

BULLDOG MINE
CUMULATIVE IMPACT AREA
FOR SURFACE WATER AND GROUNDWATER SYSTEMS

The cumulative impact area (CIA) is defined as the area within which impacts from the operation may combine incrementally with the effects of all anticipated future mining on surface and groundwater systems. Abandoned mines are not included in the definition as a part of a cumulative impact area. The Bulldog Mine site and its associated cumulative impact areas are identified on the topographic map, *Surface Water/Groundwater Cumulative Impact Area, Map: SW/GW CIA* included in maps section of this application. The following discussion describes the cumulative impact areas.

The Bulldog Mine site is located in Vermilion County, Illinois. Significant coal reserves are present within the subject watershed areas; however, future mining within these areas is not foreseen at this time.

The surface permit area totals 390.3 acres (0.61 square miles), and is located within a watershed that is tributary to an unnamed tributary to Olive Branch tributary to Salt Fork. The unnamed tributary drainage basin, Area A on the enclosed *Map: SW/GW CIA*, is estimated to be approximately 2,242 acres (3.50 square miles). The total drainage basin for Olive Branch, Area A, Area B and Area D on the enclosed *Map: SW/GW CIA*, is estimated to be approximately 18,943 acres (29.60 square miles). The Salt Fork drainage basin is estimated to be approximately 309,766 acres (484.01 square miles). The surface permit area represents approximately 17.4 % of the unnamed tributary drainage basin, 2.1% of the Olive Branch drainage basin, and 0.1% of the Salt Fork drainage basin.

Based on the definition of a CIA, the surface water CIA for the Bulldog Mine is established as Area A and Area B on the enclosed *Surface Water/Groundwater Cumulative Impact Area, Map: SW/GW CIA*. Area A, 2,242 acres, is tributary to an unnamed tributary to Olive Branch tributary to Salt Fork. Area A includes the proposed surface permit area, the immediate watershed area both up-stream and down-stream from the proposed surface permit area, and a network of buried agricultural drainage tiles. The surface water CIA also includes Area B, 719 acres, which includes the watershed area to a network of buried agricultural drainage tiles. Surface water runoff from the surface areas affected by the mining operation will be directed to sedimentation basins for treatment. The sedimentation basins will treat the impounded water to insure compliance with all applicable effluent water quality standards prior to discharge from the permit area. The total surface water CIA for the Bulldog Mine is calculated to be 2,961 acres, which includes Area A with 2,242 acres and Area B with 719 acres. The surface water CIA represents 15.6% of the Olive Branch drainage basin, and 1.0% of the Salt Fork drainage basin.

Groundwater recharge for the aquifer within the permit and adjacent areas is primarily through surface water percolation. Empirical evidence indicates groundwater flows within an aquifer generally conform to surface topography. However, groundwater data obtained while collecting background water quality and quantity, and while performing slug tests on newly installed groundwater monitoring wells indicate static water level at the Bulldog Mine site is at its highest level near the center of the surface permit area and flows down-gradient from its highest level in a northerly direction, or in a southeasterly direction.

Based on data obtained from the groundwater monitoring program at this mine site it has been determined the groundwater from the Bulldog Mine permit area is expected to flow in a northerly direction toward Salt Fork, and in a southeasterly direction toward Little Vermilion River. The groundwater CIA area that flows in a southeasterly direction is illustrated as Area C on the *Surface Water/Groundwater Cumulative Impact Area, Map: SW/GW CIA*.

Based on the definition of a CIA, the groundwater CIA for the Bulldog Mine permit area is established as a combination of Areas A, B, and C as illustrated on the enclosed *Surface Water/Groundwater Cumulative Impact Area, Map: SW/GW CIA*.

BULLDOG MINE
CUMULATIVE IMPACT AREA
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Area A plus Area B minus Area C totals 2,731 acres and flows north toward Olive Branch and Salt Fork. Area C, containing 230 acres, is tributary to the Freadwell Branch Area E watershed, which contains 2,345 acres and is tributary to Little Vermilion River watershed, which contains 155,891 acres (243.58 square miles).

The groundwater CIA for the Bulldog Mine includes Area A plus Area B minus Area C totaling 2,731 acres, which represents 14.4% of the Olive Branch drainage basin, and 0.9% of the Salt Fork drainage basin. The groundwater CIA also includes Area C totaling 230 acres, which represents 9.8% of the Freadwell Branch drainage area, and 0.1% of the 155,891 acres Little Vermilion River drainage basin.

The surface water and groundwater cumulative impact areas are illustrated on the *Surface Water/Groundwater Cumulative Impact Area, Map: SW/GW CIA* topographic map included in the maps section of this application. Descriptions of hydrogeologic and hydrologic conditions within the cumulative impact areas, characteristics of surface water and groundwater systems, material damage criteria and discussions of methods to prevent material damages are presented elsewhere in this permit application.

Sunrise Coal, LLC
Bulldog Mine
Permit No. 429

ATTACHMENT III-2D4a

GROUNDWATER MONITORING PROGRAM

Sunrise Coal, LLC
Bulldog Mine, Permit No. 429
Groundwater Monitoring Program

Well Name	Well Status	Top of Well Casing Elevation (MSL)	Ground Surface Elevation (MSL)	Depth to Bottom of 2" PVC Well Casing (feet)	Bottom of 2" PVC Well Casing Elevation (MSL)	Sample Frequency	Monitoring Constituents
MW-1	Installed	679.7	676.6	29.0	647.6	See Note 1	Sample Set 1
MW-2	Installed	677.8	674.5	32.0	642.5	See Note 1	Sample Set 1
MW-3	Installed	683.8	681.8	38.0	643.8	See Note 1	Sample Set 1
MW-4	Installed	680.8	678.2	35.0	643.2	See Note 1	Sample Set 1
MW-5	Installed	686.7	683.7	45.0	638.7	See Note 1	Sample Set 1
MW-6	Installed	682.4	679.2	54.0	625.2	See Note 1	Sample Set 1

Monitoring wells MW-1 through MW-6 are screened in unweathered glacial till at the glacial till-limestone bedrock interface. The purpose of monitoring wells MW-1 through MW-6 is to monitor shallow groundwater quality and quantity in the area surrounding the proposed surface permit area. This shallow aquifer supports the private water wells that exist in the region.

The groundwater monitoring plan is designed to monitor impacts to water quality and quantity that may be caused by surface operations at the Bulldog Mine. The well locations were selected based on the belief that groundwater generally follows flow paths similar to the flow of surface water runoff. Assuming that is correct, and based on ground surface elevations, three (3) wells are located up-gradient, and three (3) wells are located down-gradient from the permit area. Monitoring began at these wells on September 23, 2011.

Monitoring wells MW-3, MW-5 and MW-6 are located at the up-gradient extents of the permit area. These wells will provide background data by monitoring the quality and quantity of shallow groundwater before it passes through the permit area.

Monitoring wells MW-1, MW-2 and MW-4 are located at the down-gradient extents of the permit area. These wells will provide the quality and quantity of shallow groundwater passing through the permit area.

Note 1: Monitoring wells MW-1, MW-2, MW-3, MW-4, MW-5 and MW-6 will be monitored a minimum of six (6) times within a twelve (12) month period (approximately bi-monthly) prior to commencement of actual underground mining activity that results in bringing coal to the surface. Following the initial twelve (12) month sampling period, each well will be monitored once per calendar quarter.

Sample Set 1: Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Chloride, Chromium, Cobalt, Copper, Cyanide, Fluoride, Total Iron, Dissolved Iron, Lead, Total Manganese, Dissolved Manganese, Mercury, Molybdenum, Nickel, Phenol, Selenium, Silver, Sulfate, Thallium, Vanadium, Zinc, pH, Alkalinity, Acidity, Total Dissolved Solids, Hardness and Water Elevation.

Following completion of analyzing the initial samples collected during a twelve (12) month period (approximately bi-monthly) prior to commencement of actual underground mining activity that results in bringing coal to the surface, pre-mining groundwater concentrations shall be determined in each well for each of the monitoring constituents identified in Sample Set 1. The pre-mining concentrations will

Attachment III-2D4a

determine the 95% confidence limit for each monitoring constituent in each well.

Following completion of active mining and reclamation operations, post-mining groundwater monitoring will consist of a minimum of six (6) samples collected during a 12-month period (approximately bi-monthly) to determine post-mining concentrations. The post-mining groundwater concentrations shall be determined in each well for each of the monitoring constituents identified in Sample Set 1 to again determine the 95% confidence limit for each monitoring constituent in each well.

This attachment includes a Groundwater Sampling and Analysis Procedure (SAP) used by RoseDale Services, Inc. for this site. Not all of the monitoring constituents listed in the Ground Water Analysis List are applicable to the Bulldog Mine site. However, RoseDale Services adheres to all the groundwater sampling and analysis procedures outlined in the SAP for the listed monitoring constituents that are applicable to this mine site.

Ground Water Sampling and Analysis Procedure

GROUNDWATER SAMPLING

1. Initial Measurements.

- A. Use an electronic or manual water level probe to measure from the top of the well casing to the top of the water column if accessible. Record the measurement to the nearest 0.01 ft.
- B. Calculate the volume of the water column by subtracting the static level depth from the bottom of the casing depth. The formula for calculating the volume is:

$$\text{Volume (in gallons)} = 23.5 \times r^2 \times L$$

Where r = inside radius of casing in feet

L = Length of water column in feet

Note: for 2-inch casings, the length of the water column in feet times 0.17 gal/ft gives the value of the water column.

- C. Record the volume of water removed.
- D. For extraction wells record the readings from the attached meter, if the well is so equipped.

2. Purging

- A. Monitoring well and piezometer purging will consist of removing a minimum of three water column volumes from the well / piezometer or removing water until the well / piezometer is dry, whichever occurs first. Private well purging should consist of running water from the well and not the storage tank. Extraction wells have controls that pump the water frequently enough that the water discharged is representative of the groundwater.
- B. Purging will be performed using a pump or dedicated or decontaminated PVC bailer. It is important that any accumulated sediment at the bottom of the well is minimally disturbed. All purged water will be discarded to the ground surface.

3. Sample collection

- A. Groundwater samples from monitoring wells will be obtained immediately after purging for wells that recharge quickly, using a dedicated or decontaminated PVC bailer. For dry wells or slow recovering wells, sampling should take place when the water returns to the initial static level or within the next day.

Ground Water Sampling and Analysis Procedure

- B. Prior to sample collection, sample bottles are to be labeled with minimum of location ID, date, filtered and what preservative if any. All necessary preservatives should be added.
 - C. A clean area should be made. This area could consist of placing a clean sheet of visqueen or paper on the ground or by cleaning an area on the truck with an alconox product or equivalent. The clean area is to be maintained between sample points by recleaning or use of new materials.
 - D. The PVC bailer should be lowered just enough to fill bailer exercising caution not to hit the bottom or agitate the water column.
 - E. Fill the respective sample containers. Do not place container lids in pockets or on the ground while filling. Place the lids in the clean area or keep in hand. This should prevent potential contamination. Immediately cap the filled containers. Transfer an aliquot to an additional container for field measurements.
 - F. Place each filled sample container in a cooler. The cooler should have ice.
 - G. Complete the chain of custody to accompany the samples during handling and transportation.
 - H. Secure the sample cooler.
4. Equipment decontamination
- A. Nondedicated sample equipment should be decontaminated prior to use at all locations by washing in a solution of alconox or equivalent product followed by distilled water rinse and allowed to air dry or dried by using a clean disposable paper towel.
5. Sample Handling
- A. Samples should be securely packed in the sample cooler. A chain of custody should accompany the samples.
6. Sample shipment
- A. All samples will be delivered to the laboratory within the sample holding time period. The samples should be returned to the lab the same day or within 24 hours of sampling.
7. Sample preservation and holding times.

Ground Water Sampling and Analysis Procedure

A. Analyte	Filtered/Raw	Preservative	Holding Time
1) pH	Raw	6°C	Immediately
2) Acidity/Alkalinity	Raw	6°C	14 Days
3) Suspended Solids	Raw	6°C	7 Days
4) Dissolved Solids	Raw	6°C	7 Days
5) Chloride	Raw	6°C	28 Days
6) Sulfate –S	Raw	6°C	28 Days
7) Total Metals	Raw	HNO ₃ to pH<2	6 Months
8) Dissolved Metals	Filtered 0.45 µm	HNO ₃ to pH<2	6 Months
9) Cyanide	Raw	NaOH to pH>12	14 Days
10) Phenolics	Raw	H ₂ SO ₄ pH<2, 6°C	28 Days
11) Nitrate –N	Raw	6°C	48 Hours
12) Mercury	Raw	HNO ₃ pH<2	28 Days

8. Chain of Custody.

- A. A chain of custody should be completed for the samples.
- B. The chain of custody should have a minimum of sample identification, date, time, sampler name and project description.

9. Field documentation.

- A. The sampler should keep a field log book which contains at minimum the location, point/well ID, the date & time of purging & sampling, and the field measurements.

10. Field pH, temperature and conductivity.

A. pH and temperature

- 1) Prior to taking field measurements, the pH meter (with temperature) is calibrated using three commercially available standard buffers (4.00, 7.00 & 10.00) according to the manufacturer's instructions. This is performed daily prior to any use.
- 2) The pH is determined by first rinsing the probe, which is stored in 4.00 buffer or storage solution with distilled water and dabbed dry prior to inserting the probe into a sample aliquot. The meter is turned on and the pH and temperature is then recorded when the meter detects stability or where there is no change for 15 seconds. The pH and temperature should run as soon as possible after sampling to avoid any changes due to exposure to ambient conditions. Stir the sample a minimal amount to avoid gas from being absorbed or desorbed, and yet suspend any solids. Following the measurement the meter is turned off; the probe is

Ground Water Sampling and Analysis Procedure

removed from the sample, rinsed with distilled water, and capped with the 4.00 buffer in the cap. (SM4500B)

B. Conductivity

- 1) The direct reading conductivity meter is checked periodically against a known solution. If the meter is not within the tolerance of the solution, then it is calibrated using manufacturer's instructions.
- 2) Prior to measuring conductivity, the probe is rinsed with distilled water dabbed dry and inserted into a sample aliquot with minimal agitation to avoid air bubble entrapment. The meter is turned on, when the reading has stabilized, record the values, remove the probe from the sample, turn meter off, rinse probe, dab dry and store. (SM2510B)

Ground Water Sampling and Analysis Procedure

Ground Water Analysis List

Parameter	Method
pH	4500B
Conductivity	2510B
Acidity	2310B
Alkalinity	2320B
Suspended Solids	2540D
Total Dissolved Solids	2540C
Chloride	4500-CL B
Sulfate –S	D51690,02
Fluoride	4500-F D
Nitrate –N	300.1
Hardness	2340C / 2340B
Phenolics	510A, B / 420.1 / 420.4
Cyanide	335.4 / 4500CN
Aluminum Al	200.7 / 200.8
Antimony Sb	200.7 / 200.8
Arsenic As	200.7 / 200.8
Barium Ba	200.7 / 200.8
Beryllium Be	200.7 / 200.8
Boron B	200.7 / 200.8
Cadmium Cd	200.7 / 200.8
Chromium Cr	200.7 / 200.8
Cobalt Co	200.7 / 200.8
Copper Cu	200.7 / 200.8
Iron Fe	200.7
Lead Pb	200.7 / 200.8
Manganese Mn	200.7 / 200.8
Mercury Hg	3112B / 245.1
Molybdenum Mo	200.7 / 200.8
Nickel Ni	200.7 / 200.8
Selenium Se	200.7 / 200.8
Silver Ag	200.7 / 200.8
Thallium Ti	200.7 / 200.8
Vanadium V	200.7 / 200.8
Zinc Zn	200.7 / 200.8
Sodium Na	200.7
Calcium Ca	200.7
Magnesium Mg	200.7
Potassium K	200.7

Not all of the listed monitoring constituents are applicable to the Bulldog Mine site. However, RoseDale Services adheres to all the groundwater sampling and analysis procedures outlined in this SAP for the monitoring constituents that are applicable to this mine site.

Sunrise Coal, LLC
Bulldog Mine
Permit No. 429

ATTACHMENT III-2D4b

GROUNDWATER MONITORING WELLS
SLUG TESTS, BORING LOGS, and
WELL CONSTRUCTION DIAGRAMS



**PATRIOT ENGINEERING
and Environmental, Inc.**

*Consulting Environmental, Geotechnical
and Construction Materials Engineers*

October 14, 2011

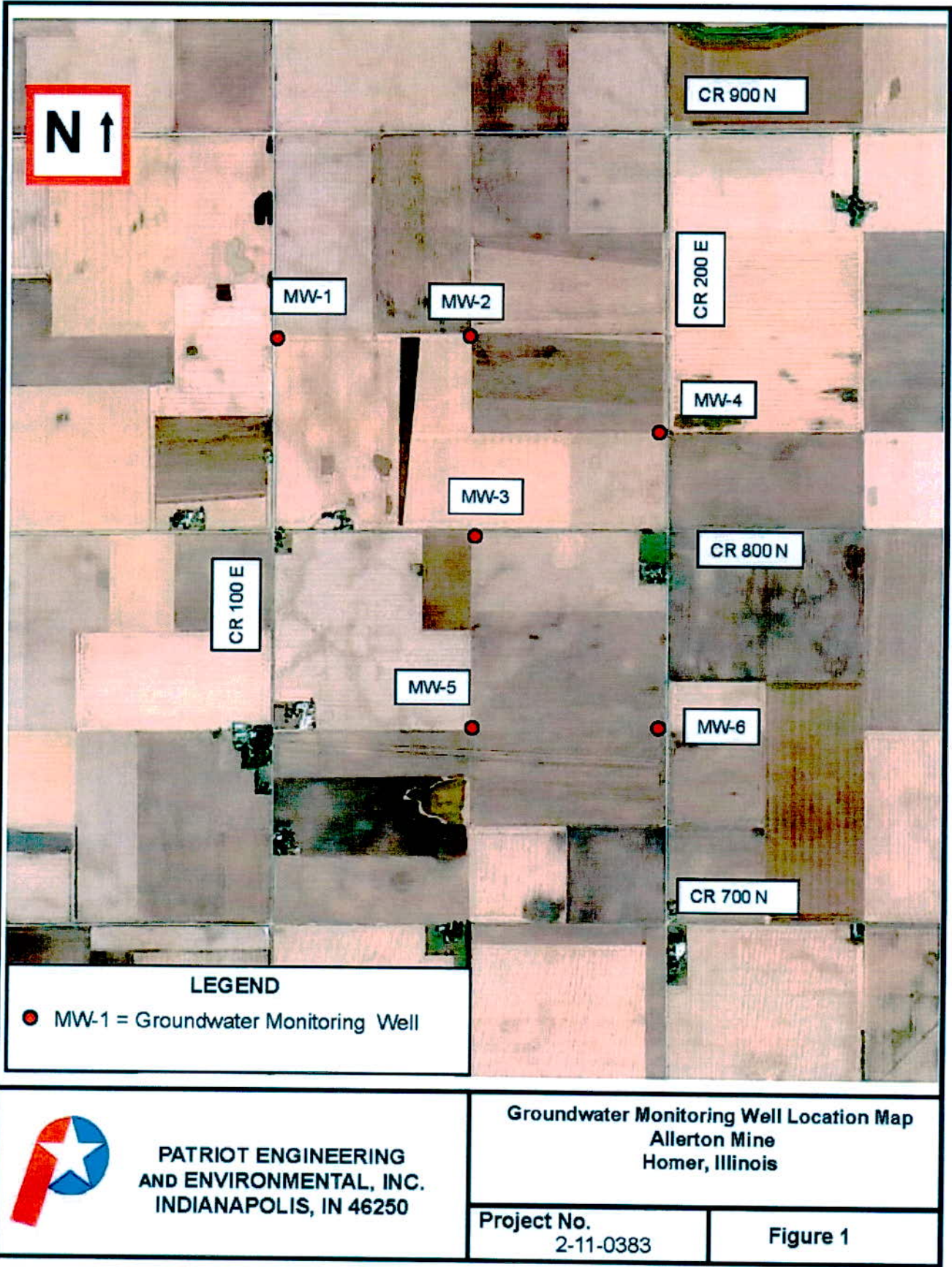
Mr. Sam Elder
Sunrise Coal, LLC.
1183 Canvasback Drive
Terre Haute, Indiana 47802

RE: Report of Slug Testing Activities
Allerton Mine
Homer, Illinois
Patriot Project No. 1-11-0059

Dear Mr. Elder:

Patriot Engineering and Environmental Inc. (*Patriot*) is pleased to submit the results of the aquifer analyses (slug testing) conducted on groundwater monitoring wells MW-1, MW-2, MW-3, MW-4, MW-5 and MW-6, at the proposed Allerton Mine located near Homer, Illinois (hereafter referred to as the Site). The locations of the wells are depicted in Figure 1. The slug testing was conducted to determine the hydraulic conductivities of the water-bearing unit in the vicinity of the wells. The wells were screened in unweathered glacial till at the glacial till-limestone bedrock interface. Copies of the soil boring logs for the Site groundwater monitoring wells are provided in Appendix A.

Patriot conducted the field activities for the slug testing on September 23rd and 25th, 2011 and October 4th, 5th and 6th, 2011. Slug testing involves injecting (a Falling Head test) and/or removing (a Rising Head test) a known water volume from the well and recording the rate at which the water falls or rises in response. A falling head slug test was conducted on Site wells. The slug used during the tests was a 1.25-inch by 36-inch nylon rod. The data was recorded using an In-Situ Level Troll™ 700 data logging probe and an In-Situ Rugged Reader™ handheld PC. The Level Troll™ 700 uses an internal data logger with a pressure/level and temperature sensor. The Level Troll™ 700 also features 4-way level compensation, auto barometric compensation and is capable of recording up to 440,000 data points.



Field data was transferred from the handheld PC to Excel spreadsheets for data reduction. The data was analyzed by the Bouwer and Rice Method (1979) for Reducing Slug Test Data. Results of the slug tests are summarized in Table 1. Graphs depicting slug-testing data are included as Appendix B.

Table 1
Hydraulic Conductivities For
Site Groundwater Monitoring Wells

Location	Hydraulic Conductivity (cm/sec)
MW-1	7.20×10^{-6}
MW-2	5.25×10^{-5}
MW-3	2.09×10^{-5}
MW-4	1.08×10^{-5}
MW-5	7.28×10^{-5}
MW-6	2.61×10^{-6}

Results of the slug testing found hydraulic conductivities in the vicinity of the Site wells ranged from 2.61×10^{-6} centimeters per second (cm/sec) to 7.28×10^{-5} cm/sec. These values are within the hydraulic conductivity ranges (10^{-6} - 10^{-4} cm/sec) of glacial till.

*Slug Testing Report
Homer, Illinois*

*Homer-Allerton Mine
Patriot Project No. 2-11-0383*

Please do not hesitate to contact us if you should have any questions or require additional information regarding the contents of this report.

Respectfully Submitted,

Patriot Engineering and Environmental Co., Inc.



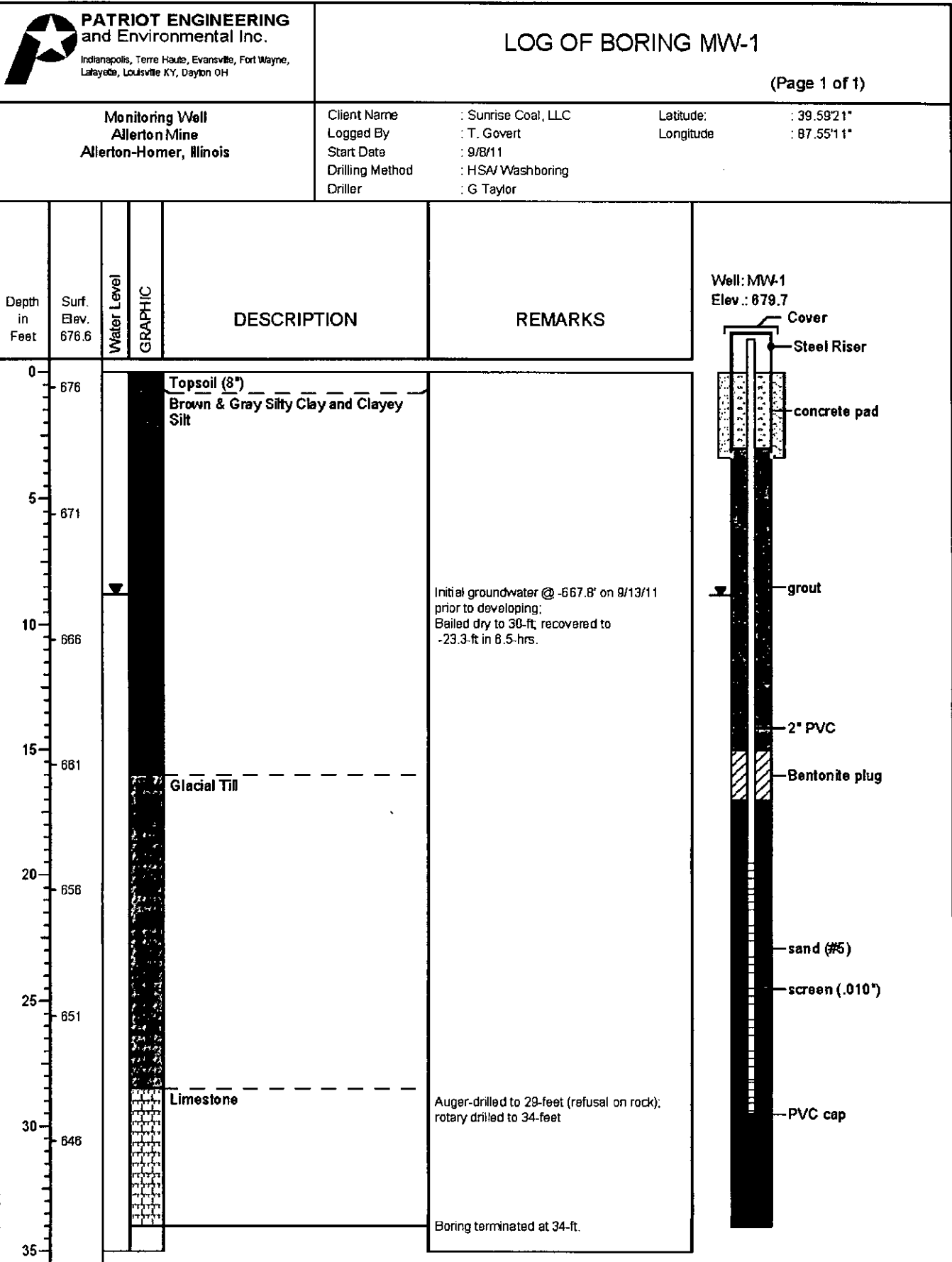
Ronal M. Price, LPG
Project Manager
Environmental Group




Tim Govert
Principal
Environmental Group

Attachments:
Appendix A – Groundwater Monitoring Well Location Map
Appendix B – Slug Test Graphs

ATTACHMENT A
SOIL BORING LOGS



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PATRIOT ENGINEERING
and Environmental Inc.
Indianapolis, Terre Haute, Evansville, Fort Wayne,
Lafayette, Louisville KY, Dayton OH

LOG OF BORING MW-2

(Page 1 of 1)

Monitoring Well
Allerton Mine
Allerton-Homer, Illinois

Client Name : Sunrise Coal, LLC
 Logged By : T. Govert
 Start Date : 9/8/11
 Drilling Method : HSA/ Washboring
 Driller : G Taylor

Latitude: : 39.5921"
 Longitude : 87.5437"

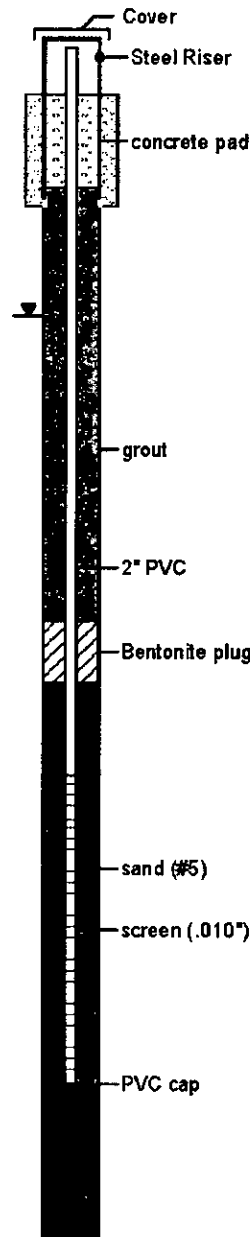
Depth in Feet	Surf Elev. 674.5	Water Level	GRAPHIC	DESCRIPTION	REMARKS
0	874			Topsoil (6") Brown & Gray Clay	
5	669				
10	664				
15	659				
20	654			Glacial Till	
25	649				
30	644				
35	639			Limestone	
40					

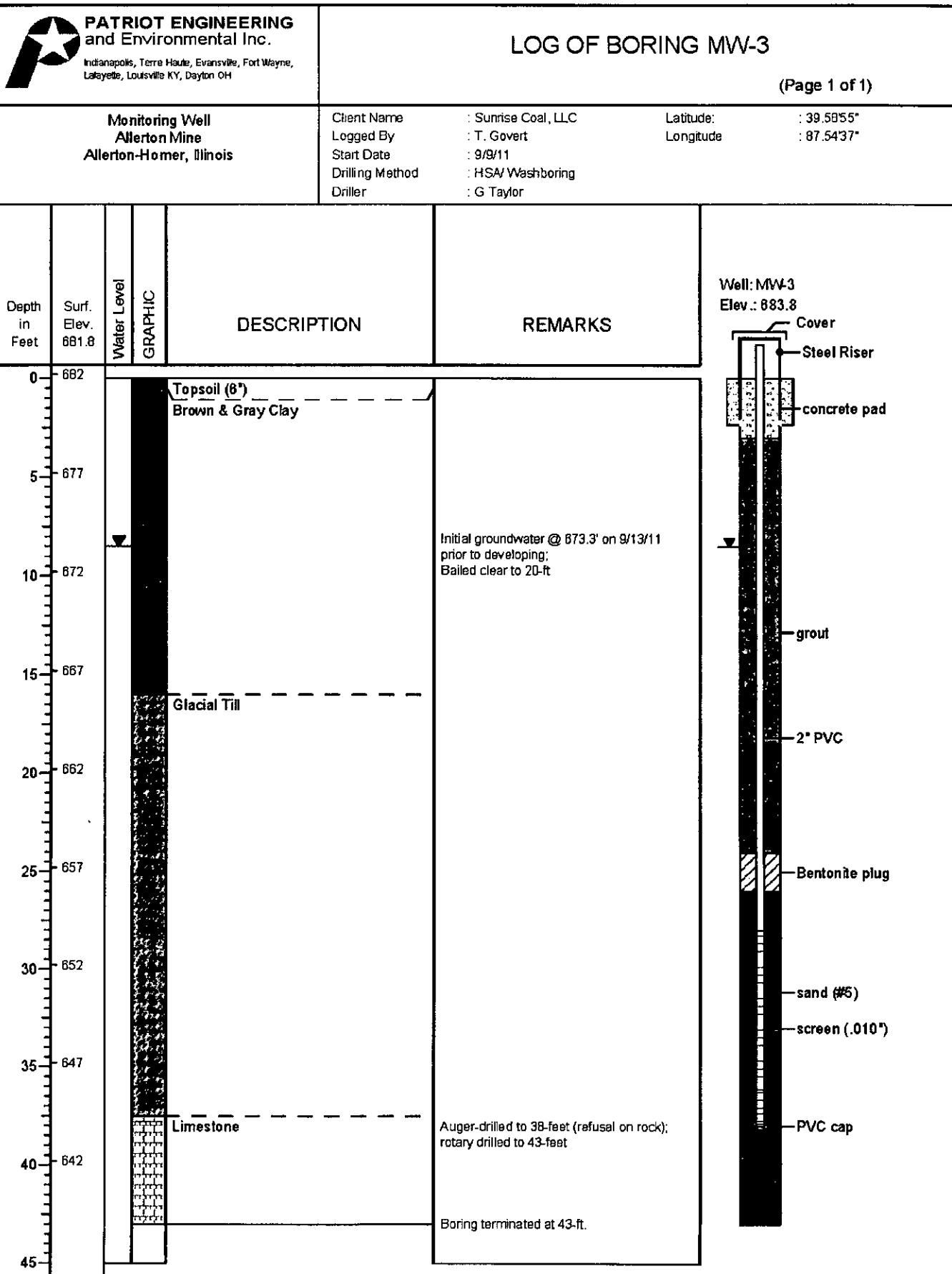
Initial groundwater @ 667.7' on 9/13/11
 prior to developing;
 Bailed dry to 30-ft recovered to
 -650.8-ft in 5-hrs.

Auger-drilled to 32-feet (refusal in rock);
 rotary drilled to 37-feet

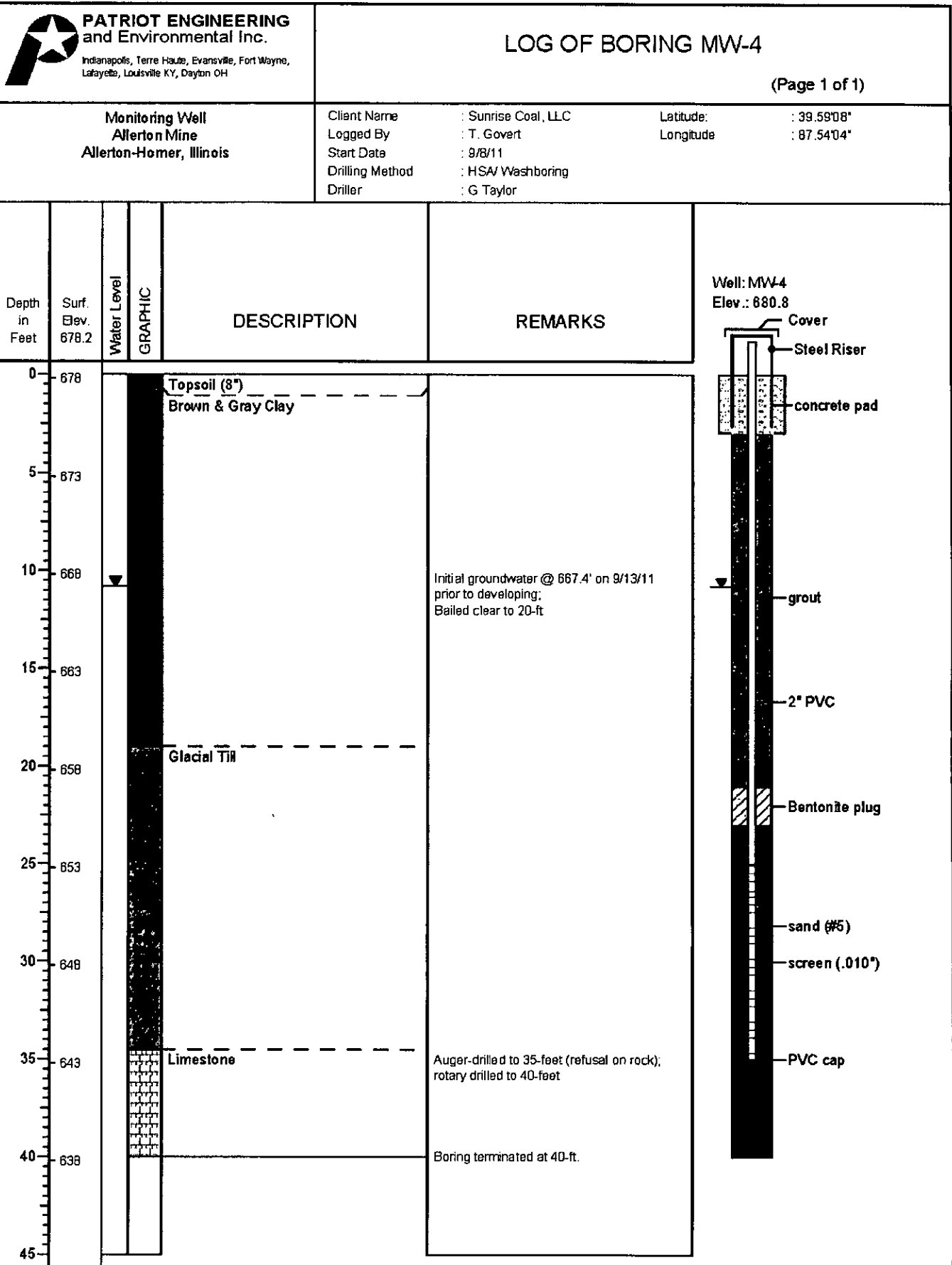
Boring terminated at 37-ft.

Well: MW-2
 Elev.: 677.8


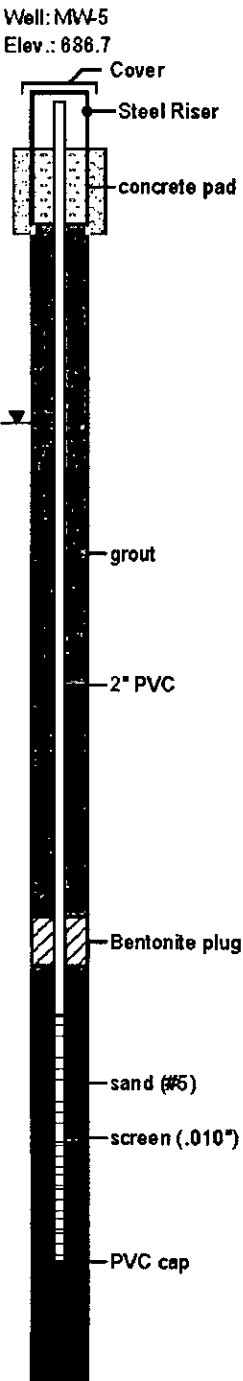




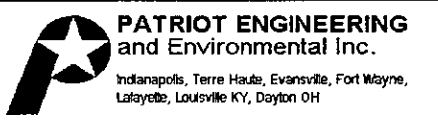
D9-20-2011 H:\Geotech Reports\acege02-11-0383\Monitoring Wells MW-3 bor



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 PATRIOT ENGINEERING and Environmental Inc. Indianapolis, Terre Haute, Evansville, Fort Wayne, Lafayette, Louisville KY, Dayton OH		LOG OF BORING MW-5 (Page 1 of 1)				
Monitoring Well Allerton Mine Allerton-Homer, Illinois		Client Name : Sunrise Coal, LLC Logged By : T. Govert Start Date : 9/9/11 Drilling Method : HSA Washboring Driller : G Taylor	Latitude: : 39.5829° Longitude : 87.5437°			
Depth in Feet	Surf. Elev. 683.7	Water Level	GRAPHIC	DESCRIPTION	REMARKS	 <p>Well: MW-5 Elev.: 686.7</p>
0	683	683	683	Topsoil (9") Brown & Gray Clay		
5	678	673	673		Initial groundwater @ 672.7' on 9/13/11 prior to developing; Bailed clear to 23.4-ft	
10	673	668	668			
15	668	663	663	Glacial Till		
20	663	658	658			
25	658	653	653			
30	653	648	648			
35	648	643	643			
40	643	638	638	Limestone	Auger-drilled to 45-feet (refusal on rock); rotary drilled to 50-feet	
45	638				Boring terminated at 50-ft.	
50						

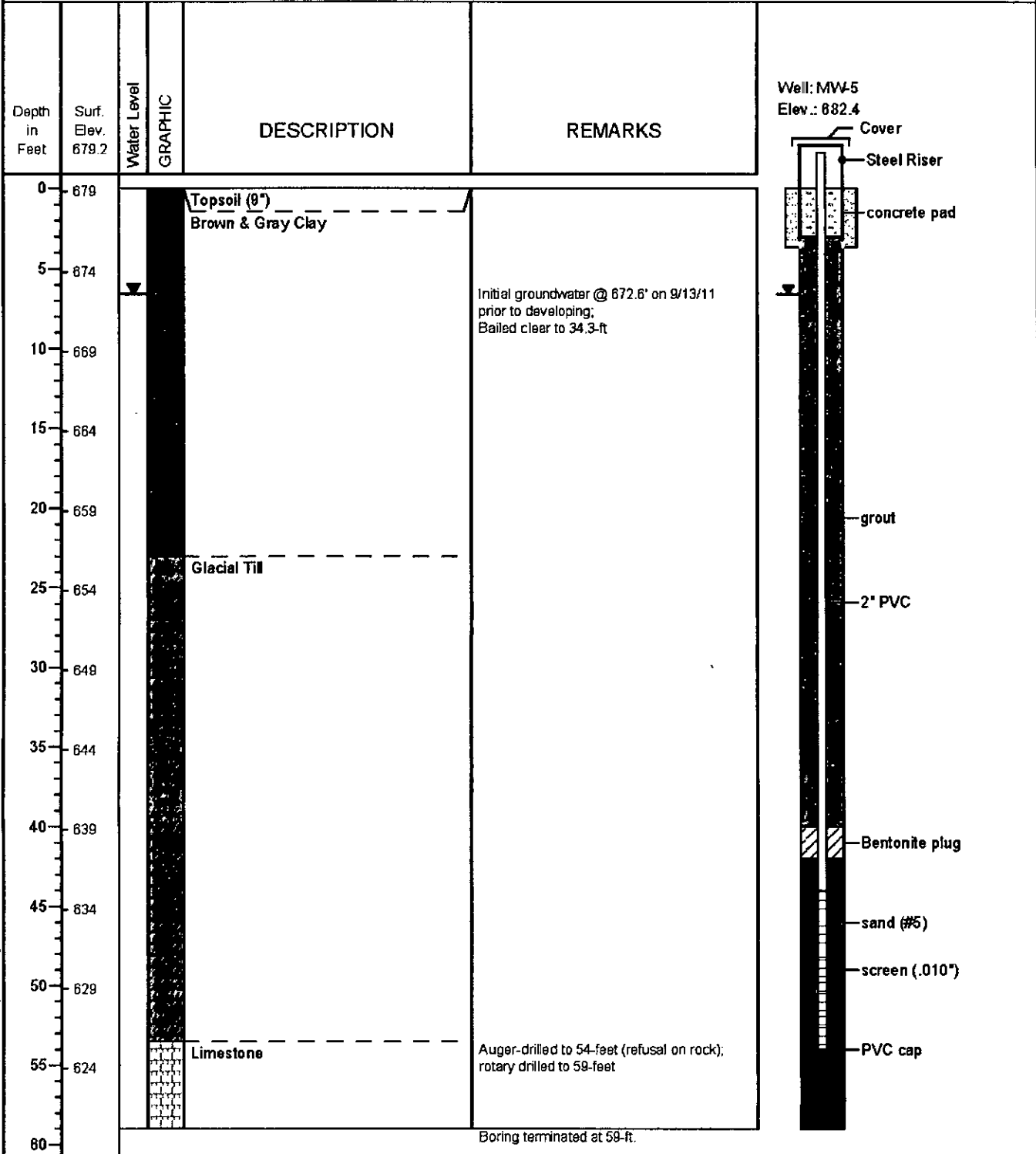
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LOG OF BORING MW-6

(Page 1 of 1)

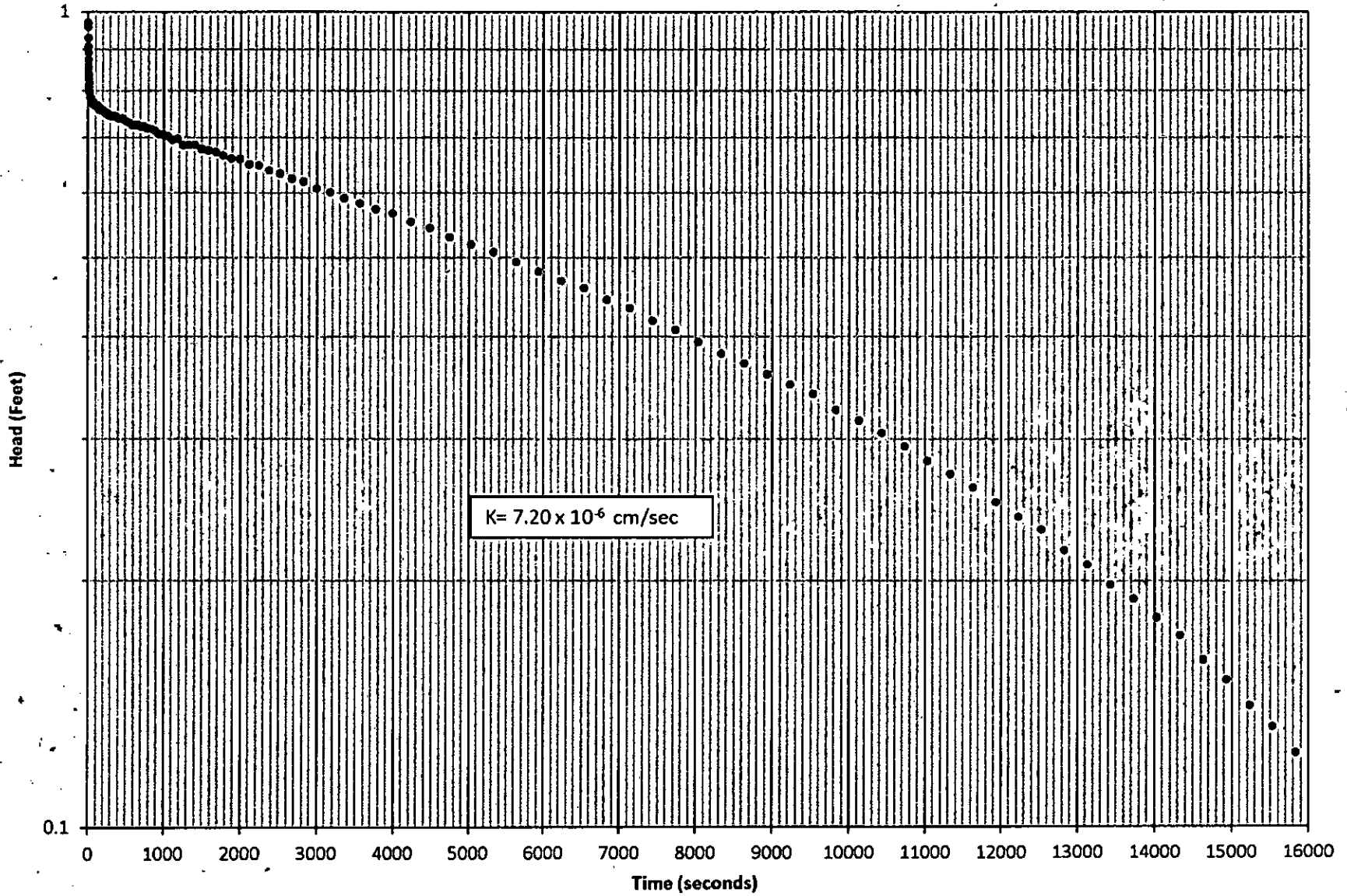
Monitoring Well Allerton Mine Allerton-Homer, Illinois	Client Name	: Sunrise Coal, LLC	Latitude:	: 39.5829°
	Logged By	: T. Govert	Longitude	: 87.5403°
	Start Date	: 9/9/11		
	Drilling Method	: HSA Washboring		
	Driller	: G Taylor		



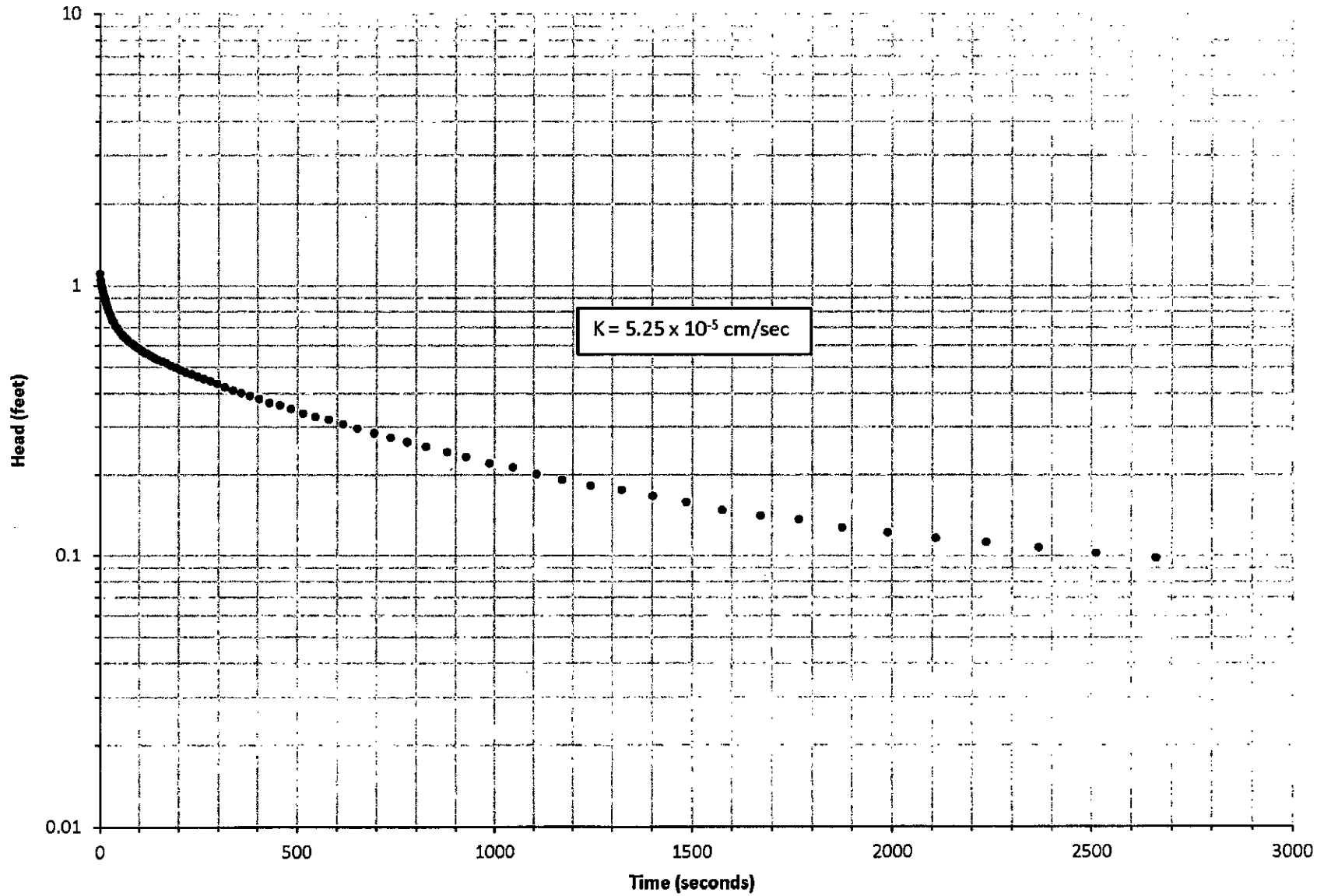
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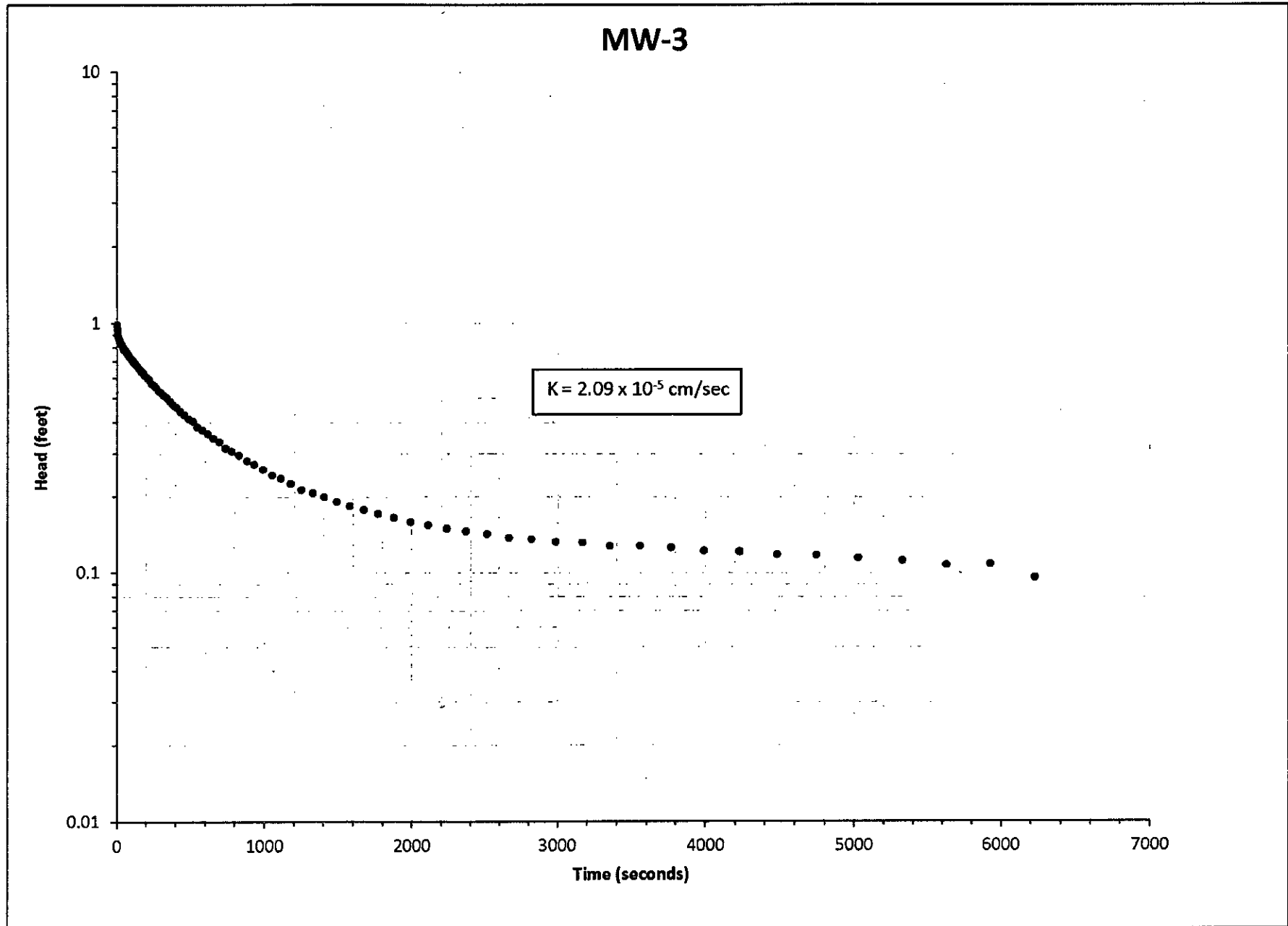
ATTACHMENT B
SLUG TEST GRAPHS

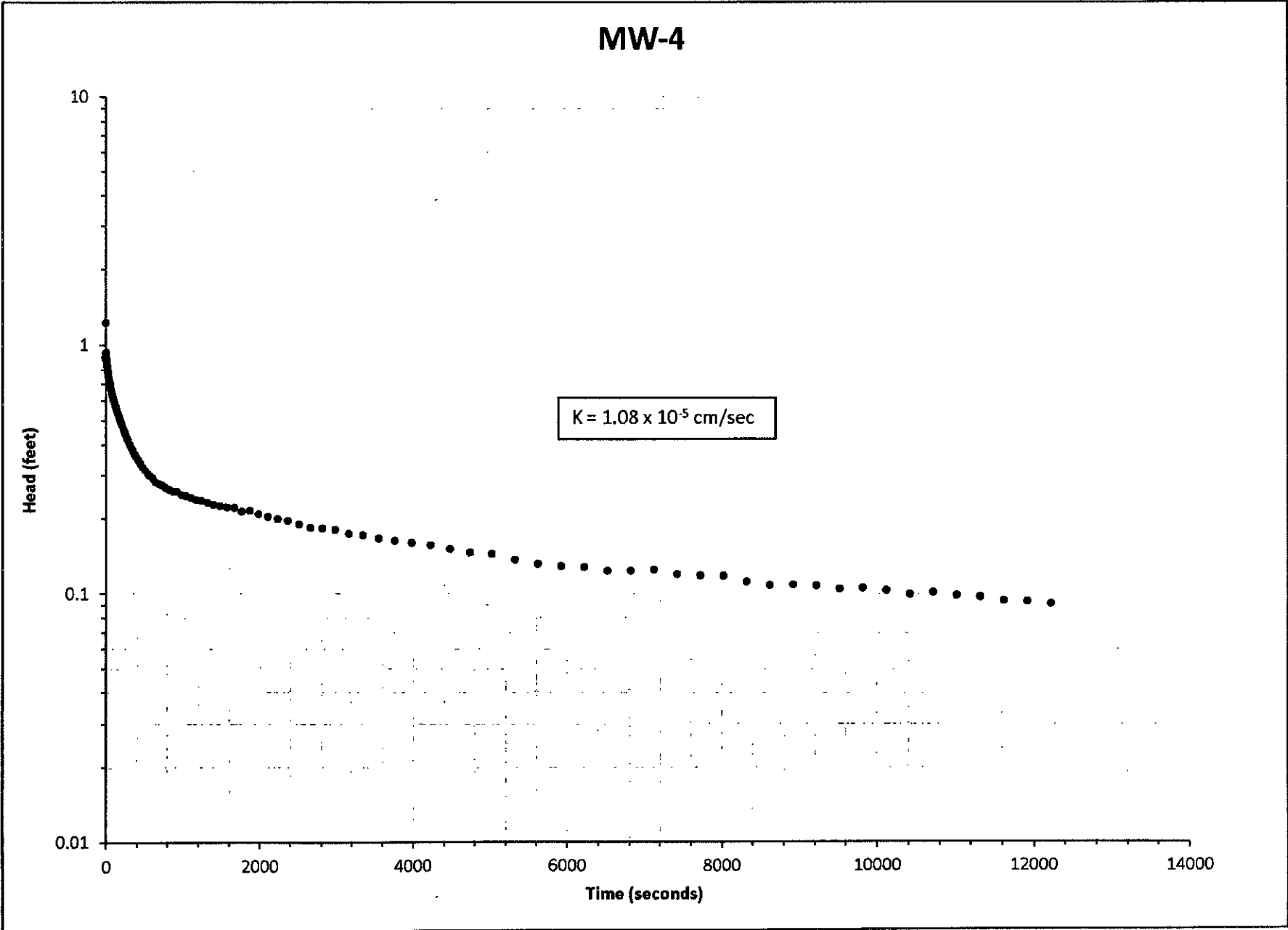
MW-1

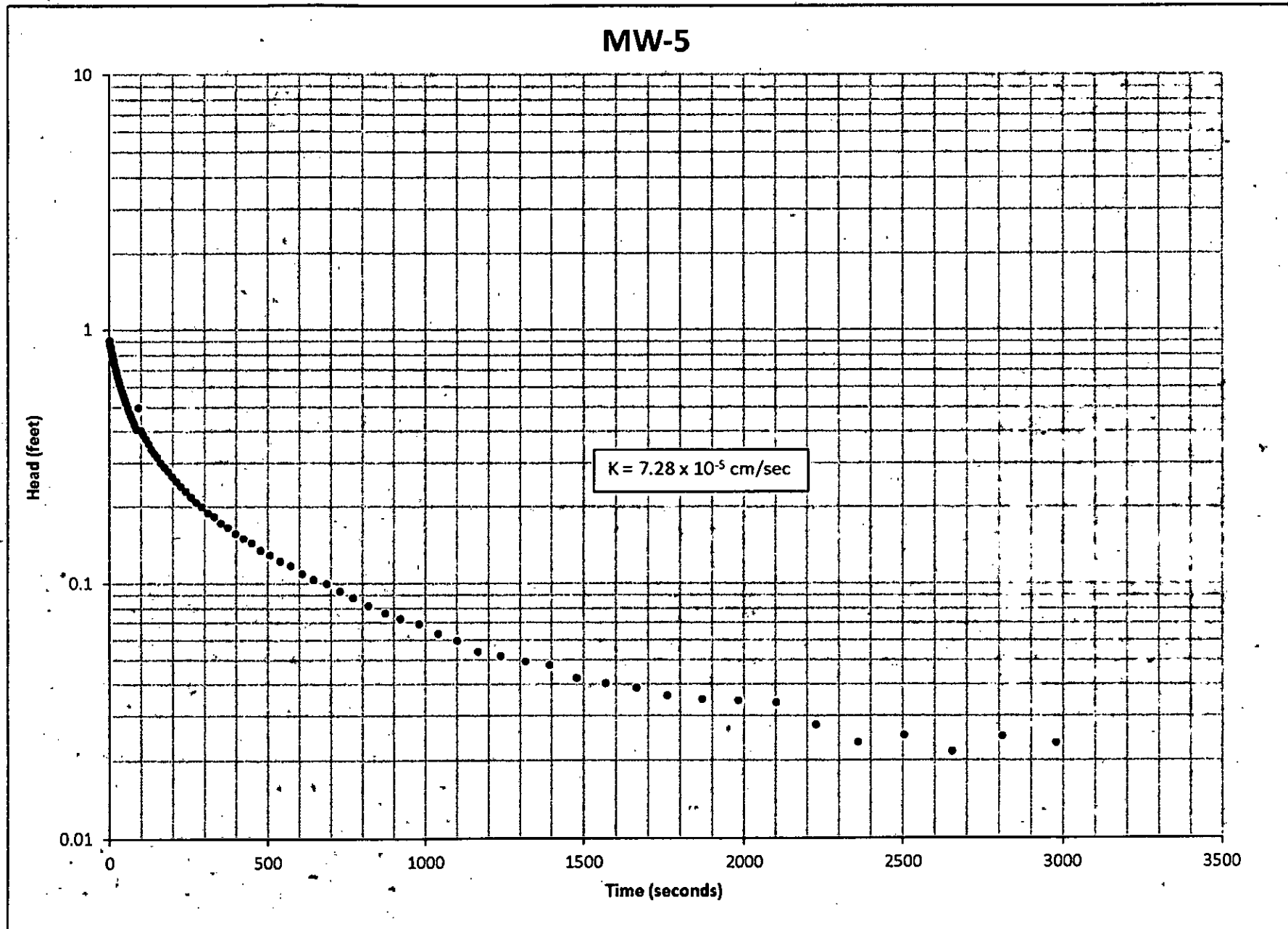


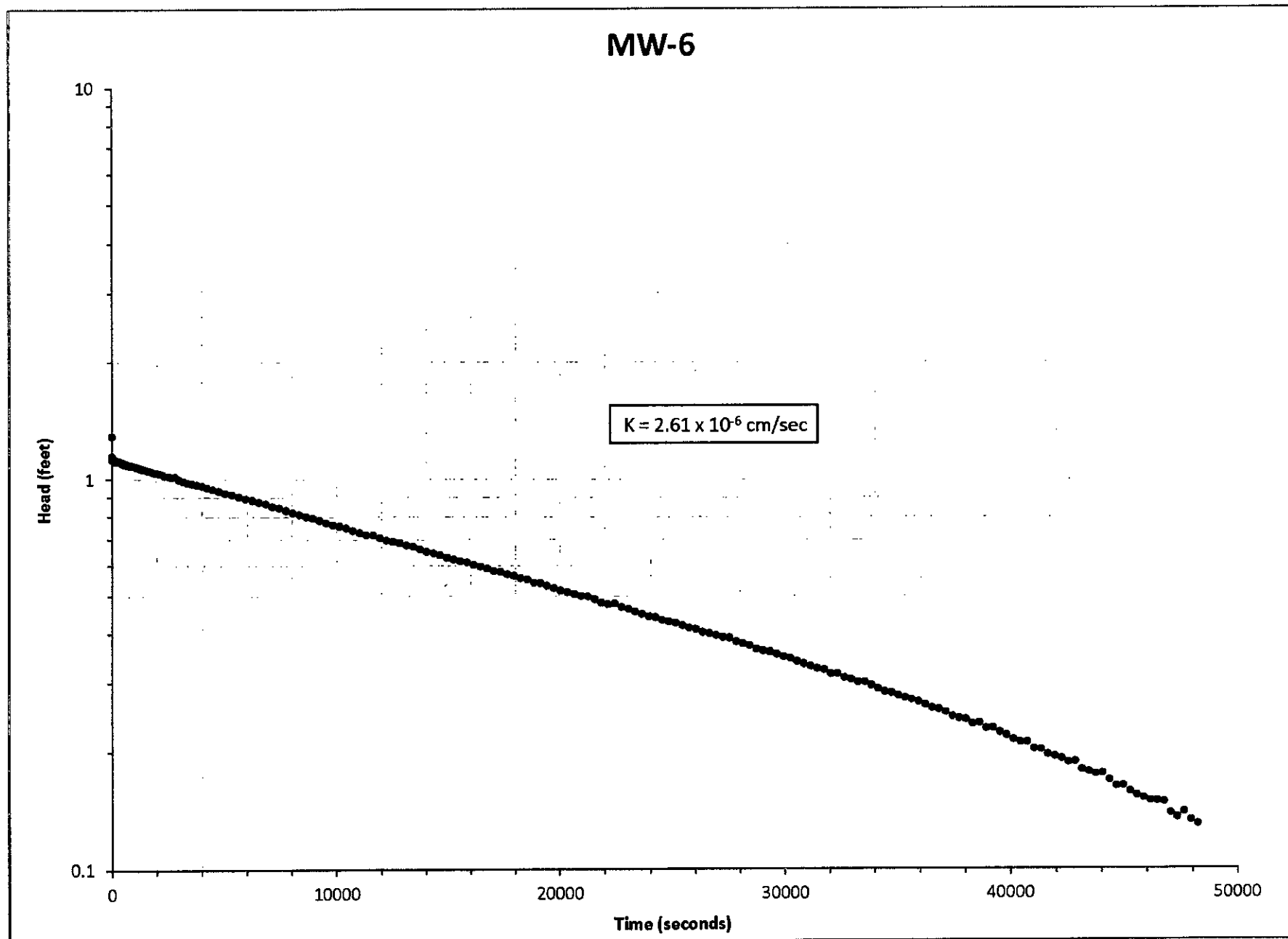
MW-2











Sunrise Coal, LLC
Bulldog Mine
Permit No. 429

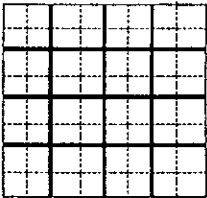
ATTACHMENT III-2D7

COMMUNITY PUBLIC WATER SUPPLY WELL LOGS
&
COMMUNITY PUBLIC WATER SUPPLY
GROUNDWATER WELL LOCATIONS MAPS

ALLERTON #3 COMMUNITY PUBLIC WATER SUPPLY WELL

Page 1 ILLINOIS STATE GEOLOGICAL SURVEY

Municipal Water Supply	Top	Bottom
top soil	0	1
brown silty clay w/gravel intermixed	1	17
gray silty clay soft	17	24
gray silty clay w/ gravel & cobbles	24	42
gray fine sand to med. gravel dirty	42	51
gray hard silty clay	51	54
Total Depth		54
Casing: 10" SCH 40 STEEL T&C from -2' to 41'		
Screen: 10' of 10" diameter .06 slot		
Grout: CEMENT from 0 to 20.		
Grout: CLAY from 20 to 23.		
Grout: BENTONITE CHIPS from 23 to 25.		
Water from sand & gravel at 0' to 0'.		
Static level 12' below casing top which is 0' above GL		
Pumping level 27' when pumping at 59 gpm for 1 hour		
Additional Lot: Subdivision:		
location info: ~10'E of well #1		
Location source: Location from the driller		
Permit Date: May 24, 1993		Permit #: E931525

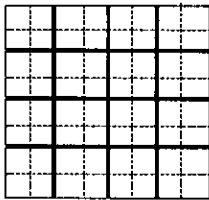
COMPANY	Layne-Western Co.	
FARM	Allerton, Village of #3	
DATE DRILLED	May 21, 1993	
ELEVATION	0	
LOCATION	2492'S 2600'W NE/c	
LATITUDE	39.901907	
	LONGITUDE	-87.92824
COUNTY	Vermilion	API 121832432900
		27 - 17N - 14W

State Plane Coordinates (Converted from Latitude, Longitude)
 Illinois East Zone, NAD 83
 N: 1,178,434
 E: 1,097,902

BROADLANDS #1 COMMUNITY PUBLIC WATER SUPPLY WELL

Page 1 ILLINOIS STATE GEOLOGICAL SURVEY

Water Well	Top	Bottom
fill	0	2
yellow clay	2	7
coarse gravel	7	17
blue clay	17	19
gray sand	19	26
soft gray clay	26	39
hard clay with boulders	39	56
sand streak	56	57
soft blue clay	57	71
brown clay	71	99
soft green clay	99	105
Total Depth		105
Driller's Log filed		
Additional Lot: Subdivision:		
location info: 225'S of well #-55		
Permit Date:	Permit #:	

COMPANY owner		
FARM Broadlands, Village of		
DATE DRILLED July 1, 1977	NO. 4	
ELEVATION 0	COUNTY NO. 21981	
LOCATION 375'S line, 1300'E line of SE		
LATITUDE 39.909493	LONGITUDE -87.999288	
COUNTY Champaign	API 120192198100	19 - 17N - 11E

State Plane Coordinates (Converted from Latitude, Longitude)
 Illinois East Zone, NAD 83
 N: 1,181,115
 E: 1,077,958

BROADLANDS #2 COMMUNITY PUBLIC WATER SUPPLY WELL

Page 1

ILLINOIS STATE GEOLOGICAL SURVEY

Water Well	Top	Bottom
soil zone, blk to yl brn	0	5
granule gravel, yellow, brown	5	10
sand, fine to medium grained, clean	10	15
sand, f to med grained, clean to dirty	15	32
gray with light and dark granules	32	100
st, vy f sand, brn-gry (old soil zone)	100	105
silt, very fine sand, clean to dirty	105	115
st,vy f s,cln/dty w/wd & org mat	115	120
sand, gray, coarse-grained, clean	120	130
sand, gray, some till with granules	130	135
till, gray, light and dark granules	135	145
sand, gray, dirty	145	155
till, gray	155	160
shale, gray-green (bedrock)	160	180
Total Depth		180
Size hole below casing: 5.87"		
Survey Sample Study filed		
Natural Gamma Sensitivity Time Constant filed		
Sample set # 63686 (' - 180') Received: November 11, 1982		
Additional location info: Lot: Subdivision: at EER Station #65		
Location source: Location from the driller		
<div style="border: 1px solid black; padding: 2px; display: inline-block;"> Image viewing help: New users please read this. </div> <div style="display: flex; justify-content: space-around; width: 100%;"> GET IMAGE Miscellaneous document </div>		
Permit Date:	Permit #:	

COMPANY Eaton Well Drlg. (Zane Eaton)

FARM Broadlands, Vlg. o

DATE DRILLED October 29, 1982

NO. 2-10-29-82

ELEVATION 695TM

COUNTY NO. 22579

LOCATION 1300'S line, 1640'W line of SW

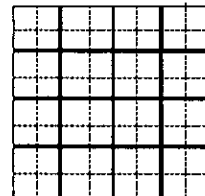
LATITUDE 39.91203

LONGITUDE -87.988716

COUNTY Champaign

API 120192257900

19 - 17N - 14W



State Plane Coordinates (Converted from Latitude, Longitude)

Illinois East Zone, NAD 83

N: 1,182,051

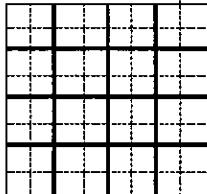
E: 1,080,921

BROADLANDS #3 COMMUNITY PUBLIC WATER SUPPLY WELL

Page 1

ILLINOIS STATE GEOLOGICAL SURVEY

Water Well	Top	Bottom
S.S. #63686 (0-180')	0	0
soil, yellow-brown	0	5
sand yellow brown fine to coarse	5	15
s,vy f/crs,cln,few cl ball,grans near bs	15	35
till gry w/lgt and dk colored grans	35	45
soil zone-till gry w/ brn and green cast	45	60
till gray has silt and sand layers	60	120
s,gry f,cln,w/blk org frags&wdy ptcls/1"	120	130
till gray	130	135
sand gray coarse clean to dirty	135	140
till gray	140	150
shale blue green	150	160
Total Depth		160
Size hole below casing: 5.87"		
Survey Sample Study filed		
Natural Gamma Sensitivity Time Constant filed		
Sample set # 64123 (' - 160') Received: October 10, 1983		
Additional Lot: Subdivision:		
location info: at EER station #66		
<div style="border: 1px solid black; padding: 2px;">Image viewing help: New users please read this.</div> <div style="border: 1px solid black; padding: 2px; display: flex; justify-content: space-between;"> GET IMAGE Natural Gamma Sensitivity Time Constant </div>		
Permit Date:	Permit #:	

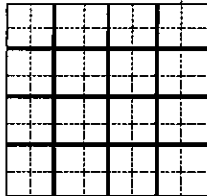
COMPANY	Eaton Well Drlg. (Zane Eaton)		
FARM	Broadlands, Vlg. o		
DATE DRILLED	October 29, 1982		NO. 1-10-29-82
ELEVATION	690GL		COUNTY NO. 22574
LOCATION	1300'S line, 1340'W line of SW		
LATITUDE	39.912016		LONGITUDE -87.989792
COUNTY	Champaign		API 120192257400
			19 - 17N - 14W

State Plane Coordinates (Converted from Latitude, Longitude)
 Illinois East Zone, NAD 83
 N: 1,182,044
 E: 1,080,619

BROADLANDS #4 COMMUNITY PUBLIC WATER SUPPLY WELL

Page 1 **ILLINOIS STATE GEOLOGICAL SURVEY**

Municipal Water Supply	Top	Bottom
top soil	0	1
yellow clay	1	7
fine yellow sand	7	30
gray hard sand	30	51
brown clay	51	56
very soft brown clay	56	81
hard gray clay	81	110
cmtd s w/peat strks	110	121
fine clean sand	121	131
Total Depth		13
Casing: 8" Steel from 0' to 122'		
Screen: 9' of 6" diameter 12 slot		
Grout: PUDDLED CLAY from 0 to 122.		
Size hole below casing: 8"		
Water from sand at 121' to 131'.		
Static level 30' below casing top which is 1' above GL		
Pumping level 60' when pumping at 75 gpm for 1 hour		
Additional Lot: Subdivision:		
location info: Well #3		
Location source: Location from permit		
Permit Date: December 13, 1984		Permit #: 116167

COMPANY Albrecht, S. Dean		
FARM Village of Broadlands		
DATE DRILLED December 17, 1984	NO. 2815	
ELEVATION 0	COUNTY NO. 23077	
LOCATION NE NW SE		
LATITUDE 39.914874	LONGITUDE -88.000467	
COUNTY Champaign	API 120192307700	
	19 - 17N - 11E	

State Plane Coordinates (Converted from Latitude, Longitude)
 Illinois East Zone, NAD 83
 N: 1,183,074
 E: 1,077,620

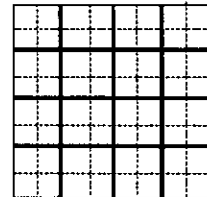
FAIRMOUNT #1 COMMUNITY PUBLIC WATER SUPPLY WELL

Page 1

ILLINOIS STATE GEOLOGICAL SURVEY

Municipal Water Supply	Top	Bottom
S.S. #51673	0	0
soil, sty cl lm, dk brn, weakly calcareous	0	5
subsoil, cly st, mtld yl, gry, bf, noncalc	5	10
till, buff, cly, some f gvl, calcareous	10	20
till, lgt gry, sy cl lm, & bedrock, ls, lgtgry	20	25
bedrock, limestone & shale, etc.	25	90
Total Depth		90
Survey Sample Study filed		
Sample set # 51673 (0' - 90') Received: July 13, 1965		
Permit Date:	Permit #:	

COMPANY owner
FARM Fairmount, Village of
DATE DRILLED NO. 1-64
ELEVATION 0 **COUNTY NO.** 01499
LOCATION 300'N line, 800'W line of SE
LATITUDE 40.047938 **LONGITUDE** -87.83145
COUNTY Vermilion **API** 121830149900



4 - 18N - 13W

State Plane Coordinates (Converted from Latitude, Longitude)
 Illinois East Zone, NAD 83
 N: 1,231,768
 E: 1,124,758

FAIRMOUNT #2 COMMUNITY PUBLIC WATER SUPPLY WELL

Page 1

ILLINOIS STATE GEOLOGICAL SURVEY

Municipal Water Supply	Top	Bottom
S.S. #21160	0	0
yellow clay	0	15
blue clay	15	35
white hard clay	35	46
ss broken (shot @ 62-72, water yielding)	46	72
Total Depth		72
Casing: 10" PIPE from 2' to 46'		
Pumping level 0' when pumping at 35 gpm for 0 hours		
Driller's Log filed		
Survey Sample Study filed		
Sample set # 21160 (0' - 72') Received: January 1, 1951		
Location source: Location from the driller		
Permit Date:		Permit #:

COMPANY	owner	<table border="1" style="width: 100%; height: 100%; border-collapse: collapse;"> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table>																																								
FARM	Fairmont, Village of																																									
DATE DRILLED	January 1, 1950																																									
	NO. 2																																									
ELEVATION	0																																									
	COUNTY NO. 01349																																									
LOCATION	940'N line, 950'E line of section																																									
LATITUDE	40.038692																																									
	LONGITUDE -87.828194																																									
COUNTY	Vermilion																																									
	API 121830134900																																									
	9 - 18N - 13W																																									

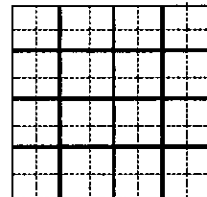
State Plane Coordinates (Converted from Latitude, Longitude)
 Illinois East Zone, NAD 83
 N: 1,228,405
 E: 1,125,688

FAIRMOUNT #3 COMMUNITY PUBLIC WATER SUPPLY WELL

Page 1 ILLINOIS STATE GEOLOGICAL SURVEY

Municipal Water Supply	Top	Bottom
topsoil	0	1
brown dirt	1	3
brown clay	3	13
gray clay	13	26
soft sandy gray clay	26	31
fine silty gray sand	31	34
coarse sand & gravel; gray shale at	34	43
Total Depth		43
Casing: 6" 19.4LB STEEL from 0' to 37'		
Screen: 6' of 6" diameter 70 slot		
Grout: CEMENT from 32 to 6.		
Grout: BENTONITE PLUG from 36 to 32.		
Water from sand & gravel at 34' to 43'.		
Static level 14' below casing top which is 1' above GL		
Pumping level 24' when pumping at 80 gpm for 3 hours		
Permanent pump installed at 25' on July 1, 1986, with a capacity of 50 gpm		
Address of well: 1280 ft SW of well 2		
Location source: Location from EPA		
Permit Date: September 14, 1986		Permit #:

COMPANY Sims, Ronald M. Sr.
FARM Fairmont, Village o
DATE DRILLED March 1, 1986 **NO. 4**
ELEVATION 670 **COUNTY NO.** 25538
LOCATION 1350'S 2600'E NW/c
LATITUDE 40.037446 **LONGITUDE** -87.834218
COUNTY Vermilion **API** 121832553800



9 - 18N - 13W

State Plane Coordinates (Converted from Latitude, Longitude)
 Illinois East Zone, NAD 83
 N: 1,227,942
 E: 1,124,004

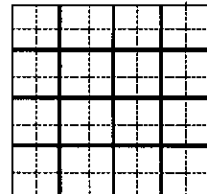
FAIRMOUNT #4 COMMUNITY PUBLIC WATER SUPPLY WELL

Page 1

ILLINOIS STATE GEOLOGICAL SURVEY

Municipal Water Supply	Top	Bottom
top soil	0	1
brown dirt	1	3
brown clay	3	13
gray clay	13	26
soft sandy gray clay	26	31
fine silty gray sand	31	34
coarse sand & gravel	34	43
gray shale	43	43
Total Depth		43
Casing: 6" 19.4# STEEL from 0' to 37'		
Screen: 6' of 6" diameter 70 slot		
Grout: CEMENT from 6 to 32.		
Grout: BENTONITE PLUG from 32 to 36.		
Size hole below casing: 0"		
Water from sand & gravel at 34' to 43'.		
Static level 14' below casing top which is 1' above GL		
Pumping level 24' when pumping at 80 gpm for 3 hours		
Permanent pump installed at 25' on July 30, 1986, with a capacity of 50 gpm		
Location source: Location from permit		
Permit Date: March 14, 1986		Permit #: 122585

COMPANY Sims, Ronald M. Sr.
FARM Fairmount, Village of
DATE DRILLED March 30, 1986 **NO. 4**
ELEVATION 0 **COUNTY NO.** 22852
LOCATION 270'S 200'W NE/c SE NE NW
LATITUDE 40.038593 **LONGITUDE** -87.834891
COUNTY Vermilion **API** 121832285200



9 - 18N - 13W

State Plane Coordinates (Converted from Latitude, Longitude)
 Illinois East Zone, NAD 83
 N: 1,228,358
 E: 1,123,813

FAIRMOUNT #5 COMMUNITY PUBLIC WATER SUPPLY WELL

ILLINOIS STATE GEOLOGICAL SURVEY

Municipal Water Supply	Top	Bottom
no record	0	47
Total Depth		47
Casing: " CASING from 1' to 43'		

Permit Date:

Permit #:

COMPANY

FARM Fairmount, Town of

DATE DRILLED January 1, 1996 **NO. 5**

ELEVATION 0 **COUNTY NO.** 25661

LOCATION SW NW SW

LATITUDE 40.046073 **LONGITUDE** -87.823729

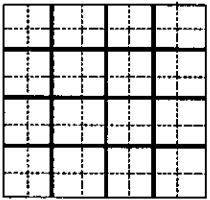
COUNTY Vermilion **API** 121832566100 **3 - 18N - 13W**

State Plane Coordinates (Converted from Latitude, Longitude)
 Illinois East Zone, NAD 83
 N: 1,231,101
 E: 1,126,923

FAIRMOUNT #6 COMMUNITY PUBLIC WATER SUPPLY WELL

Page 1 ILLINOIS STATE GEOLOGICAL SURVEY

Municipal Water Supply	Top	Bottom
S.S. #51675	0	0
soil, sty cl lm, some f gvl, noncalc	0	5
till, bf, sty, f gvl @ top, bcmg f/med @ bot	5	15
till, lgt gry, sty, gvly, f/med, calcareous	15	20
s, vy f/f, dk gry, sty&gvl f/crs, calcareous	20	25
till, bf/gry, sty, f/vy crs s & f gravel	25	30
sample missing	30	35
till, bf/gry, sty, f/vy crs s & f gravel	35	40
till, gravelly & bedrock, calcareous	40	45
bedrock at	45	45
Total Depth		45
Survey Sample Study filed		
Sample set # 51675 (0' - 90') Received: July 13, 1965		
Permit Date:	Permit #:	

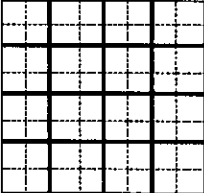
COMPANY	owner	
FARM	Fairmount, Village of	
DATE DRILLED	NO. 2	
ELEVATION	0	
LOCATION	1000'N line, 2000'W line of SE	
LATITUDE	40.04608	
	LONGITUDE -87.827112	
COUNTY	Vermilion	
API 121832216100		4 - 18N - 13W

State Plane Coordinates (Converted from Latitude, Longitude)
 Illinois East Zone, NAD 83
 N: 1,231,098
 E: 1,125,976

FAIRMOUNT #7 COMMUNITY PUBLIC WATER SUPPLY WELL

Page 1 ILLINOIS STATE GEOLOGICAL SURVEY

Municipal Water Supply	Top	Bottom
S.S. #51674	0	0
soil, sty cl lm, dk brn & yl, non-calc	0	5
subsoil, cly sand, mottled buff, yl, gray	5	10
till, gvly, f w/some vy crs, calc, gry	10	20
s, f/crs, & f gvl, lgt gry, calc, slgtly sty	20	25
gvl, crs & shale, silty, lgt gry, calcareous	25	30
ss, lgt gry, silty, shale, light gray @ 30+	30	30
Total Depth		30
Survey Sample Study filed Sample set # 51674 (0' - 90') Received: July 13, 1965		
Permit Date:	Permit #:	

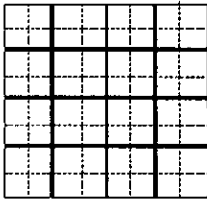
COMPANY	owner	
FARM	Fairmount, Village of	
DATE DRILLED	NO. 3	
ELEVATION	0 COUNTY NO. 22162	
LOCATION	600'N line, 800'W line of SE	
LATITUDE	40.04711 LONGITUDE -87.831437	
COUNTY	Vermilion API 121832216200 4 - 18N - 13W	

State Plane Coordinates (Converted from Latitude, Longitude)
 Illinois East Zone, NAD 83
 N: 1,231,467
 E: 1,124,763

FAIRMOUNT #8 COMMUNITY PUBLIC WATER SUPPLY WELL

Page 1 ILLINOIS STATE GEOLOGICAL SURVEY

Municipal Water Supply	Top	Bottom
S.S. #51676	0	0
soil, brown & yl, sty clay loam, non-calc	0	5
till, loamy, occas f gvl@top, calc @ bot	5	15
sample missing	15	20
till, vy gvly, f/crs, s, f/crs, calc, lgt gry	20	25
sand & gravel, slgtly sty, f/med, calc	25	30
bedrock, sh, limestone, ss, etc. @ 30'+	30	30
till, calc, loam, gry 5Y4-5/1, Batestown	30	35
till, calc, loam gray 2.5Y4/1, Vandalia	35	45
shale, gray at	45	45
Total Depth		45
Survey Sample Study filed		
Sample set # 51676 (0' - 120') Received: July 13, 1965		
Permit Date:	Permit #:	

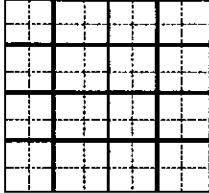
COMPANY	owner	
FARM	Fairmount, Village of	
DATE DRILLED	NO. 4	
ELEVATION	0 COUNTY NO. 22163	
LOCATION	700'S line, 100'E line of NW	
LATITUDE	40.050639 LONGITUDE -87.834726	
COUNTY	Vermilion API 121832216300 4 - 18N - 13W	

State Plane Coordinates (Converted from Latitude, Longitude)
 Illinois East Zone, NAD 83
 N: 1,232,763
 E: 1,126,634

FAIRMOUNT #9 COMMUNITY PUBLIC WATER SUPPLY WELL

Page 1 ILLINOIS STATE GEOLOGICAL SURVEY

Municipal Water Supply	Top	Bottom
S.S. #51678	0	0
soil, sty cl lm, brn & yl, mottled, noncalc	0	5
s, f/crs & gvl, f/med; vy wk calc, brt yl/brn	5	15
till, lgt gry, much med/vy crs gvl, calc	15	25
s, f/med & gvl, f/med; vy sty, calc, c frag	25	30
sand, bf/gry, f/med, well sorted, wkly calc	30	35
s & gvl, vy dty, prly srtd, calc, lgt bf/gray	35	40
bedrock @ 40+	40	40
Total Depth		40
Survey Sample Study filed		
Sample set # 51678 (0' - 57') Received: July 13, 1965		
Permit Date:	Permit #:	

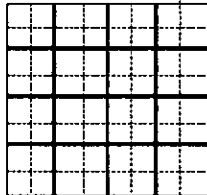
COMPANY owner		
FARM Fairmount, Village of		
DATE DRILLED	NO. 5	
ELEVATION 0	COUNTY NO. 22164	
LOCATION 200'N line, 1800'W line of SE		
LATITUDE 40.048274	LONGITUDE -87.827864	
COUNTY Vermilion	API 121832216400	
	4 - 18N - 13W	

State Plane Coordinates (Converted from Latitude, Longitude)
 Illinois East Zone, NAD 83
 N: 1,231,896
 E: 1,125,761

FAIRMOUNT #10 COMMUNITY PUBLIC WATER SUPPLY WELL

Page 1 **ILLINOIS STATE GEOLOGICAL SURVEY**

Municipal Water Supply	Top	Bottom
S.S. #51680	0	0
soil, sty clay loam, highly ox, non-calc	0	10
sand, vy fine, sty, buff/brn, calc, well srted	10	30
till, cly&gvly, calc, bf/brn; s, vy f, sty	30	35
sand, vy f, sty, lgt brn/lgt gry, wl sorted	35	50
gravel, f/med, lgt gry, clean, calcareous	50	55
bedrock @ 55+	55	55
Total Depth		55
Survey Sample Study filed Sample set # 51680 (0' - 85') Received: July 13, 1965		
Permit Date:	Permit #:	

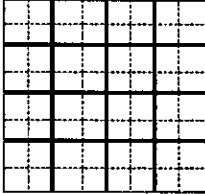
COMPANY	owner	
FARM	Fairmount, Village of	
DATE DRILLED	NO. 7	
ELEVATION	0 COUNTY NO. 22165	
LOCATION	1000'N line, 1650'W line of SE	
LATITUDE	40.046059 LONGITUDE -87.828366	
COUNTY	Vermilion API 121832216500	
	4 - 18N - 13W	

State Plane Coordinates (Converted from Latitude, Longitude)
 Illinois East Zone, NAD 83
 N: 1,231,089
 E: 1,125,625

**FAIRMOUNT #11
COMMUNITY PUBLIC WATER SUPPLY WELL**

Page 1 **ILLINOIS STATE GEOLOGICAL SURVEY**

Municipal Water Supply	Top	Bottom
S.S. #51681	0	0
soil, disturbed garbage	0	5
subsoil, buff to yellow, slightly calc	5	10
till, lgt buff/gry, some f gvl, cly, calc	10	15
till, vy sty & sy, lgt gry, calcareous	15	20
outwash, slgtly sty, sy w/some f gvl, calc	20	25
bedrock, (no description) at	25	25
Total Depth		25
Survey Sample Study filed Sample set # 51681 (0' - 45') Received: July 13, 1965		
Permit Date:	Permit #:	

COMPANY owner		
FARM Fairmount, Village of		
DATE DRILLED	NO. 8	
ELEVATION 0	COUNTY NO. 22166	
LOCATION 50'N line, 600'W line of SE		
LATITUDE 40.048613	LONGITUDE -87.832181	
COUNTY Vermilion	API 121832216600	
	4 - 18N - 13W	

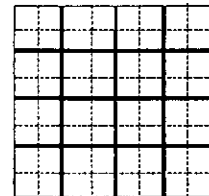
State Plane Coordinates (Converted from Latitude, Longitude)
 Illinois East Zone, NAD 83
 N: 1,232,013
 E: 1,124,552

FITHIAN #1 COMMUNITY PUBLIC WATER SUPPLY WELL

Page 1 **ILLINOIS STATE GEOLOGICAL SURVEY**

Municipal Water Supply	Top	Bottom
S.S. #21481	0	0
soil, black	0	5
till, calcareous, yellowish brown	5	20
till, calcareous, sandy	20	25
si, argil, mic, lgt gry, grdg/ss, very fine	25	35
ss, silty, mic, med lgt gry, incoherent	35	40
si, argil, sty, carb, wk/cmpt grdg/ss, vy f	40	45
ss, sty, mic, carb, lgt gray, med incoherent	45	50
(out of place) till, gravelly, olive brown	50	60
ss, sty, mic, carb, med/crs, incoh/cmpt, gry	60	85
dolomite, calc, pyritic, lgt browish gry, f	85	93
siltstone, argil, micaceous, brnsh gry at	93	93
Total Depth		93
Survey Sample Study filed		
Sample set # 21481 (0' - 92.5') Received: January 1, 1951		
Location source: Location from the driller		
Permit Date:	Permit #:	

COMPANY owner
FARM Fithian, City of
DATE DRILLED January 1, 1951 **NO. 2**
ELEVATION 660TM **COUNTY NO. 01212**
LOCATION 1215'N line, 1450'W line of section
LATITUDE 40.110883 **LONGITUDE** -87.839557
COUNTY Vermilion **API 121830121200** **16 - 19N - 13W**

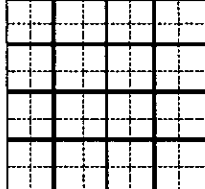


State Plane Coordinates (Converted from Latitude, Longitude)
 Illinois East Zone, NAD 83
 N: 1,254,685
 E: 1,122,361

FITHIAN #3 COMMUNITY PUBLIC WATER SUPPLY WELL

Page 1 **ILLINOIS STATE GEOLOGICAL SURVEY**

Municipal Water Supply	Top	Bottom
S.S. #45577	0	0
sand gravely ox to gry variable outwash	0	30
shale, gray at	30	30
no record (sample at TD)	30	80
Total Depth		80
Sample set # 45577 (0' - 80') Received: November 4, 1963 Location source: Location from the driller		
Permit Date:	Permit #:	

COMPANY	owner	
FARM	Fithian, Village of	
DATE DRILLED	January 1, 1963	
	NO. 6-63	
ELEVATION	650TM	
	COUNTY NO. 22205	
LOCATION	1340'N line, 1330'W line of NW	
LATITUDE	40.11053	LONGITUDE -87.839982
COUNTY	Vermilion	API 121832220500 16 - 19N - 13W

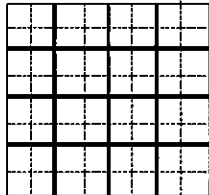
State Plane Coordinates (Converted from Latitude, Longitude)
 Illinois East Zone, NAD 83
 N: 1,254,556
 E: 1,122,243

FITHIAN #4 COMMUNITY PUBLIC WATER SUPPLY WELL

Page 1

ILLINOIS STATE GEOLOGICAL SURVEY

Municipal Water Supply	Top	Bottom
yellow clay	0	21
silty yellow sand	21	36
blue shale	36	44
hard blue shale with broken lime streak	44	70
soft white shale	70	78
hard blue shale	78	110
broken limestone & green soft shale	110	153
black firm shale	153	168
blue shale	168	175
sandstone soft to medium (water bearing)	175	220
Total Depth		220
Casing: 10" from 0' to 39' 8" from -3' to 180'		
Size hole below casing: 8"		
Water from sandstone at 179' to 220'.		
Static level 21' below casing top which is 3' above GL		
Pumping level 113' when pumping at 80 gpm for 0 hours		
Permanent pump installed at 147'		
Driller's Log filed		
Natural Gamma Sensitivity Time Constant filed		
Location source: Location from the driller		
<div style="border: 1px solid black; padding: 2px; display: inline-block;"> Image viewing help: New users please read this. </div>		
<div style="border: 1px solid black; padding: 2px; display: inline-block;"> GET IMAGE </div>		Miscellaneous document
<div style="border: 1px solid black; padding: 2px; display: inline-block;"> GET IMAGE </div>		Natural Gamma Sensitivity Time Constant
Permit Date:	Permit #:	

COMPANY	Sims Drilling Co.	
FARM	Fithian, Village of	
DATE DRILLED	November 1, 1971	
	NO. 3	
ELEVATION	648TM	
	COUNTY NO. 01758	
LOCATION	1150'N line, 1460'W line of NW	
LATITUDE	40.111062	LONGITUDE -87.839524
COUNTY	Vermilion	API 121830175800
		16 - 19N - 13W

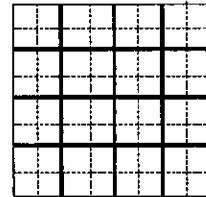
State Plane Coordinates (Converted from Latitude, Longitude)
 Illinois East Zone, NAD 83
 N: 1,254,751
 E: 1,122,370

FITHIAN #5
COMMUNITY PUBLIC WATER SUPPLY WELL

Page 1 ILLINOIS STATE GEOLOGICAL SURVEY

Municipal Water Supply	Top	Bottom
yellow clay	0	6
yellow sand	6	36
Total Depth		36
Casing: 8" STEEL from -2' to 30'		
Screen: 6' of 8" diameter 80 slot		
Grout: CEMENT from 0 to 20.		
Size hole below casing: 20"		
Water from sand at 6' to 36'.		
Static level 9' below casing top which is 2' above GL		
Pumping level 21' when pumping at 95 gpm for 4 hours		
Location source: Location from permit		
Permit Date: April 27, 1984	Permit #:	112086

COMPANY Eaton, Zane C. Jr.
 FARM Fithian, Village of
 DATE DRILLED October 27, 1984 NO.
 ELEVATION 0 COUNTY NO. 22712
 LOCATION 1775'N line, 1450'W line of section
 LATITUDE 40.109337 LONGITUDE -87.839533
 COUNTY Vermillion API 121832271200



16 - 19N - 13W

State Plane Coordinates (Converted from Latitude, Longitude)
 Illinois East Zone, NAD 83
 N: 1,254,122
 E: 1,122,371

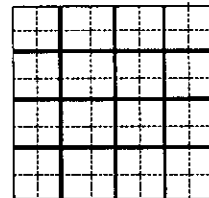
HOMER #4 COMMUNITY PUBLIC WATER SUPPLY WELL

Page 1

ILLINOIS STATE GEOLOGICAL SURVEY

Municipal Water Supply	Top	Bottom
top soil	0	2
yellow-brown clay	2	17
gray clay	17	25
sand streak	25	25
gray clay	25	26
sand streaks	26	27
silty sandy gray clay	27	40
fine to coarse sand	40	52
coarse gravel	52	54
coarse to fine sand & gravel	54	61
coarse sand-small gravel	61	65
gray clay at	65	65
Total Depth		65
Casing: " 28# from 0' to 55' 8" STAINLESS STEEL from 55' to 65'		
Screen: 10' of 8" diameter 60 slot		
Grout: BENTONITE from 8 to 45.		
Water from sand & gravel at 55' to 65'.		
Static level 32' below casing top which is 0' above GL		
Pumping level 0' when pumping at 60 gpm for 2 hours		
Location source: Location from the driller		
Permit Date:	Permit #: E921570	

COMPANY Sims, R. Marc Jr.
FARM Homer, Village of
DATE DRILLED July 14, 1992 **NO. 4**
ELEVATION 670GL **COUNTY NO. 24527**
LOCATION 2300'S line, 1600'E line of section
LATITUDE 40.031404 **LONGITUDE -87.963685**
COUNTY Champaign **API 120192452700**



8 - 18N - 14W

State Plane Coordinates (Converted from Latitude, Longitude)
 Illinois East Zone, NAD 83
 N: 1,225,564
 E: 1,087,762

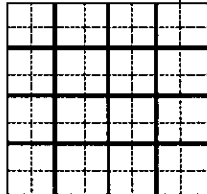
INDIANOLA #1 COMMUNITY PUBLIC WATER SUPPLY WELL

Page 1 **ILLINOIS STATE GEOLOGICAL SURVEY**

Municipal Water Supply	Top	Bottom
hardpan	0	15
gravel & coarse sand	15	21
Total Depth		21
Casing: 10" CASING from 0' to 0'		
Screen: 6' of 10" diameter 80 slot		
Water from coarse sand & gravel at 0' to 0'.		
Static level 8' below casing top which is 0' above GL		
Pumping level 15' when pumping at 30 gpm for 24 hours		
Permanent pump installed at 135'		
on , with a capacity of 54 gpm		
Remarks: well sealed 12/17/1991		
Owner Address: ,		
Address of well: N well in field NE of town		
Location source: Location from EPA		

Permit Date:

Permit #:

COMPANY	Ortmann Drilling Co.	
FARM	Indianola, Village o	
DATE DRILLED	June 1, 1952	
	NO. 1	
ELEVATION	660	
	COUNTY NO. 25534	
LOCATION	2000'N 2000'W SE/c	
LATITUDE	39.930605	
	LONGITUDE -87.738047	
COUNTY	Vermilion	API 121832553400
		17 - 17N - 12W

State Plane Coordinates (Converted from Latitude, Longitude)
 Illinois East Zone, NAD 83
 N: 1,189,187
 E: 1,151,192

INDIANOLA #2 COMMUNITY PUBLIC WATER SUPPLY WELL

Page 1 **ILLINOIS STATE GEOLOGICAL SURVEY**

Water Well	Top	Bottom
Total Depth		55
Driller's Log filed		

Permit Date:

Permit #:

COMPANY Daily & Assoc Engr
FARM Indianola, Village of

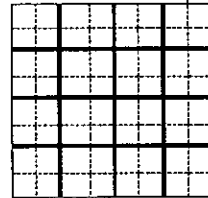
DATE DRILLED November 1, 1966 **NO.** 66-3

ELEVATION 650GL **COUNTY NO.** 01490

LOCATION 990'S line, 1720'E line of SE

LATITUDE 39.92782 **LONGITUDE** -87.736977

COUNTY Vermilion **API** 121830149000 17 - 17N - 12W



State Plane Coordinates (Converted from Latitude, Longitude)
Illinois East Zone, NAD 83
N: 1,188,175
E: 1,151,499

INDIANOLA #3 COMMUNITY PUBLIC WATER SUPPLY WELL

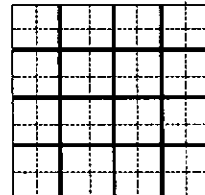
Page 1 **ILLINOIS STATE GEOLOGICAL SURVEY**

Water Well	Top	Bottom
Total Depth		55
Driller's Log filed		

Permit Date:

Permit #:

COMPANY Daily & Assoc Engr
FARM Indianola, Village of
DATE DRILLED November 1, 1966 **NO.** 66-3
ELEVATION 650GL **COUNTY NO.** 01490
LOCATION 990'S line, 1720'E line of SE
LATITUDE 39.92782 **LONGITUDE** -87.736977
COUNTY Vermilion **API** 121830149000



17 - 17N - 12W

State Plane Coordinates (Converted from Latitude, Longitude)
 Illinois East Zone, NAD 83
 N: 1,189,240
 E: 1,151,233

INDIANOLA #4 COMMUNITY PUBLIC WATER SUPPLY WELL

Page 1 **ILLINOIS STATE GEOLOGICAL SURVEY**

Municipal Water Supply	Top	Bottom
top soil	0	1
brown dirt	1	3
gray sand & gravel	3	4
gravel & gray clay	4	29
sand & gravel	29	31
gravelly brown clay	31	35
sandy brown clay	35	62
firm sandy gray clay	62	75
coarse to fine sand	75	82
sandy gray clay	82	92
silty fine dirty gravel-sand	92	97
gray clay at	97	97
Total Depth		97
Casing: 6" SCHEDULE 40 from -6' to 75'		
Screen: 5' of 6" diameter 50 slot		
Water from sand & gravel at 92' to 97'.		
Static level 3' below casing top which is 0' above GL		
Pumping level 0' when pumping at 26 gpm for 2 hours		
Remarks: See report on file.		
Owner Address: Indianola, IL		
Location source: Location from the driller		

Permit Date: September 6, 1990

Permit #: E901514

COMPANY Sims Drilling Co.

FARM Indianola, Village of

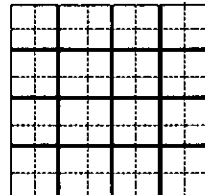
DATE DRILLED September 16, 1990 NO. 4

ELEVATION 645GL COUNTY NO. 23943

LOCATION 570'N 1295'W SE/c

LATITUDE 39.926662 LONGITUDE -87.735428

COUNTY Vermilion API 121832394300 17 - 17N - 12W



State Plane Coordinates (Converted from Latitude, Longitude)

Illinois East Zone, NAD 83

N: 1,187,756

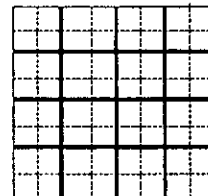
E: 1,151,936

OGDEN #1 COMMUNITY PUBLIC WATER SUPPLY WELL

Page 1 ILLINOIS STATE GEOLOGICAL SURVEY

Water Well	Top	Bottom
S.S. #22654	0	0
soil, brn/yl brn, silty, calc fragments	0	5
st(loess), gry, brn-yl brn, mtld, calc, fosf	5	10
till, olive brown, sandy, silty, calc	10	15
till, olive brown, sandy, silty, calc	15	20
till, gray, sandy, silty, calcareous	20	25
till, gray brn, sandy silty, calcareous	25	30
till, gray, sand, silty, calcareous	30	35
till(?), gray, clayey, calcareous	35	40
s, brn, mostly f/med, vy sty, slgtly calc	40	45
s, med/crs, poorly sorted, slgtly calc	45	50
s, f/med, qtz, slgtly calc, lgt gry brn	50	55
s, crs, & fine gvl, well sorted, calc	55	60
s, fine, well sorted, lgt yl brn, calc	60	75
Total Depth		75
Casing: 16" ID from 0' to 50' 16" OD from 0' to 11'		
<p>Driller's Log filed Survey Sample Study filed Sample set # 22654 (0' - 75') Received: January 1, 1952</p>		
Permit Date:	Permit #:	

COMPANY owner
FARM Ogden Village OF
DATE DRILLED January 1, 1952 **NO. 1**
ELEVATION 0 **COUNTY NO. 00487**
LOCATION 189'S line, 839'W line of SE
LATITUDE 40.11311 **LONGITUDE** -87.94632
COUNTY Champaign **API 120190048700**



9 - 19N - 14W

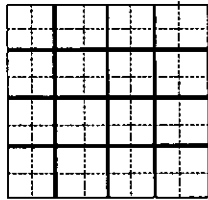
State Plane Coordinates (Converted from Latitude, Longitude)
 Illinois East Zone, NAD 83
 N: 1,255,349
 E: 1,092,495

OGDEN #2 COMMUNITY PUBLIC WATER SUPPLY WELL

Page 1 ILLINOIS STATE GEOLOGICAL SURVEY

Municipal Water Supply	Top	Bottom
SS #65715 (0'-55')	0	0
yellow clay	0	18
blue clay	18	33
packed sand	33	52
sand & gravel	52	56
Total Depth		56
Casing: 6" ID STL #19 SCH 40 from -2' to 52'		
Screen: 4' of 6" diameter .4000000059604645 slot		
Size hole below casing: 0"		
Water from sand & gravel at 52' to 56'.		
Static level 10' below casing top which is 2' above GL		
Pumping level 27' when pumping at 50 gpm for 3 hours		
Permanent pump installed at 45' on August 28, 1985, with a capacity of 10 gpm		
Sample set # 65715 (0' - 55') Received: August 12, 1986		
Location source: Location from permit		
Permit Date: March 19, 1985		Permit #: 116860

COMPANY Baker, Earl Jr.
FARM Ogden, Village of
DATE DRILLED August 28, 1985 **NO.**
ELEVATION 0 **COUNTY NO.** 22772
LOCATION 60'S line, 1500'W line of NW SW
LATITUDE 40.101882 **LONGITUDE** -87.953248
COUNTY Champaign **API** 120192277200



16 - 19N - 14W

State Plane Coordinates (Converted from Latitude, Longitude)
 Illinois East Zone, NAD 83
 N: 1,251,250
 E: 1,090,575

OGDEN #3 COMMUNITY PUBLIC WATER SUPPLY WELL

Page 1 ILLINOIS STATE GEOLOGICAL SURVEY

Municipal Water Supply	Top	Bottom
top soil	0	3
yellow clay	3	6
yellow dirty gravel	6	11
gray clay	11	25
sand & gravel	25	26
gray gravelly clay	26	34
dirty gray clay	34	36
soft gray clay	36	39
dy s & gry clay	39	44
sty gry s (12 slot)	44	72
sty gry s (10 slot)	72	86
Total Depth		86
Casing: 8" STEEL from 0' to 76'		
Screen: 10' of 8" diameter .05999999865889549 slot		
Grout: PUDLLED CLAY from 0 to 76.		
Size hole below casing: 8"		
Static level 8' below casing top which is 2' above GL		
Pumping level 62' when pumping at 170 gpm for 4 hours		
Driller's Log filed		
Location source: Location from permit		
Permit Date: June 6, 1980		Permit #: 94255

COMPANY Albrecht, S. Dean

FARM Odgen, Village of

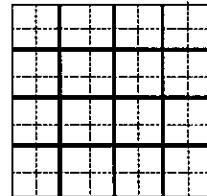
DATE DRILLED NO.

ELEVATION 0 COUNTY NO. 22732

LOCATION SW SW SW

LATITUDE 40.113483 LONGITUDE -87.957507

COUNTY Champaign API 120192273200 9 - 19N - 14W



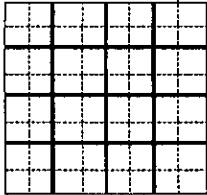
State Plane Coordinates (Converted from Latitude, Longitude)
 Illinois East Zone, NAD 83
 N: 1,255,471
 E: 1,089,366

SIDELL #1
COMMUNITY PUBLIC WATER SUPPLY WELL

Page 1 ILLINOIS STATE GEOLOGICAL SURVEY

Private Water Well	Top	Bottom
top soil & yellow clay	0	5
yellow clay & gravel & gray sand	5	10
gray sand & silt packed hard soft at 15	10	20
Total Depth		20
Driller's Log filed		
Location source: Location from the driller		
Permit Date:	Permit #:	

COMPANY owner
FARM Village of Sidell
DATE DRILLED May 1, 1948 **NO.** 4
ELEVATION 652GL **COUNTY NO.** 01123
LOCATION 1200'S line, 440'W line of SW NW
LATITUDE 39.920288 **LONGITUDE** -87.820939
COUNTY Vermilion **API** 121830112300



22 - 17N - 13W

State Plane Coordinates (Converted from Latitude, Longitude)
 Illinois East Zone, NAD 83
 N: 1,185,285
 E: 1,127,967

SIDELL #2 COMMUNITY PUBLIC WATER SUPPLY WELL

Page 1 ILLINOIS STATE GEOLOGICAL SURVEY

Municipal Water Supply	Top	Bottom
no record	0	22
Total Depth		22
Casing: 10" CASING from 3' to 17'		

Permit Date:

Permit #:

COMPANY

FARM Sidell

DATE DRILLED January 1, 1960

NO. 4

ELEVATION 0

COUNTY NO. 25535

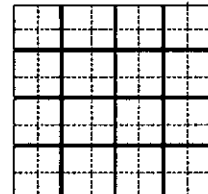
LOCATION 94'S 14'W NE/c

LATITUDE 39.909536

LONGITUDE -87.785026

COUNTY Vermilion

API 121832553500



26 - 17N - 13W

State Plane Coordinates (Converted from Latitude, Longitude)

Illinois East Zone, NAD 83

N: 1,181,428

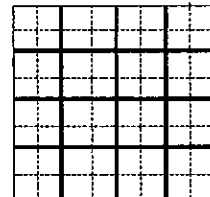
E: 1,138,065

SIDEELL #3 COMMUNITY PUBLIC WATER SUPPLY WELL

Page 1 ILLINOIS STATE GEOLOGICAL SURVEY

Private Water Well	Top	Bottom
mucky top soil to gray sand	0	5
gray clay & sand & gravel soft	5	10
gray clay & sand & gravel medium hard	10	15
loose gray sand fine to medium	15	15
hard gray sand & gravel	15	20
Total Depth		20
Driller's Log filed Location source: Location from the driller		
Permit Date:	Permit #:	

COMPANY	owner		
FARM	Village of Sidell		
DATE DRILLED	May 1, 1948	NO.	5
ELEVATION	651GL	COUNTY NO.	01124
LOCATION	1080'S line, 680'W line of SW NW		
LATITUDE	39.919958	LONGITUDE	-87.820083
COUNTY	Vermilion	API	121830112400
			22 - 17N - 13W



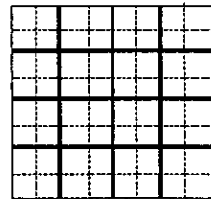
State Plane Coordinates (Converted from Latitude, Longitude)
 Illinois East Zone, NAD 83
 N: 1,185,166
 E: 1,128,208

SIDELL #4 COMMUNITY PUBLIC WATER SUPPLY WELL

Page 1 ILLINOIS STATE GEOLOGICAL SURVEY

Private Water Well	Top	Bottom
top soilk & gray sand	0	5
gary sand & clay, soft	5	13
gray sand & clay hard at 20	13	20
Total Depth		20
<p>Driller's Log filed Location source: Location from the driller</p>		
Permit Date:	Permit #:	

COMPANY owner
FARM Village of Sidell
DATE DRILLED May 1, 1948 **NO. 7**
ELEVATION 651GL **COUNTY NO. 01126**
LOCATION 930'S line, 470'W line of SW NW
LATITUDE 39.919544 **LONGITUDE** -87.820839
COUNTY Vermilion **API 121830112600**



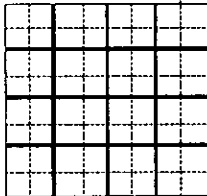
22 - 17N - 13W

State Plane Coordinates (Converted from Latitude, Longitude)
 Illinois East Zone, NAD 83
 N: 1,185,014
 E: 1,127,997

SIDELL #6 COMMUNITY PUBLIC WATER SUPPLY WELL

Page 1 ILLINOIS STATE GEOLOGICAL SURVEY

Municipal Water Supply	Top	Bottom
topsoil	0	1
yellow clay	1	4
brown clay	4	11
gray clay	11	23
gray sand, fine to coarse	23	33
med to coarse gray sand, small gravel	33	55
gray clay at	55	55
Total Depth		55
Casing: 8" SCH 40 from 0' to 40' " 304 SS SCREEN from 40' to 55'		
Screen: 15' of 8" diameter 40 slot		
Additional Lot: Subdivision: location info: 10'E of TH 3-97		
Location source: Location from the driller		
Permit Date:	Permit #:	

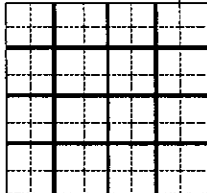
COMPANY	Sims, Ronald M. Sr.	
FARM	Sidell, Village of	
DATE DRILLED	July 29, 1997	
ELEVATION	0	
LOCATION	1335'N 712'E SW/c	
LATITUDE	39.898919	
	LONGITUDE	-87.801041
COUNTY	Vermilion	API 121832534100
		26 - 17N - 13W

State Plane Coordinates (Converted from Latitude, Longitude)
 Illinois East Zone, NAD 83
 N: 1,177,533
 E: 1,133,595

SIDEELL #7 COMMUNITY PUBLIC WATER SUPPLY WELL

Page 1 ILLINOIS STATE GEOLOGICAL SURVEY

Private Water Well	Top	Bottom
black loam & clay	0	5
loose gravel & clay	5	11
compact gray sand clay & gravel	11	17
fine gray sand	17	17
brown gray compact clay gravel & sand	17	20
Total Depth		20
Driller's Log filed Location source: Location from the driller		
Permit Date:	Permit #:	

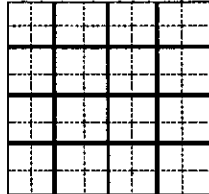
COMPANY owner		
FARM Village of Sidell		
DATE DRILLED May 1, 1948	NO. 3	
ELEVATION 654GL	COUNTY NO. 01122	
LOCATION 730'S line, 370'W line of SW NW		
LATITUDE 39.918992	LONGITUDE -87.821204	
COUNTY Vermilion	API 121830112200	
	22 - 17N - 13W	

State Plane Coordinates (Converted from Latitude, Longitude)
 Illinois East Zone, NAD 83
 N: 1,184,812
 E: 1,127,896

SIDNEY #1 COMMUNITY PUBLIC WATER SUPPLY WELL

Page 1 ILLINOIS STATE GEOLOGICAL SURVEY

Water Well	Top	Bottom
S.S. #3484	0	0
sand, clayey, yellow, fine to coarse	0	20
till, very sandy, calcareous, gray	20	30
till, sandy, calcareous, gray	30	38
s, slgtly sty, f/med,angular,brnsh gray	38	40
no samples	40	49
sand, gray, medium to very coarse, clean	49	50
gravel, gray, fine, clean	50	52
sand, slightly silty, gray, f, angular	52	56
st&s,calc,dk brnsh gry, cntng plnt mat at	56	56
Total Depth		56
Casing: 6" from 46' to 0'		
Survey Sample Study filed		
Gas Flow Measurement filed		
Sample set # 3484 (5' - 56') Received: July 1, 1939		
Permit Date:		Permit #:

COMPANY owner		
FARM Sidney, City of #2		
DATE DRILLED January 1, 1939	NO. 2	
ELEVATION 665GL	COUNTY NO. 00375	
LOCATION 1000'N line, 1700'E line of section		
LATITUDE 40.023124	LONGITUDE -88.07281	
COUNTY Champaign	API 120190037500	
	16 - 18N - 10E	

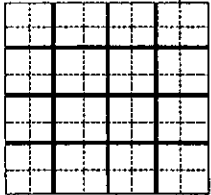
State Plane Coordinates (Converted from Latitude, Longitude)
 Illinois East Zone, NAD 83
 N: 1,222,440
 E: 1,057,213

SIDNEY #2
COMMUNITY PUBLIC WATER SUPPLY WELL

Page 1 ILLINOIS STATE GEOLOGICAL SURVEY

Water Well	Top	Bottom
top soil	0	2
yellow clay	2	10
blue clay	10	35
dark, gravelly clay	35	46
sand and gravel w/ cmpt strks & boulders	46	60
blue clay	60	62
Total Depth		62
Driller's Log filed		
Additional Lot: Subdivision:		
location info: 50'SE of water plant gds		
Permit Date:	Permit #:	

COMPANY owner
FARM Sidney, Village of
DATE DRILLED October 1, 1954 **NO. 7**
ELEVATION 0 **COUNTY NO.** 00373
LOCATION 1090'N line, 1600'E line of section
LATITUDE 40.022874 **LONGITUDE** -88.072452
COUNTY Champaign **API** 120190037300



16 - 18N - 10E

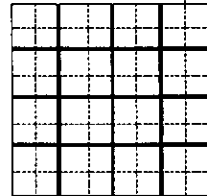
State Plane Coordinates (Converted from Latitude, Longitude)
 Illinois East Zone, NAD 83
 N: 1,222,349
 E: 1,057,313

SIDNEY #3 COMMUNITY PUBLIC WATER SUPPLY WELL

Page 1 ILLINOIS STATE GEOLOGICAL SURVEY

Municipal Water Supply	Top	Bottom
top soil	0	3
yellow clay	3	11
gray clay	11	32
mixed color gravelly clay	32	36
gray muddy sand and gravel	36	40
gray brown gravelly clay	40	43
s, f, gry on top (fluid loss 2in) gvl on bot	43	53
gray gravelly clay	53	77
gray sandy clay	77	82
lime gravelly and sand	82	106
Total Depth		106
Casing: 7" from -4' to 41' 3" SCREEN from 41' to 53'		
Screen: 12' of 7" diameter 20 slot		
Static level 11' below casing top which is 4' above GL		
Pumping level 28' when pumping at 56 gpm for 4 hours		
Driller's Log filed		
Company Sample Study filed		
Natural Gamma Sensitivity Time Constant filed		
Sample set # 60416 (' - 75') Received: August 30, 1976		
Additional Lot: Subdivision: location info: EER site 43-76		
Location source: Location from permit		
<div style="border: 1px solid black; padding: 2px; display: inline-block;"> Image viewing help: New users please read this. </div> <div style="border: 1px solid black; padding: 2px; display: inline-block; width: 150px;"> GET IMAGE </div> Natural Gamma Sensitivity Time Constant		
Permit Date: June 24, 1977		Permit #: 62615

COMPANY	owner		
FARM	Sidney, Town of		
DATE DRILLED	June 1, 1976	NO.	3-76
ELEVATION	665GL	COUNTY NO.	21856
LOCATION	1500'N line, 1950'W line of NW		
LATITUDE	40.021736	LONGITUDE	-88.079013
COUNTY	Champaign	API	120192185600 16 - 18N - 10E



State Plane Coordinates (Converted from Latitude, Longitude)
 Illinois East Zone, NAD 83
 N: 1,221,929
 E: 1,055,477

COMMUNITY PUBLIC WATER SUPPLY WELL LOCATIONS

