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Letter of Transmittal

Attention:	Mr. Tauren Beggs Hydrogeologist, WDNR 2984 Shawano Ave Green Bay, WI 54313	Date:	10/16/23
Project reference:	Former Newton Pit BRRTS No. 02-36-000268	Project number:	60135471

We are sending you the following:

Number of originals:	Number of copies:	Description:
One	Zero	Construction Documentation, Proposed Engineered Treatment System - Extraction Well Installation

Mr. Beggs,

Attached is the Construction Documentation, Proposed Engineered Treatment System - Extraction Well Installation technical memo for the Former Town of Newton Gravel Pit, Manitowoc Wisconsin.

Please let me know if you have any questions.

Thank you.

David Henderson, P.E.
Senior Project Manager
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Cc: Eric Nycz, Assistant City Attorney, City of Manitowoc
Karen Dorow, Business Manager, City of Manitowoc
Dan Koski, Director of Public Infrastructure, City of Manitowoc



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Project Name:
Former Town of Newton Gravel Pit

AECOM Project Number:
60135471

From:
Robert Weseljak, P.G., AECOM
Dave Henderson, P.E., AECOM

Date:
October 16, 2023

To:
Mr. Tauren Beggs
Hydrogeologist
Wisconsin Department of Natural Resources
2984 Shawano Avenue
Green Bay, WI 53413-6727

Cc:
Dan Koski, Director of Public Infrastructure, City
of Manitowoc
Eric Nycz, Interim City Attorney, City of
Manitowoc

Technical Memo

**Subject: Construction Documentation
Proposed Engineered Treatment System – Extraction Well Installation
Former Town of Newton Gravel Pit
3130 Hecker Road, Manitowoc, Wisconsin
WDNR BRRS No. 02-36-000268
WDNR FID No. 436104020**

AECOM Technical Services, Inc. (AECOM), on behalf of the City of Manitowoc (City), has been conducting remedial activities in a phased approach at the Former Town of Newton Gravel Pit (Newton Pit) 3130 Hecker Road, Manitowoc Wisconsin.

The first phase of these activities was conducted in 2017 with construction of an engineered cap over the Western Source Area and a groundwater treatment system (engineered treatment pond) just downgradient/east from the Western Source Area. The second phase of the remedial activities was initiated this summer with the installation of extraction wells associated with the proposed engineered treatment system for the Western Source Area.

On April 25, 2023, AECOM requested approval from the Wisconsin Department of Natural Resources (WDNR/Department) to modify/penetrate the Western Source Area engineered cap for the purposes of installing the extraction wells. The Department provided notice to proceed with the cap modification/penetration on May 8, 2023.

AECOM has prepared this construction documentation memo specifically for the installation of the extraction wells in general accordance with the requirements of Wisconsin Administrative Code (WAC) Chapter NR 724.15 *Documentation of Construction and Completion*.

Presented below is a summary of drilling and extraction well installation, investigation derived waste (IDW) management, survey data, along with the initial light non-aqueous phase liquid (LNAPL) and groundwater elevation monitoring.

Procedures

Drilling and well installation were completed on May 30 and 31, 2023, and June 1, 2, 5, 6, 7, 8, and 9, 2023. A total of eight borings were drilled with an extraction well installed in each borehole (EX-1 through EX-8). Initial monitoring for LNAPL and groundwater elevations was conducted on May 31, 2023, and June 1, 2, 5, 6, 7, 8, 12, and 15, 2023.

AECOM personnel were present during field activities to log and collect soils, monitor well installation, survey, measure LNAPL/groundwater elevations, and to complete the field documentation.

Drilling and Soil Classification

Borings were drilled and continuously sampled at eight locations designated EX-1 through EX-8. See Figure 1. The extraction well locations were surveyed-in using site investigation data and checked using historical aerial photographs. Two wells were installed within the former source area and the remaining six wells were located hydraulically downgradient of the source area.

Drilling was completed by Cascade Drilling LP, Schofield, Wisconsin using rotary sonic (rotosonic) drilling. The use of rotosonic drilling limited the volume of IDW generated. Rotosonic drilling included continuous coring using a 4.5-inch core barrel and 6-inch outer diameter ("OD") casing. Soil cores were vibrated into a plastic core sleeve and then placed on the ground for observation and screening. The plastic sleeves were cut open and the soils were screened using a Photo Ionization Detector (PID) as measured in instrument units (IUs). After PID screening was completed, the soils were described for color, soil type (USCS soil classification), moisture, plasticity, cohesiveness, and noted features (odor, grain size, rootlets, etc.). No soil sampling for laboratory analysis was conducted. See Attachment A, photos No. 1 and 2 for typical drilling and soil core setup.

No drilling water was used for the continuous soil sampling. After the initial continuous soil sampling was completed, the boring was reamed out using 8-inch outer diameter casing to facilitate extraction well installation. Reaming operations used potable water obtained from a City of Manitowoc hydrant located at the intersection of Viebahn Street and Hecker Road, north of the Site.

WDNR Soil Boring Log Information forms (4400-122) were prepared for each boring and are included in Attachment B.

Well installation

Four inch diameter extraction wells were installed in each boring. Extraction wells were installed partially into the saturated sand formation. Well construction included 25- or 30-foot stainless steel, continuous wrap, v-wire, No. 20 slot (0.020-inch) screens. The screens were attached to stainless-steel riser casings. The last/upper piece of riser casing was 4-inch Schedule 80 PVC casings connected at least 5-feet below ground surface and extended several feet above ground surface. The PVC casings were installed so that, in the future, they could be cut down for attachment to the wellheads and connection to the extraction system piping.

The well pack materials consisted of a coarse sand filter pack (Red Flint Sand and Gravel brand No. 20WS sand) that was placed from the bottom of the boring to approximately two feet above the top of the screen. Approximately two feet of fine sand was then placed on top of the coarse sand filter pack. The annular space seal consisted of 3/8-inch medium bentonite chips gravity poured around the outside of the well casing and hydrated with potable water. There was no protective casing installed since the wells will be cut down for the future extraction system installation. See Attachment A, photo No. 3 for typical well installation setup.

WDNR Monitoring Well Construction Report forms (4400-113A) were prepared for each extraction well and are included in Attachment C.

Investigation Derived Waste (IDW)

Handling of IDW included sampling for waste characterization and management of the waste for disposal.

For each boring, soil from the interval with the highest PID reading was collected in a gallon Ziplock brand plastic bag and then composited into a waste characterization sample. The waste characterization sample was split into two portions, placed in coolers with ice, and shipped under chain of custody control to the analytical laboratories. This soil was analyzed for:

- polychlorinated biphenyls (PCBs),
- toxicity characteristic leaching procedure (TCLP) for metals, volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs),
- several general wet chemistry parameters (specific gravity, reactive sulfide, free liquid, reactive cyanide, total percent solids, pH, chlorides, and flash point), and

- per- and polyfluoroalkyl substances (PFAS).

The PFAS sample was sent to Enthalpy Analytical, El Dorado Hills, California, (Wisconsin certification No. 998036160) for analysis of 33 PFAS using EPA modified Method 537.1 isotope dilution. Analysis for all other parameters was sent to Synergy Environmental Lab, Inc. in Appleton, Wisconsin (Wisconsin certification No. 445037560). Laboratory data is included in Attachment D.

Soil cuttings with PID reading of 10 IUs (approximately 10 parts per million (ppm) of volatile organic compounds (VOCs)) or less were considered uncontaminated and were managed by placement in the fill area north of the Western Source Area. Soil cuttings with visual, olfactory, or PID readings greater than 10 IUs were placed into labeled drums for future offsite disposal. Before leaving the site, the drilling rig was decontaminated adjacent to and upgradient of the groundwater treatment pond. Solid waste was taken to the Manitowoc Public Works garage located at 2655 South 35th Street, Manitowoc, Wisconsin 54220 for disposal.

Quality Control Sampling

Quality control sampling conducted during drilling was limited to the driller's water source, which was used downhole and for decontamination activities. The source water sample was obtained from the driller's poly tank/tote. The source water sample was sent to Enthalpy Analytical for analysis of 33 PFAS using EPA modified Method 537.1 isotope dilution.

No field blanks were obtained since field blank results from multiple past sampling events indicated no detects. No equipment blanks were obtained from the drilling equipment since no site investigation soil sampling was conducted and soil samples were collected in plastic bag tubes. Since no site investigation soil samples were obtained, no duplicate soil sampling was conducted.

Well Development

The extraction wells were not developed as the wells are not planned for groundwater production tasks.

Survey

Well locations were surveyed in using the 1983 Manitowoc County Coordinate System (feet) for the horizontal control. Well top-of-casing elevations were surveyed using a SPECTRA brand precision laser level, model HL450, using WT-02A elevation data as the control. See Attachment A, photo No. 4 for the post-installation field conditions.

Boring locations are shown in Figure 1. Extraction well coordinates and elevations are provided on Table 1.

LNAPL and Groundwater Elevation Monitoring

LNAPL and groundwater elevations were monitored after well installation. The first well was installed on May 31, 2023. As a result, monitoring occurred on June 1, 2, 5, 6, 7, 8, 9, 12 and 15, 2023. A Solinst brand interface meter, model 1222, was used to monitor both the LNAPL and groundwater elevations. The elevation data are documented in Attachment E.

Results

Well Construction Details

Design for the extraction wells installation considered their remedial use (i.e., LNAPL recovery and SVE), 20 plus years of groundwater elevation data, and the sloped ground surface. These parameters were used to optimize screen and casing lengths. A summary of the well construction details is provided in Table 1.

IDW Waste Characterization

The waste characterization laboratory analytical results are summarized in Table 2. The results will be provided to waste disposal companies to facilitate proper disposal of the IDW.

Quality Control Results

The quality control source water analytical results indicate PFAS were present in the water; PFBA at 1.51J nano grams per liter (ng/L), PFOA at 2.10 ng/L, PFOSA at 3.55 ng/l, and PFOS at 3.55 ng/l. The source of the PFAS is unknown as it could be associated with the poly tank, water previously contained in the tank, or the current source of water. Due to the drilling sequence, it was not possible for PFAS in the source water to cross contaminate the waste characterization soil samples. Since the source water was used downhole during the reaming operations for the extraction well installation, if future groundwater sampling is conducted from the extraction wells, care should be taken to consider these quality control results when interpreting future groundwater sampling results. Quality control laboratory data is included in Attachment D.

LNAPL and Groundwater Elevation Monitoring

LNAPL and groundwater elevations were measured after well installation. Measured data from June 2023 indicated only an LNAPL sheen was encountered on occasion. The LNAPL and groundwater levels are provided in Attachment E.

Future Activities

At this time AECOM is continuing to monitor LNAPL and groundwater elevations within the extraction wells. This information will be used to determine which extraction wells will be used for LNAPL recovery efforts. Additionally, AECOM is working on the proposed engineered treatment system design for possible bidding and construction late in 2023 or early 2024.

Attachments:

- Table 1 – Extraction Wells Construction Summary
- Table 2 – Waste Characterization Results (Protocol B)
- Figure 1 – Extraction Well Locations
- Attachment A – Photographic Log
- Attachment B – Soil Boring Logs
- Attachment C – Well Construction Forms
- Attachment D – Laboratory Data
- Attachment E – LNAPL & Groundwater Elevation Data

Tables:

- Table 1 – Extraction Wells Construction Summary
- Table 2 – Waste Characterization Results (Protocol B)

**TABLE 1
EXTRACTION WELL CONSTRUCTION SUMMARY
FORMER NEWTON GRAVEL PIT, MANITOWOC, WISCONSIN**

Well Name	Northing (Y)	Easting (X)	Temporary Top of Casing Elevation	Ground Surface Elevation	Depth to Water from TOC	Static Water Level	Top of Screen		Bottom of Screen	
			(ft MSL)	(ft MSL)	(ft)	(ft MSL)	(ft BGS)	(ft MSL)	(ft BGS)	(ft MSL)
EX1	289339.762	216948.232	734.90	731.66	47.12	687.78	29.2	702.5	59.2	672.5
EX2	289338.944	217005.268	732.08	730.50	44.74	687.34	28.0	702.5	58.0	672.5
EX3	289342.471	217063.27	733.10	731.62	46.20	686.90	36.0	695.6	61.0	670.6
EX4	289293.366	216974.315	733.56	733.14	46.32	687.24	30.4	702.7	60.4	672.7
EX5	289296.263	217026.043	733.75	732.56	47.01	686.74	30.8	701.8	60.8	671.8
EX6	289303.702	217065.527	734.96	733.62	48.46	686.50	30.5	703.1	60.5	673.1
EX7	289252.994	217010.894	737.36	734.52	50.44	686.92	34.5	700.0	59.5	675.0
EX8	289264.622	217060.826	736.28	734.26	49.94	686.34	30.0	704.3	60.0	674.3

NOTES:

Location are in reported in 1983 Manitowoc County Co-ordinates system (feet MSL)

ft = feet

MSL = Mean Sea Level

TOC = Top of Casing

BGS = Below Ground Surface

Water levels were measured on June 15, 2023

TABLE 2
LABORATORY SUMMARY - COMPOSITE SOIL SAMPLE (PROTOCOL B)
FORMER NEWTON GRAVEL PIT, MANITOWOC, WISCONSIN

Parameters	Results	Units	LOD	LOQ	Dilution	Method
Metals						
TCLP Arsenic	< 0.1	mg/l	0.033	0.1	1	6010B
TCLP Barium	0.137	mg/l	0.033	0.1	1	6010B
TCLP Cadmium	< 0.1	mg/l	0.033	0.1	1	6010B
TCLP Chromium	< 0.1	mg/l	0.033	0.1	1	6010B
TCLP Copper	0.191	mg/l	0.033	0.1	1	6010B
TCLP Lead	< 0.1	mg/l	0.033	0.1	1	6010B
TCLP Mercury	< 0.01	mg/l	0.0033	0.01	1	7470A
TCLP Nickel	< 0.1	mg/l	0.033	0.1	1	6010B
TCLP Selenium	< 0.1	mg/l	0.033	0.1	1	6010B
TCLP Silver	< 0.1	mg/l	0.033	0.1	1	6010B
TCLP Zinc	< 0.5	mg/l	0.165	0.5	1	6010B
PCBs						
PCB-1016	< 0.0072	mg/kg	0.0072	0.024	2	EPA 8082A
PCB-1221	< 0.008	mg/kg	0.008	0.026	2	EPA 8082A
PCB-1232	< 0.0064	mg/kg	0.0064	0.022	2	EPA 8082A
PCB-1242	< 0.0064	mg/kg	0.0064	0.022	2	EPA 8082A
PCB-1248	2.60	mg/kg	0.036	0.12	10	EPA 8082A
PCB-1254	1.42	mg/kg	0.0082	0.028	2	EPA 8082A
PCB-1260	< 0.014	mg/kg	0.014	0.046	2	EPA 8082A
TCLP SVOC's						
TCLP o-Cresol	< 0.111	mg/l	0.033	0.111	1	625
TCLP m & p-Cresol	< 0.111	mg/l	0.033	0.111	1	625
TCLP 1,4-Dichlorobenzene	< 0.111	mg/l	0.033	0.111	1	625
TCLP 2,4-Dinitrotoluene	< 0.111	mg/l	0.033	0.111	1	625
TCLP Hexachlorobenzene	< 0.111	mg/l	0.033	0.111	1	625
TCLP Hexachlorobutadiene	< 0.111	mg/l	0.033	0.111	1	625
TCLP Hexachloroethane	< 0.111	mg/l	0.033	0.111	1	625
TCLP Nitrobenzene	< 0.111	mg/l	0.033	0.111	1	625
TCLP Pentachlorophenol	< 0.111	mg/l	0.033	0.111	1	625
TCLP Phenol	< 0.111	mg/l	0.033	0.111	1	625
TCLP Pyridine	< 0.111	mg/l	0.033	0.111	1	625
TCLP 2,4,6-Trichlorophenol	< 0.111	mg/l	0.033	0.111	1	625
TCLP 2,4,5-Trichlorophenol	< 0.111	mg/l	0.033	0.111	1	625

TABLE 2
LABORATORY SUMMARY - COMPOSITE SOIL SAMPLE (PROTOCOL B)
FORMER NEWTON GRAVEL PIT, MANITOWOC, WISCONSIN

Parameters	Results	Units	LOD	LOQ	Dilution	Method
TCLP VOC's						
TCLP Benzene	< 0.05	mg/l	0.015	0.05	1	8260B
TCLP Carbon Tetrachloride	< 0.05	mg/l	0.015	0.05	1	8260B
TCLP Chlorobenzene	< 0.05	mg/l	0.015	0.05	1	8260B
TCLP Chloroform	< 0.25	mg/l	0.075	0.25	1	8260B
TCLP 1,2-Dichloroethane	< 0.05	mg/l	0.015	0.05	1	8260B
TCLP 1,1-Dichloroethene	< 0.05	mg/l	0.015	0.05	1	8260B
TCLP Methyl Ethyl Ketone	< 0.5	mg/l	0.5	0.15	1	8260B
TCLP Tetrachloroethene	0.119	mg/l	0.015	0.05	1	8260B
TCLP Trichloroethene	1.51	mg/l	0.015	0.05	1	8260B
TCLP Vinyl Chloride	< 0.05	mg/l	0.015	0.05	1	8260B
Wet Chemistry						
Specific Gravity	1.80	g/cm3			1	2710F
Reactive Sulfide	< 100	mg/kg	30	100	1	EPA 9034
Free Liquid	none				1	9095A
Reactive Cyanide	< 0.13	mg/kg	0.13		1	9012B
Solids, Total %	89.2	%			1	2540B
pH	6.71	su			1	EPA 9045D
Chlorides, Unfiltered	< 92	mg/kg	92	307	10	9056
Flash Point	> 170	F			1	D93
PFAS						
No Detections Above Individual Compound LODs		ng/g			1	537.1 M ID

NOTES:

Synergy Analytical Laboratory & Enthalpy Analytical Laboratory
 Composite Sample (EX-1 through EX-8) collected on 6/8/23

LOD = Limit of Detection

LOQ = Limit of Quantitation








Figures:

Figure 1- Extraction Well Locations

FIGURE 1 EXTRACTION WELL LOCATIONS

Former Newton Gravel Pit
Manitowoc, Wisconsin

Legend

-  Extraction Well Location
-  Monitoring Well(s)
-  Gravel Pit Roads
-  Approximate Pond
-  Engineered Cap
-  Civil Divisions
-  Parcels

1 inch = 50 feet

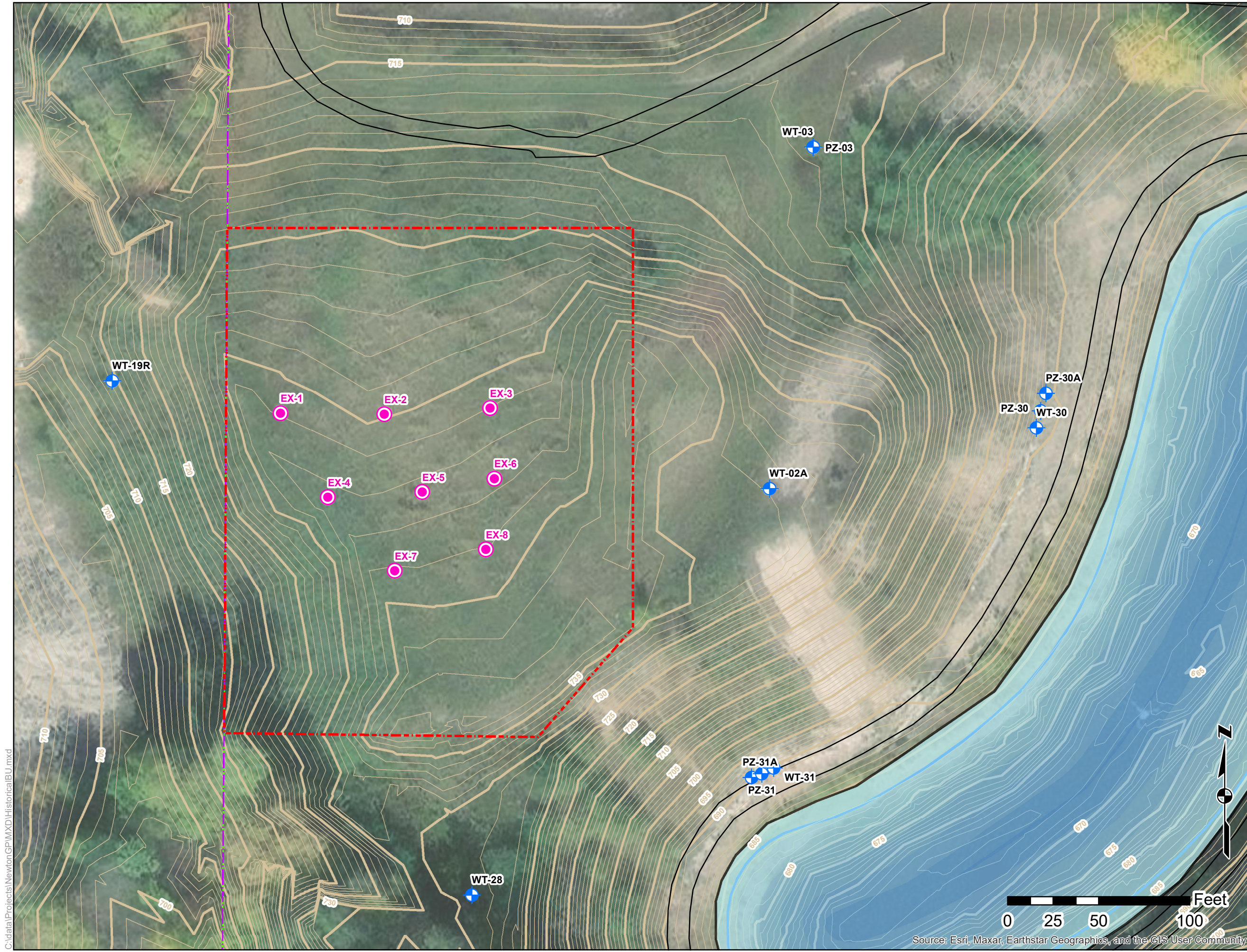
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APPROVED BY: DH

DATE: 6/22/2023

Project No.: 60135471



C:\data\Projects\NewtonGP\IMXD\Historical\BU.mxd

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Attachment A:

Photographic Log

Facility Name:
Former Town of Newton Gravel Pit

Site Location:
3130 Hecker Road, Manitowoc, Wisconsin

Project No.
60135471

Photo No.
1

Date:
5/31/2023

Direction Photo Taken:

West

Description:

Rotosonic drilling of EX-8



Photo No.
2

Date:
6/6/2023

Direction Photo Taken:

Not Applicable

Description:

Rotosonic core of EX-5



Facility Name:
Former Town of Newton Gravel Pit

Site Location:
3130 Hecker Road, Manitowoc, Wisconsin

Project No.
60135471

Photo No.
3

Date:
5/31/2023

Direction Photo Taken:

Not Applicable

Description:

Setting up for installation of EX-8



Photo No.
4

Date:
6/9/23

Direction Photo Taken:

Southwest

Description:

Temporary 4-inch Schedule 80 PVC stick ups after well installation of EX-1 through EX-8



Attachment B:

Soil Boring Logs

Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name Former Newton Gravel Pit			License/Permit/Monitoring Number		Boring Number EX-1	
Boring Drilled By: Name of crew chief (first, last) and Firm Jeff Jehn Cascade Drilling			Date Drilling Started 6/8/2023	Date Drilling Completed 6/8/2023	Drilling Method rotasonic	
WI Unique Well No.	DNR Well ID No.	Common Well Name EX-1	Final Static Water Level 687.78 Feet MSL		Surface Elevation 731.7 Feet MSL	Borehole Diameter 8.00
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input type="checkbox"/> State Plane N, E S/C/N			Lat _____ ° _____ ' _____ "		Local Grid Location <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
SW 1/4 of NW 1/4 of Section 2, T 18 N, R 23			Long _____ ° _____ ' _____ "		Feet _____ Feet _____	
Facility ID 436104020		County Manitowoc	County Code 36	Civil Town/City/ or Village Newton		

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments		
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200			
1	120 120		0	Very dark gray (10YR 3/1) TOPSOIL	Topsoil			0.0								
			2	Yellowish brown (10YR 5/4) SILTY SAND, dry, non-plastic, non-cohesive, trace to few fine to coarse subrounded gravel												
2	120 120		4	Geomembrane at 3 feet				0.4								
			6		SM											
			10													
3	120 120		12	Black (10YR 2/1) LEAN CLAY	CL		356									
			14	Brown (10YR 5/3) WELL GRADED SAND with GRAVEL, dry, non-plastic, non-cohesive, fine to coarse gravel	SW											
3	120 120		18	Black (10YR 2/1) and brown (10YR 4/3) LEAN CLAY and WELL GRADED GRAVEL mix, dry, non-plastic and low plasticity, cohesive and non-cohesive, fine to coarse gravel	CL		800									
			20	Yellowish brown (10YR 5/4) WELL GRADED SAND, dry, non-plastic, non-cohesive, few fine to coarse subrounded gravel	SW											
3			22	Black gel from 22 to 22.2 feet												

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature <i>Robert Weseloh</i>	Firm AECOM	Tel: Fax:
------------------------------------	----------------------	--------------

Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name Former Newton Gravel Pit			License/Permit/Monitoring Number		Boring Number EX-2	
Boring Drilled By: Name of crew chief (first, last) and Firm Jeff Jehn Cascade Drilling			Date Drilling Started 6/6/2023	Date Drilling Completed 6/7/2023	Drilling Method rotasonic	
WI Unique Well No.	DNR Well ID No.	Common Well Name EX-2	Final Static Water Level 687.34 Feet MSL		Surface Elevation 730.5 Feet MSL	Borehole Diameter 8.00
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input type="checkbox"/> State Plane N, E S/C/N			Lat _____ ° _____ ' _____ "		Local Grid Location <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
SW 1/4 of NW 1/4 of Section 2, T 18 N, R 23			Long _____ ° _____ ' _____ "		Feet <input type="checkbox"/> S Feet <input type="checkbox"/> W	
Facility ID 436104020		County Manitowoc	County Code 36	Civil Town/City/ or Village Newton		

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
1	120 120		0-2	Very dark gray (10YR 3/1) TOPSOIL	Topsoil			0.0						
				Yellowish brown (10YR 5/4) SILTY SAND, dry, non-plastic, non-cohesive, trace to few fine to coarse subrounded gravel Geomembrane at 2.8 feet	SM									
2	120 120		10-12	Very dark grayish brown (10YR 3/2) SILTY SAND, dry to moist, non-plastic, cohesive, trace gravel	SM			0.8						
				Yellowish brown (10YR 5/4) WELL GRADED SAND with GRAVEL, dry, non-plastic, non-cohesive, fine to coarse gravel	SW									
				Yellowish brown (10YR 5/4) WELL GRADED SAND, dry, non-plastic, non-cohesive, trace fine to medium gravel	SW									
3	120 120		20-22	Yellowish brown (10YR 5/4) WELL GRADED SAND with GRAVEL, dry, non-plastic, non-cohesive, fine to coarse gravel	SW			9.4 2.4						
				Very dark grayish brown (10YR 3/2) SILTY SAND, dry to moist, non-plastic, cohesive, trace gravel	SM									
				Yellowish brown (10YR 5/4) WELL GRADED SAND, dry, non-plastic, non-cohesive, trace fine to medium gravel	SW SP									

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature <i>Robert Waselgal</i>	Firm AECOM	Tel: Fax:
-------------------------------------	----------------------	--------------

Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name Former Newton Gravel Pit			License/Permit/Monitoring Number		Boring Number EX-3	
Boring Drilled By: Name of crew chief (first, last) and Firm Jeff Jehn Cascade Drilling			Date Drilling Started 6/1/2023	Date Drilling Completed 6/1/2023	Drilling Method rotasonic	
WI Unique Well No.	DNR Well ID No.	Common Well Name EX-3	Final Static Water Level 686.90 Feet MSL		Surface Elevation 731.6 Feet MSL	Borehole Diameter 8.00
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input type="checkbox"/> State Plane N, E S/C/N			Lat _____ ° _____ ' _____ "		Local Grid Location <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
SW 1/4 of NW 1/4 of Section 2, T 18 N, R 23			Long _____ ° _____ ' _____ "			
Facility ID 436104020		County Manitowoc	County Code 36	Civil Town/City/ or Village Newton		

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments	
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200		
1	120 120		0 2 4 6 8	Very dark gray (10YR 3/1) CLAY TOPSOIL	Topsoil										
				Yellowish brown (10YR 5/4) SILTY SAND with GRAVEL, dry, non-plastic, non-cohesive, fine to coarse subrounded gravel							0				
2	120 120		10 12 14 16		SM										
				Very dark gray (10YR 5/1) SILTY SAND, dry, non-plastic, non-cohesive, organics, mulch	SM						0				
3	120 120		18 20 22 24	Yellowish brown (10YR 5/4) SILTY SAND with GRAVEL, dry, non-plastic, non-cohesive, fine gravel	SM										
				Black (5YR 2.5/1) SILTY CLAY, dry, low plastic, cohesive, organics, fine to coarse subrounded gravel	CL/ML					0					
				Yellowish brown (10YR 5/4) SILTY SAND, dry, non-plastic, non-cohesive, fine to coarse subrounded gravel	SM										
				No gravel from 24 to 27 feet											

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature <i>Robert Waselgal</i>	Firm AECOM	Tel: Fax:
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Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name Former Newton Gravel Pit			License/Permit/Monitoring Number		Boring Number EX-4	
Boring Drilled By: Name of crew chief (first, last) and Firm Jeff Jehn Cascade Drilling			Date Drilling Started 6/7/2023	Date Drilling Completed 6/7/2023	Drilling Method rotasonic	
WI Unique Well No.	DNR Well ID No.	Common Well Name EX-4	Final Static Water Level 687.24 Feet MSL		Surface Elevation 733.1 Feet MSL	Borehole Diameter 8.00
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input type="checkbox"/> State Plane N, E S/C/N			Lat _____ ° _____ ' _____ "		Local Grid Location <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
SW 1/4 of NW 1/4 of Section 2, T 18 N, R 23			Long _____ ° _____ ' _____ "		Feet _____ Feet _____	
Facility ID 436104020		County Manitowoc	County Code 36	Civil Town/City/ or Village Newton		

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
1	120 120		0	Very dark gray (10YR 3/1) TOPSOIL	Topsoil			0.0						
				Yellowish brown (10YR 5/4) SILTY SAND, dry, non-plastic, non-cohesive, trace to few fine to coarse subrounded gravel										
2	120 120		2 4 6 8 10 12	Geomembrane at 3 feet				0.5						
				Dark yellowish brown (10YR 4/4) SILTY SAND, dry, non-plastic, non-cohesive, trace gravel	SM									
				Black (10YR 2/1) LEAN CLAY, dry, low plasticity, cohesive, roots, buried topsoil	CL									
3	120 120		14 16 18 20 22 24	Brown (7.5YR 4/4) LEAN CLAY, dry, low plasticity, cohesive	CL			14.5						
				Brown (7.5YR 4/3) SILTY SAND, dry, non-plastic, non-cohesive, trace to few fine to coarse subrounded gravel	SM									
				Color change to yellowish brown (10YR 5/4) at 19 feet										
			20 22 24	Yellowish brown (10YR 5/4) SILTY SAND, dry, non-plastic, non-cohesive, trace gravel	SM			1.2						
				Black buried topsoil with rootlets from 23 to 23.1 feet										
								0.8						

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature <i>Robert Wasel</i>	Firm AECOM	Tel: Fax:
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Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name Former Newton Gravel Pit			License/Permit/Monitoring Number		Boring Number EX-5	
Boring Drilled By: Name of crew chief (first, last) and Firm Jeff Jehn Cascade Drilling			Date Drilling Started 6/5/2023	Date Drilling Completed 6/6/2023	Drilling Method rotasonic	
WI Unique Well No.	DNR Well ID No.	Common Well Name EX-5	Final Static Water Level 686.74 Feet MSL		Surface Elevation 732.6 Feet MSL	Borehole Diameter 8.00
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input type="checkbox"/> State Plane N, E S/C/N			Lat _____ ° _____ ' _____ "		Local Grid Location <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
SW 1/4 of NW 1/4 of Section 2, T 18 N, R 23			Long _____ ° _____ ' _____ "		Feet <input type="checkbox"/> S Feet <input type="checkbox"/> W	
Facility ID 436104020		County Manitowoc	County Code 36	Civil Town/City/ or Village Newton		

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
1	120 120		0-2	Very dark gray (10YR 3/1) LEAN CLAY, dry, non-plastic, cohesive, TOPSOIL	CL			0.0						
			2-4	Yellowish brown (10YR 5/4) SILTY SAND, dry, non-plastic, non-cohesive, few fine to coarse subrounded gravel Geomembrane at 2.7 feet				0.0						
2	120 120		4-13.1	Brown (7.5YR 4/3) and very dark gray (10YR 3/1) from 13 to 13.1 feet	SM			0.0						
			13.1-16	Light brownish gray (10YR 6/2) POORLY GRADED SAND, dry, non-plastic, non-cohesive	SP			3.6						
3	120 120		16-20	Brown (10YR 5/3) SILTY SAND, dry, non-plastic, non-cohesive, few fine trace coarse subrounded gravel	SM			1.0						
			20-24		SP-SM									

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature <i>Robert Wees</i>	Firm AECOM	Tel: Fax:
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Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name Former Newton Gravel Pit			License/Permit/Monitoring Number		Boring Number EX-6	
Boring Drilled By: Name of crew chief (first, last) and Firm Jeff Jehn Cascade Drilling			Date Drilling Started 5/31/2023	Date Drilling Completed 6/1/2023	Drilling Method rotasonic	
WI Unique Well No.	DNR Well ID No.	Common Well Name EX-6	Final Static Water Level 686.50 Feet MSL		Surface Elevation 733.6 Feet MSL	Borehole Diameter 8.00
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input type="checkbox"/> State Plane N, E S/C/N			Lat _____ ° _____ ' _____ "		Local Grid Location <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
SW 1/4 of NW 1/4 of Section 2, T 18 N, R 23			Long _____ ° _____ ' _____ "		Feet <input type="checkbox"/> S Feet <input type="checkbox"/> W	
Facility ID 436104020		County Manitowoc	County Code 36	Civil Town/City/ or Village Newton		

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments	
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200		
1	120 120		0-1	Very dark gray (10YR 3/1) LEAN CLAY, moist TOPSOIL	Topsoil										
			1-10	Yellowish brown (10YR 5/4) SILTY SAND, dry, non-plastic, non-cohesive, few fine to coarse subrounded gravel	SM			0.0							
2	120 120		10-18	Yellowish brown (10YR 5/4) SILTY SAND with GRAVEL, dry, non-plastic, non-cohesive, fine to coarse subrounded gravel	SM										
			16-18	Larger rock around 16 feet											
3	120 120		18-20	Very dark gray (2.5Y 3/1) LEAN CLAY, dry, low to medium plasticity, cohesive, fine to coarse subrounded gravel	CL										
			20-24	Color change to dark olive brown with red specs (2.5Y 3/3) to dark reddish brown (5YR 3/4) at 19 feet Yellowish brown (10YR 5/4) POORLY GRADED SAND, dry, non-plastic, non-cohesive, fine to coarse gravel Silt seam from 23 to 23.5 feet	SP			0.0							

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature <i>Robert Wesehal</i>	Firm AECOM	Tel: Fax:
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Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name Former Newton Gravel Pit			License/Permit/Monitoring Number		Boring Number EX-7	
Boring Drilled By: Name of crew chief (first, last) and Firm Jeff Jehn Cascade Drilling			Date Drilling Started 6/5/2023	Date Drilling Completed 6/5/2023	Drilling Method rotasonic	
WI Unique Well No.	DNR Well ID No.	Common Well Name EX-7	Final Static Water Level 686.92 Feet MSL		Surface Elevation 734.5 Feet MSL	Borehole Diameter 8.00
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input type="checkbox"/> State Plane N, E S/C/N			Lat _____ ° _____ ' _____ "		Local Grid Location <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
SW 1/4 of NW 1/4 of Section 2, T 18 N, R 23			Long _____ ° _____ ' _____ "		Feet <input type="checkbox"/> S Feet <input type="checkbox"/> W	
Facility ID 436104020		County Manitowoc	County Code 36	Civil Town/City/ or Village Newton		

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
1	120 120		0	Very dark gray (10YR 3/1) CLAY TOPSOIL	Topsoil			0						
2	120 84		2	Yellowish brown (10YR 5/4) SILTY SAND with GRAVEL, dry, non-plastic, non-cohesive, fine to coarse subrounded gravel Geomembrane at 2.5 feet	SM			0 0.6						
3	120 120		18	Dark brown (7.5YR 3/2) mixed with black (7.5YR 2.5/1) LEAN CLAY, dry, low to medium plasticity, cohesive, trace gravel	CL									
			20	Black (7.5YR 2.5/1) SILTY SAND mixed with LEAN CLAY, low to medium plasticity, cohesive, trace gravel, material looks burnt	SM									
			22	Yellowish brown (10YR 5/6) SILTY SAND with GRAVEL, dry, non-plastic, non-cohesive, fine to coarse subrounded gravel	SW									
			24	Yellowish red (5YR 4/6) WELL GRADED SAND with GRAVEL, dry, non-plastic, non-cohesive, fine to coarse	SP			1.1						

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature <i>Robert Waseljak</i>	Firm AECOM	Tel: Fax:
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Route To: Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name Former Newton Gravel Pit			License/Permit/Monitoring Number		Boring Number EX-8	
Boring Drilled By: Name of crew chief (first, last) and Firm Jeff Jehn Cascade Drilling			Date Drilling Started 5/30/2023	Date Drilling Completed 5/31/2023	Drilling Method rotasonic	
WI Unique Well No.	DNR Well ID No.	Common Well Name EX-8	Final Static Water Level 686.34 Feet MSL		Surface Elevation 734.3 Feet MSL	Borehole Diameter 8.00
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Boring Location <input type="checkbox"/> State Plane N, E S/C/N			Lat _____ ° _____ ' _____ "		Local Grid Location <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
SW 1/4 of NW 1/4 of Section 2, T 18 N, R 23			Long _____ ° _____ ' _____ "		Feet _____ Feet _____	
Facility ID 436104020		County Manitowoc	County Code 36	Civil Town/City/ or Village Newton		

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
1	92.4 92.4		2	Very dark gray (10YR 3/1) CLAY TOPSOIL Yellowish brown (10YR 5/4) SILTY SAND with GRAVEL, dry, non-plastic, non-cohesive, fine to coarse subrounded gravel Geomembrane at 2.25 feet	Topsoil			0.0						
			4		SM									0.0
2	120 120		6	Dark brown (7.5YR 3/3) LEAN CLAY, low to medium plasticity, cohesive, trace gravel Black (7.5 YR 2.5/1) sand mixed with clay at 18.5 feet		CL			1.1					
			8		SP									0.0
3	120 120		10	Yellowish brown (10YR 5/6) POORLY GRADED SAND, dry, non-plastic, non-cohesive		SP			4.5					
			12											
			14											
			16											
			18											
			20											
			22											
			24											













I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature <i>Robert Wesehal</i>	Firm AECOM	Tel: Fax:
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Boring Number **EX-8**

Use only as an attachment to Form 4400-122.

Page 2 of 2

Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
Number and Type	Length Att. & Recovered (in)								Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
4	120 120		26	Yellowish brown (10YR 5/6) POORLY GRADED SAND, dry, non-plastic, non-cohesive (<i>continued</i>)	SP									
			28	Pale brown (10YR 6/3) WELL GRADED SAND with GRAVEL, dry, non-plastic, non-cohesive, fine to coarse subrounded gravel	SW			4.7						
			30	Dark yellowish brown (10YR 4/4) SILTY SAND, dry, non-plastic, non-cohesive to cohesive fine to coarse subrounded gravel	SM			0.4						
			32	Pale brown (10YR 6/3) WELL GRADED SAND with GRAVEL, dry, non-plastic, non-cohesive, fine to coarse subrounded gravel	SW			0.0						
5	120 120		34	Pale brown (10YR 6/3) WELL GRADED SAND with GRAVEL, dry, non-plastic, non-cohesive, fine to coarse subrounded gravel	SW			1.0						
			36											
			38	Yellowish brown (10YR 5/4) POORLY GRADED SAND, dry, non-plastic, non-cohesive	SP									
6	120 120		40	Pale brown (10YR 6/3) WELL GRADED SAND with GRAVEL, dry, non-plastic, non-cohesive, fine to coarse subrounded gravel	SW			0.0						
			42	Yellowish brown (10YR 5/4) POORLY GRADED SAND, dry, non-plastic, non-cohesive				0.0						
			44											
			46			SP			0.0					
		48												
		50	Wet at 49 feet					0.0						
		52						0.0						
		54	Dark gray (2.5Y 4/1) SILTY SAND, wet, non-plastic, non-cohesive to cohesive, slight odor	SM			30.0							
		56	Silt seam from 54.5 to 55 feet Very dark gray (5Y 3/1) WELL GRADED SAND, wet, non-plastic, non-cohesive	SW			0.0							
		58	Color change to grayish brown (2.5Y 5/2) at 57 feet											
		60	Brown (10YR 4/3) SILTY CLAY, wet, low plasticity, cohesive End of boring at 60 feet bgs	CL/ML										

Attachment C:

Well Construction Forms

Route to: Watershed/Wastewater Waste Management
 Remediation/Redevelopment Other

Facility/Project Name: **Former Newton Gravel Pit** Local Grid Location of Well: **EX-1**

Facility License, Permit or Monitoring No.: **436104020** Local Grid Origin: **Estimated: x = 216948.253 y = 289339.724** or **St. Plane**

Facility ID: **1983 Manitowoc County Co-ordinates system(feet MSL)** Date Well Installed: **06 / 08 / 2023**

Type of Well: **SW 1/4 of NW of Sec. 2, T. 18 N, R. 23 W** Well Installed By: **Cascade (Jeff Jehn)**

Well Code: **57 / sv** Location of Well relative to Waste/Source: **u** Upgradient **s** Sidegradient **d** Downgradient **n** Not Known

Distance from Waste/Source: **ft.** Enf. Stds. Apply

A. Protective pipe, top elevation: **NA** ft. MSL Yes No

B. Temporary Well casing, top elevation: **734.90** ft. MSL

C. Land surface elevation: **731.66** ft. MSL

D. Surface seal, bottom: **726.66** ft. MSL or **5.0** Ft.

12. USCS classification of soil near screen:
 GP GM GC GW SW SP
 SM SC ML MH CL CH
 Bedrock

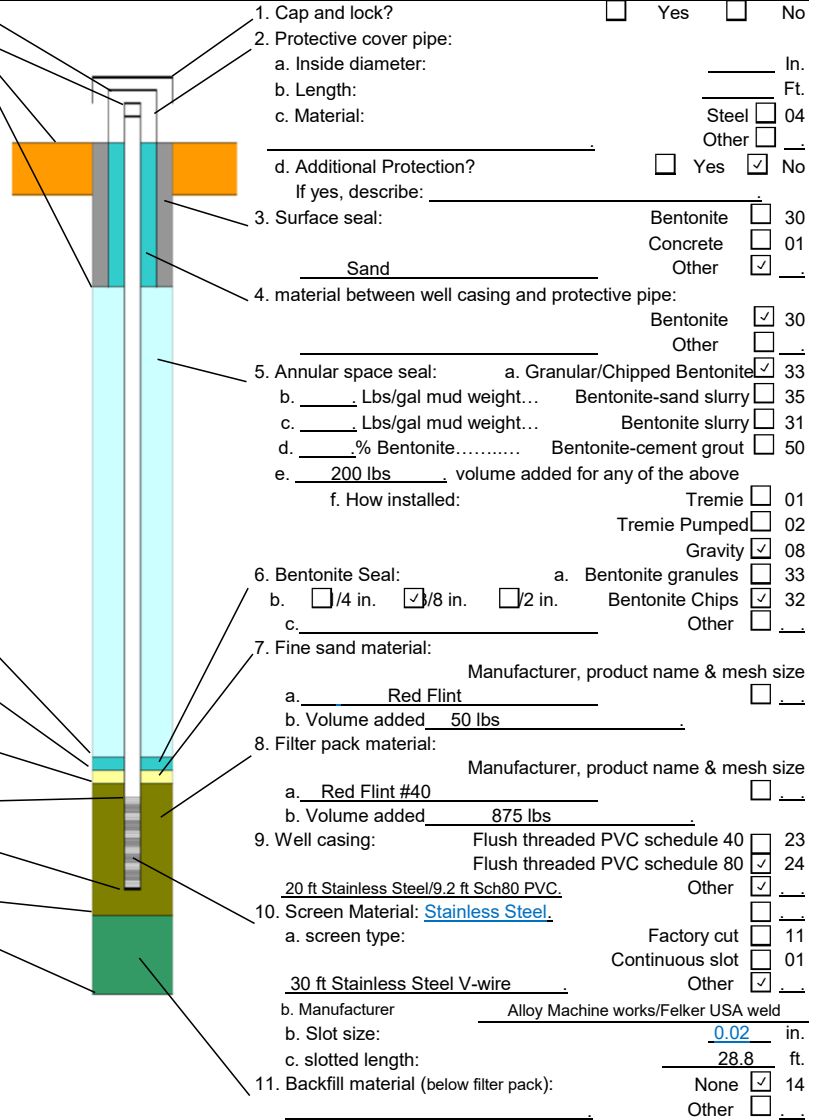
13. Sieve analysis performed? Yes No

14 Drilling method used: Rotary 50
 Hollow Stem Auger 41
 Rotosonic Other

15 Drilling fluid used: Water 02 Air 01
 Drilling Mud 03 None 99

16 Drilling additives used? Yes No
 Describe _____

17. Source of water (attach analysis, if required):
City of Manitowoc, Wisconsin



E Bentonite seal, top: **726.66** ft. MSL **5.0** ft.

F. Fine sand, top: **707.66** ft. MSL **24.0** ft.

G. Filter Pack, top: **705.66** ft. MSL **26.0** ft.

H. Screen joint, top: **702.46** ft. MSL **29.2** ft.

I. Well Bottom: **672.46** ft. MSL **59.2** ft.

J. Filter Pack, bottom: **672.46** ft. MSL **59.2** ft.

K. Borehole, bottom: **672.46** ft. MSL **59.2** ft.

L. Borehole, diameter: **8** In..

M. O.D. well casing: **4.500** In.

N. I.D. well casing: **3.786** In.

1. Cap and lock? Yes No

2. Protective cover pipe:
 a. Inside diameter: _____ In.
 b. Length: _____ Ft.
 c. Material: Steel 04
 Other _____

d. Additional Protection? Yes No
 If yes, describe: _____

3. Surface seal: Bentonite 30
 Concrete 01
 Other Sand

4. material between well casing and protective pipe: Bentonite 30
 Other _____

5. Annular space seal: a. Granular/Chipped Bentonite 33
 b. _____ Lbs/gal mud weight... Bentonite-sand slurry 35
 c. _____ Lbs/gal mud weight... Bentonite slurry 31
 d. _____% Bentonite..... Bentonite-cement grout 50
 e. **200 lbs** volume added for any of the above
 f. How installed: Tremie 01
 Tremie Pumped 02
 Gravity 08

6. Bentonite Seal: a. Bentonite granules 33
 b. 1/4 in. 3/8 in. 1/2 in. Bentonite Chips 32
 c. _____ Other _____

7. Fine sand material: Manufacturer, product name & mesh size
 a. **Red Flint** _____
 b. Volume added **50 lbs**

8. Filter pack material: Manufacturer, product name & mesh size
 a. **Red Flint #40** _____
 b. Volume added **875 lbs**

9. Well casing: Flush threaded PVC schedule 40 23
 Flush threaded PVC schedule 80 24
 20 ft Stainless Steel/9.2 ft Sch80 PVC. Other

10. Screen Material: **Stainless Steel** _____
 a. screen type: Factory cut 11
 Continuous slot 01
 Other 30 ft Stainless Steel V-wire

b. Manufacturer **Alloy Machine works/Felker USA weld**
 b. Slot size: **0.02** in.
 c. slotted length: **28.8** ft.

11. Backfill material (below filter pack): None 14
 Other _____

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: *Robert Wesjak* Firm: **AECOM**
 Milwaukee WI

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. Note: See the instructions for more information, including where the completed forms should be sent.

Route to: Watershed/Wastewater Waste Management
 Remediation/Redevelopment Other

Facility/Project Name: **Former Newton Gravel Pit** Local Grid Location of Well: **EX-2**

Facility License, Permit or Monitoring No.: **436104020** Local Grid Origin: **Estimated: x = 217005.284 y = 289338.943** or **1983 Manitowoc County Co-ordinates system(feet MSL)**

Facility ID: **436104020** Date Well Installed: **06 / 07 / 2023**

Type of Well: **SW 1/4 of NW of Sec. 2, T. 18 N, R. 23 W** Well Installed By: **Cascade (Jeff Jehn)**

Distance from Waste/Source: **57** ft. Enf. Stds. Apply

Location of Well relative to Waste/Source: u Upgradient s Sidegradient d Downgradient n Not Known

A. Protective pipe, top elevation: **NA** ft. MSL Yes No

B. Temporary Well casing, top elevation: **732.08** ft. MSL

C. Land surface elevation: **730.50** ft. MSL

D. Surface seal, bottom: **725.50** ft. MSL or **5.0** Ft.

12. USCS classification of soil near screen:
 GP GM GC GW SW SP
 SM SC ML MH CL CH
 Bedrock

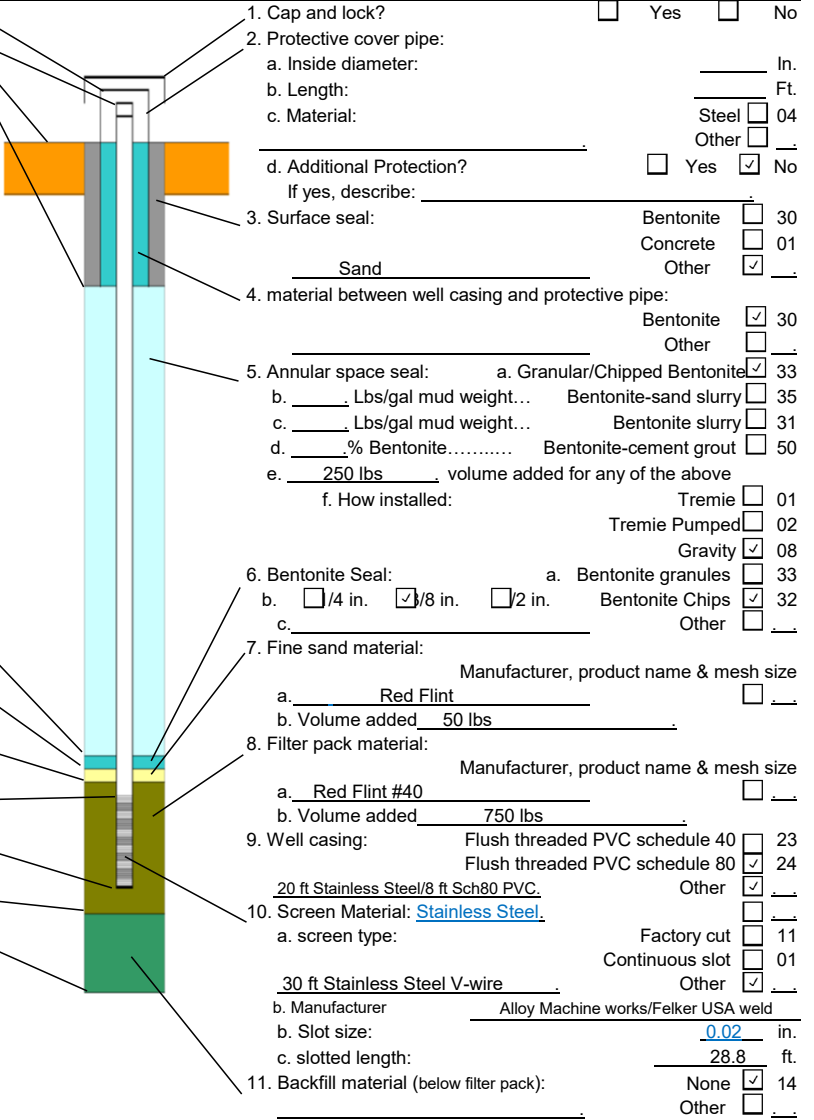
13. Sieve analysis performed? Yes No

14 Drilling method used: Rotary 50
 Hollow Stem Auger 41
 Rotosonic Other

15 Drilling fluid used: Water 02 Air 01
 Drilling Mud 03 None 99

16 Drilling additives used? Yes No
 Describe: _____

17. Source of water (attach analysis, if required):
City of Manitowoc, Wisconsin



E Bentonite seal, top: **725.50** ft. MSL **5.0** ft.

F. Fine sand, top: **707.50** ft. MSL **23.0** ft.

G. Filter Pack, top: **705.00** ft. MSL **25.5** ft.

H. Screen joint, top: **702.50** ft. MSL **28.0** ft.

I. Well Bottom: **672.50** ft. MSL **58.0** ft.

J. Filter Pack, bottom: **672.50** ft. MSL **58.0** ft.

K. Borehole, bottom: **672.50** ft. MSL **58.0** ft.

L. Borehole, diameter: **8** In..

M. O.D. well casing: **4.500** In.

N. I.D. well casing: **3.786** In.

1. Cap and lock? Yes No

2. Protective cover pipe:
 a. Inside diameter: _____ In.
 b. Length: _____ Ft.
 c. Material: Steel 04
 Other _____

d. Additional Protection? Yes No
 If yes, describe: _____

3. Surface seal: Bentonite 30
 Concrete 01
 Other **Sand**

4. material between well casing and protective pipe: Bentonite 30
 Other _____

5. Annular space seal: a. Granular/Chipped Bentonite 33
 b. _____ Lbs/gal mud weight... Bentonite-sand slurry 35
 c. _____ Lbs/gal mud weight... Bentonite slurry 31
 d. _____% Bentonite..... Bentonite-cement grout 50
 e. **250 lbs** volume added for any of the above
 f. How installed: Tremie 01
 Tremie Pumped 02
 Gravity 08

6. Bentonite Seal: a. Bentonite granules 33
 b. 1/4 in. 3/8 in. 1/2 in. Bentonite Chips 32
 c. _____ Other _____

7. Fine sand material: Manufacturer, product name & mesh size
 a. **Red Flint** _____
 b. Volume added **50 lbs**

8. Filter pack material: Manufacturer, product name & mesh size
 a. **Red Flint #40** _____
 b. Volume added **750 lbs**

9. Well casing: Flush threaded PVC schedule 40 23
 Flush threaded PVC schedule 80 24
20 ft Stainless Steel/8 ft Sch80 PVC. Other _____

10. Screen Material: **Stainless Steel.** _____
 a. screen type: Factory cut 11
 Continuous slot 01
 Other _____
30 ft Stainless Steel V-wire

b. Manufacturer **Alloy Machine works/Felker USA weld**
 b. Slot size: **0.02** in.
 c. slotted length: **28.8** ft.

11. Backfill material (below filter pack): None 14
 Other _____

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: *Robert Wesdjak* Firm: **AECOM**
 Milwaukee WI

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. Note: See the instructions for more information, including where the completed forms should be sent.

Route to: Watershed/Wastewater Waste Management
 Remediation/Redevelopment Other

Facility/Project Name: **Former Newton Gravel Pit** Local Grid Location of Well: **EX-3**

Facility License, Permit or Monitoring No.: **436104020** Local Grid Origin: **Estimated: x = 217063.291 y = 289342.431** or **St. Plane Lat. Long**

Section Location of Waste/Source: **SW 1/4 of NW of Sec. 2, T. 18 N, R. 23 W**

Date Well Installed: **06 / 02 / 2023**

Well Installed By: **Cascade (Jeff Jehn)**

Distance from Waste/Source: **57** ft. Enf. Stds. Apply

Location of Well relative to Waste/Source: Upgradient Downgradient Sidegradient Not Known

A. Protective pipe, top elevation: **NA** ft. MSL Yes No

B. Temporary Well casing, top elevation: **733.10** ft. MSL

C. Land surface elevation: **731.62** ft. MSL

D. Surface seal, bottom: **726.62** ft. MSL or **5.0** Ft.

1. Cap and lock? Yes No

2. Protective cover pipe: a. Inside diameter: _____ In. b. Length: _____ Ft. c. Material: Steel 04 Other _____

d. Additional Protection? Yes No If yes, describe: _____

12. USCS classification of soil near screen:
 GP GM GC GW SW SP
 SM SC ML MH CL CH
 Bedrock

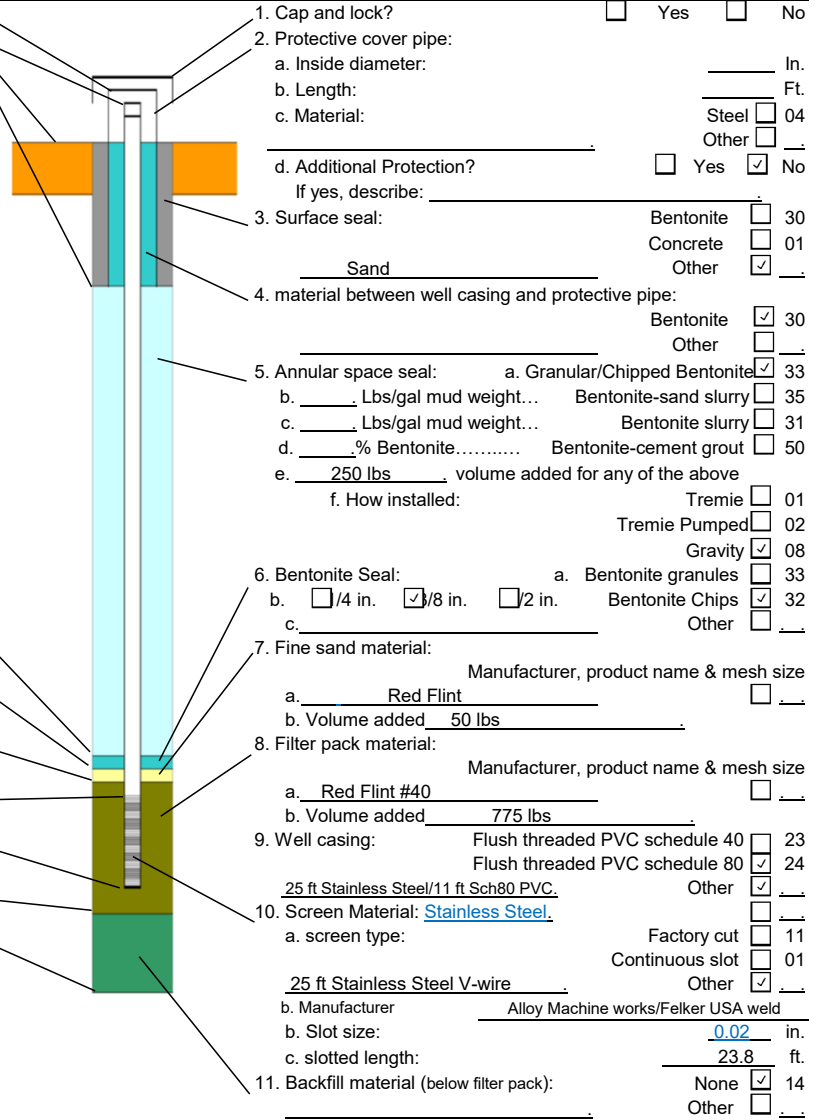
13. Sieve analysis performed? Yes No

14 Drilling method used: Rotary 50
 Hollow Stem Auger 41
 Rotosonic Other

15 Drilling fluid used: Water 02 Air 01
 Drilling Mud 03 None 99

16 Drilling additives used? Yes No
 Describe: _____

17. Source of water (attach analysis, if required):
City of Manitowoc, Wisconsin



E Bentonite seal, top: **726.62** ft. MSL **5.0** ft.

F. Fine sand, top: **699.62** ft. MSL **32.0** ft.

G. Filter Pack, top: **697.62** ft. MSL **34.0** ft.

H. Screen joint, top: **695.62** ft. MSL **36.0** ft.

I. Well Bottom: **670.62** ft. MSL **61.0** ft.

J. Filter Pack, bottom: **670.62** ft. MSL **61.0** ft.

K. Borehole, bottom: **670.62** ft. MSL **61.0** ft.

L. Borehole, diameter: **8** In..

M. O.D. well casing: **4.500** In.

N. I.D. well casing: **3.786** In.

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: *Robert Wesdjak* Firm: **AECOM**
 Milwaukee WI

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Route to: Watershed/Wastewater Waste Management
 Remediation/Redevelopment Other

Facility/Project Name: **Former Newton Gravel Pit** Local Grid Location of Well: **EX-4** Well Name: **EX-4**

Facility License, Permit or Monitoring No.: **436104020** Local Grid Origin: **Estimated: x = 216974.294 y = 289293.370** or **St. Plane Lat. Long** Wis. Unique Well No. **DNR Well Id No.**

Facility ID: **1983 Manitowoc County Co-ordinates system(feet MSL)** Date Well Installed: **06 / 08 / 2023**

Type of Well: **SW 1/4 of NW of Sec. 2, T. 18 N, R. 23 W** Well Installed By: **Cascade (Jeff Jehn)**

Distance from Waste/Source: **57 / sv** ft. Enf. Stds. Apply

A. Protective pipe, top elevation: **NA** ft. MSL Yes No

B. Temporary Well casing, top elevation: **733.56** ft. MSL

C. Land surface elevation: **733.14** ft. MSL

D. Surface seal, bottom: **728.14** ft. MSL or **5.0** Ft.

12. USCS classification of soil near screen:
 GP GM GC GW SW SP
 SM SC ML MH CL CH
 Bedrock

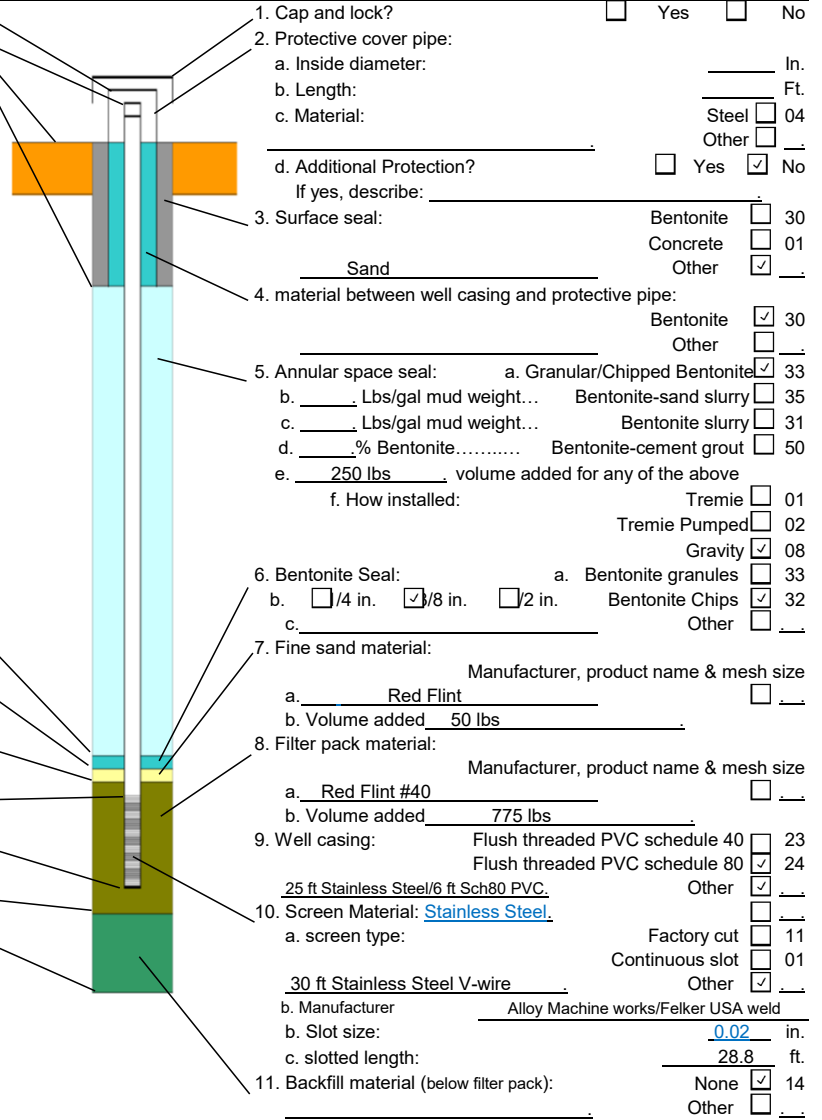
13. Sieve analysis performed? Yes No

14 Drilling method used: Rotary 50
 Hollow Stem Auger 41
 Rotosonic Other

15 Drilling fluid used: Water 02 Air 01
 Drilling Mud 03 None 99

16 Drilling additives used? Yes No
 Describe _____

17. Source of water (attach analysis, if required):
City of Manitowoc, Wisconsin



E Bentonite seal, top: **728.14** ft. MSL **5.0** ft.

F. Fine sand, top: **708.14** ft. MSL **25.0** ft.

G. Filter Pack, top: **706.14** ft. MSL **27.0** ft.

H. Screen joint, top: **702.74** ft. MSL **30.4** ft.

I. Well Bottom: **672.74** ft. MSL **60.4** ft.

J. Filter Pack, bottom: **672.14** ft. MSL **61.0** ft.

K. Borehole, bottom: **672.14** ft. MSL **61.0** ft.

L. Borehole, diameter: **8** In..

M. O.D. well casing: **4.500** In.

N. I.D. well casing: **3.786** In.

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: *Robert Wesdjak* Firm: **AECOM**
 Milwaukee WI

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Route to: Watershed/Wastewater Waste Management
 Remediation/Redevelopment Other

Facility/Project Name: **Former Newton Gravel Pit** Local Grid Location of Well: _____ Well Name: **EX-5**

Facility License, Permit or Monitoring No. _____ Local Grid Origin Estimated: or Well Location
 x = 217026.018 y = 289296.259
 Lat. _____ Long _____ or _____

Facility ID: **436104020** 1983 Manitowoc County Co-ordinates system(feet MSL) Date Well Installed: 06 / 06 / 2023
 Section Location of Waste/Source: _____ ft E S/C/N _____ m m d d y y y y
 Well Installed By: Name (first, last) and Firm: **Cascade (Jeff Jehn)**

Type of Well: _____ Location of Well relative to Waste/Source: _____ Gov. Lot No. _____
 Well Code 57 / sv u Upgradient s Sidegradient
 Distance from Waste/Source _____ ft. d Downgradient n Not Known

A. Protective pipe, top elevation NA ft. MSL Yes No
 B. Temporary Well casing, top elevation 733.75 ft. MSL
 C. Land surface elevation 732.56 ft. MSL
 D. Surface seal, bottom 727.56 ft. MSL or 5.0 Ft.

12. USCS classification of soil near screen:
 GP GM GC GW SW SP
 SM SC ML MH CL CH
 Bedrock

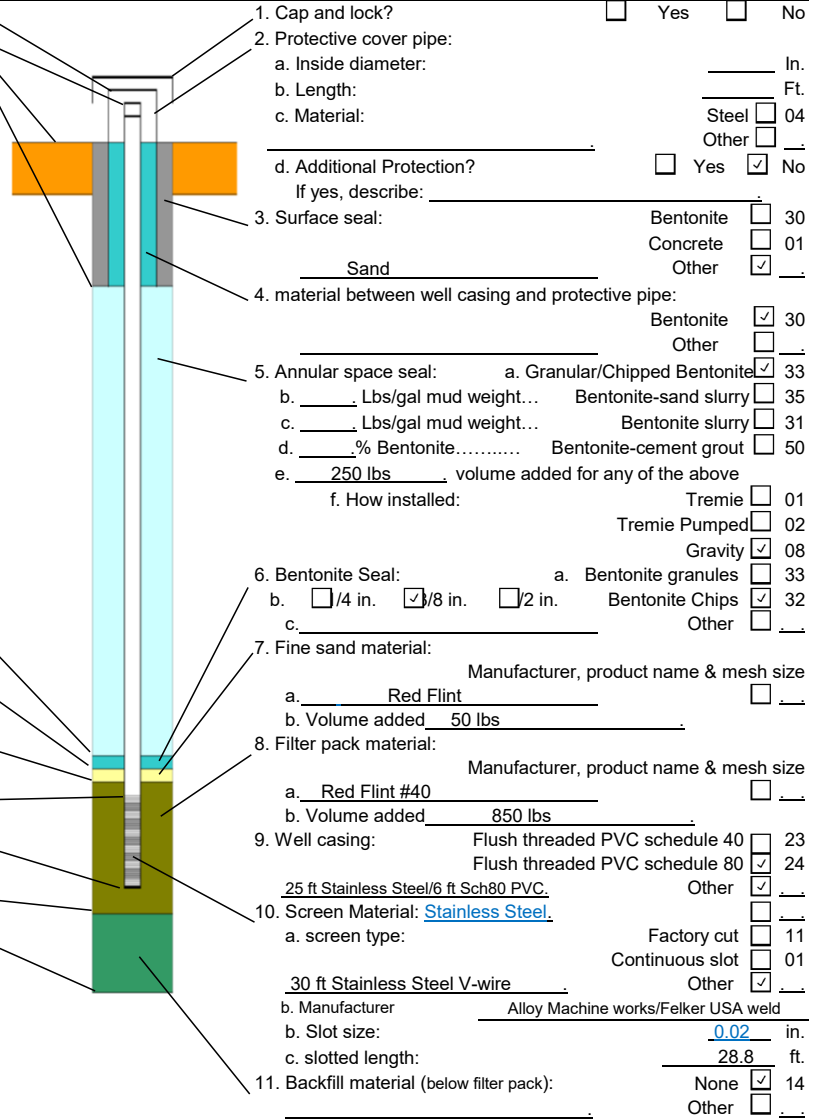
13. Sieve analysis performed? Yes No

14 Drilling method used: Rotary 50
 Hollow Stem Auger 41
 Rotosonic _____ Other _____

15 Drilling fluid used: Water 02 Air 01
 Drilling Mud 03 None 99

16 Drilling additives used? Yes No
 Describe _____

17. Source of water (attach analysis, if required):
City of Manitowoc, Wisconsin



E Bentonite seal, top 727.56 ft. MSL 5.0 ft.
 F. Fine sand, top 707.56 ft. MSL 25.0 ft.
 G. Filter Pack, top 705.06 ft. MSL 27.5 ft.
 H. Screen joint, top 701.76 ft. MSL 30.8 ft.
 I. Well Bottom 671.76 ft. MSL 60.8 ft.
 J. Filter Pack, bottom 671.56 ft. MSL 61.0 ft.
 K. Borehole, bottom 671.56 ft. MSL 61.0 ft.
 L. Borehole, diameter 8 In..
 M. O.D. well casing 4.500 In..
 N. I.D. well casing 3.786 In..

1. Cap and lock? Yes No
 2. Protective cover pipe:
 a. Inside diameter: _____ In.
 b. Length: _____ Ft.
 c. Material: Steel 04
 Other _____
 d. Additional Protection? Yes No
 If yes, describe: _____
 3. Surface seal: Bentonite 30
 Concrete 01
 Other _____
 4. material between well casing and protective pipe: Bentonite 30
 Other _____
 5. Annular space seal: a. Granular/Chipped Bentonite 33
 b. _____ Lbs/gal mud weight... Bentonite-sand slurry 35
 c. _____ Lbs/gal mud weight... Bentonite slurry 31
 d. _____% Bentonite..... Bentonite-cement grout 50
 e. 250 lbs volume added for any of the above
 f. How installed: Tremie 01
 Tremie Pumped 02
 Gravity 08
 6. Bentonite Seal: a. Bentonite granules 33
 b. 1/4 in. 3/8 in. 1/2 in. Bentonite Chips 32
 c. _____ Other _____
 7. Fine sand material: Manufacturer, product name & mesh size
 a. Red Flint _____
 b. Volume added 50 lbs
 8. Filter pack material: Manufacturer, product name & mesh size
 a. Red Flint #40 _____
 b. Volume added 850 lbs
 9. Well casing: Flush threaded PVC schedule 40 23
 Flush threaded PVC schedule 80 24
25 ft Stainless Steel/6 ft Sch80 PVC. Other _____
 10. Screen Material: Stainless Steel. _____
 a. screen type: Factory cut 11
 Continuous slot 01
 Other _____
30 ft Stainless Steel V-wire
 b. Manufacturer Alloy Machine works/Felker USA weld
 c. Slot size: 0.02 in.
 c. slotted length: 28.8 ft.
 11. Backfill material (below filter pack): None 14
 Other _____

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: Robert Wesdjak Firm: **AECOM**
 Milwaukee WI

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Route to: Watershed/Wastewater Waste Management
 Remediation/Redevelopment Other

Facility/Project Name: **Former Newton Gravel Pit** Local Grid Location of Well: _____ Well Name: **EX-6**

Facility License, Permit or Monitoring No.: _____ Local Grid Origin Estimated: or Well Location
 x = 217065.488 y = 289303.725
 Lat. _____ Long _____ or _____

Facility ID: **436104020** 1983 Manitowoc County Co-ordinates system(feet MSL) Date Well Installed: 06 / 01 / 2023
 m m d d y y y y

Type of Well: _____ Section Location of Waste/Source: E Well Installed By: Name (first, last) and Firm
SW 1/4 of NW of Sec. 2, T. 18 N, R. 23 W Gov. Lot No. **Cascade (Jeff Jehn)**

Well Code 57 / sv Location of Well relative to Waste/Source: _____

Distance from Waste/Source _____ ft. Enf. Stds. Apply u Upgradient s Sidegradient
 d Downgradient n Not Known

A. Protective pipe, top elevation NA ft. MSL Yes No
 B. Temporary Well casing, top elevation 734.96 ft. MSL
 C. Land surface elevation 733.62 ft. MSL
 D. Surface seal, bottom 728.12 ft. MSL or 5.5 Ft.

12. USCS classification of soil near screen:
 GP GM GC GW SW SP
 SM SC ML MH CL CH
 Bedrock

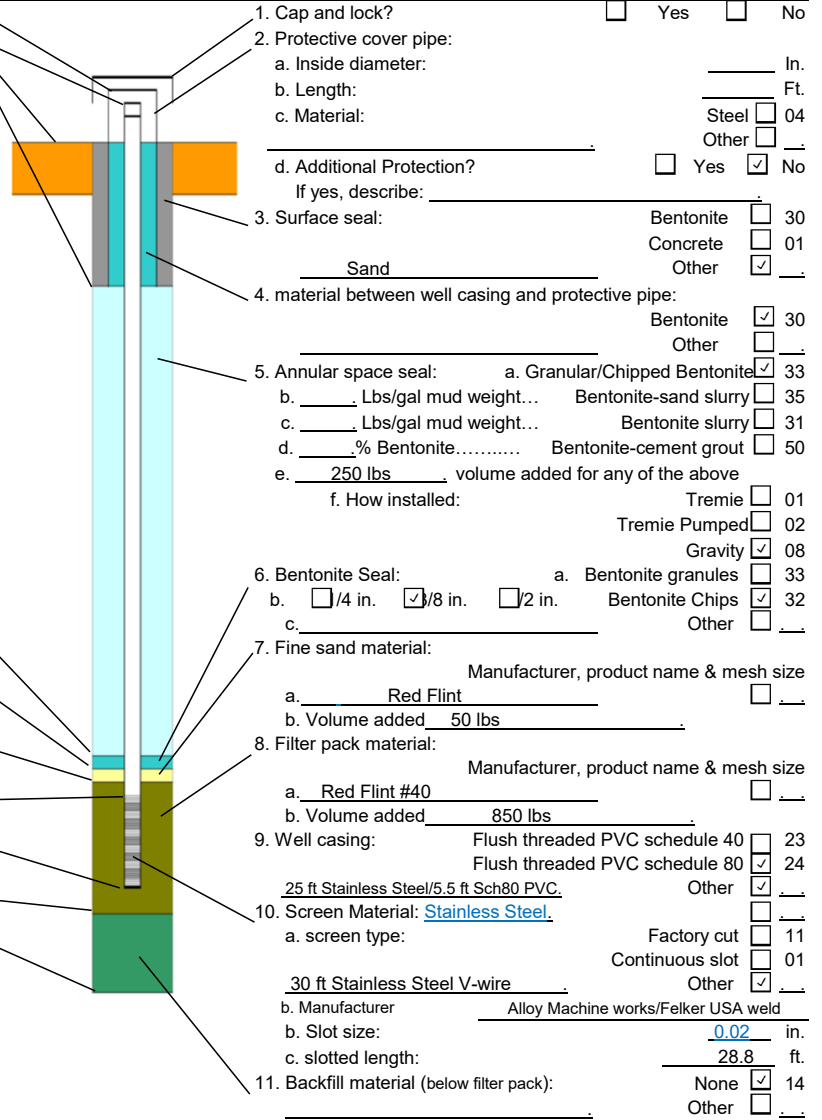
13. Sieve analysis performed? Yes No

14 Drilling method used: Rotary 50
 Hollow Stem Auger 41
 Rotosonic _____ Other

15 Drilling fluid used: Water 02 Air 01
 Drilling Mud 03 None 99

16 Drilling additives used? Yes No
 Describe _____

17. Source of water (attach analysis, if required):
City of Manitowoc, Wisconsin



E Bentonite seal, top 728.12 ft. MSL 5.5 ft.
 F. Fine sand, top 707.12 ft. MSL 26.5 ft.
 G. Filter Pack, top 705.12 ft. MSL 28.5 ft.
 H. Screen joint, top 703.12 ft. MSL 30.5 ft.
 I. Well Bottom 673.12 ft. MSL 60.5 ft.
 J. Filter Pack, bottom 673.12 ft. MSL 60.5 ft.
 K. Borehole, bottom 673.12 ft. MSL 60.5 ft.
 L. Borehole, diameter 8 In..
 M. O.D. well casing 4.500 In.
 N. I.D. well casing 3.786 In.

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: Robert Wesdjak Firm: **AECOM**
 Milwaukee WI

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Route to: Watershed/Wastewater Waste Management
 Remediation/Redevelopment Other

Facility/Project Name: **Former Newton Gravel Pit** Local Grid Location of Well: _____ Well Name: **EX-7**

Facility License, Permit or Monitoring No. _____ Local Grid Origin Estimated: or Well Location
 x = 217010.867 y = 289252.982
 Lat. _____ Long _____ or _____

Facility ID: **436104020** 1983 Manitowoc County Co-ordinates system(feet MSL) Date Well Installed: 06 / 05 / 2023
 Section Location of Waste/Source: _____ Well Installed By: Name (first, last) and Firm: **Cascade (Jeff Jehn)**

Well Code: 57 / sv Location of Well relative to Waste/Source: _____ Gov. Lot No. _____

Distance from Waste/Source _____ ft. Enf. Stds. Apply u Upgradient s Sidegradient
 d Downgradient n Not Known

A. Protective pipe, top elevation NA ft. MSL Yes No
 B. Temporary Well casing, top elevation 737.36 ft. MSL
 C. Land surface elevation 734.52 ft. MSL
 D. Surface seal, bottom 729.52 ft. MSL or 5.0 Ft.

12. USCS classification of soil near screen:
 GP GM GC GW SW SP
 SM SC ML MH CL CH
 Bedrock

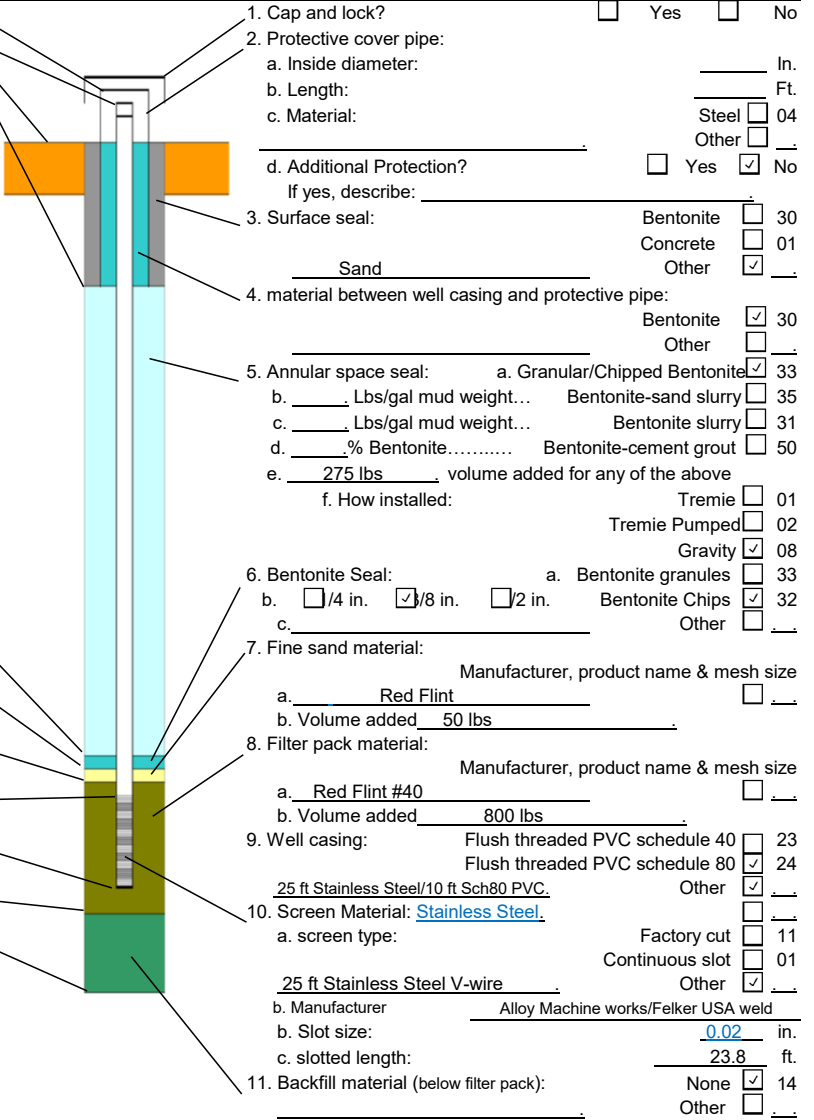
13. Sieve analysis performed? Yes No

14 Drilling method used: Rotary 50
 Hollow Stem Auger 41
 Rotosonic _____ Other

15 Drilling fluid used: Water 02 Air 01
 Drilling Mud 03 None 99

16 Drilling additives used? Yes No
 Describe _____

17. Source of water (attach analysis, if required):
City of Manitowoc, Wisconsin



E Bentonite seal, top 729.52 ft. MSL 5.0 ft.
 F. Fine sand, top 704.02 ft. MSL 30.5 ft.
 G. Filter Pack, top 702.02 ft. MSL 32.5 ft.
 H. Screen joint, top 700.02 ft. MSL 34.5 ft.
 I. Well Bottom 675.02 ft. MSL 59.5 ft.
 J. Filter Pack, bottom 674.52 ft. MSL 60.0 ft.
 K. Borehole, bottom 674.52 ft. MSL 60.0 ft.
 L. Borehole, diameter 8 In..
 M. O.D. well casing 4.500 In.
 N. I.D. well casing 3.786 In.

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: Robert Wesdjak Firm: **AECOM**
 Milwaukee WI

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Route to: Watershed/Wastewater Waste Management
 Remediation/Redevelopment Other

Facility/Project Name: **Former Newton Gravel Pit** Local Grid Location of Well: _____ Well Name: **EX-8**

Facility License, Permit or Monitoring No. _____ Local Grid Origin Estimated: or Well Location Wis. Unique Well No. _____ DNR Well Id No. _____
 x = 217060.840 y = 289264.637
 Lat. _____ Long _____ or _____

Facility ID: **436104020** 1983 Manitowoc County Co-ordinates system(feet MSL) Date Well Installed: 05 / 31 / 2023
 Section Location of Waste/Source: _____ ft E S/C/N _____ m m d d y y y y
 Well Installed By: Name (first, last) and Firm: **Cascade (Jeff Jehn)**

Type of Well: _____ Well Code: 57 / sv Location of Well relative to Waste/Source: _____ Gov. Lot No. _____
 Distance from Waste/Source _____ ft. Enf. Stds. Apply u Upgradient s Sidegradient
 d Downgradient n Not Known

A. Protective pipe, top elevation NA ft. MSL Yes No
 B. Temporary Well casing, top elevation 736.28 ft. MSL
 C. Land surface elevation 734.26 ft. MSL
 D. Surface seal, bottom 729.26 ft. MSL or 5.0 Ft.

12. USCS classification of soil near screen:
 GP GM GC GW SW SP
 SM SC ML MH CL CH
 Bedrock

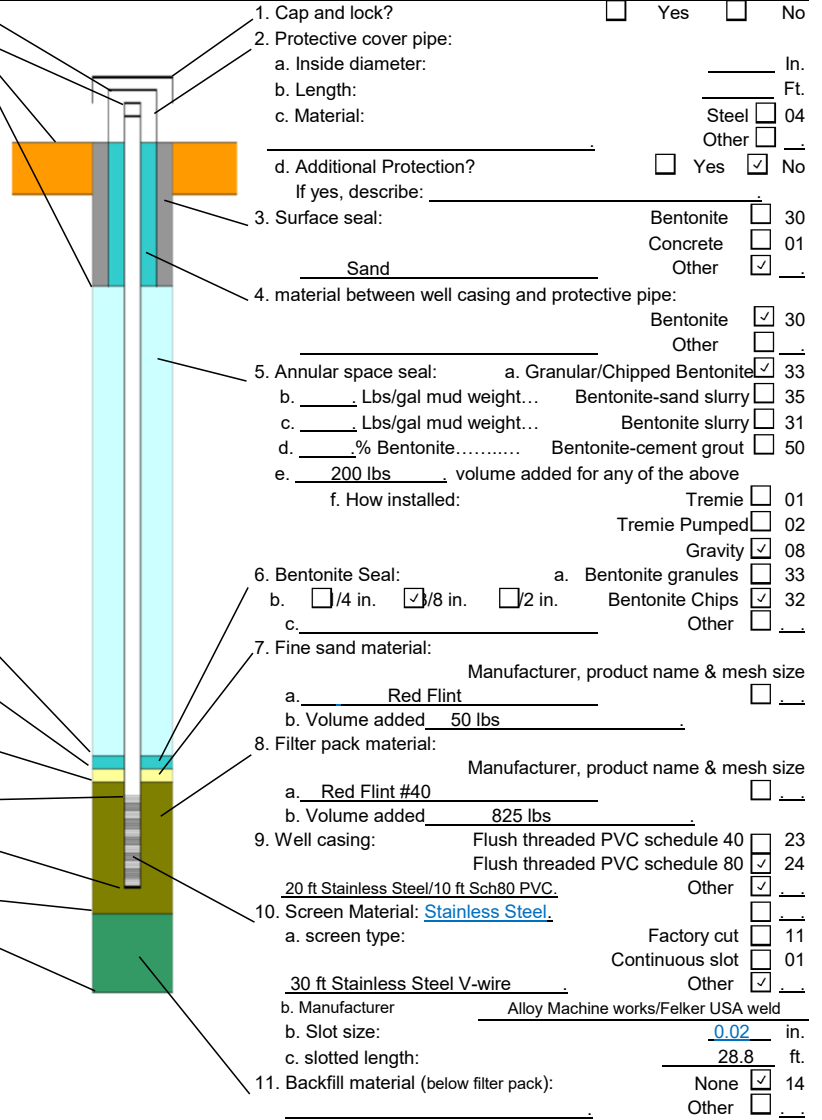
13. Sieve analysis performed? Yes No

14 Drilling method used: Rotary 50
 Hollow Stem Auger 41
 Rotosonic _____ Other _____

15 Drilling fluid used: Water 02 Air 01
 Drilling Mud 03 None 99

16 Drilling additives used? Yes No
 Describe _____

17. Source of water (attach analysis, if required):
City of Manitowoc, Wisconsin



E Bentonite seal, top 729.26 ft. MSL 5.0 ft.
 F. Fine sand, top 708.26 ft. MSL 26.0 ft.
 G. Filter Pack, top 706.26 ft. MSL 28.0 ft.
 H. Screen joint, top 704.26 ft. MSL 30.0 ft.
 I. Well Bottom 674.26 ft. MSL 60.0 ft.
 J. Filter Pack, bottom 674.26 ft. MSL 60.0 ft.
 K. Borehole, bottom 674.26 ft. MSL 60.0 ft.
 L. Borehole, diameter 8 In..
 M. O.D. well casing 4.500 In..
 N. I.D. well casing 3.786 In..

1. Cap and lock? Yes No
 2. Protective cover pipe:
 a. Inside diameter: _____ In.
 b. Length: _____ Ft.
 c. Material: Steel 04
 Other _____
 d. Additional Protection? Yes No
 If yes, describe: _____
 3. Surface seal: Bentonite 30
 Concrete 01
 Other _____
 4. material between well casing and protective pipe: Bentonite 30
 Other _____
 5. Annular space seal: a. Granular/Chipped Bentonite 33
 b. _____ Lbs/gal mud weight... Bentonite-sand slurry 35
 c. _____ Lbs/gal mud weight... Bentonite slurry 31
 d. _____% Bentonite..... Bentonite-cement grout 50
 e. 200 lbs volume added for any of the above
 f. How installed: Tremie 01
 Tremie Pumped 02
 Gravity 08
 6. Bentonite Seal: a. Bentonite granules 33
 b. 1/4 in. 3/8 in. 1/2 in. Bentonite Chips 32
 c. _____ Other _____
 7. Fine sand material: Manufacturer, product name & mesh size
 a. Red Flint _____
 b. Volume added 50 lbs
 8. Filter pack material: Manufacturer, product name & mesh size
 a. Red Flint #40 _____
 b. Volume added 825 lbs
 9. Well casing: Flush threaded PVC schedule 40 23
 Flush threaded PVC schedule 80 24
20 ft Stainless Steel/10 ft Sch80 PVC. Other _____
 10. Screen Material: Stainless Steel. _____
 a. screen type: Factory cut 11
 Continuous slot 01
30 ft Stainless Steel V-wire Other _____
 b. Manufacturer Alloy Machine works/Felker USA weld
 c. Slot size: 0.02 in.
 c. slotted length: 28.8 ft.
 11. Backfill material (below filter pack): None 14
 Other _____

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: Robert Wesdjak Firm: **AECOM**
 Milwaukee WI

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Attachment D:

Laboratory Data

Synergy Environmental Lab, INC.

1990 Prospect Ct., Appleton, WI 54914 *P 920-830-2455 * F 920-733-0631

DAVE HENDERSON
AECOM
1555 N RIVERCENTER DRIVE
MILWAUKEE, WI 53212

Report Date 28-Jun-23

Project Name FORMER NEWTON GRAVEL PIT
Project # 60135471

Invoice # E42516

Lab Code 5042516A
Sample ID WCOMP
Sample Matrix Soil
Sample Date 6/8/2023

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Inorganic										
Metals										
TCLP Arsenic	< 0.1	mg/l	0.033	0.1	1	6010B		6/19/2023	PCE	1
TCLP Barium	0.137	mg/l	0.033	0.1	1	6010B		6/19/2023	PCE	1
TCLP Cadmium	< 0.1	mg/l	0.033	0.1	1	6010B		6/19/2023	PCE	1
TCLP Chromium	< 0.1	mg/l	0.033	0.1	1	6010B		6/19/2023	PCE	1
TCLP Copper	0.191	mg/l	0.033	0.1	1	6010B		6/19/2023	PCE	1
TCLP Lead	< 0.1	mg/l	0.033	0.1	1	6010B		6/19/2023	PCE	1
TCLP Mercury	< 0.01	mg/l	0.0033	0.01	1	7470A		6/20/2023	PCE	1
TCLP Nickel	< 0.1	mg/l	0.033	0.1	1	6010B		6/19/2023	PCE	1
TCLP Selenium	< 0.1	mg/l	0.033	0.1	1	6010B		6/19/2023	PCE	1
TCLP Silver	< 0.1	mg/l	0.033	0.1	1	6010B		6/19/2023	PCE	1
TCLP Zinc	< 0.5	mg/l	0.165	0.5	1	6010B		6/19/2023	PCE	1
Organic										
PCB'S										
PCB-1016	< 0.0072	mg/kg	0.0072	0.024	2	EPA 8082A		6/19/2023	PCE	1
PCB-1221	< 0.008	mg/kg	0.008	0.026	2	EPA 8082A		6/19/2023	PCE	1
PCB-1232	< 0.0064	mg/kg	0.0064	0.022	2	EPA 8082A		6/19/2023	PCE	1
PCB-1242	< 0.0064	mg/kg	0.0064	0.022	2	EPA 8082A		6/19/2023	PCE	1
PCB-1248	2.60	mg/kg	0.036	0.12	10	EPA 8082A		6/19/2023	PCE	1
PCB-1254	1.42	mg/kg	0.0082	0.028	2	EPA 8082A		6/19/2023	PCE	1
PCB-1260	< 0.014	mg/kg	0.014	0.046	2	EPA 8082A		6/19/2023	PCE	1
TCLP SVOC's										
TCLP o-Cresol	< 0.111	mg/l	0.033	0.111	1	625		6/19/2023	PCE	1
TCLP m & p-Cresol	< 0.111	mg/l	0.033	0.111	1	625		6/19/2023	PCE	1
TCLP 1,4-Dichlorobenzene	< 0.111	mg/l	0.033	0.111	1	625		6/19/2023	PCE	1
TCLP 2,4-Dinitrotoluene	< 0.111	mg/l	0.033	0.111	1	625		6/19/2023	PCE	1
TCLP Hexachlorobenzene	< 0.111	mg/l	0.033	0.111	1	625		6/19/2023	PCE	1
TCLP Hexachlorobutadiene	< 0.111	mg/l	0.033	0.111	1	625		6/19/2023	PCE	1
TCLP Hexachloroethane	< 0.111	mg/l	0.033	0.111	1	625		6/19/2023	PCE	1

Project Name FORMER NEWTON GRAVEL PIT
Project # 60135471

Invoice # E42516

Lab Code 5042516A
Sample ID WCOMP
Sample Matrix Soil
Sample Date 6/8/2023

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
TCLP Nitrobenzene	< 0.111	mg/l	0.033	0.111	1	625	6/19/2023	6/19/2023	PCE	1
TCLP Pentachlorophenol	< 0.111	mg/l	0.033	0.111	1	625	6/19/2023	6/19/2023	PCE	1
TCLP Phenol	< 0.111	mg/l	0.033	0.111	1	625	6/19/2023	6/19/2023	PCE	1
TCLP Pyridine	< 0.111	mg/l	0.033	0.111	1	625	6/19/2023	6/19/2023	PCE	1
TCLP 2,4,6-Trichlorophenol	< 0.111	mg/l	0.033	0.111	1	625	6/19/2023	6/19/2023	PCE	1
TCLP 2,4,5-Trichlorophenol	< 0.111	mg/l	0.033	0.111	1	625	6/19/2023	6/19/2023	PCE	1
TCLP VOC's										
TCLP Benzene	< 0.05	mg/l	0.015	0.05	1	8260B	6/19/2023	6/19/2023	PCE	1
TCLP Carbon Tetrachloride	< 0.05	mg/l	0.015	0.05	1	8260B	6/19/2023	6/19/2023	PCE	1
TCLP Chlorobenzene	< 0.05	mg/l	0.015	0.05	1	8260B	6/19/2023	6/19/2023	PCE	1
TCLP Chloroform	< 0.25	mg/l	0.075	0.25	1	8260B	6/19/2023	6/19/2023	PCE	1
TCLP 1,2-Dichloroethane	< 0.05	mg/l	0.015	0.05	1	8260B	6/19/2023	6/19/2023	PCE	1
TCLP 1,1-Dichloroethene	< 0.05	mg/l	0.015	0.05	1	8260B	6/19/2023	6/19/2023	PCE	1
TCLP Methyl Ethyl Ketone	< 0.5	mg/l	0.5	0.15	1	8260B	6/19/2023	6/19/2023	PCE	1
TCLP Tetrachloroethene	0.119	mg/l	0.015	0.05	1	8260B	6/19/2023	6/19/2023	PCE	1
TCLP Trichloroethene	1.51	mg/l	0.015	0.05	1	8260B	6/19/2023	6/19/2023	PCE	1
TCLP Vinyl Chloride	< 0.05	mg/l	0.015	0.05	1	8260B	6/19/2023	6/19/2023	PCE	1
Wet Chemistry										
General										
Specific Gravity	1.80	g/cm3			1	2710F	6/15/2023	6/15/2023	PCE	1
Reactive Sulfide	< 100	mg/kg	30	100	1	EPA 9034	6/15/2023	6/15/2023	PCE	1
Free Liquid	none				1	9095A	6/14/2023	6/14/2023	PCE	1
Reactive Cyanide	< 0.13	mg/kg	0.13		1	9012B	6/14/2023	6/14/2023	PCE	1
Solids, Total %	89.2	%			1	2540B	6/14/2023	6/14/2023	PCE	1
pH	6.71	su			1	EPA 9045D	6/19/2023	6/19/2023	PCE	1
Chlorides, Unfiltered	< 92	mg/kg	92	307	10	9056	6/24/2023	6/24/2023	PCE	1
Flash Point	> 170	F			1	D93	6/19/2023	6/19/2023	PCE	1

"J" Flag: Analyte detected between LOD and LOQ

LOD Limit of Detection

LOQ Limit of Quantitation

Code **Comment**

1 Laboratory QC within limits.

PCE denotes sub contract lab - Certification #998093910

All solid sample results reported on a dry weight basis unless otherwise indicated. All LOD's and LOQ's are adjusted for dilutions but not dry weight. Subcontracted results are denoted by SUB in the analyst field.

Authorized Signature



Environmental Lab, LLC

www.synergy-lab.net
 1990 Prospect Ct. • Appleton, WI 54914
 920-830-2455 • mrsynergy@wi.twcbc.com

Sample Handling Request

Rush Analysis Date Required: _____
 (Rushes accepted only with prior authorization)

Normal Turn Around

Lab I.D. # _____

QUOTE # : _____

Project #: 60135471

Sampler: (signature) *Robert W. ...*

Project (Name / Location): Former Newton Gravel Pit

Reports To: Dave Henderson Invoice To: Same

Company: Aecom Company: Same

Address: 1555 N. River Center Dr, Ste 214 Address: Same

City State Zip: Milwaukee, WI 53212 City State Zip: Same

Phone: 414-944-6190 Phone: Same

Email: dave.henderson@aecom.com Email: Same

Analysis Requested												Other Analysis			
DRO (Mod DRO Sep 95)	GRO (Mod GRO Sep 95)	LEAD	NITRATE/NITRITE	OIL & GREASE	PAH (EPA 8270)	PCB	PVOC (EPA 8021)	PVOC + NAPHTHALENE	SULFATE	TOTAL SUSPENDED SOLIDS	VOC DW (EPA 524.2)	VOC (EPA 8260)	VOC AIR (TO - 15)	8-RCRA METALS	PID/ FID
														<input checked="" type="checkbox"/>	

Lab I.D.	Sample I.D.	Collection Date	Time	Filtered Y/N	No. of Containers	Sample Type (Matrix)*	Preservation
S012516A	WComp	6/8/23	12:00	N	7	soil	-

Comments/Special Instructions (*Specify groundwater "GW", Drinking Water "DW", Waste Water "WW", Soil "S", Air "A", Oil, Sludge, etc.)

Sample Integrity - To be completed by receiving lab.

Method of Shipment: *cool*

Temp. of Temp. Blank: _____ °C On Ice: *X*

Cooler seal intact upon receipt: Yes No

Relinquished By: (sign) *Robert W. ...* Time: 12:35 Date: 6/9/23

Received By: (sign) *[Signature]* Time: 12:35 Date: 6/9/23

Received in Laboratory By: *[Signature]* Time: 12:35 Date: 6/9/23



July 05, 2023

**Enthalpy Analytical - El Dorado Hills
Work Order No. 2306087**

Mr. Dave Henderson
AECOM
1555 N. River Center Drive
Milwaukee, WI 53212

Dear Mr. Henderson,

Enclosed are the results for the sample set received at Enthalpy Analytical - EDH on June 10, 2023 under your Project Name '60135471'.

Enthalpy Analytical - EDH is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at james.fox@enthalpy.com.

Thank you for choosing Enthalpy Analytical - EDH as part of your analytical support team.

Sincerely,

For

Jamie Fox
Senior Program Manager



Enthalpy Analytical -EDH certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Enthalpy Analytical -EDH .

Enthalpy Analytical - EDH Work Order No. 2306087

Case Narrative

Sample Condition on Receipt:

One aqueous sample and one soil sample were received and stored securely in accordance with Enthalpy Analytical - EDH standard operating procedures and EPA methodology. The samples were received in good condition and within the recommended temperature requirements.

Analytical Notes:

PFAS Isotope Dilution Method - Aqueous

The sample was extracted and analyzed for a selected list of PFAS using Enthalpy Analytical - EDH's PFAS Isotope Dilution Method. The results for PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Holding Times

The sample was extracted and analyzed within the hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank above 1/2 the Reporting Limits (RL). The OPR recoveries were within the method acceptance criteria.

The labeled standard recoveries for all QC and field samples were within the acceptance criteria.

PFAS Isotope Dilution Method - Solid

The sample was extracted and analyzed for a selected list of PFAS using Enthalpy Analytical - EDH's Isotope Dilution Method. The results for PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Holding Times

The sample was extracted and analyzed within the hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the

preparation batch. No analytes were detected in the Method Blank above 1/2 the Reporting Limits (RL). The OPR recoveries were within the method acceptance criteria.

The labeled standard recoveries for all QC and field samples were within the acceptance criteria.

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Sample Inventory Report

Sample ID	Client Sample ID	Sampled	Received	Components/Containers
2306087-01	WT060723	07-Jun-23 10:08	10-Jun-23 09:25	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
2306087-02	WCopm	08-Jun-23 12:00	10-Jun-23 09:25	HDPE Jar, 6 oz

ANALYTICAL RESULTS

Sample ID: Method Blank					PFAS Isotope Dilution Method						
Client Data				Laboratory Data							
Name:	AECOM	Matrix:	Aqueous	Lab Sample:	B23F107-BLK1	Column:	BEH C18				
Project:	60135471										
Analyte	CAS Number	Conc. (ng/L)	MDL	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
PFBA	375-22-4	<1.33	1.33	2.00		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1	
PFPeA	2706-90-3	<1.30	1.30	2.00		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1	
PFBS	375-73-5	<1.14	1.14	2.00		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1	
4:2 FTS	757124-72-4	<1.31	1.31	2.00		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1	
PFHxA	307-24-4	<1.26	1.26	2.00		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1	
PFPeS	2706-91-4	<1.74	1.74	2.00		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1	
HFPO-DA	13252-13-6	<1.95	1.95	2.00		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1	
PFHpA	375-85-9	<0.875	0.875	2.00		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1	
ADONA	919005-14-4	<1.10	1.10	2.00		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1	
PFHxS	355-46-4	<1.42	1.42	2.00		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1	
6:2 FTS	27619-97-2	<1.46	1.46	2.00		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1	
PFOA	335-67-1	<1.11	1.11	2.00		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1	
PFHpS	375-92-8	<1.64	1.64	2.00		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1	
PFNA	375-95-1	<1.25	1.25	2.00		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1	
PFOSA	754-91-6	<1.73	1.73	2.00		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1	
PFOS	1763-23-1	<1.86	1.86	2.00		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1	
9Cl-PF3ONS	756426-58-1	<1.50	1.50	2.00		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1	
PFDA	335-76-2	<1.21	1.21	2.00		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1	
8:2 FTS	39108-34-4	<1.72	1.72	2.00		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1	
PFNS	68259-12-1	<1.65	1.65	2.00		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1	
MeFOSAA	2355-31-9	<1.38	1.38	2.00		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1	
EtFOSAA	2991-50-6	<1.34	1.34	2.00		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1	
PFUnA	2058-94-8	<1.07	1.07	2.00		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1	
PFDS	335-77-3	<1.55	1.55	2.00		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1	
11Cl-PF3OUdS	763051-92-9	<1.20	1.20	2.00		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1	
PFDoA	307-55-1	<1.33	1.33	2.00		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1	
MeFOSA	31506-32-8	<3.00	3.00	4.00		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1	
PFTTrDA	72629-94-8	<1.40	1.40	2.00		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1	
PFDoS	79780-39-5	<1.73	1.73	2.00		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1	
PFTeDA	376-06-7	<1.15	1.15	2.00		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1	
EtFOSA	4151-50-2	<2.46	2.46	4.00		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1	
MeFOSE	24448-09-7	<2.35	2.35	2.50		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1	
EtFOSE	1691-99-2	<2.11	2.11	4.00		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1	
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution		
13C3-PFBA	IS	55.5	25 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1		
13C3-PFPeA	IS	59.6	25 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1		
13C3-PFBS	IS	48.8	25 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1		
13C2-4:2 FTS	IS	54.6	25 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1		

Sample ID: Method Blank **PFAS Isotope Dilution Method**

Client Data				Laboratory Data			
Name:	AECOM	Matrix:	Aqueous	Lab Sample:	B23F107-BLK1	Column:	BEH C18
Project:	60135471						

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	IS	62.7	25 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1
13C3-HFPO-DA	IS	69.8	25 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1
13C4-PFHpA	IS	61.0	25 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1
13C3-PFHxS	IS	44.2	25 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1
13C2-6:2 FTS	IS	57.6	25 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1
13C2-PFOA	IS	63.6	25 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1
13C5-PFNA	IS	61.8	25 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1
13C8-PFOA	IS	93.4	10 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1
13C8-PFOS	IS	60.1	25 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1
13C2-PFDA	IS	58.0	25 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1
13C2-8:2 FTS	IS	49.3	25 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1
d3-MeFOSAA	IS	43.2	25 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1
d5-EtFOSAA	IS	40.6	25 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1
13C2-PFUnA	IS	65.9	25 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1
13C2-PFDoA	IS	61.6	25 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1
d3-MeFOSA	IS	43.4	10 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1
13C2-PFTeDA	IS	51.4	25 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1
d5-EtFOSA	IS	37.6	10 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1
d7-MeFOSE	IS	82.6	10 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1
d9-EtFOSE	IS	81.3	10 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:26	1

MDL - Method Detection Limit

RL - Reporting limit

Results reported to MDL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: OPR

PFAS Isotope Dilution Method

Client Data					Laboratory Data							
Name:	AECOM	Matrix:	Aqueous		Lab Sample:	B23F107-BS1	Column:	BEH C18				
Project:	60135471											

Analyte	CAS Number	Amt Found (ng/L)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	3.73	4.00	93.3	50 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
PFPeA	2706-90-3	3.73	4.00	93.1	50 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
PFBS	375-73-5	3.15	4.04	78.0	50 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
4:2 FTS	757124-72-4	3.93	4.00	98.4	50 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
PFHxA	307-24-4	3.73	4.00	93.3	50 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
PFPeS	2706-91-4	3.63	4.04	89.8	50 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
HFPO-DA	13252-13-6	3.64	4.00	91.0	50 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
PFHpA	375-85-9	3.74	4.00	93.6	50 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
ADONA	919005-14-4	4.05	4.04	100	50 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
PFHxS	355-46-4	3.77	4.00	94.2	50 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
6:2 FTS	27619-97-2	4.06	4.00	102	50 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
PFOA	335-67-1	3.87	4.00	96.8	50 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
PFHpS	375-92-8	2.67	4.00	66.6	50 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
PFNA	375-95-1	3.96	4.00	99.0	50 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
PFOSA	754-91-6	3.63	4.00	90.8	50 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
PFOS	1763-23-1	3.20	4.00	80.0	50 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
9Cl-PF3ONS	756426-58-1	3.68	4.00	91.9	50 - 150	Q	B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
PFDA	335-76-2	4.08	4.00	102	50 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
8:2 FTS	39108-34-4	4.09	4.00	102	50 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
PFNS	68259-12-1	3.77	4.00	94.2	50 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
MeFOSAA	2355-31-9	4.08	4.00	102	50 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
EtFOSAA	2991-50-6	3.59	4.00	89.8	50 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
PFUnA	2058-94-8	3.97	4.00	99.1	50 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
PFDS	335-77-3	3.83	4.00	95.8	50 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
11Cl-PF3OUdS	763051-92-9	3.21	4.04	79.4	50 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
PFDoA	307-55-1	3.93	4.00	98.3	50 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
MeFOSA	31506-32-8	3.49	4.00	87.1	50 - 150	J	B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
PFTTrDA	72629-94-8	3.97	4.00	99.2	50 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
PFDoS	79780-39-5	3.70	4.00	92.4	50 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
PFTeDA	376-06-7	3.13	4.00	78.3	50 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
EtFOSA	4151-50-2	3.27	4.00	81.7	50 - 150	J	B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1

Sample ID: OPR

PFAS Isotope Dilution Method

Client Data					Laboratory Data						
Name:	AECOM	Matrix:	Aqueous		Lab Sample:	B23F107-BS1	Column:	BEH C18			
Project:	60135471										

Analyte	CAS Number	Amt Found (ng/L)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
MeFOSE	24448-09-7	3.95	4.00	98.7	50 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
EtFOSE	1691-99-2	4.10	4.00	102	50 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
Labeled Standards			Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA			IS	65.5	25 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
13C3-PFPeA			IS	66.9	25 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
13C3-PFBS			IS	60.8	25 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
13C2-4:2 FTS			IS	61.8	25 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
13C2-PFHxA			IS	70.4	25 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
13C3-HFPO-DA			IS	73.6	25 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
13C4-PFHpA			IS	70.2	25 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
13C3-PFHxS			IS	51.0	25 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
13C2-6:2 FTS			IS	64.8	25 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
13C2-PFOA			IS	70.8	25 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
13C5-PFNA			IS	69.3	25 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
13C8-PFOA			IS	85.8	10 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
13C8-PFOS			IS	66.8	25 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
13C2-PFDA			IS	64.8	25 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
13C2-8:2 FTS			IS	65.1	25 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
d3-MeFOSAA			IS	51.2	25 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
d5-EtFOSAA			IS	49.0	25 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
13C2-PFUnA			IS	69.9	25 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
13C2-PFDoA			IS	68.6	25 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
d3-MeFOSA			IS	33.4	10 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
13C2-PFTeDA			IS	62.7	25 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
d5-EtFOSA			IS	30.7	10 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
d7-MeFOSE			IS	77.9	10 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1
d9-EtFOSE			IS	76.0	10 - 150		B23F107	14-Jun-23	0.250 L	20-Jun-23 03:37	1

Sample ID: WT060723
PFAS Isotope Dilution Method

Client Data				Laboratory Data			
Name:	AECOM	Matrix:	Aqueous	Lab Sample:	2306087-01	Column:	BEH C18
Project:	60135471	Date Collected:	07-Jun-23 10:08	Date Received:	10-Jun-23 09:25		
Location:	Water Tank						

Analyte	CAS Number	Conc. (ng/L)	MDL	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	1.51	1.30	1.96	J	B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
PFPeA	2706-90-3	<1.27	1.27	1.96		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
PFBS	375-73-5	<1.12	1.12	1.96		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
4:2 FTS	757124-72-4	<1.28	1.28	1.96		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
PFHxA	307-24-4	<1.23	1.23	1.96		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
PFPeS	2706-91-4	<1.70	1.70	1.96		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
HFPO-DA	13252-13-6	<1.91	1.91	1.96		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
PFHpA	375-85-9	<0.857	0.857	1.96		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
ADONA	919005-14-4	<1.07	1.07	1.96		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
PFHxS	355-46-4	<1.39	1.39	1.96		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
6:2 FTS	27619-97-2	<1.42	1.42	1.96		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
PFOA	335-67-1	2.10	1.09	1.96		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
PFHpS	375-92-8	<1.60	1.60	1.96		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
PFNA	375-95-1	<1.22	1.22	1.96		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
PFOSA	754-91-6	3.55	1.69	1.96	Q	B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
PFOS	1763-23-1	3.55	1.82	1.96		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
9Cl-PF3ONS	756426-58-1	<1.47	1.47	1.96		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
PFDA	335-76-2	<1.18	1.18	1.96		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
8:2 FTS	39108-34-4	<1.68	1.68	1.96		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
PFNS	68259-12-1	<1.61	1.61	1.96		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
MeFOSAA	2355-31-9	<1.35	1.35	1.96		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
EtFOSAA	2991-50-6	<1.31	1.31	1.96		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
PFUnA	2058-94-8	<1.05	1.05	1.96		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
PFDS	335-77-3	<1.51	1.51	1.96		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
11Cl-PF3OUdS	763051-92-9	<1.17	1.17	1.96		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
PFDoA	307-55-1	<1.30	1.30	1.96		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
MeFOSA	31506-32-8	<2.94	2.94	3.92		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
PFTTrDA	72629-94-8	<1.37	1.37	1.96		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
PFDoS	79780-39-5	<1.69	1.69	1.96		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
PFTeDA	376-06-7	<1.13	1.13	1.96		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
EtFOSA	4151-50-2	<2.40	2.40	3.92		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
MeFOSE	24448-09-7	<2.30	2.30	2.45		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
EtFOSE	1691-99-2	<2.07	2.07	3.92		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	69.9	25 - 150		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
13C3-PFPeA	IS	82.1	25 - 150		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
13C3-PFBS	IS	69.4	25 - 150		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1

Sample ID: WT060723

PFAS Isotope Dilution Method

Client Data				Laboratory Data			
Name:	AECOM	Matrix:	Aqueous	Lab Sample:	2306087-01	Column:	BEH C18
Project:	60135471	Date Collected:	07-Jun-23 10:08	Date Received:	10-Jun-23 09:25		
Location:	Water Tank						

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-4:2 FTS	IS	77.5	25 - 150		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
13C2-PFHxA	IS	86.6	25 - 150		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
13C3-HFPO-DA	IS	94.3	25 - 150		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
13C4-PFHpA	IS	84.6	25 - 150		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
13C3-PFHxS	IS	67.2	25 - 150		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
13C2-6:2 FTS	IS	76.9	25 - 150		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
13C2-PFOA	IS	82.1	25 - 150		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
13C5-PFNA	IS	82.1	25 - 150		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
13C8-PFOA	IS	101	10 - 150		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
13C8-PFOS	IS	83.5	25 - 150		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
13C2-PFDA	IS	78.8	25 - 150		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
13C2-8:2 FTS	IS	86.0	25 - 150		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
d3-MeFOSAA	IS	63.3	25 - 150		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
d5-EtFOSAA	IS	57.8	25 - 150		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
13C2-PFUnA	IS	82.8	25 - 150		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
13C2-PFDoA	IS	81.9	25 - 150		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
d3-MeFOSA	IS	36.6	10 - 150		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
13C2-PFTeDA	IS	76.5	25 - 150		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
d5-EtFOSA	IS	30.2	10 - 150		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
d7-MeFOSE	IS	84.4	10 - 150		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1
d9-EtFOSE	IS	81.2	10 - 150		B23F107	14-Jun-23	0.255 L	20-Jun-23 04:39	1

MDL - Method Detection Limit

RL - Reporting limit

Results reported to MDL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: Method Blank					PFAS Isotope Dilution Method					
Client Data				Laboratory Data						
Name:	AECOM	Matrix:	Solid	Lab Sample:	B23F138-BLK1	Column:	BEH C18			
Project:	60135471									
Analyte	CAS Number	Conc. (ng/g)	MDL	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	<0.330	0.330	0.500		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
PFPeA	2706-90-3	<0.372	0.372	0.500		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
PFBS	375-73-5	<0.480	0.480	0.500		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
4:2 FTS	757124-72-4	<0.584	0.584	1.00		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
PFHxA	307-24-4	<0.330	0.330	0.500		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
PFPeS	2706-91-4	<0.482	0.482	0.500		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
HFPO-DA	13252-13-6	<0.604	0.604	1.00		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
PFHpA	375-85-9	<0.376	0.376	0.500		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
ADONA	919005-14-4	<0.348	0.348	0.500		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
PFHxS	355-46-4	<0.576	0.576	1.00		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
6:2 FTS	27619-97-2	<0.482	0.482	1.00		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
PFOA	335-67-1	<0.394	0.394	0.500		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
PFHpS	375-92-8	<0.630	0.630	1.00		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
PFNA	375-95-1	<0.412	0.412	0.500		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
PFOSA	754-91-6	<0.586	0.586	1.00		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
PFOS	1763-23-1	<0.684	0.684	1.00		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
9Cl-PF3ONS	756426-58-1	<0.364	0.364	0.500		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
PFDA	335-76-2	<0.400	0.400	0.500		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
8:2 FTS	39108-34-4	<0.814	0.814	1.00		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
PFNS	68259-12-1	<0.576	0.576	1.00		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
MeFOSAA	2355-31-9	<0.414	0.414	0.500		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
EtFOSAA	2991-50-6	<0.484	0.484	0.500		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
PFUnA	2058-94-8	<0.442	0.442	1.00		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
PFDS	335-77-3	<0.546	0.546	1.00		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
11Cl-PF3OUdS	763051-92-9	<0.928	0.928	1.00		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
PFDoA	307-55-1	<0.578	0.578	1.00		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
MeFOSA	31506-32-8	<1.34	1.34	1.50		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
PFTTrDA	72629-94-8	<0.584	0.584	1.00		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
PFDoS	79780-39-5	<0.472	0.472	0.500		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
PFTeDA	376-06-7	<0.314	0.314	0.500		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
EtFOSA	4151-50-2	<1.04	1.04	1.50		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
MeFOSE	24448-09-7	<0.894	0.894	1.00		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
EtFOSE	1691-99-2	<0.860	0.860	1.00		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C3-PFBA	IS	93.9	25 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1	
13C3-PFPeA	IS	96.6	25 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1	
13C3-PFBS	IS	101	25 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1	
13C2-4:2 FTS	IS	91.8	25 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1	

Sample ID: Method Blank **PFAS Isotope Dilution Method**

Client Data				Laboratory Data			
Name:	AECOM	Matrix:	Solid	Lab Sample:	B23F138-BLK1	Column:	BEH C18
Project:	60135471						

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	IS	96.8	25 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
13C3-HFPO-DA	IS	95.9	25 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
13C4-PFHpA	IS	95.3	25 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
13C3-PFHxS	IS	100	25 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
13C2-6:2 FTS	IS	99.3	25 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
13C2-PFOA	IS	94.0	25 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
13C5-PFNA	IS	79.5	25 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
13C8-PFOA	IS	48.5	10 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
13C8-PFOS	IS	97.8	25 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
13C2-PFDA	IS	75.5	25 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
13C2-8:2 FTS	IS	96.5	25 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
d3-MeFOSAA	IS	73.5	25 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
d5-EtFOSAA	IS	67.0	25 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
13C2-PFUnA	IS	66.5	25 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
13C2-PFDoA	IS	64.0	25 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
d3-MeFOSA	IS	16.6	10 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
13C2-PFTeDA	IS	71.0	25 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
d5-EtFOSA	IS	12.8	10 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
d7-MeFOSE	IS	27.4	10 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1
d9-EtFOSE	IS	24.2	10 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:00	1

MDL - Method Detection Limit

RL - Reporting limit

The results are reported in dry weight.
 The sample size is reported in wet weight.
 Results reported to MDL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: OPR

PFAS Isotope Dilution Method

Client Data					Laboratory Data						
Name:	AECOM	Matrix:	Solid		Lab Sample:	B23F138-BS1	Column:	BEH C18			
Project:	60135471										

Analyte	CAS Number	Amt Found (ng/g)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	9.81	10.0	98.1	50 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
PFPeA	2706-90-3	9.89	10.0	98.9	50 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
PFBS	375-73-5	9.07	10.0	90.7	50 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
4:2 FTS	757124-72-4	9.88	10.0	98.8	50 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
PFHxA	307-24-4	10.2	10.0	102	50 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
PFPeS	2706-91-4	8.52	10.0	85.2	50 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
HFPO-DA	13252-13-6	10.7	10.0	107	50 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
PFHpA	375-85-9	9.80	10.0	98.0	50 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
ADONA	919005-14-4	9.84	10.0	98.4	50 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
PFHxS	355-46-4	10.0	10.0	100	50 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
6:2 FTS	27619-97-2	9.98	10.0	99.8	50 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
PFOA	335-67-1	10.1	10.0	101	50 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
PFHpS	375-92-8	11.5	10.0	115	50 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
PFNA	375-95-1	11.4	10.0	114	50 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
PFOSA	754-91-6	10.0	10.0	100	50 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
PFOS	1763-23-1	10.9	10.0	109	50 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
9Cl-PF3ONS	756426-58-1	11.2	10.0	112	50 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
PFDA	335-76-2	10.3	10.0	103	50 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
8:2 FTS	39108-34-4	9.43	10.0	94.3	50 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
PFNS	68259-12-1	10.1	10.0	101	50 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
MeFOSAA	2355-31-9	9.59	10.0	95.9	50 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
EtFOSAA	2991-50-6	8.61	10.0	86.1	50 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
PFUnA	2058-94-8	9.95	10.0	99.5	50 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
PFDS	335-77-3	10.1	10.0	101	50 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
11Cl-PF3OUdS	763051-92-9	12.9	10.0	129	50 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
PFDoA	307-55-1	10.6	10.0	106	50 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
MeFOSA	31506-32-8	10.3	10.0	103	50 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
PFTTrDA	72629-94-8	11.1	10.0	111	50 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
PFDoS	79780-39-5	12.2	10.0	122	50 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
PFTeDA	376-06-7	10.4	10.0	104	50 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
EtFOSA	4151-50-2	9.59	10.0	95.9	50 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1

Sample ID: OPR

PFAS Isotope Dilution Method

Client Data					Laboratory Data						
Name:	AECOM	Matrix:	Solid		Lab Sample:	B23F138-BS1	Column:	BEH C18			
Project:	60135471										

Analyte	CAS Number	Amt Found (ng/g)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
MeFOSE	24448-09-7	10.5	10.0	105	50 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
EtFOSE	1691-99-2	10.2	10.0	102	50 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
Labeled Standards		Type		% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA		IS		92.6	25 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
13C3-PFPeA		IS		93.6	25 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
13C3-PFBS		IS		104	25 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
13C2-4:2 FTS		IS		86.9	25 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
13C2-PFHxA		IS		96.3	25 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
13C3-HFPO-DA		IS		90.2	25 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
13C4-PFHpA		IS		92.8	25 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
13C3-PFHxS		IS		93.5	25 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
13C2-6:2 FTS		IS		92.2	25 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
13C2-PFOA		IS		90.4	25 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
13C5-PFNA		IS		82.4	25 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
13C8-PFOA		IS		43.8	10 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
13C8-PFOS		IS		90.2	25 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
13C2-PFDA		IS		75.8	25 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
13C2-8:2 FTS		IS		97.7	25 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
d3-MeFOSAA		IS		66.1	25 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
d5-EtFOSAA		IS		67.3	25 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
13C2-PFUnA		IS		66.1	25 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
13C2-PFDoA		IS		58.8	25 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
d3-MeFOSA		IS		14.9	10 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
13C2-PFTeDA		IS		68.8	25 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
d5-EtFOSA		IS		11.8	10 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
d7-MeFOSE		IS		24.7	10 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1
d9-EtFOSE		IS		23.2	10 - 150		B23F138	15-Jun-23	1.00 g	21-Jun-23 00:11	1

Sample ID: WComp
PFAS Isotope Dilution Method

Client Data				Laboratory Data			
Name:	AECOM	Matrix:	Soil	Lab Sample:	2306087-02	Column:	BEH C18
Project:	60135471	Date Collected:	08-Jun-23 12:00	Date Received:	10-Jun-23 09:25		
Location:	Soil			% Solids:	79.7		

Analyte	CAS Number	Conc. (ng/g)	MDL	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	<0.321	0.321	0.487		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
PFPeA	2706-90-3	<0.362	0.362	0.487		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
PFBS	375-73-5	<0.467	0.467	0.487		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
4:2 FTS	757124-72-4	<0.568	0.568	0.973		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
PFHxA	307-24-4	<0.321	0.321	0.487		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
PFPeS	2706-91-4	<0.469	0.469	0.487		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
HFPO-DA	13252-13-6	<0.588	0.588	0.973		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
PFHpA	375-85-9	<0.366	0.366	0.487		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
ADONA	919005-14-4	<0.339	0.339	0.487		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
PFHxS	355-46-4	<0.561	0.561	0.973		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
6:2 FTS	27619-97-2	<0.469	0.469	0.973		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
PFOA	335-67-1	<0.383	0.383	0.487		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
PFHpS	375-92-8	<0.613	0.613	0.973		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
PFNA	375-95-1	<0.401	0.401	0.487		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
PFOSA	754-91-6	<0.570	0.570	0.973		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
PFOS	1763-23-1	<0.666	0.666	0.973		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
9Cl-PF3ONS	756426-58-1	<0.354	0.354	0.487		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
PFDA	335-76-2	<0.389	0.389	0.487		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
8:2 FTS	39108-34-4	<0.792	0.792	0.973		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
PFNS	68259-12-1	<0.561	0.561	0.973		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
MeFOSAA	2355-31-9	<0.403	0.403	0.487		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
EtFOSAA	2991-50-6	<0.471	0.471	0.487		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
PFUnA	2058-94-8	<0.430	0.430	0.973		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
PFDS	335-77-3	<0.531	0.531	0.973		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
11Cl-PF3OUdS	763051-92-9	<0.903	0.903	0.973		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
PFDoA	307-55-1	<0.562	0.562	0.973		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
MeFOSA	31506-32-8	<1.30	1.30	1.46		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
PFTrDA	72629-94-8	<0.568	0.568	0.973		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
PFDoS	79780-39-5	<0.459	0.459	0.487		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
PFTeDA	376-06-7	<0.306	0.306	0.487		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
EtFOSA	4151-50-2	<1.01	1.01	1.46		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
MeFOSE	24448-09-7	<0.870	0.870	0.973		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
EtFOSE	1691-99-2	<0.837	0.837	0.973		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	86.2	25 - 150		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
13C3-PFPeA	IS	93.2	25 - 150		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
13C3-PFBS	IS	92.3	25 - 150		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1

Sample ID: WComp **PFAS Isotope Dilution Method**

Client Data				Laboratory Data			
Name:	AECOM	Matrix:	Soil	Lab Sample:	2306087-02	Column:	BEH C18
Project:	60135471	Date Collected:	08-Jun-23 12:00	Date Received:	10-Jun-23 09:25		
Location:	Soil			% Solids:	79.7		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-4:2 FTS	IS	86.3	25 - 150		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
13C2-PFHxA	IS	90.8	25 - 150		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
13C3-HFPO-DA	IS	91.8	25 - 150		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
13C4-PFHpA	IS	88.7	25 - 150		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
13C3-PFHxS	IS	92.2	25 - 150		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
13C2-6:2 FTS	IS	102	25 - 150		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
13C2-PFOA	IS	89.7	25 - 150		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
13C5-PFNA	IS	82.1	25 - 150		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
13C8-PFOA	IS	69.4	10 - 150		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
13C8-PFOS	IS	88.4	25 - 150		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
13C2-PFDA	IS	77.3	25 - 150		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
13C2-8:2 FTS	IS	112	25 - 150		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
d3-MeFOSAA	IS	89.5	25 - 150		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
d5-EtFOSAA	IS	87.0	25 - 150		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
13C2-PFUnA	IS	78.4	25 - 150		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
13C2-PFDoA	IS	81.1	25 - 150		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
d3-MeFOSA	IS	43.3	10 - 150		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
13C2-PFTeDA	IS	68.6	25 - 150		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
d5-EtFOSA	IS	34.0	10 - 150		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
d7-MeFOSE	IS	65.8	10 - 150		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1
d9-EtFOSE	IS	59.1	10 - 150		B23F138	15-Jun-23	1.29 g	21-Jun-23 00:21	1

MDL - Method Detection Limit

RL - Reporting limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to MDL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank
Conc.	Concentration
CRS	Cleanup Recovery Standard
D	Dilution
DL	Detection Limit
E	The associated compound concentration exceeded the calibration range of the instrument
H	Recovery and/or RPD was outside laboratory acceptance limits
I	Chemical Interference
IS	Internal Standard
J	The amount detected is below the Reporting Limit/LOQ
LOD	Limit of Detection
LOQ	Limit of Quantitation
M	Estimated Maximum Possible Concentration (CA Region 2 projects only)
MDL	Method Detection Limit
NA	Not applicable
ND	Not Detected
OPR	Ongoing Precision and Recovery sample
P	The reported concentration may include contribution from chlorinated diphenyl ether(s).
Q	The ion transition ratio is outside of the acceptance criteria.
RL	Reporting Limit
RL	For 537.1, the reported RLs are the MRLs.
TEQ	Toxic Equivalency, sum of the toxic equivalency factors (TEF) multiplied by the sample concentrations.
TEQMax	TEQ calculation that uses the detection limit as the concentration for non-detects
TEQMin	TEQ calculation that uses zero as the concentration for non-detects
TEQRisk	TEQ calculation that uses ½ the detection limit as the concentration for non-detects
U	Not Detected (specific projects only)
*	See Cover Letter

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

Enthalpy Analytical - EDH Certifications

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	21-023-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025	3091.01
Florida Department of Health	E87777
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2020018
Michigan Department of Environmental Quality	9932
Minnesota Department of Health	2211390
Nevada Division of Environmental Protection	CA00413
New Hampshire Environmental Accreditation Program	207721
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Ohio Environmental Protection Agency	87778
Oregon Laboratory Accreditation Program	4042-021
Texas Commission on Environmental Quality	T104704189-22-13
Vermont Department of Health	VT-4042
Virginia Department of General Services	11276
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters can be found at Enthalpy.com/Resources/Accreditations.

CHAIN OF CUSTODY
PFAS Methods

For Laboratory Use Only
 Work Order #: 2306087 Temp: 3.0 °C
 Storage ID: P-13 W-22 Storage Secured: Yes No

Project ID: 60135471 PO#: _____ Sampler: Robert Veseljak
(name)

TAT Standard: 21 days
 (check one): Rush (surcharge may apply)
 14 days 7 days Other: _____

Invoice to: Name Dave Henderson Company Aecom Address 1555 N. RiverCenter Dr, Ste 214 City Milwaukee State WI Phone # 414-944-6190

Relinquished by (printed name and signature) Robert Veseljak Date 6/9/23 Time 12:50pm Received by (printed name and signature) Dave Henderson Date 06/10/2023 Time 09:25

SHIP TO: Enthalpy Analytical - EDH
 1104 Windfield Way
 El Dorado Hills, CA 95762
 (916) 673-1520
 ATTN: _____

Method of Shipment:		Add Analysis(es) Requested						
Quantity	Type	Matrix	PFAS by Isotope Dilution	PFAS by Isotope Dilution	PFAS by Isotope Dilution	PFAS by Isotope Dilution	Drinking Water	
			Other: <u>PFAS 30</u>					

- Requirements:**
- State-specific (list state): _____
 - DoD QSM Compliant
 - PFAS List Below (or attach compound list): _____

Sample ID	Date	Time	Location/ Sample Description	Quantity	Type	Matrix	PFAS by Isotope Dilution	PFAS by Isotope Dilution	PFAS by Isotope Dilution	PFAS by Isotope Dilution	Drinking Water
<u>WT060723</u>	<u>6/7/23</u>	<u>10:08</u>	<u>Water Tank</u>	<u>2</u>	<u>P</u>	<u>AQ</u>					
<u>WCamp</u>	<u>6/8/23</u>	<u>12:00</u>	<u>soil</u>	<u>1</u>	<u>P</u>	<u>SO</u>					

See contract for PFAS - List 33
Might be very High (ODOR)

Other Instructions/ Comments:

SEND DOCUMENTATION AND RESULTS TO:

Name: Dave Henderson
 Company: Aecom
 Address: same as above
 City: _____ State: _____ Zip: _____
 Phone: _____
 Email: dave.henderson@aecoma.com

Container Types: P= HDPE, PJ= HDPE Jar
 Bottle Preservation Type: TZ = Trizma; AA = Amm. Acetate;
 Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, SD = Sediment, T=Tissue
 PY= Polypropylene, O = Other; SL = Sludge, SO = Soil, WW = Wastewater, O = Other;

Sample Log-In Checklist

 Page # 1 of 1

 Work Order #: 2306087 TAT Std

Samples Arrival:	Date/Time: 06/10/2023 09:25	Initials: DXV	Location: WR-2	Shelf/Rack: N/A			
Delivered By:	<input checked="" type="checkbox"/> FedEx	<input type="checkbox"/> UPS	<input type="checkbox"/> On Trac	<input type="checkbox"/> GLS	<input type="checkbox"/> DHL	<input type="checkbox"/> Hand Delivered	<input type="checkbox"/> Other
Preservation:	<input checked="" type="checkbox"/> Ice	<input type="checkbox"/> Blue Ice	<input type="checkbox"/> Techni Ice	<input type="checkbox"/> Dry Ice	<input type="checkbox"/> None		
Temp °C: 1.6 (uncorrected)	Probe used: Y / <input checked="" type="checkbox"/> N		Thermometer ID: IR-3				
Temp °C: 3.0 (corrected)							

	YES	NO	NA		
Shipping Container(s) Intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Shipping Custody Seals Intact?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Airbill <u>-</u> Trk # <u>8171-2366-4720</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Shipping Documentation Present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Shipping Container	Enthalpy	<input checked="" type="checkbox"/> Client	Retain	<input checked="" type="checkbox"/> Return	Dispose
Chain of Custody / Sample Documentation Present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Chain of Custody / Sample Documentation Complete?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Holding Time Acceptable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Logged In:	Date/Time: 06/12/23 10:01	Initials: JG	Location: R-17, WR-2	Shelf/Rack: A-1, A-3, G-3	
COC Anomaly/Sample Acceptance Form completed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		

Comments:

CoC/Label Reconciliation Report WO# 2306087

LabNumber	CoC Sample ID	Sample Alias	Sample Date/Time	Container	Base Matrix	Sample Comments
2306087-01	A WT060723	Water Tank	07-Jun-23 10:08	HDPE Bottle, 250 mL	Aqueous	
2306087-01	B WT060723	Water Tank	07-Jun-23 10:08	HDPE Bottle, 250 mL	Aqueous	
2306087-02	A WComp	Soil	08-Jun-23 12:00	HDPE Jar, 6 oz	Solid	

Checkmarks indicate that information on the COC reconciled with the sample label.
Any discrepancies are noted in the following columns.

	Yes	No	NA
Sample Container Intact?	✓		
Sample Custody Seals Intact?		✓	✓
Adequate Sample Volume?	✓		
Container Type Appropriate for Analysis(es)	✓		

Comments:

Ⓐ Sample label time: 10:08
Ⓑ Sample label time: 12:05

Preservation Documented: Na₂S₂O₃ Trizma NH₄CH₃CO₂ None Other

Verified by/Date: KW 06/13/23
KW 06/13/23

Attachment E:

LNAPL & Groundwater Elevation Data

Project No. 60135471 Site: Former Newton Gravel Pit

Description of Site: Top of former western source area cap

Weather: _____ Date: _____

Well Number	Date	Top of Pipe Elevation	Depth to Product (TOC)	Depth to Water (TOC)	Elevation (ft MSL)	Comments
EX-1	5/31/2023	734.90				
EX-1	6/1/2023	734.90				
EX-1	6/2/2023	734.90				
EX-1	6/5/2023	734.90				
EX-1	6/6/2023	734.90				
EX-1	6/7/2023	734.90				
EX-1	6/8/2023	734.90				Well installed on 6/8/2023
EX-1	6/9/2023	734.90	46.82	46.83	688.07	
EX-1	6/12/2023	734.90	--	47.04	687.86	
EX-1	6/15/2023	734.90	--	47.12	687.78	
EX-2	5/31/2023	732.08				
EX-2	6/1/2023	732.08				
EX-2	6/2/2023	732.08				
EX-2	6/5/2023	732.08				
EX-2	6/6/2023	732.08				
EX-2	6/7/2023	732.08				Well installed on 6/7/2023
EX-2	6/8/2023	732.08	44.55	44.56	687.52	
EX-2	6/9/2023	732.08	44.05	44.06	688.02	
EX-2	6/12/2023	732.08	--	44.67	687.41	
EX-2	6/15/2023	732.08	--	44.74	687.34	
EX-3	5/31/2023	733.10				
EX-3	6/1/2023	733.10				
EX-3	6/2/2023	733.10		37.90	695.20	Well installed on 6/2/2023
EX-3	6/5/2023	733.10		46.03	687.07	
EX-3	6/6/2023	733.10		46.03	687.07	
EX-3	6/7/2023	733.10	46.06	46.07	687.03	
EX-3	6/8/2023	733.10	--	46.07	687.03	
EX-3	6/9/2023	733.10	--	46.11	686.99	
EX-3	6/12/2023	733.10	--	46.16	686.94	
EX-3	6/15/2023	733.10	--	46.20	686.90	

Entered on Computer: _____ Date 6/23/2023

TOC = Top of Casing or Top of Pipe

Personnel RW Page 1 of 3

Project No. 60135471 Site: Former Newton Gravel Pit

Description of Site: Top of former western source area cap

Weather: _____ Date: _____

Well Number	Date	Top of Pipe Elevation	Depth to Product (TOC)	Depth to Water (TOC)	Elevation (ft MSL)	Comments
EX-4	5/31/2023	733.56				
EX-4	6/1/2023	733.56				
EX-4	6/2/2023	733.56				
EX-4	6/5/2023	733.56				
EX-4	6/6/2023	733.56				
EX-4	6/7/2023	733.56				
EX-4	6/8/2023	733.56				Well installed on 6/8/2023
EX-4	6/9/2023	733.56	--	44.58	688.98	
EX-4	6/12/2023	733.56	--	46.26	687.30	
EX-4	6/15/2023	733.56	--	46.32	687.24	
EX-5	5/31/2023	733.75				
EX-5	6/1/2023	733.75				
EX-5	6/2/2023	733.75				
EX-5	6/5/2023	733.75				
EX-5	6/6/2023	733.75				Well installed on 6/6/2023
EX-5	6/7/2023	733.75	--	46.88	686.87	
EX-5	6/8/2023	733.75	--	46.85	686.90	
EX-5	6/9/2023	733.75	--	46.90	686.85	
EX-5	6/12/2023	733.75	--	46.96	686.79	
EX-5	6/15/2023	733.75	--	47.01	686.74	
EX-6	5/31/2023	734.96				
EX-6	6/1/2023	734.96	--	49.90	685.06	Well installed on 6/1/2023
EX-6	6/2/2023	734.96	--	47.64	687.32	
EX-6	6/5/2023	734.96	--	48.25	686.71	
EX-6	6/6/2023	734.96	--	48.28	686.68	
EX-6	6/7/2023	734.96	--	48.31	686.65	
EX-6	6/8/2023	734.96	--	48.32	686.64	
EX-6	6/9/2023	734.96	--	48.37	686.59	
EX-6	6/12/2023	734.96	--	48.42	686.54	
EX-6	6/15/2023	734.96	--	48.46	686.50	

Entered on Computer: _____ Date 6/23/2023

TOC = Top of Casing or Top of Pipe

Personnel RW Page 2 of 3



LNAPL and Groundwater Elevation

Project No. 60135471 Site: Former Newton Gravel Pit
Description of Site: Top of former western source area cap
Weather: Varied Date: May 31 thru June 15, 2023

Well Number	Date	Top of Pipe Elevation	Depth to Product (TOC)	Depth to Water (TOC)	Elevation (ft MSL)	Comments
EX-7	5/31/2023	737.36				
EX-7	6/1/2023	737.36				
EX-7	6/2/2023	737.36				
EX-7	6/5/2023	737.36				Well installed on 6/5/2023
EX-7	6/6/2023	737.36	--	50.24	687.12	
EX-7	6/7/2023	737.36	--	50.27	687.09	
EX-7	6/8/2023	737.36	50.29	50.29	687.07	
EX-7	6/9/2023	737.36	--	50.31	687.05	
EX-7	6/12/2023	737.36	--	50.38	686.98	
EX-7	6/15/2023	737.36	--	50.44	686.92	
EX-8	5/31/2023	736.28				Well installed on 5/31/2023
EX-8	6/1/2023	736.28	--	49.62	686.66	
EX-8	6/2/2023	736.28	--	49.65	686.63	
EX-8	6/5/2023	736.28	--	49.78	686.50	
EX-8	6/6/2023	736.28	--	49.77	686.51	
EX-8	6/7/2023	736.28	--	49.81	686.47	
EX-8	6/8/2023	736.28	49.81	49.82	686.46	
EX-8	6/9/2023	736.28	--	49.85	686.43	
EX-8	6/12/2023	736.28	79.90	49.91	686.37	
EX-8	6/15/2023	736.28	--	49.94	686.34	

Entered on Computer: _____ Date 6/23/2023
TOC = Top of Casing or Top of Pipe
Personnel RW Page 3 of 3