium fine sand	5	30
f & med crs s mxd w/ sm gvl	5	35
very fine gray sand	10	45
med crs s w/ sm gvl w/ trs of cbbls	5	50
med crs s w/ sm gvl	5	55
f s mxd w/ trs of sm gvl	5	60
f s mxd w/ trs of sm gvl and cbbls	5	65
med f tan sand	5	70
small & medium crs gvl	5	75
coarse sand with very small gravel	5	80
med crs s w/ sm gvl & cbbls	5	85
vy sm to crs gvl & cbbls	5	90

121632371600 Luhr Brothers, Inc. 7- 2N- 9W
StClair State of Illinois 9
Status: WATER Elev: 0
permit: NF16958 permit date: comp. date: 02/15/73
Lambert X: 2818710 Lambert Y: 2045923 td: 101
producing formation: td formation:
latitude: 38.638286 longitude: 90.138116
Water from at depth 0 to 0 ft.
Screen: Diam. 16 in. Length: 60 ft. Slot: .08
Casing and Liner Pipe -

Diam. (in.)	Kind and Weight	From(ft)	To(ft)
16	STAINLESS STEEL	0	35

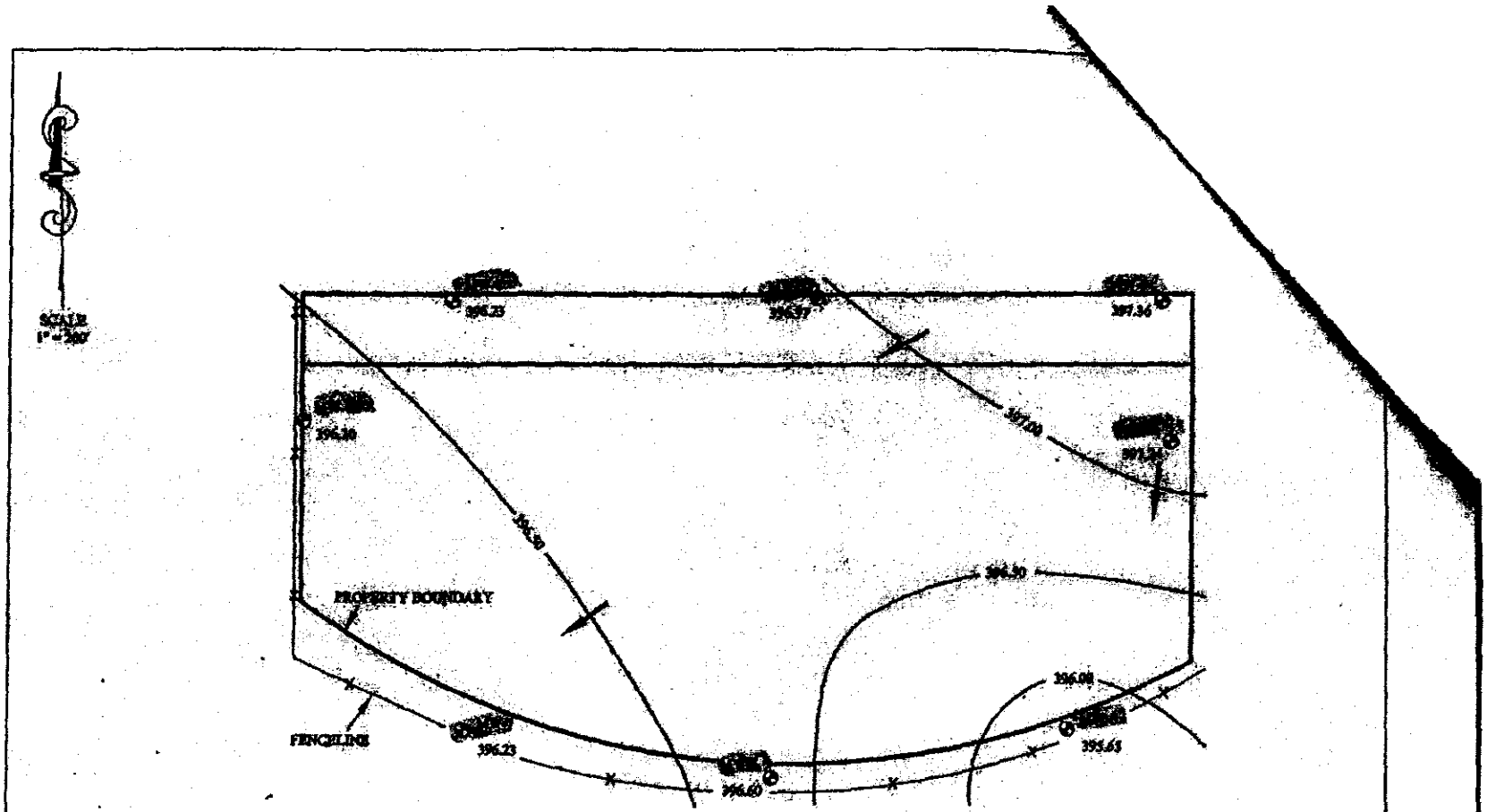
Size hole below casing: in.
Static level 0 ft. below casing top which is 0 ft. above grnd level.
Pumping level 0 ft. when pumping at 0 gpm for 0 hours.

Formations Passed Through	Thickness	Bottom
SS #58908	0	0

brown dirt	5	5
fine sand with very small gravel	5	10
gray silt	5	15
very fine sand	5	20
gray clay covered w/ fine sand	5	25
very fine sand	5	30
gray silk covered with fine sand	5	35
very fine sand	10	45
very fine gray s w/ traces of sm gvl	5	50
med f s w/ traces of sm gvl	5	55
med crs s w/ sm gvl & a tr of gry cl	5	60
vy f gry s w/some sm gvl&trs of lrgr gvl	5	65
med crs s w/ sm gvl	10	75
f s mxd w/ sm gvl	5	80
med crs s w/ sm gvl	5	85
med f & med crs s w/sm trs of lrgr gvl	5	90
med f s w/some sm & lrgr gvl	5	95
med crs s w/sm to lrg gvl & cbbls	6	101

121632966700 IL Div. of Highways 8- 2N- 9W
StClair IL 203 over FAI 55/70 2 N Abut
Status: ENG NL 500 WL Elev: 430GL
permit: permit date: comp. date: 12/14/95
Lambert X: 2821579 Lambert Y: 2048409 td: 94
producing formation: td formation:
latitude: 38.645205 longitude: 90.128078

Exhibit 2



MW-8 - DENOTES MONITORING WELL LOCATION AND DESIGNATION.

396.30 - DENOTES GROUNDWATER ELEVATION.

397.00 - DENOTES INFERRED LINE OF EQUAL GROUNDWATER ELEVATION AND FLOW DIRECTION.

- GRADIENT = 0.006 TO SOUTH
0.0009 TO SOUTHWEST

DRAWING BASED ON TOPOGRAPHIC PLAN PRODUCED BY MADISON COUNTY SURVEYORS AND OBSERVATIONS MADE BY SCI PERSONNEL.
DRAWING SHALL NOT BE USED OUTSIDE THE CONTEXT OF THE REPORT FOR WHICH IT WAS GENERATED.

FIGURE 1

SCI ENGINEERING, INC.
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HAYDEN LANDFILL
Madison, Florida

GROUNDWATER ELEVATION MAP - [illegible]

DECEMBER [illegible]