

ATTACHMENT 14 – PW-10 AND PW-11 ABANDONMENT LOGS

Notice: Completion of this report is required by chs. 160, 281, 283, 289, 291-293, 295, and chs. NR 141 and 812, Wis. Adm. Code. In accordance with chs. 281, 289, 291-293, 295, and 299, Wis. Stats., failure to file this form may result in a forfeiture of between \$10-25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. Return form to the appropriate DNR office and bureau. See instructions on reverse for more information.

Verification Only of Fill and Seal

Route to DNR Bureau:
 Drinking Water
 Waste Management
 Watershed/Wastewater
 Remediation/Redevelopment
 Other: _____

1. Well Location Information

County	WI Unique Well # of Removed Well	Hicap #
WAUKESHA		
Latitude / Longitude (see instructions)	Format Code	Method Code
42.8444 -88.0814	N W <input checked="" type="checkbox"/> DD <input type="checkbox"/> DDM	<input type="checkbox"/> GPSS08 <input checked="" type="checkbox"/> SCR302 <input type="checkbox"/> OTH001
1/4 1/4 SE 1/4 SW	Section 36	Township 5 N Range 20 W
or Gov't Lot #		

Well Street Address

13196 Union Church Drive

Well City, Village or Town

MUSKEGO

Well ZIP Code

53350

Subdivision Name

Lot #

Reason for Removal from Service

LANDFILL EXPANSION

WI Unique Well # of Replacement Well

3. Filled & Sealed Well / Drillhole / Borehole Information

<input type="checkbox"/> Monitoring Well	Original Construction Date (mm/dd/yyyy)
<input checked="" type="checkbox"/> Water Well	N/A
<input type="checkbox"/> Borehole / Drillhole	If a Well Construction Report is available, please attach.
Construction Type:	
<input checked="" type="checkbox"/> Drilled	<input type="checkbox"/> Driven (Sandpoint)
<input type="checkbox"/> Other (specify):	<input type="checkbox"/> Dug
Formation Type:	
<input checked="" type="checkbox"/> Unconsolidated Formation	<input type="checkbox"/> Bedrock
Total Well Depth From Ground Surface (ft.)	Casing Diameter (in.)
174	5
Lower Drillhole Diameter (in.)	Casing Depth (ft.)
5	174
Was well annular space grouted?	Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown <input checked="" type="checkbox"/>
If yes, to what depth (feet)?	Depth to Water (feet)

4. Pump, Liner, Screen, Casing & Sealing Material

Pump and piping removed?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	N/A
Liner(s) removed?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A
Liner(s) perforated?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	N/A
Screen removed?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A
Casing left in place?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	N/A
Was casing cut off below surface?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	N/A
Did sealing material rise to surface?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	N/A
Did material settle after 24 hours?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	N/A
If yes, was hole retopped?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A
If bentonite chips were used, were they hydrated with water from a known safe source?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A

Required Method of Placing Sealing Material

<input type="checkbox"/> Conductor Pipe-Gravily	<input checked="" type="checkbox"/> Conductor Pipe-Pumped
<input type="checkbox"/> Screened & Poured (Bentonite Chips)	<input type="checkbox"/> Other (Explain):

Sealing Materials

<input checked="" type="checkbox"/> Neat Cement Grout	<input type="checkbox"/> Concrete
<input type="checkbox"/> Sand-Cement (Concrete) Grout	<input type="checkbox"/> Bentonite Chips
<input type="checkbox"/> Bentonite Chips	<input type="checkbox"/> Bentonite - Cement Grout
<input type="checkbox"/> Granular Bentonite	<input type="checkbox"/> Bentonite - Sand Slurry

For Monitoring Wells and Monitoring Well Boreholes Only:

From (ft.)	To (ft.)	No. Yards, Sacks Sealant or Volume (circle one)	Mix Ratio or Mud Weight
Surface	174	43 BAGS	6:1 MIX

5. Material Used to Fill Well / Drillhole

NEAT CEMENT GROUT

6. Comments

PW-10 - well abandoned by perforating casing and pumping grout into casing.

7. Supervision of Work

Name of Person or Firm Doing Filling & Sealing	License #	Date of Filling & Sealing or Verification (mm/dd/yyyy)	Date Received	DNR Use Only
SAN'S WELL DRILLING	0370	8/14/17		Noted By
Street or Route		Telephone Number	Comments	
PO BOX 150		()		
City	State	ZIP Code	Signature of Person Doing Work	Date Signed
CAVENDISH	WI	53956	Ray Miller	8/21/17

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Route to DNR Bureau:

- Drinking Water
 Waste Management

- Watershed/Wastewater
 Remediation/Redevelopment
 Other: _____

1. Well Location Information

County	WI Unique Well # of Removed Well	Hicap #
Waukesha		
Latitude / Longitude (see instructions)	Format Code	Method Code
42.8446 88.0830	N W <input checked="" type="checkbox"/> PD <input type="checkbox"/> DDM	<input type="checkbox"/> GPS008 <input checked="" type="checkbox"/> SSCR002 <input type="checkbox"/> OTH001
1/4 1/4 SE 1/4 SW	Section 36	Township 5 N Range 20 E
or Gov't Lot #		W

Well Street Address

13458 UNION CHURCH DR

Well City, Village or Town

MUSKEGO

Well ZIP Code

53150

Subdivision Name

Lot #

2. Facility / Owner Information

Facility Name
ADVANCED DISPOSAL SERVICES EMERALD PARK LANDFILL

Facility ID (FID or PWS)
268244130

License/Permit/Monitoring #
03290

Original Well Owner

Present Well Owner

ADS Emerald Park Landfill

Mailing Address of Present Owner

10629 S 124TH ST

City of Present Owner

MUSKEGO

State

WI

ZIP Code

53150

3. Filled & Sealed Well / Drillhole / Borehole Information

Reason for Removal from Service
LANDFILL EXPANSION

WI Unique Well # of Replacement Well

Monitoring Well

Original Construction Date (mm/dd/yyyy)

N/A

Water Well

If a Well Construction Report is available, please attach.

Construction Type:

Drilled Driven (Sandpoint) Dug

Other (specify): _____

Formation Type:

Unconsolidated Formation Bedrock

Total Well Depth From Ground Surface (ft.)

205

Casing Diameter (in.)

6

Lower Drillhole Diameter (in.)

6

Casing Depth (ft.)

175

Was well annular space grouted?

Yes No Unknown

If yes, to what depth (feet)?

Depth to Water (feet)

5. Material Used to Fill Well / Drillhole

NEAT CEMENT GROUT

From (ft.)

Surface

To (ft.)

205

No. Yards, Sacks Sealant or Volume (circle one)

80 BAGS

Mix Ratio or Mud Weight

6:1 MIX

6. Comments

PW-11 - well abandoned by filling open hole with grout then perforating casing and injecting grout into casing.

7. Supervision of Work

Name of Person or Firm Doing Filling & Sealing

SAN'S WELL DRILLING

License #

03720

Date of Filing & Sealing or Verification (mm/dd/yyyy)

8/10/17

Date Received

Noted By

DNR Use Only

Street or Route

PO BOX 150

Telephone Number

()

Comments

City

RANDOLPH

State

WI

ZIP Code

53156

Signature of Person Doing Work

Ant Wall

Date Signed

8/21/17

T E C H N I C A L M E M O R A N D U M

DATE: October 25, 1996
TO: Tom Koch
FROM: Joseph Aldem
RE: Geophysical Logging Summary and Results
PROJECT: Superior Emerald Park Landfill
CC: Doug Genthe

INTRODUCTION

On October 16, 1996 two wells near the Superior Emerald Park Landfill facility were geophysically logged by an RMT geophysicist. The objectives of this effort were to gather lithologic information and determine well construction details. The two wells that were logged are PW-10 and PW-11. This memorandum presents the results of the surveys and discusses interpretation based on these results.

TECHNIQUE

Natural gamma and induction logging was performed at each of the wells. Gamma radiation is emitted by naturally occurring radioisotopes of potassium, thorium, and uranium. Differences in the mineral content in the soil and rock around the borehole result in variations in natural gamma radiation. For example, zones rich in clay generally emit more natural gamma radiation than clay-poor zones due to the potassium present in clay minerals. Interpretation of the lithology around the borehole is made by correlating these variations with local geology and knowledge of typical natural gamma responses

Induction logging is a borehole geophysical method that indirectly measures the electrical conductivity of the subsurface in the vicinity of the borehole. The induction tool contains a transmitter coil and a receiver coil. Alternating current applied to the transmitter induces eddy currents in the material penetrated by the borehole. These eddy currents set up secondary magnetic fields that induce a voltage in the receiver coil. The magnitude of the current is proportional to the electrical conductivity of the surrounding soil and rock. Since the electrical conductivity of steel casing is far higher than natural rock or soil, induction logging is an appropriate method for detecting the transition from casing to open hole.

EQUIPMENT

The geophysical logs were recorded using a Century Geophysical Corporation UL-1000 Logging System with a 9510A tool and a motorized drawworks. The 9510A tool contains two instruments: one that measures natural gamma radiation and a second that determines electrical conductivity via electromagnetic induction. The natural gamma and induction instruments are contained in one 8-foot long housing which allows for simultaneous logging. One limitation to this configuration is that the natural gamma sensor is located approximately 6 feet from the bottom of the tool and the induction coils are centered approximately 2 feet from the bottom. This means that if a borehole is 100 feet deep, the deepest gamma reading would be at approximately 94 feet and the deepest induction reading would be at approximately 98 feet.

This 9510A natural gamma sensor has been calibrated against the API standard which allows the log to be displayed in API units instead of tool-specific "counts per second".

FIELD WORK

The field work was conducted on October 16, 1996. Prior to geophysical logging, the wells were sampled for coliform bacteria and then the pumps, pipe, and wiring was pulled from the wells by a certified well installer. Two logging runs were recorded in each well and used for quality control evaluation. Immediately following completion of logging at each well the pump was reinstalled and the well was sanitized and sampled for coliform bacteria. Results of the coliform bacteria sampling proved that the wells were safe to use. In order to insure data security, one hardcopy geophysical log was produced and three digital copies were archived prior to demobilizing.

RESULTS

PW-10

Construction Details and Static Water Level (referenced from top of casing (TOC)):

total depth of well = 175 feet
depth of casing = at least 171 feet
depth to static water level = 56 feet
depth to pump = 73 feet
height of TOC above ground surface = 0.75 feet
approximate elevation of ground surface = 789 feet

The attached figure presents the geophysical logs for the PW-10. High electrical conductivity values were recorded at all depths indicating that the well is entirely cased with steel. It is logical to assume that at least a portion of casing is slotted, however, it is impossible to differentiate between slotted and unslotted casing from the induction log. The fact that the well is fully cased strongly suggests that it is installed in unconsolidated sediments and does not penetrate bedrock.

The natural gamma values are notably variable over short intervals but are moderate to high at almost all depths. These data suggest that the well penetrates clay or clayey sediments interbedded with thin layers of coarser grained material. Based on the gamma response eight general zones are identified. The location and interpretation of these intervals is detailed in Table 1 and noted on the Figure 1.

PW-11

Construction Details and Static Water Level (referenced from top of casing (TOC)):

total depth of well = 206 feet
depth of casing = 175 feet
depth to static water level = 49.5 feet
depth to pump = 124.5 feet
height of TOC above ground surface = 1.5 feet
approximate elevation of ground surface = 788 feet

The attached figure presents the geophysical logs for the PW-11. High electrical conductivity values were recorded at a depth of 177 feet indicating that the well is cased with steel to a depth of 175 feet. It is logical to assume that the casing terminates in bedrock and, based on the natural gamma response, bedrock depth is interpreted to be 174 feet (616 feet elevation).

The natural gamma values in the unconsolidated zone above the bedrock are notably variable over short intervals but are moderate to high at almost all depths. These data suggest that the

well penetrates clay or clayey sediments interbedded with thin layers of coarser grained material. Based on the gamma response nine general zones are identified. The location and interpretation of these intervals is detailed in Table 2 and noted on the Figure 1.

SUMMARY

Review of geophysical logs for Well PW-10 and Well PW-11 has resulted in the following interpretations:

PW-10

- penetrates approximately 174 feet of unconsolidated sediments
- does not penetrate bedrock
- unconsolidated sediments are predominantly clay with some coarser grained material
- constructed with steel casing/screen the entire depth

PW-11

- penetrates approximately 173 feet of unconsolidated sediments
- penetrates approximately 32 feet of bedrock
- unconsolidated sediments are predominantly clay with some coarser grained material
- constructed with approximately 175 feet of steel casing then open hole in bedrock

The intervals identified on the gamma logs from the unconsolidated sediments are used to correlate PW-10 and PW-11. Correlation lines are presented on Figure 1.

Table 1
Geophysical Log Interpretation Summary: PW-10

Zone	Elevation (feet)		Thickness (feet)	Average Gamma Value (API units)	Interpretation
	top	bottom			
A	789	780	9	90	TOPSOIL
B	780	763	17	75	CLAY
C	763	761	2	65	SANDY OR SILTY CLAY
D	761	673	88	85	CLAY
E	673	669	4	35	SAND OR CLAYEY SAND
F	669	638	31	50	SANDY OR SILTY CLAY
G	638	625	13	35	SAND OR CLAYEY SAND
H	625			45	SAND OR CLAYEY SAND
I					

Table 2
Geophysical Log Interpretation Summary: PW-11

Zone	Elevation (feet)		Thickness (feet)	Average Gamma Value (API units)	Interpretation
	top	bottom			
A					
B	788	769	19	75	CLAY
C	769	768	1	50	SANDY OR SILTY CLAY
D	768	682	86	80	CLAY
E	682	680	2	35	SAND OR CLAYEY SAND
F	680	647	33	50	SANDY OR SILTY CLAY
G	647	633	14	30	SAND OR CLAYEY SAND
H	633	616	17	35	SAND OR CLAYEY SAND
I	616			10	BEDROCK

Superior Emerald Park Landfill

