ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
WATER POLLUTION CONTROL PERMIT

LOG NUMBERS: 1001-10 **PERMIT NO.:** 2011-EO-1001

FINAL PLANS, SPECIFICATIONS, APPLICATION AND SUPPORTING DOCUMENTS **DATE ISSUED:** January 12, 2011
PREPARED BY: Arnold Magnetic Technologies

SUBJECT: ARNOLD ENGINEERING CORPORATION (MARENGO FACILITY) - Wastewater Treatment and Recycle System - McHenry County

PERMITTEE TO OPERATE

Arnold Magnetic Technologies - Arnold Engineering
300 North West Street
Marengo, Illinois 60152

Permit is hereby granted to the above designated permittee(s) to construct and/or operate water pollution control facilities described as follows:

Wastewater treatment and recycle system consisting of a series of four ponds (ponds #1-4) of 3 million gallon total capacity, one extended aeration activated sludge treatment plant with a rated capacity of 30,000 gpd tributary to Pond#1, one diked percolation field and all pumps, piping and appurtenances necessary to treat sanitary wastewater, cooling water and process wastewater (an average of 163,030 gpd, and a maximum of 217,333 gpd). Treated wastewater from the four ponds (Ponds #1-4) will either be recycled back to plant operations or discharged to the percolation field via an industrial ditch.

This operating permit expires on December 31, 2015.

This operating permit renews and replaces permit number 2006-EO-0690 which was previously issued for the herein permitted facilities.

This Permit is issued subject to the following Special Condition(s). If such Special Condition(s) require(s) additional or revised facilities, satisfactory engineering plan documents must be submitted to this Agency for review and approval for issuance of a Supplemental Permit.

SPECIAL CONDITION 1: All sludges generated on-site shall be transported for disposal at an Illinois Environmental Protection Agency permitted facility using the Agency's Supplemental Permit and manifest system in accordance with the Environmental Protection Act. If the sludge is a hazardous waste, the generator must comply with all applicable requirements of 35 Ill. Adm. Code Parts 702, 703, 705 and 720 to 725.

SPECIAL CONDITION 2: This Permit is issued with the expressed understanding that there shall be no surface discharge from these facilities. If such discharge occurs, additional or alternate facilities shall be provided. The construction of such additional or alternate facilities may not be started until a Permit for the construction is issued by this Agency.

SPECIAL CONDITION 3: The operation of the treatment facilities must be under the direct and active field supervision of

THE STANDARD CONDITIONS OF ISSUANCE INDICATED ON THE REVERSE SIDE MUST BE COMPLIED WITH IN FULL. READ ALL CONDITIONS CAREFULLY.

SAK:SMT:1001-10.docx

DIVISION OF WATER POLLUTION CONTROL

Alan Keller

Alan Keller, P.E.
Manager, Permit Section

cc: EPA-Peoria FOS
Arnold Magnetic Technologies
Records - Industrial
Binds

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
WATER POLLUTION CONTROL PERMIT

LOG NUMBERS: 1001-10 **PERMIT NO.:** 2011-EO-1001

FINAL PLANS, SPECIFICATIONS, APPLICATION AND SUPPORTING DOCUMENTS **DATE ISSUED:** January 12, 2011
PREPARED BY: Arnold Magnetic Technologies

SUBJECT: ARNOLD ENGINEERING CORPORATION (MARENGO FACILITY) - Wastewater Treatment and Recycle System - McHenry County

a certified industrial treatment plant operator in accordance with the State of Illinois Rules and Regulations, Title 35, Subtitle C, Chapter 1, Part 312.

SPECIAL CONDITION 4: Monitoring and Reporting Requirements – The discharge to the percolation pond shall not exceed the Class I Groundwater Standards.

A. Samples shall be collected of the treated wastewater at a point representative of the discharge from Pond #4 (final stage) but prior to entry into the ditch tributary to the percolation field. Monthly samples shall also be collected from the monitoring wells identified in the permit application as MW-1, MW-2, MW-3, MW-A4, MW-A5, MW-A6, MW-A7, and MW-A8. All samples shall be analyzed for the following parameters:

Parameter	Sample Type	Frequency	Class I Groundwater Quality Standards
1.1.1 - Trichloroethane, mg/l	Grab	Once/Month	0.2 mg/l
Tetrachloroethylene, mg/l	Grab	Once/Month	0.005 mg/l
Trichloroethylene, mg/l	Grab	Once/Month	0.005 mg/l
Total Dissolved Solids, mg/l	Grab	Once/Month	1,200 mg/l
Nickel, mg/l	Grab	Once/Month	0.1 mg/l
pH	Grab	Once/Month	6.5 - 9.0 SU
Ammonia Nitrogen	Grab	Once/Month	Monitoring Only
Nitrate	Grab	Once/Month	10 mg/l

B. Flow rate from Pond #4 to the ditch tributary to the percolation field shall be recorded, in million gallons per day, as a daily maximum and monthly average.

C. Monitoring shall be conducted according to test procedures approved in 40 CFR 136 or other Agency approved methods. The monitoring results and flow data shall be tabulated and submitted to the Agency on a semi-annual basis (May and November of each year) to the following addresses:

Illinois Environmental Protection Agency
Division of Water Pollution Control
Compliance Assurance Section
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

Illinois Environmental Protection Agency
DWPC - Des Plaines Region
9511 W. Harrison
Des Plaines, Illinois 60016

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
WATER POLLUTION CONTROL PERMIT

LOG NUMBERS: 1629-11 **PERMIT NO.:** 2011-EO-1001-2

FINAL PLANS, SPECIFICATIONS, APPLICATION AND SUPPORTING DOCUMENTS
PREPARED BY: Arnold Magnetic Technologies

DATE ISSUED: **May 11, 2011**

SUBJECT: ARNOLD ENGINEERING CORPORATION (MARENGO FACILITY) - Wastewater Treatment and Recycle System - McHenry County

PERMITTEE TO OPERATE

Arnold Magnetic Technologies - Arnold Engineering
300 North West Street
Marengo, Illinois 60152

Supplemental permit is hereby granted to the above designated permittee(s) to construct and/or operate water pollution control facilities, which were previously approved under Permits #2011-EO-1001 dated January 12, 2011 and #2011-EO-1001-1 dated March 31, 2011. Special Condition 4 has been revised below:

SPECIAL CONDITION 4: Monitoring and Reporting Requirements – The discharge to the percolation pond shall not exceed the Class I Groundwater Standards.

A. Samples shall be collected of the treated wastewater at a point representative of the discharge from Pond #4 (final stage) but prior to entry into the ditch tributary to the percolation field. All samples shall be analyzed for the following parameters:

Parameter	Sample Type	Frequency	Class I Groundwater Quality Standards
Total Residual Chlorine	Grab	Once/Month	No Standard
Nickel	Grab	Once/Month	0.1 mg/l
pH	Grab	Once/Month	6.5 - 9.0 SU

B. Flow rate from Pond #4 to the ditch tributary to the percolation field shall be recorded, in million gallons per day, as a daily maximum and monthly average.

C. Monitoring shall be conducted according to test procedures approved in 40 CFR 136 or other Agency approved methods. The monitoring results and flow data shall be tabulated and submitted to the Agency on a semi-annual basis (May and November of each year) to the following addresses:

Illinois Environmental Protection Agency
Division of Water Pollution Control
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1021 North Grand Avenue East

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9511 W. Harrison
Des Plaines, Illinois 60016

THE STANDARD CONDITIONS OF ISSUANCE INDICATED ON THE REVERSE SIDE MUST BE COMPLIED WITH IN FULL. READ ALL CONDITIONS CAREFULLY.

SAK:SMT:1629-11.docx

DIVISION OF WATER POLLUTION CONTROL

Alan Keller by DLA

Alan Keller, P.E.
Manager, Permit Section

cc: EPA-Peoria FOS
Arnold Magnetic Technologies
Records - Industrial
Binds

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
WATER POLLUTION CONTROL PERMIT

LOG NUMBERS: 1629-11 **PERMIT NO.:** 2011-EO-1001-2

FINAL PLANS, SPECIFICATIONS, APPLICATION AND SUPPORTING DOCUMENTS **DATE ISSUED:** **May 11, 2011**

PREPARED BY: Arnold Magnetic Technologies

SUBJECT: ARNOLD ENGINEERING CORPORATION (MARENGO FACILITY) - Wastewater Treatment and Recycle System - McHenry County

Post Office Box 19276
Springfield, Illinois 62794-9276

This operating permit expires on December 31, 2015.

All standard and special conditions and provisions of the original permit are also applicable to this permit unless specifically deleted or revised in this permit.

READ ALL CONDITIONS CAREFULLY:
STANDARD CONDITIONS

The Illinois Environmental Protection Act (Illinois Revised Statutes Chapter 111-12. Section 1039) grants the Environmental Protection Agency authority to impose conditions on permits which it issues.

1. Unless the construction for which this permit is issued has been completed, this permit will expire (1) two years after the date of issuance for permits to construct sewers or wastewater sources or (2) three years after the date of issuance for permits to construct treatment works or pretreatment works.

2. The construction or development of facilities covered by this permit shall be done in compliance with applicable provisions of Federal laws and regulations, the Illinois Environmental Protection Act, and Rules and Regulations adopted by the Illinois Pollution Control Board.

3. There shall be no deviations from the approved plans and specifications unless a written request for modification of the project, along with plans and specifications as required, shall have been submitted to the Agency and a supplemental written permit issued.

4. The permittee shall allow any agent duly authorized by the Agency upon the presentations of credentials:

   a. to enter at reasonable times, the permittee's premises where actual or potential effluent, emission or noise sources are located or where any activity is to be conducted pursuant to this permit;

   b. to have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit;

   c. to inspect at reasonable times, including during any hours of operation of equipment constructed or operated under this permit, such equipment or monitoring methodology or equipment required to be kept, used, operated, calibrated and maintained under this permit;

   d. to obtain and remove at reasonable times samples of any discharge or emission of pollutants;

   e. to enter at reasonable times and utilize any photographic, recording, testing, monitoring or other equipment for the purpose of preserving, testing, monitoring, or recording any activity, discharge, or emission authorized by this permit.

5. The issuance of this permit:

   a. shall not be considered as in any manner affecting the title of the premises upon which the permitted facilities are to be located;

   b. does not release the permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the proposed facilities;

   c. does not release the permittee from compliance with other applicable statutes and regulations of the United States, of the State of Illinois, or with applicable local laws, ordinances and regulations;

   d. does not take into consideration or attest to the structural stability of any units or parts of the project;

   e. in no manner implies or suggests that the Agency (or its officers, agents or employees) assumes any liability, directly or indirectly, for any loss due to damage, installation, maintenance, or operation of the proposed equipment or facility.

6. Unless a joint construction/operation permit has been issued, a permit for operating shall be obtained from the agency before the facility or equipment covered by this permit is placed into operation.

7. These standard conditions shall prevail unless modified by special conditions.

8. The Agency may file a complaint with the Board for suspension or revocation of a permit:

   a. upon discovery that the permit application contained misrepresentations, misinformation or false statement or that all relevant facts were not disclosed; or

   b. upon finding that any standard or special conditions have been violated; or

   c. upon any violation of the Environmental Protection Act or any Rules or Regulation effective thereunder as a result of the construction or development authorized by this permit.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
WATER POLLUTION CONTROL PERMIT

LOG NUMBERS: 1629-11 **PERMIT NO.:** 2011-EO-1001-2

FINAL PLANS, SPECIFICATIONS, APPLICATION AND SUPPORTING DOCUMENTS
PREPARED BY: Arnold Magnetic Technologies

DATE ISSUED: May 11, 2011

SUBJECT: ARNOLD ENGINEERING CORPORATION (MARENGO FACILITY) - Wastewater Treatment and Recycle System - McHenry County

PERMITTEE TO OPERATE

Arnold Magnetic Technologies - Arnold Engineering
300 North West Street
Marengo, Illinois 60152

Supplemental permit is hereby granted to the above designated permittee(s) to construct and/or operate water pollution control facilities, which were previously approved under Permits #2011-EO-1001 dated January 12, 2011 and #2011-EO-1001-1 dated March 31, 2011. Special Condition 4 has been revised below:

SPECIAL CONDITION 4: Monitoring and Reporting Requirements – The discharge to the percolation pond shall not exceed the Class I Groundwater Standards.

A. Samples shall be collected of the treated wastewater at a point representative of the discharge from Pond #4 (final stage) but prior to entry into the ditch tributary to the percolation field. All samples shall be analyzed for the following parameters:

Parameter	Sample Type	Frequency	Class I Groundwater Quality Standards
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Nickel	Grab	Once/Month	0.1 mg/l
pH	Grab	Once/Month	6.5 - 9.0 SU

B. Flow rate from Pond #4 to the ditch tributary to the percolation field shall be recorded, in million gallons per day, as a daily maximum and monthly average.

C. Monitoring shall be conducted according to test procedures approved in 40 CFR 136 or other Agency approved methods. The monitoring results and flow data shall be tabulated and submitted to the Agency on a semi-annual basis (May and November of each year) to the following addresses:

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Division of Water Pollution Control
Compliance Assurance Section
1021 North Grand Avenue East

Illinois Environmental Protection Agency
DWPC - Des Plaines Region
9511 W. Harrison
Des Plaines, Illinois 60016

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SAK:SMT:1629-11.docx

DIVISION OF WATER POLLUTION CONTROL

Alan Keller by SMT

Alan Keller, P.E.
Manager, Permit Section

cc: EPA-Peoria FOS
Arnold Magnetic Technologies
Records - Industrial
Binds

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
WATER POLLUTION CONTROL PERMIT

LOG NUMBERS: 1629-11 **PERMIT NO.:** 2011-EO-1001-2

FINAL PLANS, SPECIFICATIONS, APPLICATION AND SUPPORTING DOCUMENTS
PREPARED BY: Arnold Magnetic Technologies

DATE ISSUED: **May 11, 2011**

SUBJECT: ARNOLD ENGINEERING CORPORATION (MARENGO FACILITY) - Wastewater Treatment and Recycle System - McHenry County

Post Office Box 19276
Springfield, Illinois 62794-9276

This operating permit expires on December 31, 2015.

All standard and special conditions and provisions of the original permit are also applicable to this permit unless specifically deleted or revised in this permit.

ARNOLD®
MAGNETIC TECHNOLOGIES

November 18, 2015

Illinois Environmental Protection Agency
Division of Water Pollution Control
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276

RE: Renewal Application
Arnold Engineering Corporation (Marengo Facility)
Wastewater Treatment and Recycle System
Permit No. WPCP 2011-EO-1001-2

Dear Sir or Madam:

Enclosed is an application for renewal of Water Pollution Control Permit 2011-EO-1001-2 covering operation of the existing wastewater treatment and recycle system at Arnold Magnetic Technologies, located at 300 North West Street in Marengo, Illinois. The application includes the following documentation:

- Form WPC-PS-1, *Application for Permit or Construction Approval*;
- Form Schedule J, *Industrial Treatment/Pretreatment Works*;
- Form Schedule N, *Waste Characteristics*;
- A process description; and,
- A water recycle system schematic.

Please direct all correspondence regarding the renewal application to my attention. If you require further detail on the application, please contact me directly at (585) 385-9010, extension 211.

Sincerely,
Arnold Magnetic Technologies

Nadine Marion
Director of Environmental Health and Safety

Enclosures

Illinois Environmental Protection Agency

Bureau of Water • 1021 North Grand Avenue East • P.O. Box 19276 • Springfield • Illinois • 62794-9276

Application for Permit or Construction Approval
WPC-PS-1

For IEPA Use Only:

This form must be typewritten or printed legibly. This form may be completed manually or online using Adobe Reader, a copy of it saved locally, printed, and signed before it is submitted to:

Illinois Environmental Protection Agency
Permit Section, Division of Water Pollution Control
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276

Reset All Fields

1. Owner Name: Arnold Magnetic Technologies Name of Project: Wastewater Treatment and Recycle System

Project Location Address (include nearest street and city address): 300 N. West St

City: Marengo Zip Code: 60152

Township: Marengo County: McHenry

2. Brief Description of the Project:

Renewal of Operating Permit 2011-EO-1001-2 for existing sanitary and industrial water recycling system. Original permit application submitted in 1975 and system has been in operation since that date. See Schedule J for process diagram and description.

3. Documents being Submitted: If the Project involves any of the items listed below, submit the corresponding schedule, and check the appropriate boxes

	Schedule		Schedule
Private Sewer Connection/Extensions	A/B ☐	Spray Irrigation	H ☐
Sewer Extension Construction Only	C ☐	Septic Tanks	I ☐
Sewage Treatment Works	D ☐	Industrial Treatment/Pretreatment	J ☒
Excess Flow Treatment	E ☐	Waste Characteristics	N ☒
Lift Station/force Main	F ☐	Erosion Control	P ☐
Fast Track Service Connection	FTP ☐	Trust Disclosure	T ☐
Sludge Disposal	G ☐		

Plans:

Title: Arnold Engineering Water Recycle System No. of Pages:

Specifications:

Title: NA No. of Books/Pages:

Other Documents: NA
(Please specify)

3.1 Illinois Historic Preservation Agency approval letter ○ Yes ◉ No

(If you have a copy of the IHPA approval letter, please send in with the Permit Application Package)

4. Land Trust: Is the project identified in item Number 1 therein, for which a permit is requested, to be constructed on land which is the subject of a trust? ○ Yes ◉ No

If yes, Schedule T (Trust Disclosure) must be completed and item 7.1.1 must be signed by a beneficiary trustee or trust officer.

5. This is an application for (Check appropriate box):

☐ A. Joint Construction and Operating Permit

☐ B. Authorization to Construct (See Instructions) NPDES Permit No. IL00: _____ Issuance Date: _____

☐ C. Construction Only Permit (Does Not Include Operations)

☒ D. Operate Only Permit (Does Not Include Construction)

☐ E. Supplemental Permit Request to Existing State Construction or Operating Permit No.: _____ Issuance Date: _____

6. Certifications and Approval

6.1 Certificate by Design Engineer (When required: refer to instructions)

I hereby certify that I am familiar with the information contained in this application, including the attached schedules indicated above, and that to the best of my knowledge and belief such information is true, complete and accurate. The plans and specifications (specifications other than Standard Specifications or local specifications on file with this Agency) as described above were prepared by me or under my direction.

Licensed Professional Engineer's Name: NA

Licensed Professional Engineer's Title: _____

Registration Number: _____ License Expiration Date: _____

Company: _____

Street Address: _____ PO Box: _____

City: _____ State: _____ Zip + 4: _____

Email Address: _____ Phone: _____

Printed Name: _____

_____ _____

Original Signature: Date:

7. Certifications and Approvals for Permits: Licensed Professional Engineer's Seal

7.1 Certificate by Applicant(s):

I/We hereby certify that I/we have read and thoroughly understand the conditions and requirements of this Application, and am/are authorized to sign this application in accordance with the Rules and Regulations of the Illinois Pollution Control Board. I/we hereby agree to conform with the Standard conditions and with any other Special Conditions made part of this Permit.

7.1.1 Name of Applicant for Permit to Construct: NA

Title: _____ Organization: _____

Street Address: _____ PO Box: _____

City: _____ State: _____ Zip + 4: _____

Email Address: _____ Phone: _____

Printed Name: _____

_____ _____

Original Signature: Date:

7.1.2 Name of Applicant for Permit to Own and Operate: Arnold Magnetic Technologies - Arnold Engineering

Title: Mr. Michael Stachura Organization: Arnold Magnetic Technologies

Street Address: 770 Linden Avenue PO Box:

City: Rochester State: NY Zip + 4: 14625

Email Address: mstachura@AmoldMagnetics.com Phone: (585) 385-9010 x246

Printed Name: Michael Stachura

Michael Stachura Nov 18, 2015

Original Signature: Date:

7.2 Attested (Required When Applicant is a Unit of Government)

Title:

City clerk, Village Clerk, Sanitary District Clerk, etc.)

Original Signature: Date:

7.3 Applications from non-governmental applicants which are not signed by the owner, must be signed by a principal executive officer of at least the level of vice president, or a duly authorized representative.

7.4 Certificate by Intermediate Sewer Owner

I hereby certify that (Please check one):

○ 1. The sewers to which this project will be tributary have adequate reserve capacity to transport the wastewater that will be added by this project without causing a violation of the Illinois Environmental Protection Act or Subtitle C. Chapter I, or

○ 2. The Illinois Pollution Control Board, in PCB _____ dated _____ granted a variance from Subtitle C, Chapter I to allow construction of facilities that are the subject of this application.

Name and location of sewer system to which this project will be tributary:

NA

Sewer System Owner:

Address:

City: State: Zip + 4:

Email Address: Phone:

Printed Name:

Original Signature: Date:

7.4.1 Additional Certificate by Intermediate Sewer Owner

I hereby certify that (Please check one):

○ 1. The wastewater treatment plant to which this project will be tributary has adequate reserve capacity to treat the wastewater that will be added by this project without causing a violation of the Illinois Environmental Protection Act or Subtitle C. Chapter I, or

○ 2. The Illinois Pollution Control Board, in PCB _____ dated _____ granted a variance from Subtitle C, Chapter I to allow construction of facilities that are the subject of this application.

◉ 3. Not applicable.

Name and location of sewer system to which this project will be tributary:

NA

Sewer System Owner: _____

Address: _____

City: _____ State: ____ Zip + 4: _____

Email Address: _____ Phone: _____

Printed Name: _____

_____ _____

Original Signature: Date:

7.5 Certificate by Waste Treatment Works Owner

I hereby certify that (Please check one):

○ 1. The wastewater treatment plant to which this project will be tributary has adequate reserve capacity to treat the wastewater that will be added by this project without causing a violation of the Illinois Environmental Protection Act or Subtitle C. Chapter I, or

○ 2. The Illinois Pollution Control Board, in PCB _____ dated _____ granted a variance from Subtitle C, Chapter I to allow construction and operation of the facilities that are the subject of this application.

○ 3. I also certify that, if applicable, the industrial waste discharges described in the application are capable of being treated by treatment works.

◉ 4. Not applicable.

Name of Waste Treatment Works: NA

Waste Treatment Works Owner: _____

Address: _____

City: _____ State: ____ Zip + 4: _____

Email Address: _____ Phone: _____

Printed Name: _____

_____ _____

Original Signature: Date:

Save Form with New Name

Print Form

FOR IEPA USE:
LOG #
DATE RECEIVED:

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF WATER POLLUTION CONTROL
PERMIT SECTION

Springfield, Illinois 62706

SCHEDULE J INDUSTRIAL TREATMENT WORKS CONSTRUCTION OR PRETREATMENT WORKS

1. NAME AND LOCATION:
   1.1 Name of project Operating Permit Renewal of Existing Sanitary/Industrial Water Recycling System
   1.2 Plant Location
   1.2.1 NW (Quarter Section) 35 (Section) 44N (Township) 5E (Range) 3rd P.M.
   1.2.2 Latitude 42 deg. 15 min. 14 sec. "NORTH
   1.2.3 Longitude 88 deg. 37 min. 14 sec. "WEST
   1.2.3 Name of USGS Quadrangle Map (7.5 or 15 minute) Harvard IL -WI 15 Minute
2. NARRATIVE DESCRIPTION AND SCHEMATIC WASTE FLOW DIAGRAM: (see instructions)

Original application submitted in 1975. Updates were submitted in 1984, 1989, and 1993. With the exception of flow rates, operation of the system has remained essentially the same since 1993. Updated description attached.

   2.1 PRINCIPAL PRODUCTS:

Industrial and commercial magnets and magnetic materials.

   2.2 PRINCIPAL RAW MATERIALS:

Aluminum, nickel, cobalt, iron, steel, acids, oils

3. DESCRIPTION OF TREATMENT FACILITIES:
   3.1 Submit a flow diagram through all treatment units showing size, volumes, detention times, organic loadings, surface settling rate, weir overflow rate, and other pertinent design data. Include hydraulic profiles and description of monitoring systems.
   3.2 Waste Treatment Works is: Batch ☐ , Continuous ☒ , No. of Batches/day _____ , No. of Shifts/day _____
   3.3 Submit plans and specifications for proposed construction.
   3.4 Discharge is: Existing ☒ ; Will begin on _____ .
4. DIRECT DISCHARGE IS TO: Receiving Stream ☐ Municipal Sanitary Sewer ☐ Municipal storm or municipal combined sewer ☐
   If receiving stream or storm sewer are indicated complete the following:
   Name of receiving stream N/A ; tributary to N/A ;
   tributary to N/A ; tributary to N/A ;
5. Is the treatment works subject to flooding? Yes ☐ No ☒ If so, what is the maximum flood elevation of record (in reference to the treatment works datum) and what provisions have been made to eliminate the flooding hazard?

6. APPROXIMATE TIME SCHEDULE: Estimated construction schedule:
   Start of Construction _____ ; Date of Completion _____
   Operation Schedule _____ ; Date Operation Begins _____
   100% design load to be reached by year _____ .
7. DESIGN LOADINGS
   7.1 Design population equivalent (one population equivalent is 100 gallons of wastewater per day, containing 0.17 pounds of BOD_5 and 0.20 pounds of suspended solids;
   BOD N/A ; Suspended Solids N/A ; Flow N/A
   7.2 Design Average Flow Rate N/A MGD.

7.3 Design Maximum Flow Rate N/A MGD.

7.4 Design Minimum Flow Rate N/A MGD.

7.5 Minimum 7-day, 10-year low flow N/A cfs N/A MGD.

Minimum 7-day, 10-year flow obtained from N/A

7.6 Dilution Ratio N/A ;_____.

8. FLOW TO TREATMENT WORKS (if existing):

8.1 Flow (last 12 months)

8.1.1 Average Flow 0.022 MGD

8.1.2 Maximum Flow 0.087 MGD

8.2 Equipment used in determining above flows

9. Has a preliminary engineering report for this project been submitted to this Agency for Approval?

Yes ☒ No ☐ . If so, when was it submitted and approved. Date Submitted 9/30/1964

Certification # 19640-FA-546

Dated 10/19/1964

10. List Permits previously issued for the facility:

1994-EO-1340-2, 1999-EO-4027, 2004-EO-0971, 2006-EO-0690, 2011-EO-1001-2

11. Describe provisions for operation during contingencies such as power failures, flooding, peak loads, equipment failure, maintenance shut downs and other emergencies.

Backup pumps are present to provide assistance in case of main pump failure.

12. Complete and submit Schedule G if sludge disposal will be required by this facility.

13. WASTE CHARACTERISTICS: Schedule N must be submitted.

14. TREATMENT WORKS OPERATOR CERTIFICATION: List names and certification numbers of certified operators:

James B. Roozee - Industrial Wastewater Treatment Works Operator (Issued 2/2/2010, valid until 12/31/2017)

This Agency is authorized to require this information under Illinois Revised Statutes, 1979, Chapter 111 1/2, Section 1039. Disclosure of this information is required under that section. Failure to do so may prevent this form from being processed and could result in your application being denied.

For IEPA Use:

LOG #

DATE RECEIVED:

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF WATER POLLUTION CONTROL
PERMIT SECTION
Springfield, Illinois 62794-9276

SCHEDULE N WASTE CHARACTERISTICS

1. Name of Project Operating Permit Renewal of Existing Sanitary/Industrial Water Recycling System

2. FLOW DATA

	EXISTING	PROPOSED-DESIGN
2.1 Average Flow (gpd)	22,475	NA
2.2 Maximum Daily Flow (gpd)	86,624	NA

2.3 TEMPERATURE

Time of Year	Avg. Intake Temp. F	Avg. Effluent Temp. F	Max. Intake Temp F.	Max. Effluent Temp F.	Max. Temp. Outside Mixing Zone F
SUMMER	NA	NA	NA	NA	NA
WINTER	NA	NA	NA	NA	NA

2.4 Minimum 7-day, 10-year flow: N/A cfs N/A MGD.

2.5 Dilution Ratio: N/A ; N/A

2.6 Stream flow rate at time of sampling N/A cfs N/A MGD.

3. CHEMICAL CONSTITUENT Existing Permitted Conditions ☐ ; Existing conditions ☒ ; Proposed Permitted Conditions ☐

Type of sample: ☒ grab (time of collection Below); ☐ composite (Number of samples per day _____)

(see instructions for analyses required) 2014 collection dates: 5/15, 6/16, 7/14 8/18, 9/15, 10/13, 11/18, 12/8,
2015 collection dates: 1/15, 2/9, 3/11, 4/3

CONSTITUENT	RAW WASTE (mg/l)	TREATED EFFLUENT Avg. (mg/l) Max.	UPSTREAM (mg/l)	DOWNSTREAM SAMPLES (mg/l)
Ammonia Nitrogen (as N)	NA	NA	NA	NA
Arsenic (total)	NA	NA	NA	NA
Barium	NA	NA	NA	NA
Boron	NA	NA	NA	NA
BOD_5	NA	NA	NA	NA
Cadmium	NA	NA	NA	NA
Carbon Chloroform Extract	NA	NA	NA	NA
Chloride	NA	NA	NA	NA
Chromium (total hexavalent)	NA	NA	NA	NA
Chromium (total trivalent)	NA	NA	NA	

CONSTITUENT	RAW WASTE (mg/l)	TREATED EFFLUENT Avg. (mg/l) Max.	UPSTREAM (mg/l)	DOWNSTREAM SAMPLES (mg/l)
Copper	NA	NA	NA	NA
Cyanide (total)	NA	NA	NA	NA
Cyanide (readily released @ 150° F & pH 4.5)	NA	NA	NA	NA
Dissolved Oxygen	NA	NA	NA	NA
Fecal Coliform	NA	NA	NA	NA
Fluoride	NA	NA	NA	NA
Hardness (as Ca CO_3)	NA	NA	NA	NA
Iron (total)	NA	NA	NA	NA
Lead	NA	NA	NA	NA
Manganese	NA	NA	NA	NA
MBAS	NA	NA	NA	NA
Mercury	NA	NA	NA	NA
Nickel	NA	Avg 0.04; Max 0.08	NA	NA
Nitrates (as N)	NA	NA	NA	NA
Oil & Grease (hexane solubles or equivalent)	NA	NA	NA	NA
Organic Nitrogen (as N)	NA	NA	NA	NA
pH	NA	Avg 7.24; Max 8.94	NA	NA
Phenols	NA	NA	NA	NA
Phosphorous (as P)	NA	NA	NA	NA
Radioactivity	NA	NA	NA	NA
Selenium	NA	NA	NA	NA
Silver	NA	NA	NA	NA
Sulfate	NA	NA	NA	NA
Suspended Solids	NA	NA	NA	NA
Total Dissolved Solids	NA	NA	NA	NA
Zinc	NA	NA	NA	NA
Others	NA	NA	NA	NA
Total Residual Chlorine	NA	Avg 0.15; Max 0.34	NA	NA

Narrative Description of the Arnold Engineering Recycle Water System
Reference Schedule J

The Arnold Magnetic Technologies Corporation recycled water system contains a series of 4 ponds that provide up to 1.5 million gallons per day (gpd) of cooling water through a separate distribution system to the manufacturing processes. The recycled water is treated prior to reuse in the plant. Water from an 850-foot deep private well is pumped to supply sanitary water, make-up cooling water, and process water. Approximately 90% of the well water flows into the recycle water system drains, which load Pond 1.

SANITARY WASTEWATER SYSTEM

The remaining 10% of well water is used in the plant's domestic sanitary sewage system. The sewage is collected in a separate sanitary sewer system and treated in an Amcodyne extended aeration activated sludge treatment plant with a rated capacity of 30,000 gpd. Through this treatment, flocculated biological growths (return activated sludge) are mixed with raw wastewater on a continuous basis and are aerated. The aerobic microorganisms utilize the organic waste matter as an energy source. The biological growths are then aerated and settled out. A portion of the material is wasted, while the rest is recirculated for mixture with additional waste.

The Amcodyne system has a Worthington comminutor that breaks down any large particles before waste enters the 30,485 gallon aeration tank. Low-pressure air (less than 6 pounds per square inch (psi)) is supplied to porous diffusers. Spray devices are present to control foam. Activated sludge is returned from the bottoms of the 2 Imhoff cone settling tanks by an air lift method. The diffusers are placed so that incoming waste is mixed with returned activated sludge. A continuous air supply is provided to maintain aerobic conditions, solids suspension, and contact in the aeration tank. The overflow from the aeration tank passes through 2 Imhoff cones, which settle out the solids. The supernatant overflows into an 8-foot long weir, and 2 $^{1}/_{2}$" diameter pipe air lift

devices return the settled activated sludge to the aeration tank. Valves can be opened to waste part of this sludge to the 1,224 ft^3 aerated sludge holding tank. The waste sludge is hauled away by a disposal service as needed. The chlorination tank and related components previously associated with this system have since been removed and are no longer present at the site.

In May 2014, the effluent from the sewage treatment plant had a biological oxygen demand (BOD) of 5.16 milligrams per liter (mg/L), and influent BOD of 252 mg/L. This resulted in a BOD removal efficiency of 98.0%. Testing of the mixed liquor and return sludge for settled solids is done periodically, and BOD is also run on the influent. Daily maintenance includes inspecting air diffusers in aerating and holding tanks, back flushing sludge return lines so sludge does not build up, and skimming off floatable solids from the skimmer. Monthly maintenance includes checking blower operation including belts, air cleaner, air check valves and lubrication.

RECYCLE WATER SYSTEM

The recycle water system is diagrammed on the attached schematic. The pump station draws from the bottom of Ponds 3 and 4 and is pumped under 60 psi pressure to all buildings on the property. Water flows from the bottom of Pond 1 to the surface of Pond 2 and so on to Pond 4. This helps to cool the water by air evaporation. Original dimensions (length x width x depth) of each pond are as follows:

- Pond 1 – 200' x 160' x 8.5'
- Pond 2 – 200' x 80' x 6.5'
- Pond 3 – 200' x 80' x 7'
- Pond 4 – 200' x 80' x 7.5'

Ponds 1 and 2 receive the greatest amount of sedimentation, typically$FeCl_3$, $Ca_3(PO_4)_2$, and SiO_2. Chemicals of interest in the ponds are phosphates from the carlite coating line. The phosphate reacts to form $Ca_3(PO_4)_2$ which settles in the ponds. All the water pumped by the pump station, plus the well water, returns to the ponds by means of 4 recycle lift stations.

ARNOLD MAGNETIC TECHNOLOGIES

SCHEDULE J - PROCESS DESCRIPTION

The water treatment consists of sedimentation of suspended solids. Sodium hypochlorite may be applied at the pump station on an as needed basis to kill any bacteria in the pipe system or equipment, and may also be applied to Pond 3 and Pond 4 on an as-needed basis to control bacteria and algae. A phosphate solution known as AquaMag may be added at the pump station as a corrosion inhibitor. Suspension chemicals are added by metering pumps at the pump station to clean out pipe deposits and keep these in suspension until the slower velocity waters of the ponds allow particles to settle out. An antiscalant and an antifoulant are also added as needed to disperse silt, mud, and sludge deposits, and to prevent and remove iron oxide and scale deposits. An aquatic herbicide known as Reward may be added as needed to the ponds on an annual basis.

The discharge from Pond 4 flows to Pond 5 for further treatment, evaporation, and percolation.

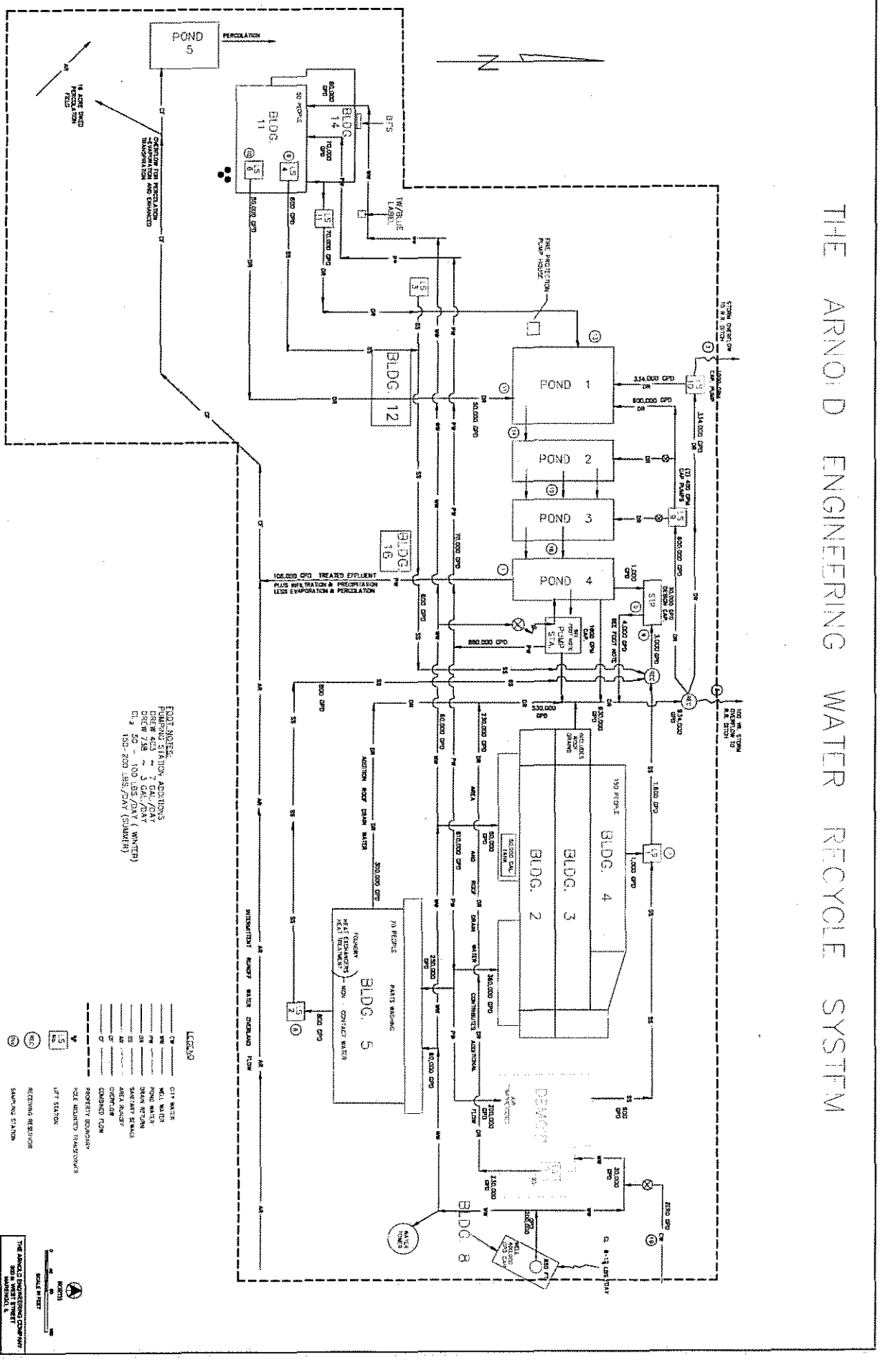
During very heavy storms, some water may overflow at the main lift station when the typical pumping rate is exceeded. When additional quantities of storm water are received, the pond system will absorb a significant portion of any excess, and discharge to the ditch leading to Pond 5 south of Building 11.

Daily maintenance on the recycle system includes adding necessary chemicals, checking pressure and return pump operation, cleaning pump screen and filters as necessary, switching stand-by pumps on and changing temperature recording charts. Alarm systems warn maintenance when lift or pressure pumps are not operating or line pressure drops. Routine pump, meter and other equipment maintenance is performed as needed.

ARNOLD®
MAGNETIC TECHNOLOGIES

POTABLE WATER SYSTEM

The facility's potable water supply consists of an 850-foot well with a submersible turbine pump, which pumps on plant demand or to fill up the level in the water tower. The well water is chlorinated to a residual of greater than 0.5 ppm for disinfection. Provision is made to add well water to the ponds to make-up for evaporation losses. There is no connection to the Marengo water supply from the facility's potable water supply. Our water supply is checked annually for coliform bacteria in accordance with regulatory requirements. Normal pump and tower maintenance is performed as needed. The operation of the potable water system is overseen by the site's certified Class K operator.



ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-3397
BRUCE RAUNER, GOVERNOR LISA BONNETT, DIRECTOR

217/782-0610

February 19, 2016

Arnold Magnetic Technologies
770 Linden Avenue
Rochester, New York 14625

Re: Arnold Engineering Technologies - Marengo
Permit Log# 2015-60605
Denial of State Permit Application

Ms. Marion:

This Agency has reviewed your Application for Permit and the supporting documents for the subject project which were received on November 23. 2015. This Agency must deny the permit for this project for the following reasons.

Sections 12 and 39 of the Environmental Protection Act (Act), 415 ILCS 5/12 and 39, prohibit the Agency from issuing a permit for any facility which would threaten, cause or allow the discharge of contaminants which might cause or tend to cause water pollution in Illinois. Section 39 of the Act also requires an applicant to submit proof to the Agency that the proposed facility will not cause a violation of the Act or the regulations adopted pursuant to the Act.

In addition to the above cited Sections of the Act, the permit application does not fulfill the requirements of 35 Ill. Adm. Code 309.241.

Specifically, the reasons for Permit Denial are those outlined in the Public Notice of Denial which was previously transmitted to you.

> Historic groundwater monitoring indicates exceedances for VOC's and some metals in the groundwater near the ponds. The application must address this groundwater contamination, and demonstrate that operation of the ponds has not and will not contribute to violations of the groundwater quality standards as found at 35 Ill. Adm. Code Part 620.

The Agency will be pleased to reevaluate your permit application on receipt of your written request and the necessary information and documentation to correct or clarify the deficiencies noted above. The revised application will be considered filed on the date that the Agency receives your written request.

You have the right to appeal this denial to the Illinois Pollution Control Board within a 35 day period following the date shown on this letter.

Should you have any questions or comments regarding the above, please contact Shu-Mei Tsai at 217/782-0610.

Sincerely,

Alan Keller by sst

Alan Keller, P.E.
Manager, Permit Section
Division of Water Pollution Control

SAK:SMT: Log# 2015-60605 Arnold Engineering Technologies

cc: Des Plaines Region
Records Unit

BRYAN CAVE

BRYAN CAVE LLP 161 North Clark Street, Suite 4300, Chicago, IL 60601-3315
T: 312 602 5000 F: 312 602 5050 bryancave.com

May 3, 2016

Thor W. Ketzback
Partner
Direct: 312/602-5111
Fax: 312/698-7511
thor.ketzback@bryancave.com

FOR SETTLEMENT PURPOSES ONLY

VIA U.S. MAIL

Christine Zeivel, Esq.
Assistant Counsel
Division of Legal Counsel
Illinois Environmental Protection Agency
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276

Re: Wastewater Permit Denial
Arnold Magnetic Technologies
Marengo, Illinois

Dear Ms. Zeivel:

With this letter, we are providing the Illinois Environmental Protection Agency (Illinois EPA) with the follow-up information requested by the Agency at our meeting on March 21, 2016. During that meeting, we discussed Illinois EPA's recent denial of the renewal of Water Pollution Control Permit No. 2011-EO-1001-2 (Permit) for the Arnold Magnetic Technologies (AMT) plant, located at 300 North West Street in Marengo, Illinois (the Site). For all the reasons discussed at the meeting and herein, AMT's view is that the water treatment system at the plant is neither the source of the chlorinated volatile organic compounds or metals contamination found at and around the Site nor is that system currently causing, contributing to, or exacerbating the contamination. Consequently, we respectfully request that Illinois EPA grant a renewal Permit upon AMT's submittal of a revised application.

I. BACKGROUND.

As identified in the renewal application, AMT operates a non-contact cooling water system utilizing an 800-foot deep (bedrock) groundwater well as the source of system make-up water to maintain system water balance. Spent cooling water, process wastewater, and treated sanitary wastewater are discharged into four (4) onsite lined treatment ponds connected in series. Water from Pond No. 4 is either reused and cycled through the process cooling system, or discharged to a percolation field.

Groundwater quality from the deep well is likely geochemically different from shallow site groundwater, and there is little likelihood that the shallow aquifer is in hydraulic communication with the deep aquifer, due to a regionally extensive aquitard (Maquoketa Shale Group) separating the two groundwater systems.

II. TECHNICAL INFORMATION INDICATES THAT NEITHER THE PONDS NOR THE PERCOLATION AREA ARE LIKELY TO BE THE SOURCE OF OR ARE THEY EXACERBATING THE MIGRATION OF CONTAMINATION AT OR NEAR THE SITE.

Based on our discussions at the meeting, AMT's understanding was that Illinois EPA's denial of the renewal was primarily premised on a need for additional information regarding the following:

- Confirmation that the water treatment ponds are not currently contributing, and would not be expected to contribute, additional chlorinated organic compound and metal contamination to the shallow aquifer at the Site; and

- Confirmation that the water treatment ponds and previously-permitted discharge to the percolation field are not exacerbating movement of existing contamination at the site.

A. The contamination at the Site is attributable to other sources rather than the water treatment system.

Pursuant to a legal agreement with the State, a Comprehensive Site Investigation (CSI) was performed by Weaver Consultants Group (Weaver) on behalf of 300 West LLC and Arnold Engineering Co. and submitted to Illinois EPA on March 31, 2016. Based on the Site investigation, the reported constituents of concern in shallow groundwater at the site include chlorinated organic compounds (tetrachloroethene, trichloroethene, 1,1,1-trichloroethane, 1,1-dichloroethene) and 1,4-dioxane. Additional groundwater constituents of concern include the following metal species: aluminum, lead, iron, nickel, chromium, beryllium and manganese.

Additionally, AMT retained AECOM Technical Services, Inc. (AECOM) to review the CSI and provide an independent opinion regarding whether the water treatment system was the likely source of the existing contamination at the Site and to understand the pond system's influence on current Site conditions. AECOM reviewed, among other things, the CSI and historical laboratory data for the pond system, including data that supported previously-approved Water Pollution Control Permits issued by Illinois EPA (*See*, **Attachment 1**). These same data supported Illinois EPA's May 2011 revision of the prior Permit, in which Illinois EPA reduced the required number of routinely-monitored parameters by eliminating the constituents of concern listed above.

AECOM compared historical laboratory results for the pond system with groundwater sampling results obtained by Weaver and others as referenced in the CSI. Water from Pond No. 4 outfall appears to have been consistently free (*i.e.*, not detected) of chlorinated compounds throughout the monitoring period from 2001 to 2010. Furthermore, pond system water samples from the 2010 data submitted to Illinois EPA in support of the May 2011 Permit show non-detect to low concentrations of the metals that are currently present at concentrations above Illinois Class I groundwater standards in shallow groundwater at the Site. Importantly, concentrations associated with the pond water are not consistent with the relatively higher concentrations of chlorinated compounds and metals species observed in groundwater samples at the Site.

Although pond system water samples have not been analyzed for the specific constituents of concern over the previous five years (in accordance with the May 2011 Permit approved by Illinois EPA), the sources and management of the industrial process water associated with AMT's pond system have not changed. It is therefore very unlikely that the pond water chemistry has significantly changed.

Although the historical data described above demonstrate that the pond system is not a contributing source of groundwater contaminants above regulatory groundwater criteria, additional data as set forth in the CSI further support this conclusion, including:

- As indicated in the March 2016 Weaver CSI Report, the source of shallow groundwater impacts at the Site appears to be ill-defined, and is likely from multiple unspecified sources. AECOM's view is that it is far more logical to presume that the likely sources of groundwater contamination at the Site would be the former USTs (e.g., two 6,000-gallon USTs containing 1,1,1-TCA closed circa 1990), a reported LUST incident (two 8,000-gallon tanks, contents unknown, removed in 2008) and other existing/former site manufacturing buildings, rather than AMT's pond system or the percolation area.

- Analytical results from monitoring wells in the vicinity of the percolation field area do not suggest a source of chlorinated solvent or metal contamination. Reported shallow groundwater exceedances in the percolation field areas consist of manganese. Unlike aluminum, cobalt, iron, or nickel, manganese is not believed to be a common constituent of the alloys used at the plant. Further, manganese was not detected above ambient levels in the discharge to the percolation field. As indicated in the March 2016 Weaver CSI Report, elevated manganese results in shallow groundwater are more likely indicative of ambient area background concentrations or sampling methodology (suspended solids presence and subsequent digestion).

Groundwater flow conditions depicted in Site groundwater contour maps presented in the March 2016 Weaver CSI Report indicated that unsaturated flow conditions exist beneath the percolation field. Unsaturated flow conditions increase the residence time of the discharge water in the soil zone between the ground surface and water table, and would promote increased attenuation (*e.g.*, via adsorption, volatilization, colloidal filtering, etc.) of any chemicals in the discharge water.

Facility processes and operations associated with the cooling and process water discharges have not changed since the last Permit renewal. AECOM concluded, therefore, that it is unlikely that pond water chemistry has appreciably changed since the 2010 testing events.

Nevertheless, to address Illinois EPA's concern regarding contribution of additional contamination from the water treatment system, during the month of May 2016, AMT will collect weekly grab samples of effluent at the discharge of Pond 4. Each sample will be analyzed for the above constituents of concern. A written report of the laboratory results will be provided to Illinois EPA on or before June 15, 2016.

B. The percolation field has not exacerbated the migration of contamination at or from the Site.

With respect to the Agency's question regarding whether the wastewater pond system and percolation field are exacerbating movement of existing contamination at the Site, water percolating at ground surface (a recharge area) can potentially alter groundwater flow, and could consequently affect the movement of existing groundwater contamination by locally altering groundwater flow gradients. The mechanism by which this could occur includes:

- Water continuously discharged at ground surface percolates vertically through the unsaturated zone under influence of gravity to the shallow groundwater table;
- Over time, the groundwater table builds up (mounds) locally beneath the percolation area due to concentrated recharge;
- The mounded groundwater increases the local hydraulic gradient (i.e., increases the difference in groundwater elevation over a given distance, which is the driving force of groundwater flow and has the effect of increasing groundwater velocity), thereby increasing groundwater contaminant velocity; and
- Mounded groundwater possibly alters groundwater flow direction, thereby altering groundwater contaminant transport direction, relative to natural/background groundwater flow direction, typically by creating a radially-outward groundwater flow pattern emanating from the groundwater mound.

AECOM evaluated the potential for groundwater mounding impacts due to percolating water associated with AMT's pond system discharge. The pond system discharges water to a 16-acre percolation field located in the southwestern portion of the Site. AECOM recognizes that leakage may also occur beneath the four-pond system itself, as well as beneath associated drainage ditches. Accordingly, AECOM focused on evaluating the mounding associated with the percolation field, where the majority of the water likely percolates, as the worst-case scenario. AECOM evaluated mounding using groundwater contour maps presented in the March 2016 Weaver CSI Report, and by performing a groundwater mounding analysis using analytical techniques developed by Hantush (1967).[1] The Weaver maps are provided as **Attachment 2**.

Localized groundwater recharge areas typically are characterized by groundwater contours with higher elevations than the surrounding aquifer, often with high elevation contour lines wrapping around the recharge area and associated groundwater flow lines diverging radially. These signature contours and flow lines are not apparent in the vicinity of AMT's ponds or the percolation field. The groundwater contours are relatively smooth, and do not diverge or wrap around the percolation field. Divergence would be expected if the volume of percolating groundwater were sufficient to cause sustained groundwater mounding beneath the area. Groundwater flow directions (shown as red arrows in **Attachment 2**) generally indicate relatively straight downgradient flow directions, with little radial deviation.

Based on review of the Weaver contour maps, AECOM concluded that percolating groundwater has a relatively minor impact on groundwater levels at the AMT site. The minor nature of any impact is likely due to the relatively high hydraulic conductivity of Site soils, which has the effect of dampening and dissipating mounding buildup relatively quickly, as well as a limited volume of water percolating over a large area.

AECOM then performed a groundwater mounding analysis to confirm the accuracy of the groundwater contour maps. The mounding analysis is based on analytical techniques developed by Hantush, and incorporated into a spreadsheet format by the United States Geological Survey.[2] Inputs for AECOM's mounding analysis are provided below and in **Attachment 3:**

- Recharge (percolation) rate = 0.027 feet per day. This value is based on information in AMT's wastewater permit application: 140,000 gallons per day are pumped from the onsite deep well and added to the water recycling system.
- Specific yield of aquifer (Sy) = 0.2 (literature value).

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1 Hantush, M.S., 1967, Growth and Decay of Groundwater Mounds in Response to Uniform Percolation, Water Resources Research, v. 3, p. 227-234.

2 USGS Scientific Investigations Report 2010-5102, http://pubs.usgs.gov/sir/2010/5102/.

- Hydraulic conductivity (K) = 136 feet per day (March 2016 Weaver CSI Report).
- Basin size = 16 acres or 696,960 square feet (March 2016 Weaver CSI Report).
- Aquifer thickness = 70 feet (March 2016 Weaver CSI Report).

The mounding analysis indicates a maximum groundwater mound of approximately one (1) foot after 1,000 days of continuous, uninterrupted groundwater percolation. AECOM's mounding analysis is conservative because it assumes continuous, uninterrupted (steady-state) percolation of the maximum available water, rather than the variable and/or intermittent flow that actually occurs. Additionally, the analysis is conservative in that the results do not include mounding dissipation that would occur during times of diminished or no percolation, assume that all water discharged from the pond system reaches the water table at the percolation field, and do not account for other water losses such as evapotranspiration, losses to the unsaturated zone, or losses to the coolant process which could significantly diminish the quantity of water reaching the groundwater table.

The height of groundwater mounding associated with AMT's pond system appears to be relatively small, and is less than the magnitude of natural fluctuation/variation observed over one calendar year of groundwater level observation. According to the Weaver data, the observed fluctuation was approximately three (3) feet in the vicinity of the percolation field. AECOM's finding is consistent with groundwater flow conditions depicted in Site groundwater contour maps produced by Weaver, and suggests that unsaturated flow conditions exist beneath the percolation field. Groundwater contour maps developed by Weaver and AECOM's mounding analysis indicate that mounding is not significant, any potential leakage from the pond system is not sufficient to alter groundwater flow conditions, and associated impacts on existing groundwater contamination are unlikely.

III. CONCLUSION

In conclusion, the analytical and hydraulic information AECOM reviewed indicates the wastewater pond system is not a material contributor of chlorinated solvents or metals to shallow groundwater, nor is the water treatment system the likely source of contamination at the Site. Indeed, historical laboratory data for pond system water used as the basis for previous permitting show either non-detections or low concentrations for the specific constituents of potential concern in shallow groundwater at the Site.

Moreover, the Weaver groundwater contour maps and the mounding analysis indicate mounding is not significant, and associated impacts from AMT's pond system on existing groundwater contamination are unlikely.

Based on the information exchanged with Illinois EPA in this matter and that which is provided in the Weaver CSI Report, our view is that there is no legal or technical basis for Illinois EPA to deny AMT a renewal of the Permit. To the extent that Illinois EPA remains concerned about the impacts of the AMT plant's water treatment system, further investigation or inquiry relating to the system are properly performed under the Consent Order that 300 West and AMT will enter into with the State (as alluded to earlier, investigation activities are already subject to a pre-existing legal agreement). Hence, AMT requests that Illinois EPA proceed in processing an updated renewal application for the Permit and grant the Permit.

We trust the information provided herein is sufficient to address Illinois EPA's information needs, and are available to discuss any additional questions or concerns as well as the next steps to take in this matter. AMT intends to resubmit its application for renewal of the Permit for the Marengo plant, and looks forward to resolving Illinois EPA's concerns regarding the renewal.

Very truly yours,

Thor W. Ketzback

TWK:lac
Enclosure

cc: Nadine Marion – Arnold Magnetic Technologies
Darin LeCrone, P.E. – Illinois Environmental Protection Agency
Julie S. Johnson – AECOM Technical Services, Inc.

Attachment 1

Prior Pond Outfall Analytical Data

This Agency is authorized to require this information under Illinois Revised Statutes, 1979, Chapter 111 1/2, Section 1039. Disclosure of this information is required under that section. Failure to do so may prevent this form from being processed and could result in your application being denied.

For IEPA Use:

Log #

Date Received:

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF WATER POLLUTION CONTROL
PERMIT SECTION
Springfield, Illinois 62794-9276

SCHEDULE N WASTE CHARACTERISTICS

1 Name of Project: Arnold Magnetic Technologies - Arnold Engineering

2 FLOW DATA

	EXISTING	PROPOSED-DESIGN
2.1 Average Flow (gpd)	163,030 gpd	NA
2.2 Maximum Daily Flow (gpd)	217,333 gpd	NA
2.3 TEMPERATURE		

Time of Year	Avg. Intake Temp. F	Avg. Effluent Temp.F	Max Effluent Temp. F.	Max. Temp Outside Mixing Zone F
SUMMER	NA	NA	NA	NA
WINTER	NA	NA	NA	NA

2.4 Minimum 7-day, 10-year flow: NA cfs NA MGD

2.5 Dilution Ratio: NA : NA

2.6 Stream flow rate at time of sampling: NA cfs NA MGD

3 CHEMICAL CONSTITUENT — Existing Permitted Conditions X ; Existing Conditions ☐ ; Proposed Permitted Conditions ☐

Type of Sample: X grab (time of collection) 10/18/2010, 10/19/2010, 11/18/2010, 12/21/2010

☐ composite (number of samples per day) See below

Historical metals and VOC data

Single 24-hr composite (10/18/2010) for all reported values except total phenols, VOCs, TRC, oil & grease, total cyanide, pH and mercury

(see instructions for analyses required)

CONSTITUENT	RAW WASTE (mg/l)	TREATED EFFLUENT Avg. (mg/l) Max.	UPSTREAM (mg/l)	DOWNSTREAM SAMPLES (mg/l)
Ammonia Nitrogen (as N)	< 0.2†	<0.2†	NA	NA
Arsenic (total)	<0.045	0.046‡	NA	NA
Barium	0.12	0.064	NA	NA
Boron	0.17†	0.16‡	NA	NA
BOD_5	<2.0**	<2.0**	NA	NA
Cadmium	<0.0050	<0.0050	NA	NA
Carbon Chloroform Extract	see TOC Dup	see TOC Dup	NA	NA
Chloride	160	160	NA	NA
Chromium (total)	<0.01	<0.01	NA	NA
Chromium (total trivalent)	NA	NA	NA	NA
Copper	<0.018	<0.018	NA	NA
Cyanide (total)	<0.0054	<0.0054	NA	NA
Dissolved Oxygen	NA	NA	NA	NA
Fecal Coliform	NA	NA	NA	NA
Fluoride	<0.2	<0.2	NA	NA
Hardness (as Ca CO_3)	280	180	NA	NA
Iron (total)	0.50	0.54	NA	NA
Lead	<0.016	<0.018	NA	NA
Manganese	0.0045	0.005	NA	NA
MBAS	<0.12	<0.12	NA	NA
Mercury	<0.000065	<0.000065	NA	NA
Nickel	0.088	0.1	NA	NA
Nitrates (as N)	0.17‡	<.024	NA	NA
Oil & Grease (hexane solubles or equivalent)	0.9‡	<0.87	NA	NA
Organic Nitrogen (as N)	<0.25	<0.25	NA	NA
pH	6.6	8.54	NA	NA
Phenols	0.0075	0.00845 (avg), 0.014 (max)	NA	NA
Phosphorous (as P)	120	150	NA	NA
Radioactivity	NA	NA	NA	NA
Selenium	<0.044	<0.044	NA	NA
Silver	<0.0037	<0.0037	NA	NA
Sulfate	12	12	NA	NA
Total Suspended Solids	4	3‡	NA	NA
Total Dissolved Solids	730	700	NA	NA
Zinc	<0.002†	<0.002†	NA	NA
Others	see attached	see attached	NA	NA

† Analyte detected in method blank
‡ Result between MDL and LOQ and is therefore less certain.
* Result less than RL but greater than MDL. Value is estimated.
** Oxygen depletion less than 2 mg/l. Result is estimated.
Note: All metals are reported as "Total"

Table of Other Inorganic Compounds and Remaining Conventional Parameters

CONSTITUENT	RAW WASTE (mg/l)	TREATED EFFLUENT Avg. (mg/l) Max.	UPSTREAM (mg/l)	DOWNSTREAM SAMPLES (mg/l)
TOC Dup	6.5	1.9	NA	NA
COD	17†	<11	NA	NA
TKN	<0.25	<0.25	NA	NA
TRC	<0.016	0.1	NA	NA
Aluminum	<0.15	<0.15	NA	NA
Antimony	0.088	<0.042	NA	NA
Beryllium	<0.005	<0.005	NA	NA
Cobalt	0.034	0.04	NA	NA
Magnesium	36	36	NA	NA
Molybdenum	0.0068	0.0069	NA	NA
Thallium	<0.017	<0.017	NA	NA
Tin	<0.00061	<0.00061	NA	NA
Titanium	<0.002	<0.002	NA	NA
Bromide	<1.0	<1.0	NA	NA
Sulfide	<0.2	<0.2	NA	NA

† Analyte detected in method blank
‡ Result between MDL and LOQ and is therefore less certain.
* Result less than RL but greater than MDL. Value is estimated.
** Oxygen depletion less than 2 mg/l. Result is estimated.
Note: All metals are reported as "Total"

Table of SVOCs

CONSTITUENT	RAW WASTE (ug/l)	TREATED EFFLUENT Avg. (ug/l) Max.	UPSTREAM (ug/l)	DOWNSTREAM SAMPLES (ug/l)
1,2,4-Trichlorobenzene	<1.4	<1.4	NA	NA
1,2-Dichlorobenzene	<1.2	<1.2	NA	NA
1,2-Diphenylhydrazine	<1.4	<1.4	NA	NA
1,3-Dichlorobenzene	<1.3	<1.3	NA	NA
1,4-Dichlorobenzene	<1.3	<1.3	NA	NA
2,4,6-Trichlorophenol	<1.1	<1.1	NA	NA
2,4-Dichlorophenol	<1.3	<1.3	NA	NA
2,4-Dimethylphenol	<1.6	<1.6	NA	NA
2,4-Dinitrophenol	<8.1	<8.1	NA	NA
2,4-Dinitrotoluene	<1.5	<1.5	NA	NA
2,6-Dinitrotoluene	<1.3	<1.3	NA	NA
2-Chloronaphthalene	<1.4	<1.4	NA	NA
2-Chlorophenol	<1.1	<1.1	NA	NA
2-Nitrophenol	<1.2	<1.2	NA	NA
3,3'-Dichlorobenzidine	<1.3	<1.3	NA	NA
4,6-Dinitro-o-cresol	<5.0	<5.0	NA	NA
4-Bromophenyl phenyl ether	<1.4	<1.4	NA	NA
4-Chlorophenyl phenyl ether	<1.3	<1.3	NA	NA
4-Nitrophenol	<3.6	<3.6	NA	NA
Acenaphthene	<1.5	<1.5	NA	NA
Acenaphthylene	<1.5	<1.5	NA	NA
Anthracene	<1.4	<1.4	NA	NA
Benzidine	<10	<10	NA	NA
Benzo[a]anthracene	<1.1	<1.1	NA	NA
Benzo[a]pyrene	<1.2	<1.2	NA	NA
Benzo[b]fluoranthene	<1.1	<1.1	NA	NA
Benzo[g,h,i]perylene	<1.4	<1.4	NA	NA
Benzo[k]fluoranthene	<1.4	<1.4	NA	NA
bis (2-chloroisopropyl) ether	<1.4	<1.4	NA	NA
Bis(2-chloroethoxy)methane	<1.4	<1.4	NA	NA
Bis(2-ethylhexyl) phthalate	6.1*	<1.1	NA	NA
Butyl benzyl phthalate	<1.3	<1.3	NA	NA
Chrysene	<1.3	<1.3	NA	NA
Dibenz(a,h)anthracene	<1.4	<1.4	NA	NA
Diethyl phthalate	<1.3	<1.3	NA	NA
Dimethyl phthalate	<1.2	<1.2	NA	NA
Di-n-butyl phthalate	<1.2	<1.2	NA	NA
Di-n-octyl phthalate	<1.6	<1.6	NA	NA
Fluoranthene	<1.4	<1.4	NA	NA
Fluorene	<1.6	<1.6	NA	NA
Hexachlorobenzene	<1.3	<1.3	NA	NA
Hexachlorobutadiene	<1.5	<1.5	NA	NA
Hexachlorocyclopentadiene	<1.3	<1.3	NA	NA
Hexachloroethane	<1.2	<1.2	NA	NA
Indeno[1,2,3-cd]pyrene	<1.3	<1.3	NA	NA
Isophorone	<1.4	<1.4	NA	NA
Naphthalene	<1.4	<1.4	NA	NA
Nitrobenzene	<1.3	<1.3	NA	NA
N-Nitrosodimethylamine	<5.2	<5.2	NA	NA
N-Nitrosodi-n-propylamine	<1.6	<1.6	NA	NA
N-Nitrosodiphenylamine	<1.8	<1.8	NA	NA
p-Chloro-m-cresol	<1.4	<1.4	NA	NA
Pentachlorophenol	<7.5	<7.5	NA	NA
Phenanthrene	<1.4	<1.4	NA	NA
Pyrene	<1.4	<1.4	NA	NA

† Analyte detected in method blank
‡ Result between MDL and LOQ and is therefore less certain.
* Result less than RL but greater than MDL. Value is estimated.
** Oxygen depletion less than 2 mg/l. Result is estimated.
Note: All metals are reported as "Total"

Table of VOCs

CONSTITUENT	RAW WASTE (ug/l)	TREATED EFFLUENT Avg. (ug/l) Max.	UPSTREAM (ug/l)	DOWNSTREAM SAMPLES (ug/l)
Benzene	<0.2	<0.2	NA	NA
Bromodichloromethane	<0.2	<0.2	NA	NA
Bromoform	<0.2	<0.2	NA	NA
Bromomethane	<0.5	<0.5	NA	NA
Carbon Tetrachloride	<0.8	<0.8	NA	NA
Chlorobenzene	<0.2	<0.2	NA	NA
Chloroethane	<1.0	<1.0	NA	NA
Chloroform	4.0	4.2	NA	NA
Chloromethane	<0.3	<0.3	NA	NA
Chlorodibromomethane	<0.2	<0.2	NA	NA
1,1-Dichloroethane	<0.5	<0.5	NA	NA
1,2-Dichloroethane	<0.5	<0.5	NA	NA
1,1-Dichloroethene	<0.5	<0.5	NA	NA
cis-1,2-Dichloroethene	<0.5	<0.5	NA	NA
trans-1,2-Dichloroethene	<0.5	<0.5	NA	NA
1,2-Dichloropropane	<0.5	<0.5	NA	NA
Ethylbenzene	<0.5	<0.5	NA	NA
Methylene Chloride	<1.0	<1.0	NA	NA
Styrene	<0.5	<0.5	NA	NA
1,1,2,2-Tetrachloroethane	<0.2	<0.2	NA	NA
Tetrachloroethene	<0.5	<0.5	NA	NA
Toluene	<0.5	<0.5	NA	NA
1,1,1-Trichloroethane	<0.5	<0.5	NA	NA
1,1,2-Trichloroethane	<0.25	<0.25	NA	NA
Trichloroethene	<0.2	<0.2	NA	NA
Trichlorofluoromethane	<0.5	<0.5	NA	NA
Vinyl Chloride	<0.2	<0.2	NA	NA
Total Xylenes	<0.5	<0.5	NA	NA

† Analyte detected in method blank
‡ Result between MDL and LOQ and is therefore less certain.
* Result less than RL but greater than MDL. Value is estimated.
** Oxygen depletion less than 2 mg/l. Result is estimated.
Note: All metals are reported as "Total"

MONTHLY SUMMARY OF GROUNDWATER SAMPLING RESULTS

THE ARNOLD ENGINEERING CO.
MARENGO, IL

Historical VOC data

	Monitoring Well #1						Monitoring Well #2						Monitoring Well #3						Outfall Pond 4					
	111 TRICHLOROETHANE	TETRACHLOROETHENE	TRICHLOROETHENE	DISSOLVED SOLIDS	NICKEL	pH	111 TRICHLOROETHANE	TETRACHLOROETHENE	TRICHLOROETHENE	DISSOLVED SOLIDS	NICKEL	pH	111 TRICHLOROETHANE	TETRACHLOROETHENE	TRICHLOROETHENE	DISSOLVED SOLIDS	NICKEL	pH	111 TRICHLOROETHANE	TETRACHLOROETHENE	TRICHLOROETHENE	DISSOLVED SOLIDS	NICKEL	pH
LIMITS	200	5	5	1200	0.1	6.5-9	200	5	5	1200	0.1	6.5-9	200	5	5	1200	0.1000	6.5-9	NO LIMIT - 2'NDARY WATER CLASS					
Date	ug/l	ug/l	ug/l	mg/l	mg/l		ug/l	ug/l	ug/l	mg/l	mg/l		ug/l	ug/l	ug/l	mg/l	mg/l		ug/l	ug/l	ug/l	mg/l	mg/l	
a 1/10/01	<1.0	<1.0	<1.0	240	<0.050		<1.0	<1.0	<1.0	270	0.059		2100	1.3	4.7	610	<0.050		<1.0	2.2	<1.0	476	0.405	
2/2/2001	<1.0	<1.0	<1.0	368	<0.050		<1.0	<1.0	<1.0	366	<0.050		1600	<20	<20	672	<0.050		<1.0	1.2	<1.0	527	1.02	
3/7/2001	<1.0	<1.0	<1.0	340	<0.050		<1.0	<1.0	<1.0	412	<0.050		1700	<10	<10	542	<0.050		<1.0	<1.0	<1.0	504	1.2	
4/2/2001	<1.0	<1.0	<1.0	336	<0.050		<1.0	<1.0	<1.0	414	<0.050		1200	1.4	3.8	684	<0.050		<1.0	<1.0	<1.0	534	2.14	
5/2/2001	<1.0	<1.0	<1.0	336	<0.050		<1.0	<1.0	<1.0	454	<0.050		1200	1.2	3.7	658	<0.050		<1.0	<1.0	<1.0	532	1	
6/11/2001	<1.0	<1.0	<1.0	348	<0.050		<1.0	<1.0	<1.0	484	<0.050		1800	<10	<10	664	<0.050		<1.0	<1.0	<1.0	508	0.47	
7/10/2001	<1.0	<1.0	<1.0	324	<0.050		<1.0	<1.0	<1.0	464	0.063		2800	<10	<10	662	<0.050		<1.0	<1.0	<1.0	518	0.38	
8/16/2001	<1.0	<1.0	<1.0	352	<0.050		<1.0	<1.0	<1.0	378	0.059		3000	<10	<10	663	<0.050		<1.0	<1.0	<1.0	916	0.25	
9/7/2001	<1.0	<1.0	<1.0	376	<0.050		<1.0	<1.0	<1.0	448	<0.050		2200	1.3	4.6	703	<0.050		<1.0	<1.0	<1.0	462	0.333	
10/2/2001	<1.0	<1.0	<1.0	400	<0.050		<1.0	<1.0	<1.0	454	0.051		2200	<20	<20	656	<0.050		<1.0	<1.0	<1.0	542	0.645	
11/16/2001	<1.0	<1.0	<1.0	350	<0.050		<1.0	<1.0	<1.0	428	0.055		1900	1.1	4.8	646	<0.050		<1.0	<1.0	<1.0	638	0.352	
12/11/2001	<2.0	<2.0	<2.0	385	<0.010		<2.0	<2.0	<2.0	428	0.071		1750	<2.0	4.8	662	0.0250		<2.0	<2.0	<2.0	670	0.298	
1/11/2002	<2.0	<2.0	<2.0	380	0.013		<2.0	<2.0	<2.0	390	0.059		1250	<2.0	2.8	655	0.0500		<2.0	<2.0	<2.0	634	0.431	
2/11/2002	<1.0	<1.0	<1.0	396	0.021		<1.0	<1.0	<1.0	426	0.062		789	1.3	3.6	708	0.0290		<1.0	<1.0	<1.0	646	0.325	
3/7/2002	<2.0	<2.0	<2.0	375	0.018		<2.0	<2.0	<2.0	414	0.055		505	<2.0	2.8	635	0.0290		<2.0	<2.0	<2.0	691	0.466	
4/22/2002	<2.0	<2.0	<2.0	346	0.019		<2.0	<2.0	<2.0	457	0.099		271	<2.0	<2.0	605	0.0320		<2.0	<2.0	<2.0	698	0.431	
5/21/2002	<2.0	<2.0	<2.0	356	<0.010		<2.0	<2.0	<2.0	540	0.111		203	<2.0	<2.0	593	0.0130		<2.0	<2.0	<2.0	851	0.776	
6/7/2002	<2.0	<2.0	<2.0	340	<0.010		<2.0	<2.0	<2.0	281	0.026		170	<2.0	<2.0	560	0.0430		<2.0	<2.0	<2.0	630	0.6	
7/12/2002	<2.0	<2.0	<2.0	321	<0.010		<2.0	<2.0	<2.0	487	0.111		140	<2.0	<2.0	523	0.0350		<2.0	<2.0	<2.0	608	0.336	
8/2/2002	<1.0	<1.0	<1.0	335	0.072		<1.0	<1.0	<1.0	551	0.063		87	<1.0	<1.0	536	0.0220		<1.0	<1.0	<1.0	20600	0.386	
9/6/2002	<1.0	<1.0	<1.0	345	<0.010		<1.0	<1.0	<1.0	400	0.037		76	<1.0	<1.0	592	0.0190		<1.0	<1.0	<1.0	886	0.701	
10/11/2002	<1.0	<1.0	<1.0	354	0.029		<1.0	<1.0	<1.0	566	0.198		192	<1.0	<1.0	630	0.0400		<1.0	<1.0	<1.0	738	0.306	
11/12/2002	<1.0	<1.0	<1.0	347	0.011		<1.0	<1.0	<1.0	613	0.14		188	<1.0	<1.0	602	0.0130		<1.0	<1.0	<1.0	964	0.298	
12/16/2002	<1.0	<1.0	<1.0	357	<0.010		<1.0	<1.0	<1.0	696	0.169		617	<1.0	<1.0	637	0.0230		<1.0	<1.0	<1.0	703	0.273	
1/10/2003	<1.0	<1.0	<1.0	360	0.015		<1.0	<1.0	<1.0	744	0.101		636	1.1	1.1	676	0.0290		<1.0	<1.0	<1.0	520	0.22	
2/7/2003	<1.0	<1.0	<1.0	288	0.013		<1.0	<1.0	<1.0	704	0.047		310	1.2	<1.0	576	<0.010		<1.0	<1.0	<1.0	564	0.218	
3/21/2003	<1.0	<1.0	<1.0	370	0.023		<1.0	<1.0	<1.0	675	0.055		62	2.3	<1.0	48	0.1280		<1.0	<1.0	<1.0	611	0.247	
4/11/2003	<1.0	<1.0	<1.0	384	0.019		<1.0	<1.0	<1.0	688	0.056		42	2.2	<1.0	650	0.1160		<1.0	<1.0	<1.0	792	0.227	
5/9/2003	<1.0	<1.0	<1.0	396	0.01		<1.0	<1.0	<1.0	699	0.102		83	<1.0	<1.0	564	0.0790		<1.0	<1.0	<1.0	682	0.262	
6/7/2003	<1.0	<1.0	<1.0	364	0.033		<1.0	<1.0	<1.0	518	0.081		87	2.7	<1.0	583	0.0760		<1.0	<1.0	<1.0	750	0.243	

MONTHLY SUMMARY OF GROUNDWATER SAMPLING RESULTS

THE ARNOLD ENGINEERING CO.
MARENGO, IL

	Monitoring Well #1						Monitoring Well #2						Monitoring Well #3						Outfall Pond 4					
	111 TRICHLOROETHANE	TETRACHLOROETHENE	TRICHLOROETHENE	DISSOLVED SOLIDS	NICKEL	pH	111 TRICHLOROETHANE	TETRACHLOROETHENE	TRICHLOROETHENE	DISSOLVED SOLIDS	NICKEL	pH	111 TRICHLOROETHANE	TETRACHLOROETHENE	TRICHLOROETHENE	DISSOLVED SOLIDS	NICKEL	pH	111 TRICHLOROETHANE	TETRACHLOROETHENE	TRICHLOROETHENE	DISSOLVED SOLIDS	NICKEL	pH
LIMITS	200	5	5	1200	0.1	6.5-9	200	5	5	1200	0.1	6.5-9	200	5	5	1200	0.1000	6.5-9	NO LIMIT - 2'NDARY WATER CLASS					
Date	ug/l	ug/l	ug/l	mg/l	mg/l		ug/l	ug/l	ug/l	mg/l	mg/l		ug/l	ug/l	ug/l	mg/l	mg/l		ug/l	ug/l	ug/l	mg/l	mg/l	
7/15/2003	<1.0	<1.0	<1.0	379	0.028		<1.0	<1.0	<1.0	585	0.05		29	1.2	<1.0	514	0.0180		<1.0	<1.0	<1.0	778	0.701	
8/15/2003	<1.0	<1.0	<1.0	402	<0.010		<1.0	<1.0	<1.0	622	0.142		47	3	<1.0	857	0.0180		<1.0	<1.0	<1.0	499	0.45	
9/10/2003	<1.0	<1.0	<1.0	742	0.024		<1.0	<1.0	<1.0	751	0.059		48	3.4	<1.0	500	0.0320		<1.0	<1.0	<1.0	1090	0.409	
10/13/2003	<1.0	<1.0	<1.0	490	0.115		<1.0	<1.0	<1.0	790	0.139		33	3.7	<1.0	509	0.0270		<1.0	<1.0	<1.0	948	0.325	
11/10/2003	<1.0	<1.0	<1.0	410	0.026		<1.0	<1.0	<1.0	770	0.062		24	3.3	<1.0	486	0.0280		<1.0	<1.0	<1.0	831	0.271	
12/12/2003	<1.0	<1.0	<1.0	454	0.092		<1.0	<1.0	<1.0	862	0.046		18	5.7	<1.0	500	0.0400		<1.0	<1.0	<1.0	700	0.162	
1/15/2004	<1.0	<1.0	<1.0	480	0.052		<1.0	<1.0	<1.0	840	0.044		23	6.5	<1.0	480	0.0270		<1.0	<1.0	<1.0	800	0.149	
2/9/2004	<1.0	<1.0	<1.0	424	0.088		<1.0	<1.0	<1.0	740	0.059		23	5.1	<1.0	468	0.0250		<1.0	<1.0	<1.0	844	0.142	
3/5/2004	<1.0	<1.0	<1.0	1580	0.071		<1.0	<1.0	<1.0	261	0.028		20	6.7	<1.0	63	0.0180		<1.0	<1.0	<1.0	25	0.166	
4/2/2004	<1.0	<1.0	<1.0	405	0.016		<1.0	<1.0	<1.0	584	0.041		17	6.3	<1.0	472	0.0250		<1.0	<1.0	<1.0	908	0.266	
5/7/2004	<1.0	<1.0	<1.0	356	0.013		<1.0	<1.0	<1.0	670	0.064		24	6.7	<1.0	480	0.0630		<1.0	<1.0	<1.0	1070	0.368	
6/11/2004	<1.0	<1.0	<1.0	290	<0.010		<1.0	<1.0	<1.0	428	0.039		15	4.8	<1.0	544	0.0130		<1.0	<1.0	<1.0	748	0.219	
7/13/2004	2.5	<1.0	<1.0	611	0.07		<1.0	<1.0	<1.0	634	0.08		18	5.1	<1.0	522	0.1100		<1.0	<1.0	<1.0	656	0.201	
8/25/2004	<1.0	<1.0	<1.0	372	0.045		<1.0	<1.0	<1.0	734	0.155		21	6	<1.0	522	0.0850		<1.0	<1.0	<1.0	1030	0.424	
9/3/2004	<1.0	<1.0	<1.0	332	0.087		<1.0	<1.0	<1.0	704	0.184		18.7	6.5	<1.0	464	0.0800		<1.0	<1.0	<1.0	852	0.44	
10/18/2004	<1.0	<1.0	<1.0	280	<1.0	7.47	<1.0	<1.0	<1.0	736	0.083	6.80	18.9	6.9	<1.0	524	0.0260	7.11	<1.0	<1.0	<1.0	924	0.262	6.68
11/26/2004	<1.0	<1.0	<1.0	340	0.0074	7.40	<1.0	<1.0	<1.0	780	0.065	6.70	17	9.2	<1.0	470	0.0200	7.10	---	---	---	---	---	---
12/20/2004	<1.0	<1.0	<1.0	340	0.0094	7.30	<1.0	<1.0	<1.0	790	0.038	6.80	16	8.7	<1.0	510	0.0160	7.00	<1.0	<1.0	<1.0	750	0.14	6.60
1/25/2005	<1.0	<1.0	<1.0	400	0.093	ND	<1.0	<1.0	<1.0	790	0.038	ND	14	9	<1.0	500	0.0190	ND	<1.0	<1.0	<1.0	660	0.15	ND
2/28/2005	<5.0	<5.0	<5.0	352	<0.139	7.30	<5.0	<5.0	<5.0	710	<0.139	6.80	14.4	7.83	<5.0	458	<0.139	7.00	<5.0	<5.0	<5.0	745	0.235	5.90
3/29/2005	<5.0	<5.0	<5.0	346	<0.046	7.30	<5.0	<5.0	<5.0	696	0.074	6.80	16.1	10.7	<5.0	491	<0.046	7.20	<5.0	<5.0	<5.0	815	0.175	6.20
4/25/2005	6.68	<2.0	<2.0	325	<0.0125	7.15	3.41	<2.0	<2.0	681	0.0781	6.85	20	10.4	<2.0	490	<0.0125	7.54	<2.0	<2.0	<2.0	873	0.235	5.29
5/12/2005	<2.0	<2.0	<7.0	335	<0.0125	7.28	3.37	<2.0	<7.0	666	.0.916	7.58	26.6	12.6	<8.0	484	0.0197	7.33	<2.0	<2.0	<2.0	869	0.23	ND
6/9/2005	<2.0	<2.0	<2.0	369	<0.0125	7.51	<2.0	<2.0	<2.0	669	0.0849	6.87	14.1	10.4	<2.0	489	0.0223	7.06	<2.0	<2.0	<2.0	992	0.265	5.56
7/7/2005	<5.0	<5.0	<5.0	350	0.029	7.30	<5.0	<5.0	<5.0	760	0.034	6.80	12	10	<5.0	440	0.0260	7.00	<5.0	<5.0	<5.0	1000	0.32	6.40
8/26/2005	<2.0	<5.0	<5.0	236	0.0424	7.13	<2.0	<5.0	<5.0	792	0.0218	6.55	7.8	9.5	<5.0	418	0.0208	6.80	<2.0	<5.0	<5.0	824	0.22	6.07
9/16/2005	<2.0	<5.0	<5.0	328	0.0258	7.09	<2.0	<5.0	<5.0	816	0.0352	6.52	8.3	10.4	<5.0	422	0.0362	6.92	<2.0	<5.0	<5.0	924	0.285	6.18
10/14/2005	<2.0	<5.0	<5.0	324	0.0113	7.24	<2.0	<5.0	<5.0	814	0.0264	6.57	6.6	8.8	<5.0	390	0.0322	6.95	<2.0	<5.0	<5.0	800	0.191	6.66
11/14/2005	<2.0	<5.0	<5.0	292	<.0050	7.19	<2.0	<5.0	<5.0	780	0.0322	6.54	7.4	11.9	<5.0	378	0.0266	7.02	<2.0	<5.0	<5.0	928	0.156	5.95
12/19/2005	<2.0	<5.0	<5.0	340	0.0359	7.15	<2.0	<5.0	<5.0	782	0.029	6.63	7.1	10.2	<5.0	418	0.0378	6.96	<2.0	<5.0	<5.0	972	0.124	4.65

MONTHLY SUMMARY OF GROUNDWATER SAMPLING RESULTS

THE ARNOLD ENGINEERING CO.
MARENGO, IL

	Monitoring Well #1						Monitoring Well #2						Monitoring Well #3						Outfall Pond 4					
	111 TRICHLOROETHANE	TETRACHLOROETHENE	TRICHLOROETHENE	DISSOLVED SOLIDS	NICKEL	pH	111 TRICHLOROETHANE	TETRACHLOROETHENE	TRICHLOROETHENE	DISSOLVED SOLIDS	NICKEL	pH	111 TRICHLOROETHANE	TETRACHLOROETHENE	TRICHLOROETHENE	DISSOLVED SOLIDS	NICKEL	pH	111 TRICHLOROETHANE	TETRACHLOROETHENE	TRICHLOROETHENE	DISSOLVED SOLIDS	NICKEL	pH
LIMITS	200	5	5	1200	0.1	6.5-9	200	5	5	1200	0.1	6.5-9	200	5	5	1200	0.1000	6.5-9	NO LIMIT - 2'NDARY WATER CLASS					
Date	ug/l	ug/l	ug/l	mg/l	mg/l		ug/l	ug/l	ug/l	mg/l	mg/l		ug/l	ug/l	ug/l	mg/l	mg/l		ug/l	ug/l	ug/l	mg/l	mg/l	
1/17/2006	<2.0	<5.0	<5.0	348	0.0102	6.97	<2.0	<5.0	<5.0	786	0.0162	6.44	8.2	12.8	<5.0	394	0.0405	6.90	<2.0	<5.0	<5.0	746	0.132	6.07
2/10/2006	<2.0	<5.0	<5.0	372	0.0182	7.00	<2.0	<5.0	<5.0	748	0.0362	6.25	8	12.1	<5.0	394	0.0293	6.62	<2.0	<5.0	<5.0	912	0.137	3.75
3/10/2006	<2.0	<5.0	<5.0	316	0.0144	6.58	<2.0	<5.0	<5.0	752	0.0344	6.31	8.5	12.6	<5.0	398	0.0537	6.63	<2.0	<5.0	<5.0	726	0.144	4.88
4/10/2006	<2.0	<5.0	<5.0	404	<0.0050	6.64	<2.0	<5.0	<5.0	696	0.026	6.29	7.9	11.8	<5.0	378	0.0253	6.54	<2.0	<5.0	<5.0	722	0.0997	6.18
5/15/2006	<2.0	<5.0	<5.0	326	0.0087	6.62	<2.0	<5.0	<5.0	700	0.0338	6.04	8	9.7	<5.0	446	0.0268	6.36	<2.0	<5.0	<5.0	648	0.0493	6.15
6/12/2006	<2.0	<5.0	<5.0	376	0.0268	6.60	<2.0	<5.0	<5.0	680	0.0424	6.08	9.6	11.5	<5.0	498	0.0936	6.42	<2.0	<5.0	<5.0	672	0.0991	6.52
7/14/2006	<2.0	<5.0	<5.0	408	<.0050	6.46	<2.0	<5.0	<5.0	700	0.0304	5.76	8.7	14.6	<5.0	462	0.0207	6.33	<2.0	<5.0	<5.0	708	0.0624	6.11
8/22/2006	<2.0	<5.0	<5.0	290	0.0172	7.26	<2.0	<5.0	<5.0	456	0.0526	6.82	9	13.4	<5.0	458	0.0357	7.05	<2.0	<5.0	<5.0	668	0.0805	7.01
9/15/2006	<2.0	<5.0	<5.0	318	0.0077	7.28	<2.0	<5.0	<5.0	602	0.0259	6.78	6.9	12.0	<5.0	474	0.0355	6.90	<2.0	<5.0	<5.0	610	0.0507	6.88
10/13/2006	<2.0	<5.0	<5.0	364	0.0175	7.53	<2.0	<5.0	<5.0	640	0.0219	6.56	8.7	13.9	<5.0	490	0.0183	7.23	<2.0	<5.0	<5.0	662	0.0579	6.17
11/13/2006	<2.0	<5.0	<5.0	358	0.0188	6.85	<2.0	<5.0	<5.0	624	0.022	6.21	9.31	13.9	<5.0	452	0.0329	6.78	<2.0	<5.0	<5.0	672	0.0464	6.38
12/15/2006	<2.0	<5.0	<5.0	374	0.0183	6.79	<2.0	<5.0	<5.0	550	0.0319	6.89	11.3	<5.0	<5.0	424	0.0211	6.91	<2.0	<5.0	<5.0	552	0.0401	6.75
1/12/2007	<2.0	<5.0	<5.0	394	0.019	7.17	<2.0	<5.0	<5.0	600	0.0765	6.71	10.8	15.5	<5.0	420	0.0305	7.33	<2.0	<5.0	<5.0	556	0.0506	7.01
2/19/2007	<2.0	<5.0	<5.0	462	0.0412	7.30	<2.0	<5.0	<5.0	538	0.0304	6.72	12.1	18.0	<5.0	428	<0.005	6.54	<2.0	<5.0	<5.0	500	0.0393	7.18
3/16/2007	<2.0	<5.0	<5.0	404	0.024	7.24	2.2	<5.0	<5.0	580	0.0544	6.85	18.8	18.3	<5.0	520	0.0557	6.74	<2.0	<5.0	<5.0	532	0.0497	7.27
3/22/2007	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
4/23/2007	<2.0	<5.0	<5.0	378	0.0322	7.07	<2.0	<5.0	<5.0	626	0.0642	6.82	<2.0	12.2	<5.0	532	0.0416	6.89	<2.0	<5.0	<5.0	604	0.0426	7.55
5/11/2007	<2.0	<5.0	<5.0	364	0.016	7.48	<2.0	<5.0	<5.0	658	0.0975	7.15	13.6	16.0	<5.0	498	0.0589	7.12	<2.0	<5.0	<5.0	592	0.0274	7.54
6/25/2007	<2.0	<5.0	<5.0	346	0.0142	7.43	<2.0	<5.0	<5.0	494	0.082	7.14	12.0	10.3	<5.0	462	0.0380	7.02	<2.0	<5.0	<5.0	614	0.0696	7.5
7/13/2007	<2.0	<5.0	<5.0	296	<0.0050	7.38	<2.0	<5.0	<5.0	492	0.0651	7.12	10.8	16.1	<5.0	466	0.0233	7.03	<2.0	<5.0	<5.0	630	0.0474	6.97
8/10/2007	<2.0	<5.0	<5.0	344	0.0129	7.32	<2.0	<5.0	<5.0	180	0.0072	7.68	12.3	16.1	<5.0	548	0.0238	7.17	<2.0	<5.0	<5.0	620	0.0427	6.78
9/7/2007	<2.0	<5.0	<5.0	318	0.0155	7.23	<2.0	<5.0	<5.0	348	0.0206	7.19	11.2	12.1	<5.0	436	0.0393	7.22	<2.0	<5.0	<5.0	594	0.0707	6.72
10/19/2007	<2.0	<5.0	<5.0	342	0.0139	7.39	<2.0	<5.0	<5.0	546	0.0402	7.23	10.5	14.4	<5.0	540	0.0260	7.12	<2.0	<5.0	<5.0	758	0.060	6.78
11/16/2007	<2.0	<5.0	<5.0	340	0.0059	7.04	4.9	<5.0	<5.0	508	0.0599	6.98	11.7	13.8	<5.0	472	0.0162	7.07	<2.0	<5.0	<5.0	722	0.050	6.08
12/17/2007	<2.0	<5.0	<5.0	446	0.0075	7.04	<2.0	<5.0	<5.0	644	0.0765	6.93	7.9	13.1	<5.0	530	0.0125	6.90	<2.0	<5.0	<5.0	784	0.088	6.18
1/18/2008	<2.0	<5.0	<5.0	386	0.0063	6.57	<2.0	<5.0	<5.0	592	0.0596	7.15	12.4	12.0	<5.0	536	0.0170	6.74	<2.0	<5.0	<5.0	820	0.0794	6.1
2/18/2008	<2.0	<5.0	<5.0	340	0.016	7.14	<2.0	<5.0	<5.0	582	0.0501	7.12	11.4	13	<5.0	510	0.0306	7.24	<2.0	<5.0	<5.0	630	0.0479	6.46
3/24/2008	<2.0	<5.0	<5.0	334	0.0222	6.87	<2.0	<5.0	<5.0	492	0.0314	7	<2.0	12.8	<5.0	552	0.0134	6.86	<2.0	<5.0	<5.0	768	0.0454	5.89
4/18/2008	<2.0	<5.0	<5.0	336	0.012	6.75	<2.0	<5.0	<5.0	520	0.0204	7.16	<2.0	10.5	<5.0	520	0.0211	6.78	<2.0	<5.0	<5.0	652	0.0588	6.38
5/16/2008	<2.0	<5.0	<5.0	292	0.0166	7.11	<2.0	<5.0	<5.0	508	0.0266	7.18	8.3	8.6	<5.0	514	0.0167	6.82	<2.0	<5.0	<5.0	664	0.052	6.48

MONTHLY SUMMARY OF GROUNDWATER SAMPLING RESULTS

THE ARNOLD ENGINEERING CO.
MARENGO, IL

	Monitoring Well #1						Monitoring Well #2						Monitoring Well #3						Outfall Pond 4					
	111 TRICHLOROETHANE	TETRACHLOROETHENE	TRICHLOROETHENE	DISSOLVED SOLIDS	NICKEL	pH	111 TRICHLOROETHANE	TETRACHLOROETHENE	TRICHLOROETHENE	DISSOLVED SOLIDS	NICKEL	pH	111 TRICHLOROETHANE	TETRACHLOROETHENE	TRICHLOROETHENE	DISSOLVED SOLIDS	NICKEL	pH	111 TRICHLOROETHANE	TETRACHLOROETHENE	TRICHLOROETHENE	DISSOLVED SOLIDS	NICKEL	pH
LIMITS	200	5	5	1200	0.1	6.5-9	200	5	5	1200	0.1	6.5-9	200	5	5	1200	0.1000	6.5-9	NO LIMIT - 2'NDARY WATER CLASS					
Date	ug/l	ug/l	ug/l	mg/l	mg/l		ug/l	ug/l	ug/l	mg/l	mg/l		ug/l	ug/l	ug/l	mg/l	mg/l		ug/l	ug/l	ug/l	mg/l	mg/l	
6/19/2008	<2.0	<5.0	<5.0	300	0.00727	7.71	<2.0	<5.0	<5.0	352	0.0165	7.72	9.1	7.5	<5.0	480	0.0128	7.57	<2.0	<5.0	<5.0	698	0.101	7.08
7/29/2008	<2.0	<5.0	<5.0	306	<0.0050	7.37	<2.0	<5.0	<5.0	496	0.0259	7.2	9.7	11.5	<5.0	442	0.0296	7.17	<2.0	<5.0	<5.0	580	0.0851	6.65
8/25/2008	<2.0	<5.0	<5.0	350	0.0094	7.52	<2.0	<5.0	<5.0	610	0.0418	7.04	<2.0	9.5	<5.0	522	0.0422	7.18	<2.0	<5.0	<5.0	720	0.0796	6.38
9/22/2008	<2.0	<5.0	<5.0	382	<0.0050	7.29	<2.0	<5.0	<5.0	558	0.0562	7.03	8	7.4	<5.0	484	0.0176	7.14	<2.0	<5.0	<5.0	654	0.0508	6.67
10/17/2008	<2.0	<5.0	<5.0	354	<0.0050	7.77	<2.0	<5.0	<5.0	514	0.0425	7.26	10.2	9.1	<5.0	512	0.0556	7.26	<2.0	<5.0	<5.0	660	0.0432	6.96
11/24/2008	<2.0	<5.0	<5.0	452	0.00505	7.42	<2.0	<5.0	<5.0	530	0.0511	7.21	18.4	10.8	<5.0	460	0.0234	7.3	<2.0	<5.0	<5.0	600	0.342	7.09
12/30/2008	<2.0	<5.0	<5.0	358	<0.0050	7.55	<2.0	<5.0	<5.0	554	0.053	7.18	16.8	10.6	<5.0	358	0.0281	7.34	<2.0	<5.0	<5.0	524	0.0362	7.16
1/21/2009	<2.0	<5.0	<5.0	374	<0.0050	7.88	<2.0	<5.0	<5.0	552	0.0522	7.66	16.7	12.8	<5.0	474	0.0266	7.53	<2.0	<5.0	<5.0	568	0.0287	7.56
2/23/2009	<2.0	<5.0	<5.0	364	0.0103	7.72	7.5	<5.0	<5.0	520	0.0455	7.3	13.9	12.2	<5.0	470	0.0304	7.48	<2.0	<5.0	<5.0	524	0.0216	7.2
3/20/2008	<2.0	<5.0	<5.0	364	<0.0050	8.02	<2.0	<5.0	<5.0	284	0.0132	7.3	14.6	11.2	<5.0	446	0.0429	7.68	<2.0	<5.0	<5.0	464	0.0312	7.37
4/27/2009	<2.0	<5.0	<5.0	322	0.00677	7.62	<2.0	<5.0	<5.0	500	0.0274	7.4	15.7	11	<5.0	414	0.0335	7.26	<2.0	<5.0	<5.0	520	0.0312	7.1

SEMI-ANNUAL MONITORING REPORT OF THE MONTHLY GROUNDWATER SAMPLING RESULTS

ARNOLD MAGNETIC TECHNOLOGIES
MARENGO, IL
PERMIT NO.: 2006-EO-0690

	Monitoring Well #1						Monitoring Well #2						Monitoring Well #3						Outfall Pond 4					
Permit Parameters	1,1,1- TRICHLOROETHANE	TETRACHLOROETHENE	TRICHLOROETHYLENE	DISSOLVED SOLIDS	NICKEL	pH	1,1,1- TRICHLOROETHANE	TETRACHLOROETHENE	TRICHLOROETHYLENE	DISSOLVED SOLIDS	NICKEL	pH	1,1,1- TRICHLOROETHANE	TETRACHLOROETHENE	TRICHLOROETHYLENE	DISSOLVED SOLIDS	NICKEL	pH	1,1,1- TRICHLOROETHANE	TETRACHLOROETHENE	TRICHLOROETHYLENE	DISSOLVED SOLIDS	NICKEL	pH
Permit Parameter Limits	0.2 mg/l	0.005 mg/l	0.005 mg/l	1,200 mg/l	0.1 mg/l	6.5 - 9.0 SU	0.2 mg/l	0.005 mg/l	0.005 mg/l	1,200 mg/l	0.1 mg/l	6.5 - 9.0 SU	0.2 mg/l	0.005 mg/l	0.005 mg/l	1,200 mg/l	0.1 mg/l	6.5 - 9.0 SU	NO LIMIT - SECONDARY WATER CLASS					
Sample Date	Sample Results Units of Measure						Sample Results Units of Measure						Sample Results Units of Measure						Sample Results Units of Measure					
	mg/l	mg/l	mg/l	mg/l	mg/l	SU	mg/l	mg/l	mg/l	mg/l	mg/l	SU	mg/l	mg/l	mg/l	mg/l	mg/l	SU	mg/l	mg/l	mg/l	mg/l	mg/l	SU
5/15/2009	<0.005	<0.005	<0.005	318	<0.005	7.56	<0.005	<0.005	<0.005	360	0.013	7.47	0.0267	0.0111	<0.005	416	0.0241	7.3	<0.005	<0.005	<0.005	652	0.0441	6.05
6/15/2009	<0.005	<0.005	<0.005	350	<0.0050	7.51	<0.005	<0.005	<0.005	354	0.0133	7.45	0.0274	0.0091	<0.005	474	0.0279	7.18	<0.005	<0.005	<0.005	522	0.0332	7.71
7/10/2009	<0.005	<0.005	<0.005	278	<0.0050	7.38	<0.005	<0.005	<0.005	448	0.0278	7.26	<0.005	<0.005	<0.005	284	0.0198	7.18	<0.005	<0.005	<0.005	474	0.0221	7.8
8/14/2009	<0.005	<0.005	<0.005	352	<0.0050	7.43	<0.005	<0.005	<0.005	412	0.0375	7.13	0.102	0.0085	<0.005	294	0.0237	7.29	<0.005	<0.005	<0.005	496	0.0164	7.74
9/11/2009	<0.005	<0.005	<0.005	380	<0.0050	7.40	<0.005	<0.005	<0.005	478	0.0431	7.15	0.0874	0.0104	<0.005	432	0.0152	7.2	<0.005	<0.005	<0.005	600	0.0339	7.2
10/16/2009	<0.005	<0.005	<0.005	368	<0.0050	7.50	<0.005	<0.005	<0.005	554	0.068	7.14	0.0479	0.0094	<0.005	348	0.0090	7.56	<0.005	<0.005	<0.005	718	0.0557	6.49
11/13/2009	<0.005	<0.005	<0.005	2130	<0.0050	7.35	<0.005	<0.005	<0.005	3300	0.0499	7.1	0.125	0.0111	<0.005	460	0.0360	7.16	<0.005	<0.005	<0.005	2550	0.0482	6.65
12/18/2009	<0.005	<0.005	<0.005	398	<0.0050	7.28	<0.005	<0.005	<0.005	500	0.0682	7.05	0.102	0.0093	<0.005	444	0.0122	7.19	<0.005	<0.005	<0.005	703	0.0664	6.25
1/15/2010	<0.005	<0.005	<0.005	412	<0.0050	7.41	<0.005	<0.005	<0.005	520	0.0555	7.12	0.0469	0.0097	<0.005	432	0.0164	7.26	<0.005	<0.005	<0.005	482	0.0428	6.56
2/12/2010	<0.005	<0.005	<0.005	236	<0.0050	6.97	<0.005	<0.005	<0.005	394	0.0438	7	0.747	0.0128	<0.005	412	0.0087	7.01	<0.005	<0.005	<0.005	560	0.0546	6.11
3/15/2010	<0.005	<0.005	<0.005	302	<0.0050	7.29	<0.005	<0.005	<0.005	482	0.0687	7.09	0.591	0.0132	<0.005	426	0.0192	7.63	<0.005	<0.005	<0.005	674	0.0521	6.43
4/16/2010	<0.005	<0.005	<0.005	376	<0.0050	7.05	<0.005	<0.005	<0.005	472	0.0646	7.07	0.485	0.0116	<0.005	468	0.0314	7.01	<0.005	<0.005	<0.005	698	0.246	6.52
5/14/2010	<0.005	<0.005	<0.005	378	<0.0050	6.55	<0.005	<0.005	<0.005	206	0.0124	7.04	0.432	0.0112	<0.005	464	0.0406	7.09	<0.005	<0.005	<0.005	612	0.114	6.75

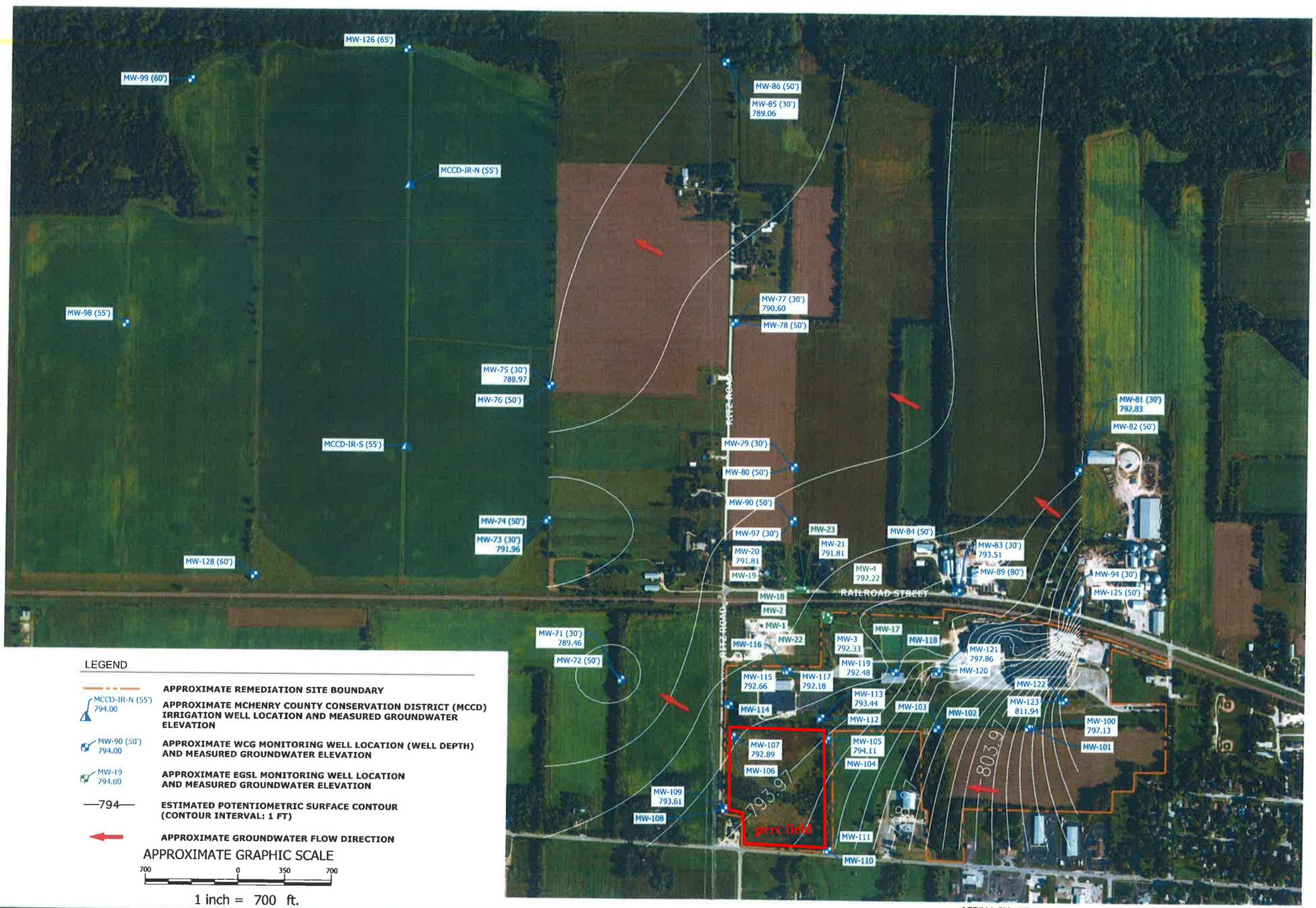
SEMI-ANNUAL MONITORING REPORT OF THE MONTHLY GROUNDWATER SAMPLING RESULTS

ARNOLD MAGNETIC TECHNOLOGIES
MARENGO, IL
PERMIT NO.: 2006-EO-0690

	Monitoring Well #1						Monitoring Well #2						Monitoring Well #3						Outfall Pond 4						
Permit Parameters	1,1,1- TRICHLOROETHANE	TETRACHLOROETHENE	TRICHLOROETHYLENE	DISSOLVED SOLIDS	NICKEL	pH	1,1,1- TRICHLOROETHANE	TETRACHLOROETHENE	TRICHLOROETHYLENE	DISSOLVED SOLIDS	NICKEL	pH	1,1,1- TRICHLOROETHANE	TETRACHLOROETHENE	TRICHLOROETHYLENE	DISSOLVED SOLIDS	NICKEL	pH	1,1,1- TRICHLOROETHANE	TETRACHLOROETHENE	TRICHLOROETHYLENE	DISSOLVED SOLIDS	NICKEL	pH	Total Residual Chlorine
Permit Parameter Limits	0.2 mg/l	0.005 mg/l	0.005 mg/l	1,200 mg/l	0.1 mg/l	6.5 - 9.0 SU	0.2 mg/l	0.005 mg/l	0.005 mg/l	1,200 mg/l	0.1 mg/l	6.5 - 9.0 SU	0.2 mg/l	0.005 mg/l	0.005 mg/l	1,200 mg/l	0.1 mg/l	6.5 - 9.0 SU	NO LIMIT - SECONDARY WATER CLASS						
Sample Date	Sample Results Units of Measure						Sample Results Units of Measure						Sample Results Units of Measure						Sample Results Units of Measure						
	mg/l	mg/l	mg/l	mg/l	mg/l	SU	mg/l	mg/l	mg/l	mg/l	mg/l	SU	mg/l	mg/l	mg/l	mg/l	mg/l	SU	mg/l	mg/l	mg/l	mg/l	mg/l	SU	mg/l
4/16/2010	<0.005	<0.005	<0.005	376	**<0.0050**	**7.05**	**<0.005**	<0.005	**<0.005**	**472**	**0.0646**	7.07	[illegible]	[illegible]	<0.005	468	0.0314	7.01	<0.005	<0.005	<0.005	698	0.246	6.52	
5/14/2010	<0.005	<0.005	<0.005	378	<0.0050	6.55	**<0.005**	**<0.005**	**<0.005**	**206**	**0.0124**	**7.04**	[illegible]	[illegible]	<0.005	464	**0.0406**	7.09	<0.005	<0.005	<0.005	612	0.114	6.75	
6/14/2010	<0.005	<0.005	<0.005	358	<0.0050	6.74	**<0.005**	**<0.005**	**<0.005**	**388**	**0.0761**	**6.81**	[illegible]	[illegible]	<0.005	410	0.0202	6.99	<0.005	<0.005	<0.005	474	0.0415	6.98	
7/16/2010	<0.005	<0.005	<0.005	432	<0.0050	7.27	**<0.005**	<0.005	**<0.005**	**634**	0.0977	**6.99**	[illegible]	[illegible]	<0.005	552	0.0302	7.07	<0.005	<0.005	<0.005	570	0.0443	7.46	
8/13/2010	<0.005	<0.005	<0.005	400	<0.0050	7.07	<0.005	<0.005	<0.005	504	0.103	6.63	[illegible]	[illegible]	<0.005	576	0.0292	6.8	<0.005	<0.005	<0.005	568	0.0579	**6.81**	
9/17/2010	<0.005	<0.005	<0.005	434	<0.0050	7	<0.005	<0.005	<0.005	608	[illegible]	6.78	**0.167**	[illegible]	**<0.005**	422	0.0141	7.03	<0.005	<0.005	<0.005	638	0.0856	6.64	
10/15/2010	<0.005	<0.005	<0.005	334	<0.0050	6.65	<0.005	<0.005	<0.005	414	[illegible]	6.75	[illegible]	[illegible]	**<0.005**	360	0.0155	6.86	<0.005	<0.005	<0.005	616	0.115	6.51	
11/12/2010	<0.005	<0.005	<0.005	354	<0.0050	6.93	<0.005	<0.005	<0.005	**512**	[illegible]	6.75	**0.0106**	**<0.005**	**<0.005**	634	0.0249	7.11	<0.005	<0.005	<0.005	625	0.0725	6.95	
12/10/2010	<0.005	<0.005	<0.005	328	<0.0050	7.09	<0.005	<0.005	**<0.005**	440	0.0984	6.95	**0.0709**	<0.005	**<0.005**	358	0.0356	7.17	<0.005	<0.005	<0.005	466	0.0526	6.88	
1/14/2011	<0.005	<0.005	<0.005	426	<0.0050	7.5	<0.005	<0.005	<0.005	586	0.0528	7.26	**0.0756**	[illegible]	<0.005	462	0.0298	7.33	<0.005	<0.005	<0.005	510	0.0474	7.75	
2/18/2011	<0.005	<0.005	<0.005	350	<0.0050	7.26	<0.005	<0.005	**<0.005**	514	0.0334	6.82	**0.107**	[illegible]	**<0.005**	522	**0.0180**	7.04	<0.005	<0.005	<0.005	340	0.044	7.29	
3/11/2011	<0.005	<0.005	<0.005	342	<0.0050	6.92	<0.005	<0.005	<0.005	518	0.0892	6.85	0.0916	0.0050	<0.005	506	0.0228	**6.89**	<0.005	<0.005	<0.005	330	0.0434	6.86	
4/18/2011	New WPCP issued (2011-EO-1001) which no longer requires the sampling of any monitoring wells																		New WPCP Parameter Limits						
																			None			0.1 mg/l	6.5-9.0 SU		No Standard
5/16/2011																			New WCPC does not require the sampling of these analites			0.0548	6.18 6.33 resampled on 4/27		<0.05
6/23/2011																						0.0522	6.9		<0.05
7/11/2011																						0.0422	7.11		<0.05
8/23/2011																						0 0284	7.23		<0.05
9/19/2011																						0.0267	6.97		0.13
10/20/2011																						0.0283	7.05		0.42
																						0.0325	7.98		0.07

Attachment 2

Weaver Groundwater Contour Maps



LEGEND

- APPROXIMATE REMEDIATION SITE BOUNDARY
- MCCD-IR-N (55') 794.00 — APPROXIMATE MCHENRY COUNTY CONSERVATION DISTRICT (MCCD) IRRIGATION WELL LOCATION AND MEASURED GROUNDWATER ELEVATION
- MW-90 (50') 794.00 — APPROXIMATE WCG MONITORING WELL LOCATION (WELL DEPTH) AND MEASURED GROUNDWATER ELEVATION
- MW-19 794.00 — APPROXIMATE EGSL MONITORING WELL LOCATION AND MEASURED GROUNDWATER ELEVATION
- —794— ESTIMATED POTENTIOMETRIC SURFACE CONTOUR (CONTOUR INTERVAL: 1 FT)
- APPROXIMATE GROUNDWATER FLOW DIRECTION

APPROXIMATE GRAPHIC SCALE

700 0 350 700

1 inch = 700 ft.

AERIAL IMAGE PROVIDED BY ESRI AND ITS DATA SOURCES, DATED 2016

perc field ≈ 794'

DRAWN BY: NTJ
REVIEWED BY: CRD
DATE: 3/3/2016
FILE: 3892-300-03-06
CAD: MR00000021.dwg
FIGURE 14

Weaver Consultants Group
NAPERVILLE, ILLINOIS
(630) 717-4848 www.wcgrp.com

POTENTIOMETRIC SURFACE CONTOUR MAP (APRIL 2015)
SHALLOW GROUNDWATER ZONE (30 FEET)
ALONG RAILROAD STREET & RITZ ROAD NEAR 300 NORTH WEST STREET
MARENGO, MCHENRY COUNTY, ILLINOIS

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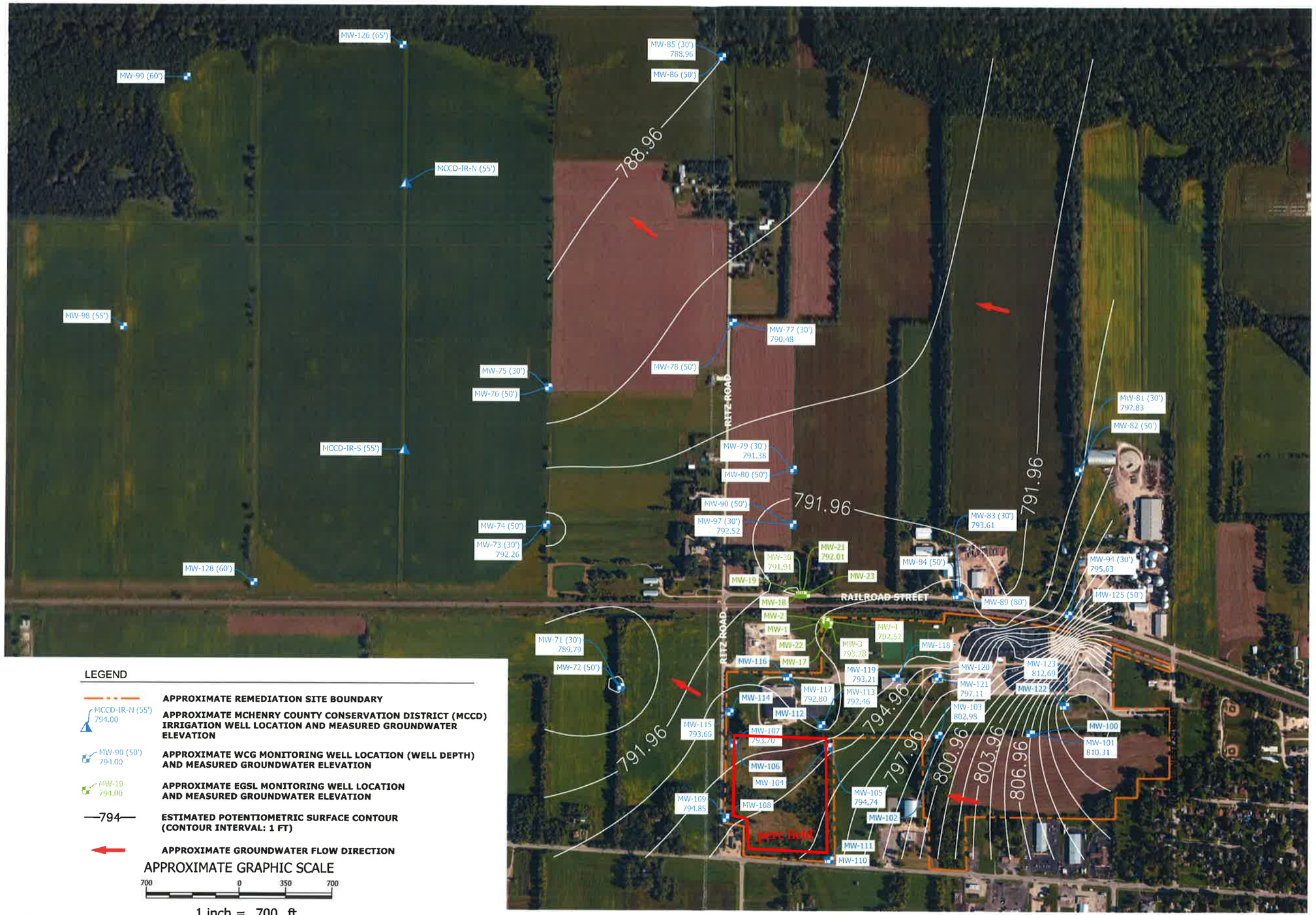
PREPARED FOR:
300 WEST LLC



LEGEND

- APPROXIMATE REMEDIATION SITE BOUNDARY
- MCCD-IR-N (55') 794.00 — APPROXIMATE MCHENRY COUNTY CONSERVATION DISTRICT (MCCD) IRRIGATION WELL LOCATION AND MEASURED GROUNDWATER ELEVATION
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- MW-19 794.00 — APPROXIMATE EGSL MONITORING WELL LOCATION AND MEASURED GROUNDWATER ELEVATION
- —794— ESTIMATED POTENTIOMETRIC SURFACE CONTOUR (CONTOUR INTERVAL: 1 FT)
- APPROXIMATE GROUNDWATER FLOW DIRECTION

APPROXIMATE GRAPHIC SCALE

700 0 350 700

1 inch = 700 ft.

AERIAL IMAGE PROVIDED BY ESRI AND ITS DATA SOURCES, DATED 2016

~795

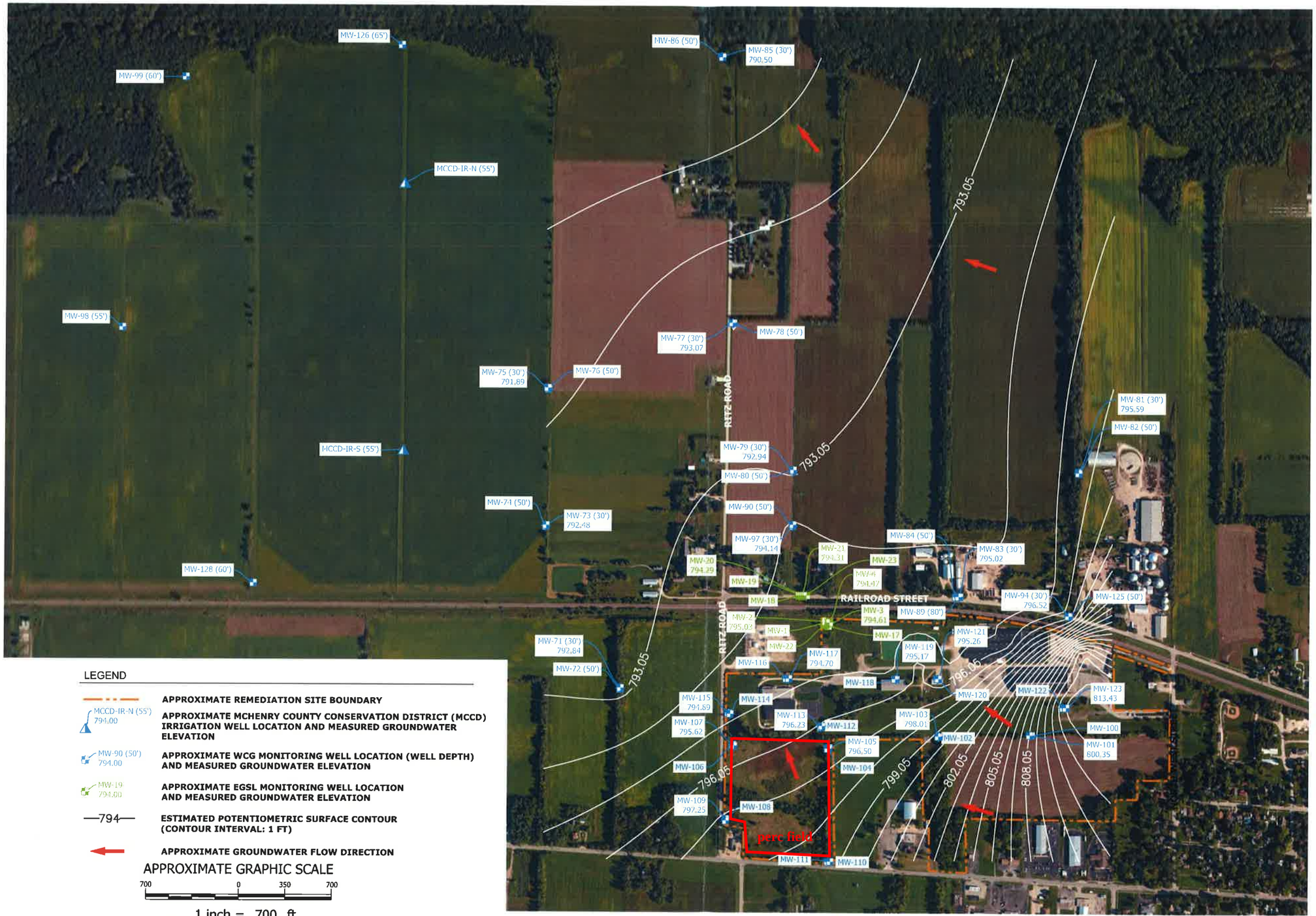
PREPARED FOR:
300 WEST LLC

POTENTIOMETRIC SURFACE CONTOUR MAP (OCTOBER 2015)
SHALLOW GROUNDWATER ZONE (30 FEET)
ALONG RAILROAD STREET & RITZ ROAD NEAR 300 NORTH WEST STREET
MARENGO, MCHENRY COUNTY, ILLINOIS

Weaver Consultants Group
NAPERVILLE, ILLINOIS
(630) 717-4848 www.wcgrp.com

DRAWN BY: NTJ
REVIEWED BY: CRD
DATE: 3/3/2016
FILE: 3892-300-03-06
CAD: MR0000018.dwg

FIGURE 17



LEGEND

- APPROXIMATE REMEDIATION SITE BOUNDARY
- MCCD-IR-N (55') 794.00 — APPROXIMATE MCHENRY COUNTY CONSERVATION DISTRICT (MCCD) IRRIGATION WELL LOCATION AND MEASURED GROUNDWATER ELEVATION
- MW-90 (50') 794.00 — APPROXIMATE WCG MONITORING WELL LOCATION (WELL DEPTH) AND MEASURED GROUNDWATER ELEVATION
- MW-19 794.00 — APPROXIMATE EGSL MONITORING WELL LOCATION AND MEASURED GROUNDWATER ELEVATION
- —794— ESTIMATED POTENTIOMETRIC SURFACE CONTOUR (CONTOUR INTERVAL: 1 FT)
- APPROXIMATE GROUNDWATER FLOW DIRECTION

APPROXIMATE GRAPHIC SCALE

700 0 350 700

1 inch = 700 ft.

AERIAL IMAGE PROVIDED BY ESRI AND ITS DATA SOURCES, DATED 2016

~ 797

DRAWN BY: NTJ
REVIEWED BY: CRD
DATE: 3/3/2016
FILE: 3892-300-03-06
CAD: MR000015.dwg
FIGURE 19

Weaver Consultants Group
NAPERVILLE, ILLINOIS
(630) 717-4848 www.wcgrp.com

POTENTIOMETRIC SURFACE CONTOUR MAP (FEBRUARY 2016)
SHALLOW GROUNDWATER ZONE (30 FEET)
ALONG RAILROAD STREET & RITZ ROAD NEAR 300 NORTH WEST STREET
MARENGO, MCHENRY COUNTY, ILLINOIS

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PREPARED FOR:
300 WEST LLC

Attachment 3

Mounding Analysis Inputs

This spreadsheet will calculate the height of a groundwater mound beneath a stormwater infiltration basin. More information can be found in the U.S. Geological Survey Scientific Investigations Report 2010-5102 "Simulation of groundwater mounding beneath hypothetical stormwater infiltration basins".

The user must specify infiltration rate (R), specific yield (Sy), horizontal hydraulic conductivity (Kh), basin dimensions (x, y), duration of infiltration period (t), and the initial thickness of the saturated zone (hi(0), height of the water table if the bottom of the aquifer is the datum). For a square basin the half width equals the half length (x = y). For a rectangular basin, if the user wants the water-table changes perpendicular to the long side, specify x as the short dimension and y as the long dimension. Conversely, if the user wants the values perpendicular to the short side, specify y as the short dimension, x as the long dimension. All distances are from the center of the basin. Users can change the distances from the center of the basin at which water-table aquifer thickness are calculated.
Cells highlighted in yellow are values that can be changed by the user. Cells highlighted in red are output values based on user-specified inputs. The user MUST click the blue "Re-Calculate Now" button each time ANY of the user-specified inputs are changed otherwise necessary iterations to converge on the correct solution will not be done and values shown will be incorrect. Use consistent units for all input values (for example, feet and days)

use consistent units (e.g. feet & days or inches & hours)

Input Values

0.0269	***R***	Recharge (infiltration) rate (feet/day)
0.200	Sy	Specific yield, Sy (dimensionless, between 0 and 1)
136.00	K	Horizontal hydraulic conductivity, Kh (feet/day)*
418.000	x	1/2 length of basin (x direction, in feet)
418.000	y	1/2 width of basin (y direction, in feet)
1000.000	t	duration of infiltration period (days)
70.000	hi(0)	initial thickness of saturated zone (feet)

Conversion Table

inch/hour	feet/day
0.67	1.33
2.00	4.00

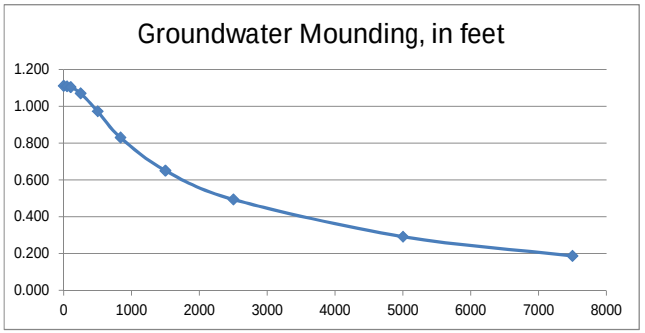
hours	days
36	1.50

In the report accompanying this spreadsheet (USGS SIR 2010-5102), vertical soil permeability (ft/d) is assumed to be one-tenth horizontal hydraulic conductivity (ft/d).

71.112	h(max)	maximum thickness of saturated zone (beneath center of basin at end of infiltration period)
1.112	**Δ**h(max)	maximum groundwater mounding (beneath center of basin at end of infiltration period)

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
1.112	0
1.110	50
1.105	100
1.072	250
0.974	500
0.832	836
0.651	1500
0.495	2500
0.293	5000
0.189	7,500

Re-Calculate Now



Disclaimer

This spreadsheet solving the Hantush (1967) equation for ground-water mounding beneath an infiltration basin is made available to the general public as a convenience for those wishing to replicate values documented in the USGS Scientific Investigations Report 2010-5102 "Groundwater mounding beneath hypothetical stormwater infiltration basins" or to calculate values based on user-specified site conditions. Any changes made to the spreadsheet (other than values identified as user-specified) after transmission from the USGS could have unintended, undesirable consequences. These consequences could include, but may not be limited to: erroneous output, numerical instabilities, and violations of underlying assumptions that are inherent in results presented in the accompanying USGS published report. The USGS assumes no responsibility for the consequences of any changes made to the spreadsheet. If changes are made to the spreadsheet, the user is responsible for documenting the changes and justifying the results and conclusions.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-3397
BRUCE RAUNER, GOVERNOR LISA BONNETT, DIRECTOR

217/782-0610

June 3, 2016

Michael Stachura
Arnold Magnetic Technologies
770 Linden Avenue
Rochester, New York 14625

Re: Arnold Engineering Technologies – Marengo
Permit Log # 2015-60605
Denial of State Permit Application – Additional Information/Clarification

Mr. Stachura,

On February 19, 2016, the Agency denied Permit Application Log # 2015-60605, for the renewal of the operating permit for the Marengo facility's wastewater treatment system.

The Agency received your May 3, 2016 response providing additional information to address the deficiencies in the November 2015 permit application.

As stated in the February 19 letter, Sections 12 and 39 of the Environmental Protection Act (Act), 415 ILCS 5/12 and 39, prohibit the Agency from issuing a permit for any facility which would threaten, cause or allow the discharge of contaminants which might cause or tend to cause water pollution in Illinois. Section 39 of the Act also requires an applicant to submit proof to the Agency that the proposed facility will not cause a violation of the Act or the regulations adopted pursuant to the Act.

In addition to the above cited Sections of the Act, the November 2015 permit application did not fulfill the requirements of 35 Ill. Adm. Code 309.241.

Specifically, the reasons for Permit Denial as stated in the February 19, 2016 denial letter were:

> Historic groundwater monitoring indicates exceedances for VOC's and some metals in the groundwater near the ponds. The application must address this groundwater contamination, and demonstrate that operation of the ponds has not and will not contribute to violations of the groundwater quality standards as found at 35 Ill. Adm. Code Part 620.

While the May 3, 2016 provided some very good information, the Agency requests that you provide the information below for us to complete our reconsideration of the application.

1. The application must include a complete characterization of all wastestreams currently tributary to the four treatment ponds. This characterization shall include a narrative

description of these wastestreams, the processes which generate them, and current sampling data, taken during normal operations, consisting of metals, VOC's and SVOC's.

2. Sampling data must be included of the current contents of each of these basins. This sampling data shall be submitted for the same parameters identified above.

3. The application must also identify any monitoring wells on site, which would be representative of being upgradient and downgradient of the four treatment ponds as well as the infiltration basin, and provide a summary of sampling results for the last five years.

4. The application must demonstrate that the ponds are properly constructed and maintained to prevent potential impacts to groundwater. This demonstration shall include inspection and maintenance procedures to ensure that the integrity of the pond liners will be maintained. Integrity of the liners includes ensuring properly sealed seams, repair procedures and procedures for removing solids from the pond to maintain storage volume.

If you have any questions, please contact Shu-Mei Tsai of my staff at 217/782-0610.

Sincerely,

Darin LeCrone, P.E.
Manager, Industrial Unit
Permit Section, Division of Water Pollution Control

Cc: Records
Division of Legal Council
Bill Buscher – DWPS – HCU