



# Draft Final Environmental Investigation Report for Great Kills Park Operable Unit 2 - Appendices

Gateway National Recreation Area, New York

Great Kills Park Site EDL #5NER1580

July 8, 2019



### LIST OF APPENDICES

- Appendix A: Technical Memoranda Documenting Field Activities
- Appendix B: Boring Logs
- Appendix C: Gamma Scanning of Open Boreholes and Soil Cores
- Appendix D: Groundwater Well Development Logs
- Appendix E: Groundwater Purge and Sampling Logs
- Appendix F: Sediment and Surface Water Sampling Logs
- Appendix G: Chains of Custody
- Appendix H: Eurofins Analytical Reports
- Appendix I: ALS Analytical Reports
- Appendix J: Data Validation Reports

Appendix A: Technical Memoranda Documenting Field Activities



### **TECHNICAL MEMORANDUM**

TEST PITTING – PHASE 1 REMEDIAL INVESTIGATION FOR OPERABLE UNIT 2 FOR GREAT KILLS PARK SITE, GATEWAY NATIONAL RECREATION AREA, STATEN ISLAND, NEW YORK

#### Draft:

February 22, 2019

This Technical Memorandum presents test pitting methods, results, and conclusions.

As part of Phase I RI for OU2, the AECOM-Tidewater JV conducted test pitting using manual methods including hand auger, long-handle post-hole digger, and long-handle shovel, and mechanized equipment involving a track-mounted hydraulic excavator (excavator) with a two foot-wide bucket to delineate the lateral extent of waste fill adjacent to three test pitting areas (**Figure 1**):

- Test Pitting Area 1: Hylan Boulevard Drainage Channel;
- Test Pitting Area 2: Buffalo Street Corridor Margin; and
- Test Pitting Area 3: National Park Service (NPS) Development<sup>1</sup>/Beach Margin.

Manual methods were used in Area 1 along Hylan Boulevard because there were certain areas that prevented the use an excavator due to access, vegetation (thick), and terrain (steep) constraints. The excavator was used in other Area 1 areas and in Areas 2 and 3 where access, terrain or vegetation was not an issue.

Within the three test pitting areas, the JV performed a total of 10 transects with a total of 39 test pits. During testing pitting, the JV surveyed the location of each test pit with a GPS unit, visually inspected the encountered materials, and photographed each test pit. Test Pit Logs were used to document information and noted the presence of waste fill or other geologic materials. The Test Pit Logs are included in **ATTACHMENT A**. Visual inspection of the geologic material in the shallow subsurface (less than five feet below ground surface) focused on identifying:

- 1) Waste fill including potentially hazardous materials (e.g., drums, paint cans, etc.), incinerator residue (slag), coal fired boiler ash (pieces of un-burnt coal), other debris (glass, rubber, porcelain, and metal, etc.), soil amendment, construction debris, and/or medical waste.
- 2) Hydraulic fill consisting of reddish brown well graded fine to course sand with little (percentage) fines (clay and silt);
- 3) Native deposits including: glacial till, (consisting of reddish brown compact firm to hard sand, silt, and clay matrix with scattered subrounded to rounded fine to medium gravel); and Holocene deposit (consisting of mottled gray to brown silt to clay with sand); and
- 4) Other geologic materials including: reworked glacial material (excavated as part of the Hylan Drainage Channel and placed on the bank of Hylan Drainage Channel), and recent fill (due to filling along Hylan Boulevard).

During test pitting activities and to ensure worker health and safety, three different monitors were used to monitor for the presence of certain gases, volatile organic compounds (VOCs), and gamma radiation. The three monitors were: 1) an AreaRAE Wireless Gas Detection system to monitor for the presence of methane and hydrogen sulfide gas; 2) a photoionization detector to monitor for the presence of VOCs; and 3) a 3-inch x 3-inch Sodium Iodide (NaI) detector to monitor gamma radiation levels (count rates). No methane, hydrogen sulfide, or VOCs were detected. Count rates (ranging from 14,000 counts per minute (CPM) to 34,000 CPM)<sup>2</sup> were recorded at respective

<sup>&</sup>lt;sup>1</sup> Development refers to the facilities constructed by National Park (and formerly New York City) including the beach house, maintenance/ranger station, parking lots and field station structures.

<sup>&</sup>lt;sup>2</sup> At total of 19 count-rate measurements were recorded ranging from 14K CPM to 34K CPM. This set of count rates had an average count rate of 18K CPM with a standard deviation of 5K CPM.

test pit locations and these count rates are included in the Test Pit Logs. Table 1 summarizes the materials encountered in each of the test pits conducted in the three different test pitting areas.

Table 1- Summary of Test Pits and Materials Encountered					
Transect Test Pit No.	Test Pitting Area	Material Encountered			
TP0001A	Area 1: Hylan Drainage Channel and Buffalo Street Corridor Margin	Glacial Till			
TP0001B	Area 1: Hylan Drainage Channel and Buffalo Street Corridor Margin	Hydraulic Fill			
TP0002A	Area 1: Hylan Drainage Channel	Recent Fill over Holocene Deposit			
TP0002B	Area 1: Hylan Drainage Channel	Waste Fill (Slag)			
TP0002C	Area 1: Hylan Drainage Channel	Waste Fill			
TP0003A	Area 1: Hylan Drainage Channel	Glacial Till			
TP0003B	Area 1: Hylan Drainage Channel	Waste Fill			
TP0003C	Area 1: Hylan Drainage Channel	Reworked Glacial Till			
TP0004A	Area 1: Hylan Drainage Channel	Reworked Glacial Till			
ТР0004В	Area 1: Hylan Drainage Channel	Waste Fill Mix with Hydraulic Fill			
TP0005A	Area 2: Buffalo Street Corridor Margin	Hydraulic Fill			
TP0005B	Area 2: Buffalo Street Corridor Margin	Hydraulic Fill			
TP0005C	Area 2: Buffalo Street Corridor Margin	Hydraulic Fill			
TP0005D	Area 2: Buffalo Street Corridor Margin	Hydraulic Fill			
TP0005E	Area 2: Buffalo Street Corridor Margin	Hydraulic Fill overlying Glacial Till			
TP0005F	Area 2: Buffalo Street Corridor Margin	Reworked Glacial Till			
TP0005G	Area 2: Buffalo Street Corridor Margin	Waste Fill			
TP0005H	Area 2: Buffalo Street Corridor Margin	Reworked Glacial Till			
TP0005I	Area 2: Buffalo Street Corridor Margin	Reworked Glacial Till			
TP0006A	Area 2: Buffalo Street Corridor Margin	Hydraulic Fill			
TP0006B	Area 2: Buffalo Street Corridor Margin	Hydraulic Fill			
TP0006C	Area 2: Buffalo Street Corridor Margin	Hydraulic Fill			
TP0006D	Area 2: Buffalo Street Corridor Margin	Hydraulic Fill with Waste Fill			
TP0006E	Area 2: Buffalo Street Corridor Margin	Hydraulic Fill			
TP0007A	Area 3: NPS Development/Beach Margin	Hydraulic Fill			
ТР0007В	Area 3: NPS Development/Beach Margin	Hydraulic Fill			
TP0007C	Area 3: NPS Development/Beach Margin	Hydraulic Fill			
TP0007D	Area 3: NP Development/Beach Margin	Hydraulic Fill overlying Thin Layer of Waste Fill			
TP0007E	Area 3: NPS Development/Beach Margin	Waste Fill			
TP0008A	Area 3: NPS Development/Beach Margin	Waste Fill			
TP0008B	Area 3: NPS Development/Beach Margin	Waste Fill			
TP0008C	Area 3: NPS Development/Beach Margin	Hydraulic Fill with Waste Fill			
TP0008D	Area 3: NPS Development/Beach Margin	Hydraulic Fill			
TP0009A	Area 3: NPS Development/Beach Margin	Holocene Deposit (Mottled Gray to Brown Clayey Sand)			
ТР0009В	Area 3: NPS Development/Beach Margin	Holocene Deposit (Mottled			

Table 1- Summary of Test Pits and Materials Encountered				
Transect Test Pit No. Test Pitting Area Material Encour				
		Gray to Brown Clayey Sand)		
TP0009C	Area 3: NPS Development/Beach Margin	Hydraulic Fill		
TP0009D	Area 3: NPS Development/Beach Margin	Hydraulic Fill with Waste Fill		
TP0010A	Area 3: NPS Development/Beach Margin	Hydraulic Fill		
TP0010B	Area 3: NPS Development/Beach Margin	Hydraulic Fill mixed with Waste Fill		

In Summary, the JV conducted four transects (TP0001, TP0002, TP0003, TP0004) in Test Pitting Area 1: Hylan Drainage Channel with two to three test pits per transect. In Test Pitting Area 2: Buffalo Street Corridor Margin, the JV conducted two transects (TP0005 and TP0006) with five to nine test pits per transect. In Test Pitting Area 3: NPS Development/Beach Margin, the JV conducted four transects (TP0007, TP0008, TP0009, andTP0010) with two to five test pits per transect. Certain transects overlapped two test pitting areas. For example, Transect TP0005 overlapped Test Pitting Area 1: Hylan Drainage and Test Pitting Area 2: Buffalo Street Corridor Margin. Similarly Transect TP0007 and TP0008 overlapped the Test Pitting Area 2: Buffalo Street Corridor Margin with Test Pitting Area 3: NPS Development/Beach Margin.

The materials encountered in the test pits and their distribution reflect in part the native deposits (a.k.a. substratum including glacial till or Holocene deposit) underlying the areas; the past activities conducted in each area. The past activities included drainage channel excavation, waste filling in low lying areas, and filling using hydraulic fill to provide stable foundations for Buffalo Street, subsurface utilities, and site development structures, and to act as containment buffer between the waste fill and the beach (National Park Service, 2018).

The relationship between the underlying native deposits including glacial till and Holocene deposit is shown in **Figures 1** and is inferred from the 1936 topographic map. **Figure 2** with topographic maps (1936 and 2014) shows the delineation between the upland glacial till deposit beneath Hylan Boulevard and the (now buried) low-lying Holocene deposit extending to the east towards the harbor and beach shore.

In Test Pitting Area 1: Hylan Boulevard is underlain by glacial till consisting of compact, firm, reddish brown, clay, silt, and sand matrix with scattered fine to medium gravel. The glacial till is very hard due to its origin -- having been ice deposited and not reworked by water (e.g., outwash) (National Park Service, 2018). The test pits that encountered glacial till in Area 1 were TP0001A and TP0003A.

The 1936 topographic map indicates that the Holocene deposit extends up to Hylan Boulevard in the area that was later filled with waste fill in the late 1940s, just northeast of Bay Terrace Ave. The Holocene deposit was encountered beneath recent fill (as opposed to waste fill deposited in the late 1940s) in test pit TP0002A. The low lying area was filled with waste fill as evidenced by the waste fill encountered in test pits; TP0002B, TP0002C, and TP0003B. Waste fill was also encountered in Area 1 in test pits TP0004B and TP0005G.

Sometime between 1936 and 1949, the Hylan Drainage Channel was excavated. For much of its length, the base of the Hylan Drainage Channel was excavated into the glacial till to one to five feet above sea level. The excavated glacial till was placed on the bank adjacent to the Hylan Drainage Channel. The glacial till having been excavated and then placed on the bank is referred to as "reworked glacial till." The reworked glacial till was encountered in Area 1 test pits; TP0003C, TP0004A, and in Area 2 test pits TP0005F, TP0005H, TP0005I near the entrance of Buffalo Street and Hylan Drainage Channel.

Hydraulic fill was encountered in Area 1 test pits TP0001A, and in Area 2 test pits near the intersection of Buffalo Street and Hylan Boulevard in test pits TP0005A, TP0005B, TP0005C, TP0005D, and TP0005E. The distribution of the hydraulic fill encountered in Transect 5 reflects the use of hydraulic fill that was spread at the intersection of Buffalo Street and Hylan Boulevard and its use as a firm and stable sub-base for Buffalo Street and adjacent utility corridor.

In addition to the materials previously discussed in Transect 5 and associated test pits above, hydraulic fill was also encountered along the Buffalo Street Corridor Margin in test pits; TP0006A, TP0006B, TP0006C, TP0006E, TP0007A, TP0007B, and TP0007C. Hydraulic fill was also encountered overlying waste fill in test pits; TP0006D and TP0007D. Waste fill was encountered in test pits TP0005G and TP0007E. The hydraulic fill is distributed beneath the Buffalo Street and underlying Utility Corridor and extends as a "broad apron" south and west into OU2 and the waste fill (**Figures 1 and Figure 2**).

In Area 3, hydraulic fill was encountered in test pits TP0007A, TP0007B, TP0007C, TP0009C, and TP0010A. Hydraulic fill was also encountered over waste fill in test pits TP0007D, TP0008C, TP0009D, and TP0010B. Waste fill was encountered in test pits; TP0007E, TP0008A, and TP0008B. The Holocene deposit was encountered in the low lying area associated with test pits TP0009A and TP0009B (**Figures 1 and Figure 2**)

In conclusion and within the three test pitting areas, the JV was able to delineate the waste fill from the other geologic materials encountered including: glacial till, reworked glacial till, recent fill, and Holocene deposit in Test Pitting Area 1: Hylan Drainage Channel; glacial till, reworked glacial till, and hydraulic fill in the Test Pitting Area 2: Buffalo Street Corridor Margin; and hydraulic fill and Holocene deposit in Test Pitting Area 3: NPS Development/Beach Margin.

The encountered materials and the distribution of the materials reflect in part the native deposits (glacial till or Holocene deposit) underlying the areas; and the past activities conducted in each area. These activities included excavating Hylan drainage channel and placement of excavated materials on adjacent bank, waste filling in low lying areas, and filling using hydraulic fill to provide stable foundations for Buffalo Street, site utilities, and site development structures, and the use of hydraulic fill to act as containment buffer between waste fill and the beach area. Based on the test pitting results, the distribution of waste fill (as shown by the waste fill boundary) is shown in **Figure 1** and in cross sectional view in **Figure 2**.

#### References:

National Park Service (NPS), 2018. Final Historical Site Assessment/Records Search Summary Report, Gateway National Recreation Area, New York, Great Kills Park Site, EDL#5NER1580, Prepared by AECOM-Tidewater JV. July 5.

NPS. 2017a. Final Environmental Investigation Report for Great Kills Park Operable Unit 1, Gateway National Recreation Area, New York. Prepared by AECOM-Tidewater JV. November 13.

New York City Department of Parks. 1936. *Topographic Map Portion of Marine Park (R-T-16-105)*. Plan number 646 62523 on file at Gateway National Recreation Area, Staten Island, New York. March 24, 1936.

New York City Department of Parks. 1936. *Topographic Map Portion of Marine Park (R-T-16-106)*. Plan number 646\_62524 on file at Gateway National Recreation Area, Staten Island, New York. March 30, 1936.

New York City Department of Parks. 1936. *Topographic Map Portion of Marine Park (R-T-16-107)*. Plan number 646\_62524 on file at Gateway National Recreation Area, Staten Island, New York. March 30, 1936.

New York City Department of Parks. 1936. *Topographic Map Portion of Marine Park (R-T-16-108)*. Plan number 646\_62524 on file at Gateway National Recreation Area, Staten Island, New York. March 30, 1936.









ATTACHMENT A – Test Pitting Logs

AECOM	000		000		000
-------	-----	--	-----	--	-----

Project Name: Project Location: Team Leader: Great Kills Park OU2 RI R. Wensink/J. Wyckoff Test Pit ID: TP0001 Date: 10/29/2018 Start Time:

Coordinates or GPS ID:	Date/Time	Observations:	Photo ID:
TP0001A	10/29/18	Soil developed on glacial till (reddish brown) sand silt with scattered gravel and cobbles (well rounded).	
E 595196.048	14:40	Noted same material on opposite bank of Hylan Drainage Channel.	
N 627319.987		3	
		and the second se	
		IMPERATING A	
TP0001B	10/29/2018	Hydraulic fill, graded reddish brown sand (well sorted) with scattered pebbles (rounded).	
E 595388.791	15:26		
N 627421.867		A CONTRACTOR	

	Conditions Safe?	
Health and Safety Triggers:	(yes/no)	Describe (Time/Readings/Observations)
Health and Safety Triggers: Methane detected by the AreaRAE Wireless Gas Detection System in the work area at	(yes/no)	Describe (Time/Readings/Observations)
Health and Safety Triggers: Methane detected by the AreaRAE Wireless Gas Detection System in the work area at levels greater than 10% of the lower explosive limit	(yes/no) Yes	Describe (Time/Readings/Observations)
Health and Safety Triggers: Methane detected by the AreaRAE Wireless Gas Detection System in the work area at levels greater than 10% of the lower explosive limit VOCs detected by the PID in the breathing zone at levels that exceed 100 ppm	(yes/no) Yes	Describe (fime/Readings/Observations)
Health and Safety Triggers: Methane detected by the AreaRAE Wireless Gas Detection System in the work area at levels greater than 10% of the lower explosive limit VOCs detected by the PID in the breathing zone at levels that exceed 100 ppm Hydrogen sulfide detected by the AreaRAE Wireless Gas Detection System in the work	(yes/no) Yes Yes	Describe (fime/Readings/Observations)
Health and Safety Triggers: Methane detected by the AreaRAE Wireless Gas Detection System in the work area at levels greater than 10% of the lower explosive limit VOCs detected by the PID in the breathing zone at levels that exceed 100 ppm Hydrogen sulfide detected by the AreaRAE Wireless Gas Detection System in the work area at levels ergeter than 1 ppm	(yes/no) Yes Yes	Describe (Time/Readings/Observations)
Health and Safety Triggers: Methane detected by the AreaRAE Wireless Gas Detection System in the work area at levels greater than 10% of the lower explosive limit VOCs detected by the PID in the breathing zone at levels that exceed 100 ppm Hydrogen sulfide detected by the AreaRAE Wireless Gas Detection System in the work area at levels greater than 1 ppm	(yes/no) Yes Yes Yes	Describe (Lime/Readings/Observations)

ATCOM Any Task – Anywhere	8 TIDEWATER INC
---------------------------	-----------------

Project Name: Project Location: Team Leader: Great Kills Park OU2 RI R. Wensink/J. Wyckoff/C. Gray Test Pit ID: TP0002 Date: 10/29/2018 and 10/30/2018

Start Time:

Coordinates or GPS ID:	Date/Time:	Observations:	Photo ID:
TP0002A	10/29/18	Saturated black to gray sand silt with debris (recent - not sanitation waste fill). Debris includes glass,	
E 594648.358	15:10	plastic warning flag (orange). Encountered Holocene gray clay at 4.5 ft. below ground surface.	
N 626862.785			
		- V- Marine	
		The first first of the second s	
TP0002B	10/30/2018	Waste fill consisting of bottles, slag. 18K counts per minute (CPM).	
E 594737.69	14:36		
N 626796.39			

	Conditions Safe?	
Health and Safety Triggers:	(yes/no)	Describe (Time/Readings/Observations)
Methane detected by the AreaRAE Wireless Gas Detection System in the work area at		
Methane detected by the AreaRAE Wireless Gas Detection System in the work area at levels greater than 10% of the lower explosive limit	Yes	
Methane detected by the AreaRAE Wireless Gas Detection System in the work area at levels greater than 10% of the lower explosive limit VOCs detected by the PID in the breathing zone at levels that exceed 100 ppm	Yes	
Methane detected by the AreaRAE Wireless Gas Detection System in the work area at levels greater than 10% of the lower explosive limit VOCs detected by the PID in the breathing zone at levels that exceed 100 ppm Hydrogen sulfide detected by the AreaRAE Wireless Gas Detection System in the work	Yes	
Methane detected by the AreaRAE Wireless Gas Detection System in the work area at levels greater than 10% of the lower explosive limit VOCs detected by the PID in the breathing zone at levels that exceed 100 ppm Hydrogen sulfide detected by the AreaRAE Wireless Gas Detection System in the work area at levels greater than 1 ppm	Yes Yes Yes	

000	AECOM	000		000	TIDEWATER INC	
-----	-------	-----	--	-----	---------------	--

Project Name: **Project Location:** Team Leader:

Great Kills Park OU2 RI R. Wensink/J. Wyckoff/C. Gray 
 Test Pit ID:
 TP0002

 Date:
 10/29/2018 and 10/30/2018

Start Time:

1

Coordinates or GPS ID:	Date/Time:	Observations:	Photo ID:
TP0002C	10/30/18	Reddish brown, waste fill at shallow depth, few pieces of glass.	
E 594825.21	15:13		
N 626895.655		A CONTRACT OF THE OWNER	
		the manager and the state of the	

	1	
male sould a subsect of the second	Conditions Safe?	The second protect and second
Health and Safety Triggers:	(yes/no)	Describe (Time/Readings/Observations)
Methane detected by the AreaRAE Wireless Gas Detection System in the work area at		
levels greater than 10% of the lower explosive limit	Yes	
VOCs detected by the PID in the breathing zone at levels that exceed 100 ppm		
	Yes	
Hydrogen sulfide detected by the AreaRAE Wireless Gas Detection System in the work		
area at levels greater than 1 ppm	Yes	
Radiological dose rate readings observed at or above 0.5 mR/hr	¥	

AECOM	
-------	--

Project Name: Project Location: Team Leader:

> Great Kills Park OU2 RI R. Wensink/J. Wyckoff/C. Gray

 Test Pit ID:
 TP0003

 Date:
 10/29/2018 and 10/31/2018

Start Time:

ime:

Coordinates or GPS ID:	Date/Time:	Observations:			Photo ID:
TP0003A	10/29/18	Soil profile developed on glacial till (reddish bro	own dense sand-silt	matrix with scattered boulders, cobbles	
E 593498.459	15:43	and gravel (rounded). 20K counts per minute.			
N 625697.925		<b>新西</b> 州		A A A	
		Contraction of the second	Stand of a	Alt	
		1	12		
		site to	A A A		
			A start	WENT TO	
-		and the second sec	Carlo C	A A A A A A A A A A A A A A A A A A A	
		12200	Carl I		_
		all so a			
		7 /	14 J		
			Mar Anna Anna		
				STREELED.	_
			1		_
7000038	10/21/10				
TP00038	10/31/19	waste fill, note blue glass bottle. 22K CPM			_
E 593639.811	12:00			Dealers	
N 625726.906					_
		010	12. 18.3		
		23	and the		
		a state	A REALING		
2				ALL N	_
				and the second s	_
		7	den to	1000	
		and the second s	And An		_
Test Pit Sketch:					
			<b>Conditions Safe?</b>		
Health and Safety Trigger	S:	Con Detection functions in the most constant	(yes/no)	Describe (Time/Readings/Observations)	
Methane detected by the Ar	eaRAE Wireles	s Gas Detection System in the work area at	<b>M</b> 200		

Methane detected by the AreaRAE Wireless Gas Detection System in the work area at		
levels greater than 10% of the lower explosive limit	Yes	
VOCs detected by the PID in the breathing zone at levels that exceed 100 ppm	Yes	
Hydrogen sulfide detected by the AreaRAE Wireless Gas Detection System in the work		
area at levels greater than 1 ppm	Yes	
Radiological dose rate readings observed at or above 0.5 $mR/hr$	Yes	

AECOM Any Task – Anywhere	
---------------------------	--

Project Name: **Project Location:** Team Leader:

Great Kills Park OU2 RI R. Wensink/J. Wyckoff/C. Gray  
 Test Pit ID:
 TP0003

 Date:
 10/29/2018 and 10/30/2018
 Start Time:

Coordinates or GPS ID:	Date/Time:	Observations:	Photo ID:
TP0003C	10/31/18	Reworked (reddish brown) glacial till comprised of sand silt and clay with scattered gobbles and gravel	(
E 593627.714	12:06	(rounded). Origin of material appears to have been excavated fro Hylan Drainage Channel and placed	
N 625729.255		on top of bank, near and parallel to channel. 16K CPM.	
		The second second	
		and the second sec	
		and the second s	
-			

	<b>Conditions Safe?</b>	
Health and Safety Triggers:	(yes/no)	Describe (Time/Readings/Observations)
Methane detected by the AreaRAE Wireless Gas Detection System in the work area at		
levels greater than 10% of the lower explosive limit	Yes	
revers greater man 1070 of the forter explosive funt	1.63	
VOCs detected by the PID in the breathing zone at levels that exceed 100 ppm	Yes	
VOCs detected by the PID in the breathing zone at levels that exceed 100 ppm Hydrogen sulfide detected by the AreaRAE Wireless Gas Detection System in the work	Yes	
VOCs detected by the PID in the breathing zone at levels that exceed 100 ppm Hydrogen sulfide detected by the AreaRAE Wireless Gas Detection System in the work area at levels greater than 1 ppm	Yes	

000	AECOM	000		000	TIDEWATER INC 8
-----	-------	-----	--	-----	-----------------

Project Name: Project Location: Team Leader:

R. Wensink/J. Wyckoff

Great Kills Park OU2 RI

Test Pit ID: TP0004 Date: 10/29/2018 and 10/30/2018

Start Time:

Coordinates or GPS ID:	Date/Time:	Observations:	Photo ID:
FP0004A	10/29/18	Black (organic matter) soil horizon, overlying orange brown sand silt with scattered gravel (round).	
E 593044.715	16:09	19K counts per minute.	
N 624963.28		The second s	
			+
			+
		a second a second	
EPODO4B	10/29/2018	Wasta fill 6-inches below ground surface 18K CPM. Waste fill is mixed with hydraulic fill (graded sand)	
593123 746	16:22	waste nin o micros below ground surface, kore r w. waste nin s mixed with nyuradie nin (graded sand) with place and other debris indicative of waste fill	
N 624072 680	10.22	with glass and other debris indicative of waste rin.	
024973.089			
			+
			_
			_

	Conditions Safe?	
Health and Safety Triggers:	(yes/no)	Describe (Time/Readings/Observations)
Methane detected by the AreaRAE Wireless Gas Detection System in the work area at		
levels greater than 10% of the lower explosive limit	Yes	
VOCs detected by the PID in the breathing zone at levels that exceed 100 ppm		
	Yes	
Hydrogen sulfide detected by the AreaRAE Wireless Gas Detection System in the work		
area at levels greater than 1 ppm	Yes	
Radiological dose rate readings observed at or above 0.5 mR/hr	¥	

	ЕСОМ	Any Task – Anywhere	
--	------	---------------------	--

Project Name:		Test Pit Log Form	
	Great Kills Park OU2 RI	Test Pit ID:	TP0005
<b>Project Location:</b>		Date:	10/30/2018
Team Leader:	C. Gray/J. Wyckoff	Start Time:	

 Coordinates or GPS ID:
 Date Time:
 Observations:
 Photo ID:

 170005A
 10/30/18
 Reddsh brown, hydraulc fill (graded sand with no debris). 14K counts per minute.
 Image: Constraint of the constraint o

	Conditions Cofe?	
Health and Safety Trianers:	(vos/no)	Describe (Time/Peadings/Observations)
Methane detected by the AreaRAE Wireless Gas Detection System in the work area at	(ces/no)	Describe (Three Readings Coser various)
levels greater than 10% of the lower explosive limit	Yes	
VOCs detected by the PID in the breathing zone at levels that exceed 100 ppm		
voes deteted by me i in are oreaning zone at levels that exceed 100 ppm	Yes	
Hydrogen sulfide detected by the AreaRAE Wireless Gas Detection System in the work		
area at levels greater than 1 ppm	Yes	

000	AECOM	000	Any Task – Anywhere	
-----	-------	-----	---------------------	--

Project Name:	
<b>Project Location:</b>	
Team Leaders	

Great Kills Park OU2 RI

Test Pit ID: TP0005 Date: 10/30/2018

C. Gray/J. Wyckoff Start Time: Team Leader: Coordinates or GPS ID: Date/Time: Observations: Photo ID: TP0005C 10/30/18 Reddish brown, hydraulic fill (graded sand with no debris). E 595644.067 9:23 N 627411.465 10/30/2018 Hydraulic fill, (graded - well sorted reddish brown loose sand). TP0005D E 595601.908 9:29 N 627264.168

	1

Test Pit Sketch:

	Conditions Safe?	
Health and Safety Triggers:	(ves/no)	Describe (Time/Readings/Observations)
Methane detected by the AreaRAE Wireless Gas Detection System in the work area at	Quantity	bestwe (x mextensing) over (nuons)
levels greater than 10% of the lower explosive limit	Yes	
VOCs detected by the PID in the breathing zone at levels that exceed 100 ppm		
voes detected by me Filly in the oreaning zone at levels that exceed 100 ppm	Yes	
Hydrogen sulfide detected by the AreaRAE Wireless Gas Detection System in the work		
area at levels greater than 1 ppm	Yes	
Radiological dose rate readings observed at or above 0.5 mR/hr		

Т

000	AECOM	000	Any Task – Anywhere		225
-----	-------	-----	---------------------	--	-----

Project Name: Project Location: Team Leader: Great Kills Park OU2 RI C. Gray/J. Wyckoff Test Pit ID: TP0005 Date: 10/30/2018

Start Time:

Coordinates or GPS ID:	Date/Time:	Observations:	Photo ID:
TP0005E	10/30/18	Thin layer of hydraulic fill overlying native soil developed on glacial till (Pleistocene Deposit). Note soil	
E 595566.701	9:36	clods in base of hole/excavation.	
N 627115.024			
			_
TP0005F	10/30/2018	Reworked glacial till (fill), no waste fill.	
E 595497.737	9:41		-
N 627011.133			
-			+

		1
	Conditions Safe?	
Health and Safety Triggers:	(yes/no)	Describe (Time/Readings/Observations)
Methane detected by the AreaRAE Wireless Gas Detection System in the work area at		
levels greater than 10% of the lower explosive limit	Yes	
VOCs detected by the PID in the breathing zone at levels that exceed 100 ppm	N	
	Yes	
Hydrogen sulfide detected by the AreaRAE Wireless Gas Detection System in the work		
area at levels greater than 1 ppm	Yes	

i A	СОМ		000	TIDEWATER INC	000
-----	-----	--	-----	---------------	-----

Project Name:	Great Kills Park OU2 RI	_	Test Pit ID:	TP0005
<b>Project Location:</b>			Date:	10/30/2018
Team Leader:	C. Gray/J. Wyckoff	_	Start Time:	

Coordinates or GPS ID:	Date/Time:	Observations:	Photo ID:
TP0005G	10/30/18	Waste fill with glass, coal, and metal debris.	
E 595511.239	9:47		
N 626890.233			
		the set to the	
ТР0005Н	10/30/2018	Reworked glacial till (fill), no waste fill.	
E 595508.302	9:51		
N 626926.395			

	Conditions Safe?	
and the second		
Health and Safety Triggers:	(yes/no)	Describe (Time/Readings/Observations)
Health and Safety Triggers: Methane detected by the AreaRAE Wireless Gas Detection System in the work area at	(yes/no)	Describe (Time/Readings/Observations)
Health and Safety Iriggers: Methane detected by the AreaRAE Wireless Gas Detection System in the work area at levels greater than 10% of the lower explosive limit	(yes/no) Yes	Describe (Time/Readings/Observations)
Health and Safety Iriggers: Methane detected by the AreaRAE Wireless Gas Detection System in the work area at levels greater than 10% of the lower explosive limit VOCs detected by the PID in the breathing zone at levels that exceed 100 ppm	(yes/no) Yes	Describe (Time/Readings/Observations)
Health and Safety Iriggers: Methane detected by the AreaRAE Wireless Gas Detection System in the work area at levels greater than 10% of the lower explosive limit VOCs detected by the PID in the breathing zone at levels that exceed 100 ppm	(yes/no) Yes Yes	Describe (Time/Readings/Observations)
Health and Safety Iriggers: Methane detected by the AreaRAE Wireless Gas Detection System in the work area at levels greater than 10% of the lower explosive limit VOCs detected by the PID in the breathing zone at levels that exceed 100 ppm Hydrogen sulfide detected by the AreaRAE Wireless Gas Detection System in the work	(yes/no) Yes Yes	Describe (Time/Readings/Observations)
Health and Safety I riggers: Methane detected by the AreaRAE Wireless Gas Detection System in the work area at levels greater than 10% of the lower explosive limit VOCs detected by the PID in the breathing zone at levels that exceed 100 ppm Hydrogen sulfide detected by the AreaRAE Wireless Gas Detection System in the work area at levels greater than 1 ppm	(yes/no) Yes Yes Yes	Describe (Time/Readings/Observations)

🕴 🗚 🔆 🕺 👔 🕹 🕹 🕹 🛃 🛃 🛃 🛃 🛃 🛃 🛃 🛃 🛃 🛃 🛃 🛃 🛃	R INC. 00
---	-----------

Project Name:	Great Kills Park OU2 RI		
Project Location:			
Team Leader:	C. Gray/J. Wyckoff		

Test Pit ID: TP0005 Date: 10/30/2018

Start Time:

٦

	1	1	-
Coordinates or GPS ID:	Date/Time:	Observations:	Photo ID:
TP0005I	10/30/18	Reworked glacial till (fill), no waste fill.	
E 595517.257	9:58		
N 626905.529			
		and the state of the state	
		A Contraction of the second	
		Contraction of the second second	

	Conditions Safe?	
Health and Safety Triggers:	(yes/no)	Describe (Time/Readings/Observations)
Methane detected by the AreaRAE Wireless Gas Detection System in the work area at		
levels greater than 10% of the lower explosive limit	Yes	
VOCs detected by the PID in the breathing zone at levels that exceed 100 ppm		
······································	Yes	
Hydrogen sulfide detected by the AreaRAE Wireless Gas Detection System in the work		
area at levels greater than 1 ppm	Yes	
Radiological dose rate readings observed at or above 0.5 mR/hr		

AECOM	A A	ny Task – Anywhere 🕴 🔽 TIDEWATER 🕷 🖇	
		Test Pit Log Form	
Project Name:	Great Kills Par	COU2 RI Test Pit ID: TP0006	
Project Location:	C Gray/L Whe	koff Date: 10/30/2018	
Team Leader:	C. Glay/J. Wyc	Start Line:	_
Coordinates or GPS ID:	Date/Time:	Observations:	Photo ID:
TP0006A	10/30/18	Hydraulic fill, (graded - well sorted reddish brown loose sand). 15K Counts per minute.	
E 596689.098	10:22		
N 626466.365			
		A STATE STATE	
		19 18 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
		La harden i secto	
		THEFT CATING CONTRACT AND AND	
ТР0006В	10/30/18	Hydraulic fill, (graded - well sorted reddish brown loose sand).	
E 596608.926	10:25		
N 626420.527			
-			
Test Pit Sketch:			

	I	
THE PERSON NUMBER OF A DECEMPTOR	Conditions Safe?	The state proves and a second of some
TT - 14h 1 C - Point Tolonom		
Health and Safety Triggers:	(yes/no)	Describe (Ime/Readings/Observations)
Methane detected by the AreaRAE Wireless Gas Detection System in the work area at	(yes/no)	Describe (1ime/Readings/Observations)
Methane detected by the AreaRAE Wireless Gas Detection System in the work area at levels greater than 10% of the lower explosive limit	(yes/no) Yes	Describe (1 me/Keadings/Observations)
Methane detected by the AreaRAE Wireless Gas Detection System in the work area at levels greater than 10% of the lower explosive limit	(yes/no) Yes	Describe (1 m e/Readings/Observations)
Methane detected by the AreaRAE Wireless Gas Detection System in the work area at levels greater than 10% of the lower explosive limit VOCs detected by the PID in the breathing zone at levels that exceed 100 ppm.	(yes/no) Yes Yes	Describe (1 m e/Readings/Observations)
Methane detected by the AreaRAE Wireless Gas Detection System in the work area at levels greater than 10% of the lower explosive limit VOCs detected by the PID in the breathing zone at levels that exceed 100 ppm Hydrogen sulfide detected by the AreaRAE Wireless Gas Detection System in the work	(yes/no) Yes Yes	Describe (1 m e/Readings/Observations)
Methane detected by the AreaRAE Wireless Gas Detection System in the work area at levels greater than 10% of the lower explosive limit VOCs detected by the PID in the breathing zone at levels that exceed 100 ppm Hydrogen sulfide detected by the AreaRAE Wireless Gas Detection System in the work area at levels greater than 1 ppm	(yes/no) Yes Yes Yes	Describe (1 im e/Readings/Observations)

AECOM Any Task – Anywhere	
---------------------------	--

Project Name:	Great Kills Park OU2 RI	Test Pit ID:	TP0006
Project Location:		Date:	10/30/2018
Team Leader:	C. Gray/J. Wyckoff	Start Time:	

Coordinates or GPS ID:	Date/Time:	Observations:	Photo ID:
TP0006C	10/30/18	Hydraulic fill, (graded - well sorted reddish brown loose sand). 15K Counts per minute.	
E 596567.775	10:30		
N 626329.503			
л х			
TP0006D	10/30/18	Hydraulic fill with waste at 2 feet below ground surface. Note small glass bottle in fill.	
E 596515.555	10:42		
N 626280.869			
		ALL	
626280.869			

	Conditions Safe?	
Health and Safety Triggers:	(yes/no)	Describe (Time/Readings/Observations)
Methane detected by the AreaRAE Wireless Gas Detection System in the work area at		
levels greater than 10% of the lower explosive limit	Yes	
voc to a that mp is to be this and that the second late		
VOCs detected by the PID in the breatning zone at levels that exceed 100 ppm	Vos	
	163	
Hydrogen sulfide detected by the AreaRAE Wireless Gas Detection System in the work	Tes	
Hydrogen sulfide detected by the AreaRAE Wireless Gas Detection System in the work area at levels greater than 1 ppm	Yes	

AECOM	ooo A	ny Task – Anywhere	TIDEWATER **	IC 000
		Test Pit	t Log Form	
Project Name:	Great Kills Parl	k OU2 RI	Test Pit ID:	TP0006
Project Location:			Date:	10/30/2018
Team Leader:	C. Gray/J. Wyc	koff	Start Time:	
	1			
Coordinates or GPS ID:	Date/Time:	Observations:		
TP0006E	10/30/18	Hydraulic fill, (graded - well sorted reddish	brown loose sand). 15K	Counts per minute.
E 596528.172	10:48	ST 11		and all all and a

E 596528.172	10:48	
N 626291.007		
	_	

Photo ID:

	-	
Health and Safety Triggers:	Conditions Safe? (ves/no)	Describe (Time/Readings/Observations)
Methane detected by the AreaRAE Wireless Gas Detection System in the work area at levels greater than 10% of the lower explosive limit	Yes	
VOCs detected by the PID in the breathing zone at levels that exceed 100 ppm	Yes	
Hydrogen sulfide detected by the AreaRAE Wireless Gas Detection System in the work area at levels greater than 1 ppm	Yes	
Radiological dose rate readings observed at or above 0.5 mR/hr		

A ANY TASK - ANYWHERE 8
-------------------------

		Test Pit Log Form	
Project Name:	Great Kills Park OU2 RI	Test Pit ID:	TP0007
Project Location:		Date:	10/30/2018
Team Leader:	C. Grav/J. Wyckoff	Start Time:	

Coordinates or GPS ID:	Date/Time:	Observations:	Photo ID:
TP0007A	10/30/18	Hydraulic fill, (graded - well sorted reddish brown loose sand) with shallow water table.	
E 596997.364	11:05		
N 625370.059			
л х			
ТР0007В	10/30/18	Hydraulic fill with roots. Shallow groundwater table present.	
E 596883.63	11:17		
N 625323.49			
·		R The second	
7			
<u>.</u>			

Test Pit Sketch:

	Conditions Safe?	
Health and Safety Triggers:	(yes/no)	Describe (Time/Readings/Observations)
bed to the data warmed to constrain the state of the stat		
Methane detected by the AreaKAE wireless Gas Detection System in the work area at		
Methane detected by the AreaKAE. Wireless Gas Detection System in the work area at levels greater than 10% of the lower explosive limit	Yes	
Methane detected by the AreakAE Wireless Gas Detection System in the work area at levels greater than 10% of the lower explosive limit VOCs detected by the PID in the breathing zone at levels that exceed 100 ppm	Yes	
Methane detected by the AreaKAE Wireless Gas Detection System in the work area at levels greater than 10% of the lower explosive limit VOCs detected by the PID in the breathing zone at levels that exceed 100 ppm	Yes Yes	
Methane detected by the AreaRAE. Wireless Gas Detection System in the work area at levels greater than 10% of the lower explosive limit VOCs detected by the PID in the breathing zone at levels that exceed 100 ppm Hydrogen sulfide detected by the AreaRAE Wireless Gas Detection System in the work	Yes Yes	
Methane detected by the AreaRAE Wireless Gas Detection System in the work area at levels greater than 10% of the lower explosive limit VOCs detected by the PID in the breathing zone at levels that exceed 100 ppm Hydrogen sulfide detected by the AreaRAE Wireless Gas Detection System in the work area at levels greater than 1 ppm	Yes Yes Yes	

٦

AECOM	000	Any Task – Anywhere	
-------	-----	---------------------	--

# Test Pit Log Form Project Name: Great Kills Park OU2 RI Test Pit ID: TP0007 Project Location: Date: 10/30/2018 Team Leader: C. Gray/J. Wyckoff Start Time:

Coordinates or GPS ID:	Date/Time:	Observations:	Photo ID:
TP0007C	10/30/18	Hydraulic fill, (graded - well sorted reddish brown loose sand) 14K counts per minute.	
E 596877.278	11:22		
N 625365.892			
TP0007D	10/30/18	Hydraulic fill over lying thin layer of waste fill with debris including glass.	
E 596796.478	11:27	The hydraulic fill is also present beneath the thin waste fill layer.	
N 625377.909			

	Conditions Safe?	
Health and Safety Triggers:	(yes/no)	Describe (Time/Readings/Observations)
Methane detected by the AreaRAE Wireless Gas Detection System in the work area at		
Methane detected by the AreaRAE Wireless Gas Detection System in the work area at levels greater than 10% of the lower explosive limit	Yes	
Methane detected by the AreaRAE Wireless Gas Detection System in the work area at levels greater than 10% of the lower explosive limit VOCs detected by the PID in the breathing zone at levels that exceed 100 ppm	Yes	
Methane detected by the AreaRAE Wireless Gas Detection System in the work area at levels greater than 10% of the lower explosive limit VOCs detected by the PID in the breathing zone at levels that exceed 100 ppm	Yes	
Methane detected by the AreaRAE Wireless Gas Detection System in the work area at levels greater than 10% of the lower explosive limit VOCs detected by the PID in the breathing zone at levels that exceed 100 ppm Hydrogen sulfide detected by the AreaRAE Wireless Gas Detection System in the work	Yes Yes	
Methane detected by the AreaRAE Wireless Gas Detection System in the work area at levels greater than 10% of the lower explosive limit VOCs detected by the PID in the breathing zone at levels that exceed 100 ppm Hydrogen sulfide detected by the AreaRAE Wireless Gas Detection System in the work area at levels greater than 1 ppm	Yes Yes Yes	

🕴 🗚 🔆 🕺 👔 🕹 🕹 🕹 🛃 🛃 🛃 🛃 🛃 🛃 🛃 🛃 🛃 🛃 🛃 🛃 🛃	R INC. 00
---	-----------

Project Name:	Great Kills Park OU2 RI
<b>Project Location:</b>	
Team Leader:	C. Gray/J. Wyckoff

C. Gray/J. Wyckoff

 Test Pit ID:
 TP0007

 Date:
 10/30/2018

Start Time:

٦

	_		
Coordinates or GPS ID:	Date/Time:	Observations:	Photo ID:
TP0007E	10/30/18	Waste fill with debris including bottle and piece of rubber.	
E 596837.358	11:33		
N 625368.96		A REAL AND A	
6			
л Х.			
	1		

	Conditions Safe?	
Health and Safety Triggers:	(yes/no)	Describe (Time/Readings/Observations)
Methane detected by the AreaRAE Wireless Gas Detection System in the work area at		
levels greater than 10% of the lower explosive limit	Yes	
VOCs detected by the PID in the breathing zone at levels that exceed 100 ppm	Mar	
Underson while detected by the AreaDAE Winsless Con Detection System in the work	res	
Hydrogen sulfide detected by the AreaKAE wireless Gas Detection System in the work		
area at levels greater than 1 ppm	Yes	
Radiological dose rate readings observed at or above 0.5 mR/hr	Yes	

000	AECOM	0.00	Any Task – Anywhere	000		000
-----	-------	------	---------------------	-----	--	-----

# Test Pit Log Form Project Name: Great Kills Park OU2 RI Test Pit ID: TP0008 Project Location: Date: 10/30/2018 Team Leader: C. Gray/J. Wyckoff Start Time:

Date/Time:	Observations:	Photo ID:
10/30/18	Waste fill containing debris consisting of coal, glass, and metal, 18.5K counts per minute.	
13:37		
	S. B. Star	
10/30/18	Waste fill intermixed with hydraulic fill, 34K counts per minute.	
13:46		
		_
		_
	and the mail and	
	Date/Time: 10/30/18 13:37	Date Time:       Observations:         10/30/18       Waste fill containing debris consisting of coal, glass, and metal, 18.5K counts per minute.         13:37

	0 11 0 0 0	
	Conditions Safe?	
Health and Safety Triggers:	(yes/no)	Describe (Time/Readings/Observations)
Methone detected by the AreaRAF Wireless Gas Detection System in the work area at	1	
Memale detected by the AleadAE whereas Gas Detection System in the work area at	1	
levels greater than 10% of the lower explosive limit	Yes	
Remain detected by the Predicted Watters Gas Detection System in the work area and levels greater than 10% of the lower explosive limit VOCs detected by the DDD in the breathing zone of layale that exceed 100 ppp	Yes	
levels greater than 10% of the lower explosive limit VOCs detected by the PID in the breathing zone at levels that exceed 100 ppm	Yes Yes	
levels greater than 10% of the lower explosive limit VOCs detected by the PID in the breathing zone at levels that exceed 100 ppm Hydrogen sulfide detected by the AreaRAE Wireless Gas Detection System in the work	Yes	
Invention detected by the Pricate View of the Source of th	Yes Yes Yes	

🖁 🗛 🕄 Any Task – Anywhere 🕴 🔽 TIDEWATER 🕶	000
---	-----

Project Name:	Great Kills Park OU2 RI	Test Pit ID:	TP0008
Project Location:		Date:	10/30/2018
Team Leader:	C. Gray/J. Wyckoff	Start Time:	

Coordinates or GPS ID:	Date/Time:	Observations:	Photo ID:
TP0008C	10/30/18	Hydraulic fill with waste fill, 21.9K counts per minute.	
E 597366.061	13:58		
N 624963.583			
		Share -	
		and the second sec	
TP0008D	10/30/18	Hydraulic fill, (graded - well sorted reddish brown loose sand).	
E 597387.477	14:03		
N 624942.077			

	Conditions Safe?	
Health and Safety Triggers:	(yes/no)	Describe (Time/Readings/Observations)
Methane detected by the AreaRAE Wireless Gas Detection System in the work area at		
levels greater than 10% of the lower explosive limit	Yes	
VOCs detected by the PID in the breathing zone at levels that exceed 100 ppm		
· · · · · · · · · · · · · · · · · · ·	Voc	
	Tes	
Hydrogen sulfide detected by the AreaRAE Wireless Gas Detection System in the work	Tes	
Hydrogen sulfide detected by the AreaRAE Wireless Gas Detection System in the work area at levels greater than 1 ppm	Yes	

🕴 🗚 🗄 👔 🖁 🖌 👔 🖌 👔 🖌	TIDEWATER INC	000
---------------------	---------------	-----

		Test Pit Log Form	
Project Name:	Great Kills Park OU2 RI	Test Pit ID:	TP0009
<b>Project Location:</b>		Date:	10/31/2018
Team Leader:	C. Gray/J. Wyckoff	Start Time:	

 Coordinates or GPS ID:
 Date Time:
 Observations:
 Photo ID:

 170009A
 10/31/18
 Mottled gray to brown chyey sand Holocene). No waste fill.
 Image: Control of Contro

and take in the second s	Conditions Safe?	and a fact that the second is the
Health and Safety Triggers:	(yes/no)	Describe (Time/Readings/Observations)
Methane detected by the AreaRAE Wireless Gas Detection System in the work area at		
levels greater than 10% of the lower explosive limit	Yes	
VOCs detected by the PID in the breathing zone at levels that exceed 100 ppm	N.	
	Yes	
Hydrogen sulfide detected by the AreaRAE Wireless Gas Detection System in the work		
area at levels greater than 1 ppm	Yes	

A Any task - Anywhere
-----------------------

		Test Pit Log Form	
Project Name:	Great Kills Park OU2 RI	Test Pit ID:	TP0009
<b>Project Location:</b>		Date:	10/31/2018
Team Leader:	C. Gray/J. Wyckoff	Start Time:	

Coordinates or GPS ID:	Date/Time:	Observations:	Photo ID:
TP0009C	10/31/18	Hydraulic fill to 4 feet, below ground surface, 16K counts per minute.	
E 596059.157	11:27		
N 624698.216			
TP0009D	10/31/18	Hydraulic fill mixed with waste (debris glass and bottles), 16K counts per minute.	
E 596011.966	11:29		
N 624719.79			

1		
	<b>Conditions Safe?</b>	
Health and Safety Triggers:	(yes/no)	Describe (Time/Readings/Observations)
and the second sec		
Methane detected by the AreaRAE Wireless Gas Detection System in the work area at		
Methane detected by the AreaRAE Wireless Gas Detection System in the work area at levels greater than 10% of the lower explosive limit	Yes	
Methane detected by the AreaRAE Wireless Gas Detection System in the work area at levels greater than 10% of the lower explosive limit VOCs detected by the PID in the breathing zone at levels that exceed 100 ppm	Yes	
Methane detected by the AreaRAE Wireless Gas Detection System in the work area at levels greater than 10% of the lower explosive limit VOCs detected by the PID in the breathing zone at levels that exceed 100 ppm	Yes Yes	
Methane detected by the AreaRAE Wireless Gas Detection System in the work area at levels greater than 10% of the lower explosive limit VOCs detected by the PID in the breathing zone at levels that exceed 100 ppm Hydrogen sulfide detected by the AreaRAE Wireless Gas Detection System in the work	Yes Yes	
Methane detected by the AreaRAE Wireless Gas Detection System in the work area at levels greater than 10% of the lower explosive limit VOCs detected by the PID in the breathing zone at levels that exceed 100 ppm Hydrogen sulfide detected by the AreaRAE Wireless Gas Detection System in the work area at levels greater than 1 ppm	Yes Yes Yes	

AECO	MC	000	Any Ta	sk – /	Anywher	e ooo	TIDEWATE	
Project Name: Project Location: Team Leader:	Great Kills Par C. Gray/J. Wyo	k OU2 RI :koff	Т	est Pit Lo;	g Form Test Pit ID: Date: Start Time:	TP0010 10/31/2018		
Coordinates or GPSID:	Date/Time:	Ob servations :						Photo ID:
TP0010A	10/31/18	Hydraulic fill, 14	IK counts per minut	te.				
E 595653.227	9:56	i		<u></u>		<b>学、</b> 一般		
N 624232.626								
TP0010B	10/31/18	Mix of hydraulid	: fill and waste fill w	vith glass and	metal debris, 16K d	counts per minute.		
E 595581.173 N 624311.029								
Health and Safety Trigge Methane detected by the A	<b>rs:</b> weaRAE Wireles	sGasDetection :	System in the work	area at	Conditions Safe? (yes/no)	Describe (Time/Readin	ıgs/Ob servations)	
levels greater than 10% of the lower explosive limit				Yes				
VOUs detected by the PID in the breathing zone at levels that exceed 100 ppm Hydrogen sulfide detected by the AreaRAE Wireless Gas Detection System in the work			he work	Yes				
area at levels greater than 1 ppm				Yes				

Yes

Radiological dose rate readings observed at or above 0.5 mR/hr



### **TECHNICAL MEMORANDUM**

UNDERWATER GAMMA SCANNING SURVEY – GREAT KILLS PARK HARBOR PHASE 1 REMEDIAL INVESTIGATION FOR OPERABLE UNIT 2 FOR GREAT KILLS PARK SITE, GATEWAY NATIONAL RECREATION AREA, STATEN ISLAND, NEW YORK

#### Draft:

#### February 22, 2019

This Technical Memorandum presents the underwater gamma survey methodology, results, and conclusions. The underwater gamma radiation survey was performed from October 15 to October 31, 2018 over a portion of the bathymetric surface of the Great Kills Harbor for purposes of evaluating potential radiological impacts resulting from the Marine Unloading Operation. Previous investigations (NPS, 2017, NPS 2018) identified radiological contamination and artifacts associated with the waste that was placed in the landfill during historical landfilling activities. During unloading operations waste with radiological artifacts and radiological contamination may have fallen from the unloaders and scows/barges into the Great Kills Harbor. Therefore the survey focused on Investigation Area comprised of a 100-ft zone within Great Kills Harbor adjacent to the location of the two former unloaders (**Figure 1**).

The gamma survey involved using a gamma detection system consisting of a waterproof 2-inch by 2-inch sodium iodide (NaI) detector (Ludlum 44-10-1) with count rate meter/scaler (Ludlum 2221 or equivalent) coupled to a Trimble Geo 7X positioning/locating system. The gamma detection system collected and logged gamma counts at a rate of one count measurement per second and associated each measurement with geospatial coordinate having an accuracy of  $\pm$  one meter. The World Geodetic System (WGS) 84, Geospatial Coordinate System was used and the position data were recorded in latitude and longitude. Based on National Oceanic and Atmospheric Administration (NOAA) bathymetric map (NOAA, 2017a) for the Great Kills Harbor, the deepest portion of the survey area was approximately 12-ft below mean lower low water (MLLW). Based on NOAA tide charts for the Great Kills Harbor, a tidal fluctuation of approximately 5-ft was expected between high and low tide (NOAA, 2017b). Therefore, the maximum survey depth ranged between 12 and 17-ft, depending on the tide level. The waterproof Nal detector was mounted on a pole sufficiently long enough to reach and stay positioned on the harbor/sediment floor at both high and low tide. Reference Area measurements were collected from the NPS Great Kills Harbor Dock near the boat launch area. The Reference Area measurements were compared to the Investigation Area measurement to identify anomalies (elevated gamma count rates)

Over 20,000 data points were collected during the survey of the Investigation Area adjacent to the marine unloaders and the Reference Area. Following each surveying event, the resulting data were downloaded and exported to a text file that included coordinate data (latitude and longitude), instrument count rate (cpm), and the time each count rate point was logged. Geospatial modeling (Surfer) software was used to present count rate contours and a color-coded plot. Inverse distance weighted average interpolation was used to generate contours and color-coded plot from the downloaded data. The data evaluation process for the Reference Area and the Investigation Area were conducted as follows:

For the Reference Area, the data were collected, processed, and then used to generate a posting plot that included gross gamma count rates in cpm and a Z-Score contour plot from the gross gamma cpm. The Z-Score contour plot was produced based on the gross gamma cpm with a continuous interpolation using an inverse distance weighted average and a search radius (for the next nearest measure point) of approximately 1 to 2 meters.

For the Investigation Area, the data were collected and processed in a similar manner to the Reference Area and used to generate a posting plot that included detector gross gamma count rates in cpm and a Z-Score contour plot generated from the gross gamma cpm. Multiple contour plots were produced showing whole multiples (1x, 2x, etc.) of the average background as determined from the Reference Area survey.

The Reference Area was located at the boat launch area for the Great Kills Harbor. The data was plotted and analyzed using standard statistics. **Table 1** presents a statistical summary of the Reference Area data.

	Reference Area Data	
	Statistic CPM	
Mean	2,3	883
Median	2,4	186
Standard Deviation	6	555
Minimum	5	521
Maximum	3,5	580
Count	1	.02

Table 1 - GKP OU2 Underwater Gama Survey Statistical Summary For
Reference Area Data

The Reference Area data ranged from a low of 521 cpm to a high of 3,580 cpm with a median value of 2,486 cpm and a standard deviation of 654 cpm. This standard deviation is considered large for the Reference Area set. The cause of the large standard deviation was the inclusion of the low count rates. The survey team noted that the low count rate measurement values of less than 1,200 cpm appeared to be collected before the detector was in complete contact with the sediment bottom. **Figure 1** is a quantile plot showing the two different data populations.



Figure 1, Quantile Plot for GKP Harbor Reference Area

Adjusting the Reference Area data set by removing the data associated with data generated when the probe was not in contact with the sediment/bottom) results in a revised average of 2,561 cpm, a minimum value of 1,458 cpm and a maximum value of 3,580 cpm. The standard deviation for the adjusted data set is lower or 450 cpm. **Table 2** provides the statistics for the adjusted Reference Area data. The adjusted quantile plot is shown in **Figure 2**.

Table 2 – GKP OU2 Underwater Gama Survey Statistical Summary for the Adjusted
Reference Area Data

Statistic	СРМ
Mean	2,561
Median	2,536
Standard Deviation	450
Minimum	1,458
Maximum	3,580
Count	90



Figure 2, Adjusted Reference Data

Based on the above an Investigation Level of 3,911 cpm was calculated using the adjusted Reference Area data by adding the mean count rate (2,561 cpm) to three (3) times the standard deviation count rate (3 x 450 cpm). Count rates above the Investigation Level will be identified as anomalies having elevated gamma count rates.

Similar to the Reference Area data, the data from the Investigation Area was plotted and analyzed for standard statistics. **Table 3** provides a statistical summary of the Investigation Area data prior to adjustment.

Investigation Area Data		
Statistic	СРМ	
Mean	2,438	
Median	2,444	
Standard Deviation	1,254	
Minimum	86	
Maximum	17,819	
Count	20,964	

## Table 3 – GKP OU2 Underwater Gama Survey Statistical Summary For

The Investigation Area data are consistent with the Reference Area data. This is demonstrated by comparing the median value of 2,444 cpm for the Investigation Area to the similar median value of 2,486 cpm (unadjusted) for the Reference Area. Consistent with the Reference Area, the low readings including a a minimum value of 86 cpm in the Investigation Area is due to readings taken when the detector was positioned above and not engaged with the sediment/bottom.

Adjusting the Investigation Area data to remove the data points that are less than or equal to the investigation level calculated from the adjusted Reference Area data (i.e., 3.911 cpm) results in a total of 1,551data points that are considered elevated within the investigation area. The average of these data is 5,190 cpm with a maximum of 17,819 cpm (Table 4)

Removing the data points that are below the Investigation Level (count rate) is supported by the scatter plot which shows that the data for the probe in full contact with the sediment results in values of around 3,900 cpm. Figure 3 shows the scatter plot of the investigation area data. Table 4 below provides the summary of statistics for adjusted Investigation Area data.



Figure 3, Scatter Plot for Investigation Area Data
the Adjusted Investigation Area Data									
Statistic	СРМ								
Mean	5,190								
Median	4,627								
Standard Deviation	1,775								
Minimum	3,912								
Maximum	17,819								
Count	1,551								

CKD OU2 Us downstow Come Comment Statistical Comments

The quantile plot, **Figure 4**, for the Investigation Area data, as with the Reference Area data, shows that the data are comprised of different populations. The first population accounts for normal instrument response before the detector is fully engaged with the sediment/bottom, the second population of data is the detector response to naturally occurring radioactive material (NORM), and the third population accounts for those data points (elevated counts) that are indicative of radioactive contamination (anomalies) within the sediment.



Figure 4, Quantile Plot for Survey Unit Data

As seen in the scatter plot presented in **Figure 3**, the data indicates that elevated count rates occur at or above 4,000 cpm and further supports the establishment of the Investigation Level (3,911 cpm) for purposes of identifying anomalies.

To better understand elevated count rates and anomalies detected in Great Kills Harbor (**Figure 5**) and possible nexus to the Unloading Area, the JV prepared a map of the Marine Unloading Operations and structures with the mapped locations of the 12 radiological anomalies (**Figure 6**). Additionally, side scan sonar data from a 2013 survey of the Great Kills Harbor were also obtained and added to the figure. The historical information shows that five mooring dolphins were present 40 ft. offshore and centered on the Wellman Unloader. As shown in **Figure 6**, a

majority of the radiological anomalies are located adjacent to the Wellman Unloader. The radiological artifacts encountered at the Site are heavier than water and would deposit on the sediment surface if they dislodged from the waste during unloading operations. These results suggest indicate that the Marine Unloading Operation may have resulted in releases of radiological contamination to sediment in the Great Kills Harbor. Additional investigations are recommended to evaluate the source of the radiological anomalies identified within the Great Kills Harbor and to assess whether the anomalies are actual radiological artifacts or contamination related to Marine Unloading Operations and historical waste filling operations.

## References:

National Park Service (NPS), 2018. Final Historical Site Assessment/Records Search Summary Report, Gateway National Recreation Area, New York, Great Kills Park Site, EDL#5NER1580, Prepared by AECOM-Tidewater JV. July 5.

NPS. 2017a. Final Environmental Investigation Report for Great Kills Park Operable Unit 1, Gateway National Recreation Area, New York. Prepared by AECOM-Tidewater JV. November 13.







Appendix B: Boring Logs

7	TIDEWATER INC AECOM LOCATION: Great Kills Park, Staten Island, NY WELL / BORING ID: OU2-DPT-01 Page 1 of 1											
Pro Contr Geol PID/FII	ject nu ract Nu Date L Total I ogist/L Review D Equip	imbe ogge Dept ogge ed b omen	r: 2016-004 Driller Contract r: W912DR-13-D-0016 Drilling Equpted d: 10/29/18 Drilling Equpted h: 15' bgs Drilling Meth r: Andrew Fleming, G.I.T. Boring Diame y: John Wyckoff, P.G. Sampler Ty t: MiniRAE/Photovac MicroFID Gamma Scan Equ	or: ller: ent: od: ter: pe: iip.:	Tidewater In Devin Murdo Geoprobe 78 Direct Push 4.5 inch Continuous 0 Ludlum 222	c. ock 322DT Core 1/Ludlum	Northing: 138713.709 Easting: 946501.229 Surface Elevation: 11.03 ft amsl Top of Case Elevation: N/A ft amsl Backfill Method: Bentonite Well Installed:Yes _ ✓_No m 44-2 and 44-20 Type: N/A					Page          or            8713.709         .6501.229         .03         ft amsl          03         ft amsl
Depth (feet bgs)	Lithology	USCS	Sample Description	Sample Intervals	Sample ID /Time	Downhole Downhole Units (cpm)	al Readings Core Units (cpm)	Methane (ppm)	PID Reading (ppm)	Depth (feet bgs)	Well / Boring Completion	Comments
 	<u>_</u>	SM	Silty SAND, fine to coarse grained, trace coarse gravel, very dark brown (7.5YR 2.5/2), moist, no odor or staining, leaf/root material and glass present	X	OU2-1- SS001/1120	589	12,400	0.0	0.0			OU2-1-SS 001 102318 @1120 Core Recovery:
- 2.5 -	+++++	SM	(WASTE FILL) Silty SAND, fine to coarse grained, trace fine gravel, dark brown (7.5YR 3/4), moist, no odor or staining	-		934	13,700	0.0	0.1	-		0-5': 75%
 		ML	(SEDIMENT FILL) Sandy SILT, trace clay, trace fine gravel, dark brown (7.5YR 3/3), moist, no odor or staining,	-		1,103 1,150	13,400 12,500	24 5.0	0.1 0.1	- 5.0-		5-10': 80%
			(WASTE FILL)			1,205	13,600	41	0.4			<ul> <li>Hydrated</li> <li>Bentonite Chips</li> </ul>
 _ 7.5 _			firm, moist, no odor or staining (HOLOCENE BEACH AND MARSH DEPOSITS)		0112-1-511	1,162	13,100	3.1 15	0.3 0.4	-		
		SP	Poorly Graded SAND, fine to medium grained, loose, moist, no odor or staining		001-08/ 1010 (RAD)	1,293	15,000	4.2	2.0	-		
- <u>×</u> - - 10 -		CL	Silty CLAY, trace fine gravel, black (5Y 2.5/1), medium plasticity, firm, moist, no odor or staining,		OU2-1- OU001-10/	1,379	14,000	32	50	10 —		10-15': 100%
			organic material present (marsh grass fibers-meadow mat)	_	1020 (CHEM)	1,305 1,311	13,600 13,500	39 3.2	7.0 4.3			
- 12.5 - 		CL	Silty CLAY matrix, trace fine to coarse gravel, dark yellowish brown (10YR 4/4), low plasticity, firm, no odor or staining			1,436	13,200	1.0	4.1	-		
			(PLEISTOCENE GLACIAL TILL)			1,322	12,600	0.0	2.4	-		
- 15 - - 15 -  		SW	Well Graded SAND matrix, fine to coarse grained, trace fine gravel, black (10YR 2/1), moist to saturated, loose, black stain, strong hydrocarbon odor Sandy CLAY matrix, fine to coarse grained, trace silt and fine gravel, dark brown (7.5YR 3/4), firm, saturated, hydrocarbon odor and stain	-		1,377	13,100	0.0	1.1	15 — — — —		
			(5YR 4/4) Total Depth = 15 feet bgs	_						-		

7	Ţ	IDE		DN BO	I: Great k RING ID:	(ills Pa : OU2-	rk, Sta DPT-0	ater )2	n Isla	and	l, NY	Page 1 of 1
Pro Cont Geol PID/FII	ject nu ract Nu Date L Total ogist/L Review D Equij	umbe ogge Dept ogge ved b	r: 2016-004 Driller Contract r: W912DR-13-D-0016 Dri d: 10/25/18 Drilling Equpment f: 10' bgs Drilling Mether r: Andrew Fleming, G.I.T. Boring Diame y: John Wyckoff, P.G. Sampler Ty t: MiniRAE/Photovac MicroFID Gamma Scan Equ	tor: ller: ent: nod: ter: ype: uip.:	Tidewater In Devin Murdo Geoprobe 78 Direct Push 4.5 inch Continuous 0 Ludlum 222	c. ock 322DT Core 1/Ludlum	T 1 44-2 and	Su op of B d 44-2	rface Case ackfil Well 0	Nor Ea Elev Elev I Me	thing: 14 asting: 94 ation: 12 ation: N/ ethod: Be called: Type: N/	0908.430 8387.162 99 ft amsl /A ft amsl entonite Yes _YNo /A
Depth (feet bgs)	Lithology	SOSU	Sample Description	Sample Intervals	Sample ID /Time	Downhole Units (cpm)	al Readings Core (units (cbm)	Methane (ppm)	PID Reading (ppm)	Depth (feet bgs)	Well / Boring Completion	Comments
		SP	Poorly Graded SAND, dark brown (7.5YR 3/4), fine to medium grained, loose, dry, no odor or staining, organic material present (roots) (SEDIMENT FILL)	X	OU2-1- SS002/ 1045	1,133	12,500	0.0	0.0	-		OU2-1-SS 002 102318 @1045 Core Recovery:
- 2.5 - 		SM	Silty SAND, brown (7.5YR 5/3), medium grained, loose, dry to moist, no odor or staining, glass, brick, porcelain, and coal present (WASTE FILL)		2 0112-1-	966 881	12,500 12,400	0.0	0.0	-		0-5': 60%
 - 5.0 - 					SU002-04/ 1115 (CHEM)	871 842	12,200 12,400	0.0 0.0	0.0 0.0			5-10': 80% - Hydrated Bentonite Chips
 - 7.5 -		СН	Silty CLAY, grayish brown (10YR 5/2), medium to high plasticity, hard, moist, no odor or staining (HOLOCENE BEACH AND MARSH DEPOSITS)		OU2-1- SU002-07/ 1100 (RAD)	1,015 1,224	12,300 12,700	0.0 0.0	0.1 0.0	-		
		sc	Clayey SAND, dark grayish brown (10YR 4/2), fine to medium grained, firm, saturated, no odor or staining	-		1,299 1,129	12,700 12,700	0.0 0.0	0.0	- - 10 -		
  - 12.5 -			Total Depth = 10 feet bgs									
 										  15		
										-		
- 17.5 - 												

7	Ţ	IDE		ON BO	: Great k RING ID:	(ills Pa : OU2-	ark, St ·DPT-0	ater )3	n Isla	and	1, NY	Page <u>1</u> of <u>1</u>
Pro Contr Geole I PID/FII	ject nu ract Nu Date L Total ogist/L Review D Equip	imbe oggeo Depti ogge ved b	r: 2016-004 Driller Contract r: W912DR-13-D-0016 Dri d: 10/29/18 Drilling Equpm n: 15' bgs Drilling Meth r: Andrew Fleming, G.I.T. Boring Diame y: John Wyckoff, P.G. Sampler To t: MiniRAE/Photovac MicroFID Gamma Scan Equ	tor: ller: ent: nod: ter: ype: uip.:	Tidewater In Devin Murdo Geoprobe 78 Direct Push 4.5 inch Continuous 0 Ludlum 222	c. ock 322DT Core 1/Ludlum	ן 1 44-2 an	Su Top of B d 44-2	rface Case Gackfil Well	Nor Elev Elev I Me Inst	thing: 13 asting: 94 ation: 13 ation: N/ ethod: Be called: Type: N/	8519.185 .7593.192 .14 <b>ft amsl</b>  A <b>ft amsl</b>   Yes <u>r</u> No A
				als		Radiologic	al Readings	-	(mq	s)	ing on	
Depth (feet bgs)	Lithology	USCS	Sample Description	Sample Interv	Sample ID /Time	Downhole Units (cpm)	Core Units (cpm)	Methane (ppm	PID Reading (p	Depth (feet bg	Well / Bor Completi	Comments
		SМ	Silty SAND, dark brown (10YR 3/3), fine grained, loose, dry, no odor or staining, organic material present (plant debris and roots)		OU2-1- SS003/ 1105	711	12,700	120	0.2	-		OU2-1-SS 003 102318 @1105
			(SEDIMENT FILL)			1,036	12,700	380	0.7	-		Core Recovery: 0-5': 75%
		ML	Sandy SILT, very dark grayish brown (10YR 3/2), moist, glass, metal, wood, and porcelain (WASTE FILL)			1,062	13,800	160	0.6	-		
						850	13,200	41	0.5	-		
- 5.0 -						982	11,400	135	1.0	5.0-		5-10': 70%
						934	12,900	112	1.6	-		<ul> <li>Hydrated</li> <li>Bentonite Chips</li> </ul>
						1,188	13,300	136	2.2	-		
				$\bowtie$	SU003-08/ 1145	1,621	13,900	80	2.6	-		
			Incinerator debris (coal, slag) and color change to black (10YR 2/1), at 9.5' bgs	$\boxtimes$	(CHEM) OU2-1- SU003-09/	2,063	13,100	140	0.7	-		
- 10 - 	* * * *	sw	Well Graded SAND, fine to coarse grained, little		1135 (RAD)	1,670	13,200	921	2.6	10 <b>—</b>		10'-15': 75%
$\begin{bmatrix} 1 \end{bmatrix}$			silt, trace gravel, dark reddish brown (5YR 3/3), loose, saturated, slight odor, no staining (HOLOCENE BEACH AND MARSH DEPOSITS)			1,137	15,500	1 204	22	-		
- 12.5-	•••••		Clay lens present from 10.5' to 10.75' bgs			925	12,700	675	0.5	-		
			Clay lens present from 13' to 13.75' bgs			863	12,700	352	0.4	-		
	· · · · · · · · · · · · · · · · · · ·					833	13,000	821	0.3	15-		
			Total Depth = 15 feet bgs			1				-		
ΕJ										-		
- 17.5-										-		
<u>t</u> 1												
										-		
										-		

7	TIDEWATER INC ACCOM       LOCATION: Great Kills Park, Staten Island, NY         WELL / BORING ID: OU2-DPT-04       Page 1 of 2         Project number: 2016-004       Driller Contractor: Tidewater Inc.       Northing: 139915.508												
Pro Cont Geol PID/FII	ject nu ract Nu Date L Total I ogist/L Review D Equip	imbe ogge Dept ogge ed b omen	r: 2016-004 Driller Contract r: W912DR-13-D-0016 Dri d: 10/25/18 Drilling Equpment r: 30' bgs Drilling Mether r: Andrew Fleming, G.I.T. Boring Diame r: John Wyckoff, P.G. Sampler Ty t: MiniRAE/Photovac MicroFID Gamma Scan Equ	tor: ller: ent: nod: ter: ype: uip.:	Tidewater In Devin Murdo Geoprobe 78 Direct Push 4.5 inch Continuous ( Ludlum 222	c. ock 322DT Core 1/Ludlum	Northing: 139915.508 Easting: 948409.529 Surface Elevation: 28.92 ft amsl Top of Case Elevation: N/A ft amsl Backfill Method: Bentonite Well Installed:YesN m 44-2 and 44-20 Type: N/A						
Depth (feet bgs)	Lithology	USCS	Sample Description	Sample Intervals	Sample ID /Time	Radiologica Downhole Units (cpm)	Core Units (cpm)	Methane (ppm)	PID Reading (ppm)	Depth (feet bgs)	Well / Boring Completion	Comments	
	· · · · · · · · · · · · · · · · · · ·	SP	Poorly Graded SAND, dark brown (10YR 3/3), fine to medium grained, loose, dry, no odor or staining, organic material present	×	OU2-1- SS004/ 0915	1,085	11,900	0.0	0.0			OU2-1-SS 004 102418 @0915	
 - 2.5 -	····	SD	(SEDIMENT FILL)			1,431	12,200	0.0	0.0	-		0-5': 30%	
		51	fine grained, loose, dry to moist, no odor, oxidized metal fragments, broken glass, coal, ash, and slag			1,475	12,300	0.0	0.0	-			
			present (Incinerator Residue) (WASTE FILL)			805	12,300	0.0	0.0	-			
- 5.0 -						820	12,400	0.0	0.0	5.0 <b>—</b>		5-10': 60%	
						1,275 1,510	12,600	0.0 0.0	0.0	-		<ul> <li>Hydrated</li> <li>Bentonite Chips</li> </ul>	
- 7.5 -			Mostly incinerator waste (coal, slag, ash) present,			1,835	12,900	0.0	0.0	-			
			with glass		0U2-1-	1,687	13,300	14	2.0	-			
 - 10 -					1435 (CHEM)	1,522	13,700	0.0	0.0			10'-15': 40%	
					OU2-1- SU004-10/ 1430	2,127	12,400	0.0	0.0	-			
					(RAD)	2,042	12,500	3.4	1.7	-			
- 12.5- 						1,664	12,400	44	2.0	-			
					OU2-1-	1,473	12,600	18	3.0	-			
 - 15 -					SU004-14/ 1515	1,387	12,600	4.7	1.0	- 15 -		15'-20': 20%	
					(CHEM)	1,418	12,700	0.0	0.4	-			
					SU004-16/ 1510	1,311	12,500	0.0	2.1	-			
- 17.5 - 					(RAD)	1,360	12,500	0.0	0.6	-			
-						1,514	12,500	0.0	0.4	-			
						1,430	12,600	0.0	0.2	-			

WELL / BORING ID: OU2-DPT-04			,,	Page 2 of 2
Project number:       2016-004       Driller Contractor:       Tidewater Inc.         Contract Number:       W912DR-13-D-0016       Driller:       Devin Murdock         Date Logged:       10/25/18       Drilling Equpment:       Geoprobe 7822DT       Stress         Total Depth:       30' bgs       Drilling Method:       Direct Push       Top o         Geologist/Logger:       Andrew Fleming, G.I.T.       Boring Diameter:       4.5 inch         Reviewed by:       John Wyckoff, P.G.       Sampler Type:       Continuous Core         PID/FID Equipment:       MiniRAE/Photovac MicroFID       Gamma Scan Equip.:       Ludlum       2221/Ludlum       44-	urface I f Case I Backfill Well 20	Nor Ea Eleva Eleva Il Me	thing: 13 asting: 94 ation: 28 ation: N/ ethod: Be called: Type: N/	9915.508 8409.529 .92 ft amsl A ft amsl ntonite Yes <u>/ No</u> A
Depth (feet bgs)     SS     Sample Description     Sample ID (feet bgs)     Radiological Readings       (feet bgs)     SS     Sample Description     Sample ID (Time     Sample ID (feet bgs)     (feet bgs)	PID Reading (ppm)	Depth (feet bgs)	Well / Boring Completion	Comments
SP Poorly Graded SAND, very dark gray (10YR 3/1), fine grained, loose, dry to moist, no odor, oxidized metal fragments, broken glass, coal, ash, slag	0.0			
(Incinerator Residue), shells, wood, tar and nails     0U2-1-     1,129     11,900     0.3              0.3	24	-		
(WASTERILL) 1,104 11,900 11 (CHEM) 1,104 11,900 11	8.7	-		
1,179 11,700 1.6	0.5	-		
- 25.0 - 1,227 12,000 1.7 CH CLAY with fine to medium gravel, little fine sand, 270 13,600 1.2	0.6	25 <b>-</b>		
reddish brown (5YR 4/3), medium to high plasticity, firm, moist, no odor or staining (HOLOCENE BEACH AND MARSH DEPOSITS) 897 12,500 21	0.2			Bentonite Chips
CL Silty CLAY, little sand, black (5YR 2.5/1), medium plasticity, firm, moist, slight methane odor, no staining 934 13 300 300	0.2			
OU2-1-       OU2-1-         30       CL         Sandy CLAY, fine sand, little fine gravel, reddish         brown (SYR 4/3), fine grained, medium plasticity,         firm, moist, no odor or staining         (PLEISTOCENE GLACIAL OUTWASH)         Saturated at 29.5' bgs	4 0.2	30 — 1		
Total Depth= 30 feet bgs				
		-		
		- 35 -		
		-		
		-		
		-		

7	Image: Tipewater Inc.       Image: Tipewater Inc.       Northing: 139694.108         Project number: 2016-004       Priller Contractor: Tidewater Inc.       Northing: 139694.108											
Pro Contr Geole PID/FII	ject nı ract Nı Date L Total ogist/I Review D Equij	imbe imbe oggei Depti ogge ied b omen	r: 2016-004 Driller Contract r: W912DR-13-D-0016 Dri d: 10/26/18 Drilling Equpm h: 35' bgs Drilling Meti r: Andrew Fleming, G.I.T. Boring Diame y: John Wyckoff, P.G. Sampler T t: MiniRAE/Photovac MicroFID Gamma Scan Equ	tor: iller: ent: hod: eter: ype: uip.:	Tidewater In Devin Murdo Geoprobe 78 Direct Push 4.5 inch Continuous ( Ludlum 222)	c. ick i22DT Core 1/Ludlum	T 9 44-2 ani	Su Top of B d 44-2	rface Case Gackfil Well	Nor Ea Elev Elev Il Me I Inst	thing: 13 isting: 94 ation: 29 ation: N/ ethod: Be called: Type: N/	9694.108 8604.750 .87 ft amsl /A ft amsl .ntonite Yes _YNo /A
Depth (feet bgs)	Lithology	NSCS	Sample Description	Sample Intervals	Sample ID /Time	Radiologica Downhole Units (cpm)	al Readings Core Duits (cbm)	Methane (ppm)	PID Reading (ppm)	Depth (feet bgs)	Well / Boring Completion	Comments
		SM	Silty SAND, fine grained, yellowish red (5YR 4/6), loose, dry to moist, no odor or staining, glass fragments, organic material present (roots/wood) (WASTE FILL)	X	OU2-1- SS005/1145 OU2-1- SU005-01/	937 1.386	12,600	0.8	0.2	-		OU2-1-SS 005 OU2-1-SS 005 -DUP 102318 @1145
- 2.5 - 		ML	SILT, dark yellowish brown (10YR 4/6), loose, asphalt/hydrocarbon odor, no staining, coal, ash slag, glass, wood, porcelain, asphalt and concrete		0920 (RAD)	1,297	12,400	7.9	4.1	-		Core Recovery: 0-5': 80%
  - 5.0 -			present (WASTE FILL)		012.1	1,094	12,400	1.7	0.8			5-10': 50%
					SU005-05/ 0930 (CHEM)	1,023 <mark>8</mark> 56	12,300 12,200	0.0 2.9	6.8 4.2	-		<ul> <li>Hydrated Bentonite Chips</li> </ul>
- 7.5 - 						807	12,300	17	5.8	-		
 - 10 -		GM	Silty GRAVEL with sand, odor, gray to black			847 998	12,400 12,500	17 12	3.6 3.1			10'-15': 20%
						1,113	12,600	11	2.2	-		
 - 12.5 - 						1,205 1,265	12,800	0.2	4.9 16	-		
				$\boxtimes$	OU2-1- SU005-14/	1,353	12,900	3.6	4.2	-		
- 15 - 			Moist, glass and wood present at 15 feet bgs		1100 (RAD)	1,508 1,263	12,300 12,300	0.0	1.6 21	15 -		15'-20': 10%
				$\boxtimes$	OU2-1- SU005-16/ 1110 (CHEM)	1,226	12,300	0.0	13	-		
			Bone, glass, wood, and porcelain present at 17.5 feet bgs			1,297 1,200	12,300 12,300	0.0 0.0	3.4 2.8	-		
						1,258	12,300	0.0	6.0	-		

7	Ţ	IDE		)N 30	RING ID:	Cills Pa OU2-	irk, St ·DPT-(	ater )5	i Isla	ano	1, NY	Page <u>2</u> of <u>3</u>
Pro Cont Geol PID/FII	ject nı ract Nı Date L Total ogist/I Review D Equij	umbe umbe ogge Depti .ogge ved b omen	r: 2016-004 Driller Contract r: W912DR-13-D-0016 Drilling Equpme d: 10/26/18 Drilling Meth r: Andrew Fleming, G.I.T. Boring Diamet y: John Wyckoff, P.G. Sampler Ty t: MiniRAE/Photovac MicroFID Gamma Scan Equ	or: ler: ent: od: ter: pe: ip.:	Tidewater In Devin Murdo Geoprobe 78 Direct Push 4.5 inch Continuous ( Ludlum 222)	c. ock 322DT Core 1/Ludlum	1 1 44-2 an	Sur op of B d 44-2	rface Case ackfil Well	Nor Ea Elev Elev I Me	thing: 13 Isting: 94 ation: 29 ation: N/ ethod: Be called: Type: N/	9694.108 8604.750 9.87 <b>ft amsl</b> /A <b>ft amsl</b> entonite Yes _YNo /A
Depth (feet bgs)	Lithology	NSCS	Sample Description	Sample Intervals	Sample ID /Time	Radiologic Downhole Units (cpm)	al Readings Core (cbm) Units (cbm)	Methane (ppm)	PID Reading (ppm)	Depth (feet bgs)	Well / Boring Completion	Comments
		ML	SILT, yellowish brown (10YR 4/6), firm, saturated, no odor or staining, broken glass, coal present (WASTE FILL)			1,477	11,700	0.0	2.0	-		Core Recovery: 20'-25': 60%
 _ 22.5_						1,759	11,600	158	0.7	-		
	· · · · · · · · · · · · · · · · · · ·	SP	Poorly Graded SAND, fine to medium grained, loose, saturated, no odor or staining			1,819	11,500	9.2	0.6	-		
	· · · · · · · · · · · · · · · · · · ·		(SEDIMENT FILL)			1,722	12,200	1,144	0.2	-		25' 20': 80%
		ML	SILT, black (10YR 2/1), firm, saturated, no odor or staining, coal, slag, ash (Incinerator Residue), glass, porcelain, and wood present			1,521	12,100	118	0.3	- <sub>בב</sub>		<ul> <li>Hydrated</li> <li>Bentonite Chips</li> </ul>
			(WASTE FILL)				12,100	120	0.2	-		
							12,100	155	0.2	-		
							12,100	644	0.2	-		
_ <sup>30</sup> _							12,800	126	0.2	30 <b>-</b>		30'-35': 75%
$\begin{bmatrix} \\ \end{bmatrix}$							12,800	121	0.1	-		NOTE: Refusal
_ 32.5_ 		SM	Silty SAND, saturated, debris present.				12,300	115	0.2	-		encountered at 35 feet bgs. Four
							12,200	110	0.1	-		attempts were made at offset locations to
							12,300	105	0.1	35 -		collect a continuous core to bottom of waste fill. Boring log completed using geologic
- 37.5  		ML	Clayey SILT, dark greenish gray (5G 4/1) to black silt grading to gray clay (N5) (HOLOCENE BEACH AND MARSH DEPOSITS)							-   -   -   -		data from boring OU2-MW8-I, which was drilled to 57 feet bgs using hollow-stem augers.

7	Ţ	IDE		OCATION VELL / BC	א: כו	: Great K <b>RING ID:</b>	ills Pa OU2-	rk, Sta DPT-0	aten 15	ı Isla	anc	I <i>,</i> NY	Page <u>3</u> of <u>3</u>
Pro Contr Geole I PID/FII	ject ni ract Ni Date L Total ogist/I Reviev D Equi	umbe umbe ogge Dept ogge ved b pmen	r: 2016-004 Drille r: W912DR-13-D-0016 d: 10/26/18 Drillin h: 35' bgs Dri r: Andrew Fleming, G.I.T. Bor y: John Wyckoff, P.G. S t: MiniRAE/Photovac MicroFID Gamma	r Contractor: Driller ng Equpment Illing Method ing Diameter Sampler Type a Scan Equip.	:	Tidewater Inc Devin Murdo Geoprobe 78 Direct Push 4.5 inches Continuous C Ludlum 2221	c. ck 22DT Core L/Ludlum	T 44-2 and	Sur op of B	rface Case ackfil Well	Nori Ea Elev Elev I Me	thing: 13 sting: 94 ation: 29 ation: N/ thod: Be alled: Type: N/	9694.108 8604.750 .87 ft amsl A ft amsl ntonite Yes _ No A
Depth (feet bgs)	Lithology	USCS	Sample Description	Sample Intervals		Sample ID /Time	Bownhole Downhole Units (cpm)	nl Readings Core Com Units (chm)	Methane (ppm)	PID Reading (ppm)	Depth (feet bgs)	Well / Boring Completion	Comments
- - 42.5		ML SM GP SP	SILT, gray to black (HOLOCENE BEACH AND MARSH DEPOSI Silty SAND, fine to medium grained with Poorly Graded GRAVEL with Sand, reddis fine gravel (PLEISTOCENE GLACIAL OUTWASH) Poorly Graded SAND with Gravel, reddish Well Graded SAND, grayish red (10R 4/2)	TS) mica h brown,				19.2К 19.8К 19.5К		1.0 0.0 0.1			Core Recovery: 40'-57': 100% NOTE: Refusal encountered at 35 feet bgs. Four attempts were made at offset locations to collect a continuous core to bottom of waste fill. Boring
- 57.5			Total Depth of OU2-MW8-I = 57 feet bgs										log completed using geologic data from boring OU2-MW8-I, which was drilled to 57 feet bgs using hollow-stem augers.

7	TIDEWATER INC A=COM       LOCATION: Great Kills Park, Staten Island, NY         WELL / BORING ID: OU2-DPT-06       Page 1 of 2         Desired number 2016 001       Define Contractor Tidewateries											
Pro Contr Geole PID/FII	ject nı ract Nı Date L Total ogist/I Review D Equij	umbe ogge Dept ogge ved b	r: 2016-004 Driller Contract r: W912DR-13-D-0016 Drilling Equpme d: 10/26/18 Drilling Meth r: Andrew Fleming, G.I.T. Boring Diame y: John Wyckoff, P.G. Sampler Ty t: MiniRAE/Photovac MicroFID Gamma Scan Equ	or: ler: ent: od: ter: pe: ip.:	Tidewater In Devin Murdo Geoprobe 78 Direct Push 4.5 inch Continuous ( Ludlum 222	c. ock 322DT Core 1/Ludlum	ז 1 44-2 an	Su Top of B d 44-2	rface Case Backfil Well	Nor Ea Elev Elev I Me	thing: 13 asting: 94 ation: 18 ation: N/ ethod: Be called: Type: N/	9733.224 9624.527 48 ft amsl A ft amsl entonite Yes <u>Y</u> No
Depth (feet bgs)	Lithology	nscs	Sample Description	Sample Intervals	Sample ID /Time	Downhole Downhole Units (cpm)	al Readings Core (Dutts (cbm)	Methane (ppm)	PID Reading (ppm)	Depth (feet bgs)	Well / Boring Completion	Comments
		ML	SILT, very dark brown (7.5YR 2.5/2), soft, dry to moist, no odor or staining, roots, glass, and wood present	X	OU2-1- SS006/ 0950	1,475	9,000	0.0	0.0			OU2-1-SS006 (MS/MSD) 102418 @ 0950
 - 2.5 -			Color change to strong brown (7.5YR 5/6) at 1' bgs, coal, ash, slag (Incinerator Residue) from 1 to			1,317	12,700	0.0	0.0	-		Core Recovery: 0-5': 75%
			20 feet bgs, wood and glass throughout.		OU2-1-	1,300	12,600	0.0	0.0	-		
- 5.0 - 				X	SU006-05/ 1455 (CHEM)	1,248	12,300	0.0	0.0	5.0-		5-10': 40%
 						1,115	12,300	0.0	0.0	-		
						754	12,500	0.0	0.0	-		Bentonite Chips
- 10 -			Moist, color change to black (7.5YR 2.5/1) at 10' bgs	$\bowtie$	OU2-1- SU006-10/	683	12,800	0.0	0.0			10'-15': 20%
					1445 (RAD)	937	12,800	33	0.3	-		
- 12.5- 				$\bowtie$	OU2-1- SU006-13/	911	12,500	0.0	0.2	-		
 - <u>15</u> -					OU2-1- SU006-14/ 1540	713	12,500	0.0	1.6	- 15-		15'-20': Not
-⊻- - 			Saturated, asphalt odor at 15.5' bgs		(CHEM)	900	12,600	0.0	0.4	-		Recorded
 - 17.5 -						1,309	12,300	0.0	0.2	-		
						1,365	12,400	0.0	0.2	-		
						1,290	12,300	0.0	<mark>0.3</mark>			

7	TIDEWATER INC AECON       LOCATION: Great Kills Park, Staten Island, NY         WELL / BORING ID: OU2-DPT-06       Page 2 of 2         Project number: 2016 004       Driller Contractor: Tidewater Inc.											
Pro Cont Geol PID/FI	ject nı ract Nı Date L Total ogist/L Review D Equij	imbe ogge Dept ogge ied b	r: 2016-004 Driller Contract r: W912DR-13-D-0016 Drilling Equpme d: 10/26/18 Drilling Equpme r: Andrew Fleming, G.I.T. Boring Diamet y: John Wyckoff, P.G. Sampler Ty t: MiniRAE/Photovac MicroFID Gamma Scan Equ	or: ler: od: ter: pe: ip.:	Tidewater Ind Devin Murdo Geoprobe 78 Direct Push 4.5 inch Continuous C Ludlum 2222	c. ick 22DT Core 1/Ludlum	ן 1 44-2 an	Su Top of B d 44-2	rface Case Gackfil Well	Nor Ea Elev Elev I Me Inst	thing: 13 asting: 94 ation: 18 ation: N/ ethod: Be called: Type: N/	9773.224 9624.527 .48 ft amsl A ft amsl ntonite Yes <u>/ No</u> A
Depth (feet bgs)	Lithology	nscs	Sample Description	Sample Intervals	Sample ID /Time	Radiologic Downhole Units (cpm)	al Readings Core (muts (cbm) Core	Methane (ppm)	PID Reading (ppm)	Depth (feet bgs)	Well / Boring Completion	Comments
		ML	SILT, black (7.5YR 2.5/1), soft, saturated, no odor or staining, roots, glass, and wood present (WASTE FILL)			1,442	12,200	122	0.7	-		
 _ 22.5_						1,620	12,000	660	1.6	-		
		CL	Silty CLAY, very dark brown (7.5YR 2.5/1), medium plasticity, firm, saturated, no odor or staining,			1,467 1,081	12,100	1,310 212	1.4 0.3	-		<ul> <li>Hydrated</li> <li>Bentonite Chips</li> </ul>
 - 25.0-		_	(HOLOCENE BEACH AND MARSH DEPOSITS)			463	12,300	31	0.2			
			Total Depth = 25 feet bgs							30		

7	Ţ	IDE		DN BO	: Great k RING ID:	(ills Pa : OU2-	rk, Sta DPT-0	ater )7	ı Isla	anc	1, NY	Page <u>1</u> of <u>1</u>	
Pro Contr Geole I PID/FII	ject nu ract Nu Date L Total ogist/L Review D Equip	imbe oggeo Depti ogge ogge ved b	r: 2016-004 Driller Contract r: W912DR-13-D-0016 Dri d: 10/29/18 Drilling Equpm n: 20 feet bgs Drilling Meth r: Andrew Fleming, G.I.T. Boring Diame y: John Wyckoff, P.G. Sampler To t: MiniRAE/Photovac MicroFID Gamma Scan Equ	tor: ller: ent: iod: ter: /pe: ip.:	Tidewater In Devin Murdo Geoprobe 78 Direct Push 4.5 inch Continuous ( Ludlum 222)	c. ock 322DT Core 1/Ludlum	T 1 44-2 ani	Sur Top of B d 44-2	rface Case ackfil Well 0	Nor Ea Elev Elev I Me Inst	thing: 13 Isting: 94 ation: 15 ation: N/ ethod: Be called: Type: N/	8417.285 8534.597 .60 <b>ft amsl</b> 'A <b>ft amsl</b> .ntonite <b>Yes _<sup>_/_</sup>No</b> 'A	
Depth (feet bgs)	Lithology	SOSU	Sample Description	Sample Intervals	Sample ID /Time	Radiologic Downhole Units (cpm)	al Readings Come aroy	Methane (ppm)	PID Reading (ppm)	Depth (feet bgs)	Well / Boring Completion	Comments	
		SM	Silty SAND, fine to coarse grained, trace gravel, dark brown (7.5YR 3/2), moist, no odor or staining, organic material present (SEDIMENT FILL)	$\boxtimes$	OU2-1- SS007/ 1045	717	13,300	0.2	0.1	-		OU2-1- SS007 102318@ 1045	
 - 2.5 -		ML	Sandy SILT with clay, brown (7.5YR 4/4), moist, no			1,094	12,800	0.1	1.3	-		Core Recovery: 0-5': 75%	
			odor or staining, broken glass, porcelain, slag, wood, and metal present (WASTE FILL)			1,477	14,100	0.3	0.3	-			
- 5.0 -						1,613	13,700	0.2	0.2	5.0—		5-10': 60%	
				$\times$	0U2-1- SU007-08/		1,680 1,654	13,900 13,600	14 24	0.2	-		<ul> <li>Hydrated</li> <li>Bentonite Chips</li> </ul>
- 7.5 -						2,258	15,800	5.8	0.5				
			Black (7.5YR 2.5/1) stain present at 8' bgs		OU2-1- SU007-08/ 1245 (RAD)	2,175	15,100	5.5	1.2	-			
			Saturated at 10' bgs	$\boxtimes$	OU2-1- SU007-10/	2,199	14,500	2.4	6.3	10-		10'-15': 30%	
					1255 (CHEM)	2,469	14,100	3.8	0.2	-			
 - 12.5-						4,492	13,600	23	1.7	-			
						4,141	16,200	270	1.8				
 - 15 -						4,203	15,200	103	1.6			15'-20': 50%	
				-		3 <mark>,</mark> 501	13,700	379	27	-			
- 17.5-		СН	CLAY, very dark gray (10YR 3/1), medium/high plasticity, saturated, firm, slight odor, no staining (HOLOCENE BEACH AND MARSH DEPOSITS)			2,807	13,900	381	28	-			
			· · · · · · · · · · · · · · · · · · ·			1,497	14,200	122	2.1	-			
			Total Depth = 20 feet bgs			1,329	13,300	161	1.7				

7	Ţ	IDE		DN BO	: Great k RING ID:	(ills Pa : OU2-	rk, St DPT-0	ater )8	n Isla	anc	l, NY	Page 1 of 1
Pro Contr Geolo I PID/FIE	ject nu ract Nu Date L Total ogist/L Review D Equij	umbe ogge Dept ogge ved b	r: 2016-004 Driller Contract r: W912DR-13-D-0016 Dri d: 10/26/18 Drilling Equpro h: 10' bgs Drilling Meth r: Andrew Fleming, G.I.T. Boring Diame y: John Wyckoff, P.G. Sampler Ty t: MiniRAE/Photovac MicroFID Gamma Scan Equ	tor: ller: ent: iod: ter: /pe: iip.:	Tidewater In Devin Murdo Geoprobe 78 Direct Push 4.5 inch Continuous 0 Ludlum 222	c. ock 322DT Core 1/Ludlum	T 1 44-2 ani	Su Top of B d 44-2	rface Case ackfil Well 0	Nor Ea Elev Elev	thing: 13 asting: 95 ation: 6.4 ation: N/ ethod: Be called: Type: N/	9784.423 0793.107 14 ft amsl (A ft amsl Intonite Yes _YNo (A
Depth (feet bgs)	Lithology	nscs	Sample Description	Sample Intervals	Sample ID /Time	Badiologic Downhole Units (cpm)	al Readings Core (cbm) Core	Methane (ppm)	PID Reading (ppm)	Depth (feet bgs)	Well / Boring Completion	Comments
		CL	Silty CLAY, very dark brown (10YR 2/2), low plasticity, soft, moist, no odor or staining, organic material present (roots and plant debris) (SEDIMENT FILL)	X	OU2-1- SS008/ 1130 OU2-1-	564 676	12000 12300	0.0	0.1 0.0			OU2-1-SS008 102418 @ 1130
- 2.5 -		мі	Color change to brown (10YR 4/3) at 1' bgs		1645 (CHEM) OU2-1-	727	12300	26	0.1	-		
  - 5.0 -			saturated, no odor or staining, broken glass, wood, and porcelain present (WASTE FILL) Color change to black (10YR 3/4) at 5' bgs		SU008-03/ 1635 (RAD)	694 799	12000 12300	8.1 0.2	0.1	 5.0		
  - 7.5 -		́sм	Silty SAND, very dark grayish brown (10YR 3/2), very fine to fine grained, firm, saturated, no odor or staining			844 820 890	12200 12200 12600	32 121 59	0.3 0.3 0.1			<ul> <li>Hydrated Bentonite Chips</li> </ul>
		CL	CLAY, dark grayish brown (10YR 4/2), firm, saturated, no odor or staining, organic material present (marsh grass fibers)			868 662	12400 12400	278 40	0.1			
			Total Depth = 10 feet bgs									

-	7	IDI		DN BO	: Great K RING ID:	(ills Pa : OU2-	irk, Sta MW8	ater -I	ı İsl	anc	1, NY	Page <u>1</u> of <u>3</u>
Pro Contr Geole I PID/FII	ject nu ract Nu Date L Total ogist/I Review D Equij	umbe ogge Dept ogge ogge ved b	r: 2016-004 Driller Contract r: W912DR-13-D-0016 Dri d: 10/22/18 Drilling Equpment f: 57 feet bgs Drilling Meth r: John Wyckoff, P.G. Boring Diame y: Donald Dressler, P.G. Sampler Ty t: MiniRAE/Photovac MicroFID Gamma Scan Equ	or: ent: od: ter: pe: ip.:	Tidewater Ind Devin Murdo Geoprobe 78 Direct Push 8.5 inches Continuous C Ludlum 222	c. ock 322DT Core 1/Ludlum	T 1 44-2 and	Su op of B	rface Case ackfi Wel 0	Nor Ea Elev Elev II Me	thing: 13 asting: 94 ation: 29 ation: 32 ethod: Se called: Type: N/	9691.369 8598.575 9.96 ft amsl 67 ft amsl e Comments <u>ÝYes</u> <u>No</u> A
				/als		Radiologic	al Readings	÷	(mq	s)	ing on	
Depth (feet bgs)	Lithology	nscs	Sample Description	Sample Interv	Sample ID /Time	Downhole Units (cpm)	Core Units (cpm)	Methane (ppm	PID Reading (F	Depth (feet bg	Well / Bor Completi	Comments
		SM	Silty SAND, trace gravel, light brown (5YR 5/6), broken brick, and debris (WASTE FILL)									Core Recovery: 0'-5': 100%
		SP	Poorly Graded SAND, grayish brown (5YR 3/2), coal, glass, and wood debris present							5.0	-	5'-7.5': 75% 2-Inch SCH. 40, blank PVC 7.5'-10': 25%
		GΜ	Silty GRAVEL with sand, odor, gray to black	-								10'-15': 50%
			Moist, glass and wood present at 15 feet bgs Bone, glass, wood, and porcelain present at 17.5 feet bgs									15'-20': 60%

				201	· Creat K	(:11a Da		-				
-	1	ID		אוכ BO	RING ID:	inis Pa OU2-	irk, Sta MW8	ater -l	i ISlâ	anc	<b>Ι, ΙΝΥ</b>	Page 2 of 3
Pro Contr Geole	ject nı ract Nı Date L Total ogist/l Review D Equij	imbe imbe ogge Dept ogge iogge ved b	r: 2016-004 Driller Contract r: W912DR-13-D-0016 Dril d: 10/22/18 Drilling Equpme h: 57' bgs Drilling Meth r: John Wyckoff, P.G. Boring Diame y: Donald Dressler, P.G. Sampler Ty t: MiniRAE/Photovac MicroFID Gamma Scan Equ	or: ler: ent: od: ter: pe: ip.:	Tidewater Inc Devin Murdo Geoprobe 78 Direct Push 8.5 inches Continuous C Ludlum 222:	c. ock 322DT Core 1/Ludlum	T 1 44-2 and	Su op of B	rface Case Backfil Well	Nor Ea Elev Elev I Me	thing: 1: asting: 94 ation: 29 ation: 29 ation: 33 ethod: 35 ethod: 56 called: Type: N	1 4gc 01 39691.369 48598.575 9.96 ft amsl 2.67 ft amsl ee Comments YesNo /A
Depth (feet bgs)	Lithology	USCS	Sample Description	Sample Intervals	Sample ID /Time	Downhole Units (cpm)	al Readings Core Units (cbm)	Methane (ppm)	PID Reading (ppm)	Depth (feet bgs)	Well / Boring Completion	Comments
		SP	Poorly Graded SAND with Gravel, saturated, odor, no staining, concrete, glass, wood, and coal fragments present (WASTE FILL)							-		Core Recovery: 20'-25': 60%
- 22.5 -  		SP	Poorly Graded SAND, fine to medium grained, loose, saturated, no odor or staining (SEDIMENT FILL)									<ul> <li>←Bentonite</li> <li>Grout</li> </ul>
- 23.0		ML	SILT, black (10YR 2/1), firm, saturated, no odor or staining, coal, slag, ash (Incinerator Residue), glass, porcelain, and wood present (WASTE FILL)							25 — — — — — 30 —		25'-30': 80% 2-Inch SCH. 40, blank PVC 30'-34': 100%
		SM	Silty SAND, saturated, debris present	-								34'-40': 10%
- 35		ML	Clayey SILT, dark greenish gray (5G 4/1) to black silt grading to gray clay (N5) (HOLOCENE BEACH AND MARSH DEPOSITS)	-						35		

					• Great K	(ills Pa	ark Sta	ater		and		
7	1	'IDI		BO	RING ID:	: OU2-	-MW8	-l	1 1310		,	Page <u>3</u> of <u>3</u>
Pro Contr Geole I PID/FII	ject nu ract Nu Date L Total ogist/L Review D Equij	umbe ogge Dept ogge ved b	r: 2016-004 Driller Contract r: W912DR-13-D-0016 Dri d: 10/22/18 Drilling Equpm h: 57' bgs Drilling Meth r: John Wyckoff, P.G. Boring Diame y: Donald Dressler, P.G. Sampler Tr t: MiniRAE/Photovac MicroFID Gamma Scan Equ	tor: ller: ent: nod: ter: ype: uip.:	Tidewater Ind Devin Murdo Geoprobe 78 Direct Push 8.5 inches Continuous C Ludlum 222	c. ock 22DT Core 1/Ludlum	T n 44-2 and	Su op of B	rface Case ackfil Well	Nort Ea Eleva Eleva Il Me	thing: 13 sting: 94 ation: 29 ation: 32 thod: 32 thod: Se alled: Type: N	99691.369 18598.575 9.96 <b>ft amsl</b> 2.67 <b>ft amsl</b> ee Comments <u>'Yes No</u> /A
Depth (feet bgs)	Lithology	NSCS	Sample Description	Sample Intervals	Sample ID /Time	Downhole Units (cpm) Units (cpm)	Core Core Units (cpm)	Methane (ppm)	PID Reading (ppm)	Depth (feet bgs)	Well / Boring Completion	Comments
		ML SM GP SP	SILT, gray to black (HOLOCENE BEACH AND MARSH DEPOSITS) Silty SAND, fine to medium grained with mica Poorly Graded GRAVEL with Sand, reddish brown, fine gravel (PLEISTOCENE GLACIAL OUTWASH) Poorly Graded SAND with Gravel, reddish brown Well Graded SAND, grayish red (10R 4/2)					2				Core Recovery: 40'-45': 100% Bentonite Grout 45'-50': 100% #0 SAND (Pre-Packed Screen) 50'-55': 100% -2-inch, SCH. 40 PVC, 0.010-inch Slotted Screen 55'-57': 100%
- 57.5 -    - 60 -			Total Depth = 57 feet bgs									

-	1	IDI				Great k	Kills Pa	rk, Sta	ater	ı Isla -	and	d, NY	
Pro Contr Geole I PID/FII	ject nı ract Nı Date L Total ogist/I Reviev D Equij	umbe umbe ogge Dept ogge ved b omen	er: 2016-004 er: W912DR-13-D-0016 d: 10/22/18 h: 26 feet bgs er: John Wyckoff, P.G. y: Donald Dressler, P.G. ht: MiniRAE/Photovac MicroFID	Driller Contract Dril Drilling Equpme Drilling Meth Boring Diamet Sampler Ty Gamma Scan Equ	or: ler: ent: od: ter: pe: ip.:	Tidewater In Devin Murdo Geoprobe 78 Direct Push 4.5 inch Continuous 0 Ludlum 222	c. ock 322DT Core 1/Ludlum	T 144-2 and	Su op of B	rface Case ackfil Well	Nor Ea Elev Elev Il Me	thing: 13 asting: 94 ation: 29 ation: 32 ethod: Se talled: Type: N/	Page <u>1</u> of <u>2</u> 99687.602 99597.212 9.93 ft amsl 9.68 ft amsl 9.68 ft amsl 9.68 ft amsl 9.68 ft amsl 9.74 ft amsl 9.74 ft amsl 9.74 ft amsl 9.75 ft
Depth (feet bgs)	Lithology	nscs	Sample Descriptio	n	Sample Intervals	Sample ID /Time	Radiologic: Downhole Units (cpm)	al Readings Core (units (cpm)	Methane (ppm)	PID Reading (ppm)	Depth (feet bgs)	Well / Boring Completion	Comments
		SM	Silty SAND, trace gravel, light brow broken brick, debris (WASTE FILL)	vn (5YR 5/6),									Core Recovery: 0'-5': 100%
5.0 - - 5.0 -         		SP	Poorly Graded SAND, grayish brov coal, glass, wood debris present	vn (5YR 3/2),									Grout 5'-7.5': 75% — 2-Inch SCH. 40, blank PVC 7.5'-10': 25%
- 10 -   - 12.5 -  		GМ	Silty GRAVEL with sand, odor, gra	y to black							10 — — — — — — —		10'-15': 50%
- 15 - - 15 -   			Moist, glass and wood present at Bone, glass, wood, and porcelain	15 feet bgs present at 17.5							15 — — — —		Screen) 15'-20': 60%
			feet bgs								-		–2-inch, SCH. 40 PVC, 0.010-inch Slotted Screen

-	7	IDI		DN BO	: Great K	ills Pa	irk, Sta	ater	ı Isla	and	I, NY	Dana 2 of 2
Pro Contr Geole PID/FII	ject nı ract Nı Date L Total ogist/L Review D Equip	umbe umbe ogge Dept .ogge ved b	r: 2016-004 Driller Contract r: W912DR-13-D-0016 Drilling Equpted d: 10/22/18 Drilling Meth r: John Wyckoff, P.G. Boring Diame y: Donald Dressler, P.G Sampler Ty t: MiniRAE/Photovac MicroFID Gamma Scan Equ	or: ler: ent: od: ter: pe: ip.:	Tidewater Inc Devin Murdo Geoprobe 78 Direct Push 4.5 inch Continuous C Ludlum 2221	c. ck 22DT Core L/Ludlum	T 144-2 and	Su op of B	rface Case ackfil Well	Nor Ea Eleva Eleva I Me	thing: 13 Isting: 94 Istion: 29 Istion: 32 Isthod: 32 Isthod: Se Isthod: N/	Page <u>2</u> of <u>2</u> 9687.602 8597.212 .93 ft amsl .68 ft amsl e Comments <u>Yes</u> No A
Depth (feet bgs)	Lithology	USCS	Sample Description	Sample Intervals	Sample ID /Time	Downhole Units (cpm)	al Readings Core Units (cbm)	Methane (ppm)	PID Reading (ppm)	Depth (feet bgs)	Well / Boring Completion	Comments
		SP	Poorly graded SAND with Gravel, saturated, odor, no staining, concrete, glass, wood, and coal fragments present (WASTE FILL) Poorly graded SAND, fine to medium grained, loose, saturated, no odor or staining (SEDIMENT FILL) SILT, black (10YR 2/1), firm, saturated, no odor or staining, coal, slag, ash (Incinerator Residue), glass, porcelain, and wood present (WASTE FILL) Total Depth = 26 feet bgs									Core Recovery: 20'-25': 60% #0 SAND (Pre-Packed Screen) / 2-inch, SCH 40 PVC, 0.010-inch Slotted Screen >25': 0%

-	T	ID			I: Great k	(ills Pa	ark, Sta	ater	ı Isl	and	d, NY	
Pro Contr Geol PID/FII	ject nu ract Nu Date L Total ogist/L Review D Equip	imbe ogge ogge Dept ogge ved b	r: 2016-004 Driller Contrac r: W912DR-13-D-0016 Dr d: 10/23/18 Drilling Equpm h: 16 feet bgs Drilling Met r: John Wyckoff, P.G. Boring Diame y: Donald Dressler, P.G. Sampler T t: MiniRAE/Photovac MicroFID Gamma Scan Eq	tor: iller: ent: hod: eter: ype: uip.:	Tidewater In Devin Murdo Geoprobe 78 Direct Push 4.5 inch Continuous ( Ludlum 222	c. ock 322DT Core 1/Ludlum	- IVI VV - S T n 44-2 and	Su op of B	rface Case ackfi Wel	Nor Ea Elev Elev Il Me	thing: 13 asting: 94 vation: 15 vation: 17 ethod: Se talled: Type: N/	Page <u>1</u> of <u>1</u> 7857.154 .9279.762 .30 ft amsl 299 ft amsl e Comments <u>✓ YesNo</u> ⁄A
Depth (feet bgs)	Lithology	SOSU	Sample Description	Sample Intervals	Sample ID /Time	Radiologic Downhole Units (cpm)	al Readings Core Core Units (cbm)	Methane (ppm)	PID Reading (ppm)	Depth (feet bgs)	Well / Boring Completion	Comments
- 2.5 - - 2.5 - - 2.5 -  		SP SW	Poorly Graded SAND with Gravel, light brown (5YR 5/6), coarse grained sand, fine gravel (SEDIMENT FILL) Well Graded SAND, pale reddish brown (10R 5/4) to moderate reddish brown (10R 4/6), fine to coarse grained Saturated at 9 feet bgs Moderate reddish brown (10R 4/6) to pale red (10R 6/2) at 12 feet bgs SILT with clay, dark gray to black (HOLOCENE BEACH AND MARSH DEPOSITS) Total Depth = 16 feet bgs									Core Recovery: 0'-5': 100% - Bentonite Grout - #0 SAND (Pre-Packed Screen) 5'-7.5': 75% - 2-Inch SCH. 40, blank PVC 7.5'-10': 25% - 2-inch dia.,SCH 40, 0.010-Inch Slotted PVC 10'-15': 50% 15'-20': 60%
										-		

7	Ţ	IDE		DN BO	: Great K	(ills Pa	ark, St	ater	n Isla /T	anc	I, NY	Dece 1 of 1
Pro Contr Geold F PID/FIE	ject nu ract Nu Date L Total I ogist/L Review D Equip	imbe imbe ogge Dept ogge ved b	r: 2016-004 Driller Contract r: W912DR-13-D-0016 Dril d: 10/22/18 Drilling Equpted h: 13 feet bgs Drilling Meth r: John Wyckoff, P.G Boring Diame y: Donald Dressler, P.G. Sampler Ty t: MiniRAE/Photovac MicroFID Gamma Scan Equ	or: ler: ent: od: ter: pe: ip.:	Tidewater Ind Devin Murdo Geoprobe 78 Direct Push 4.5 inch Continuous C Ludlum 2221	c. .ck .22DT Core 1/Ludlum	T <b>VI VV</b> T 1 44-2 and	Su Top of E d 44-2	rface Case Jackfil Well	Nort Ea Eleva Eleva Il Me	thing: 13 sting: 94 ation: 13 ation: 16 thod: Se alled: Type: N/	Page <u>1</u> of <u>1</u> 8518.421 7601.889 .36 ft amsl .13 ft amsl e Comments <u>Yes No</u> A
Depth (feet bgs)	Lithology	USCS	Sample Description	Sample Intervals	Sample ID /Time	Downhole Downhole Units (cpm)	Core Core Units (cpm)	Methane (ppm)	PID Reading (ppm)	Depth (feet bgs)	Well / Boring Completion	Comments
  - 2.5 - 		GC	Clayey GRAVEL, some sand, yellowish brown (10YR 5/4) to black (SEDIMENT FILL)									Core Recovery: 0'-5': 90% Bentonite Grout 2-Inch SCH. 40, blank PVC
- 5.0 - - 5.0 -         		SM	Silty SAND, black (N1), moist, organic material, broken glass present (WASTE FILL) Saturated, porcelain present at 8 feet bgs									5'-10': 75% -#0 SAND (Pre-Packed Screen) - 2-inch dia.,SCH 40, 0.010-Inch Slotted PVC
  _ 12.5 _		SW	Well Graded SAND, brown to gray, moist (HOLOCENE BEACH AND MARSH DEPOSITS)									
			Total Depth = 13 feet bgs									

Appendix C: Gamma Scanning of Open Boreholes and Soil Cores

	Core	(cpm)	12000	12300	12300	12000	12300	12200	12200	12600	12400	12400	12,270	173	12,790																				
PT-08	Hole	(cpm)	564	676	727	694	799	844	820	890	868	662	754	100	1,056																				
	Depth (ft	bgs)	1	2	3	4	5	9	7	8	6	10	Mean (µ)	StDev (σ)	μ + 3(σ)																				
Γ	Core	(cpm)	13,300	12,800	13,800	14,100	1,370	13,900	13,600	15,800	15,100	14,500	14,100	13,600	14,000	16,200	15,200	13,700	13,900	15,500	14,200	13,300	13,599	2,937	22,408										
PT-07	Hole	(cpm)	717	1,094	1,328	1,477	1,613	1,680	1,654	2,258	2,175	2,199	2,469	3,280	4,492	4,141	4,203	3,501	2,807	1,637	1,497	1,329	2,278	1,082	5,523										
	Depth (ft	bgs)	1	2	ю	4	5	6	7	8	6	10	11	12	13	14	15	16	17	18	19	20	Mean (µ)	StDev (σ)	μ + 3(σ)										
Γ	Core	cpm)	000(6	2,700	2,400	2,600	2,300	2,200	2,300	2,600	2,500	2,800	3,300	2,800	2,500	2,800	2,500	2,600	2,400	2,300	2,400	2,300	2,200	2,000	2,100	2,200	2,300	2,324	731	4,518					
1-06	lole (	) (md	,475 5	,317 1	,253 1	,300 1	,248 1	,197 1	,115 1	394 1	754 1	583 1	978 1	937 1	911 1	757 1	713 1	900 1	,177 1	,309 1	,365 1	,290 1	,442 1	,620 1	,467 1	,081 1	163 1	,106 1	289	,973 1					
đ	epth (ft F	bgs) (c	1 1	2 1	3 1	4 1	5 1	6 1	7 1	8	6	10	11	12	13	14	15	16	17 1	18 1	19 1	20 1	21 1	22 1	23 1	24 1	25	Aean (µ) 1	tDev (a)	μ + 3(σ) 1					
Г	۵	ĥ	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	200	00 00	00	00	00	0	8	8
	Cor	(cpr	12,6	12,3	12,4	12,4	12,4	12,3	12,2	12,3	12,4	12,5	12,6	12,8	12,7	12,9	12,3	12,3	12,3	12,3	12,3	12,3	11,7	11,6	11,5	11,7	12,2	12,1	12,1	12,1	12,1	12,8	12,9	12,8	12,3
DPT-05	Hole	(cpm)	937	1,386	1,297	1,167	1,094	1,023	856	807	847	998	1,113	1,205	1,265	1,353	1,508	1,263	1,226	1,297	1,200	1,258	1,477	1,759	1,819	1,722	1,624	1,521		F	tec	onu	tsd(	) ə	ЮН
	Depth (ft	bgs)	1	2	с	4	S	9	7	8	6	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
Γ	Core	(cpm)	L1,900	12,200	12,300	12,300	L2,400	L2,600	L2,700	L2,900	L3,300	L3, 700	12,400	12,500	L2,400	12,600	L2,600	12,700	12,500	12,500	12,500	L2,600	L1,800	L1,900	11,900	L1,700	12,000	L2,600	12,500	L3,000	13,300	L3,200	12,517	462	13,902
PT-04	Hole	(cpm)	1,085	1,431	1,475	805	820	1,275	1,510	1,835	1,687	1,522	2,127	2,042	1,664	1,473	1,387	1,418	1,311	1,360	1,514	1,430	1,092	1,129	1,104	1,179	1,227	870	897	940	934	1,092	1,321	334	2,325
	Depth (ft	bgs)	1	2	ю	4	5	9	7	8	6	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Mean (μ)	StDev (a)	μ + 3(σ)
Г	ore	(mo	700	700	800	200	400	006	300	006	100	200	500	800	700	700	000	,327	066	525									_				L		
Ģ	ole C	om) (cl	11 12	336 12	062 13	50 13	82 11	34 12	188 13	521 13	063 13	570 13	137 15	98 15	25 12	63 12	33 13	125 13	61 1,	207 16															
DPT	H H	(cp	7.	1,(	1,(	80	õ	6	1,1	1,6	2,0	1,6	1,1	6	6	8	80	1,1	3	2,2															
	둔	Sa	Ξ	2	m	4	S	9	7	8	6	10	11	12	13	14	15	п) пе	ev (σ	3(a)															
	Depth	bgs	1	2	ŝ	4	5	9	7	80	6	10	11	12	13	14	15	Mean (µ	StDev (σ	μ + 3(σ)															
Γ	Core Depth	(cpm) bgs	12,500 1	12,700 2	12,500 3	12,400 4	12,200 5	12,400 6	12,300 7	12,700 8	12,700 9	12,700 10	12,510 11	<b>176</b> 12	<b>13,037</b> 13	14	15	Mean (µ	StDev (o	μ + 3(σ)															
DPT-02	Hole Core Depth	(cpm) (cpm) bgs	1,133 12,500 1	1,037 12,700 2	966 12,500 3	881 12,400 4	871 12,200 5	842 12,400 6	1,015 12,300 7	1,224 12,700 8	1,299 12,700 9	1,129 12,700 10	1,040 12,510 11	<b>147 176</b> 12	1,481 13,037 13	14	15	Mean (µ	StDev (o	μ + 3(σ)															
DPT-02	Depth (ft Hole Core Depth	bgs) (cpm) (cpm) bgs	1 1,133 12,500 1	2 1,037 12,700 2	3 966 12,500 3	4 881 12,400 4	5 871 12,200 5	6 842 12,400 6	7 1,015 12,300 7	8 1,224 12,700 8	9 1,299 12,700 9	10 1,129 12,700 10	Mean (μ) 1,040 12,510 11	StDev (o) 147 176 12	μ + 3(σ) 1,481 13,037 13	14	15	Mean (µ	StDev (0	μ + 3(σ)															
DPT-02	Core Depth (ft Hole Core Depth	(cpm) bgs) (cpm) (cpm) bgs	12,400 1 1,133 12,500 1	13,000 2 1,037 12,700 2	13,700 3 966 12,500 3	13,400 4 881 12,400 4	12,500 5 871 12,200 5	13,600 6 842 12,400 6	13,100 7 1,015 12,300 7	16,000 8 1,224 12,700 8	15,000 9 1,299 12,700 9	14,000 10 1,129 12,700 10	13,600 Mean (μ) 1,040 12,510 11	13,500 StDev (σ) 147 176 12	13,200 μ + 3(σ) 1,481 13,037 13	12,600	13,100 15	13,513 Mean (µ	913 StDev (σ	μ + 3(σ)															
1-01 DPT-02	Hole Core Depth (ft Hole Core Depth	cpm) (cpm) bgs) (cpm) (cpm) bgs	589 12,400 1 1,133 12,500 1	771 13,000 2 1,037 12,700 2	934 13,700 3 966 12,500 3	1,103 13,400 4 881 12,400 4	1,150 12,500 5 871 12,200 5	1,205 13,600 6 842 12,400 6	1,162 13,100 7 1,015 12,300 7	1,236 16,000 8 1,224 12,700 8	1,293 15,000 9 1,299 12,700 9	1,379 14,000 10 1,129 12,700 10	1,305   13,600   Mean (μ) 1,040   12,510   11	1,311 13,500 StDev (σ) 147 176 12	1,436 13,200 μ + 3(σ) 1,481 13,037 13	1,322 12,600 14	1,377 13,100 15	1,172   13,513 Mean (µ	230 913 StDev (σ	1,863 16,252 μ+3(σ)															
DPT-01 DPT-02	epth (ft Hole Core Depth (ft Hole Core Depth	bgs) (cpm) (cpm) bgs) (cpm) (cpm) bgs	1 589 12,400 1 1,133 12,500 1	2 771 13,000 2 1,037 12,700 2	3 934 13,700 3 966 12,500 3	4 1,103 13,400 4 881 12,400 4	5 1,150 12,500 5 871 12,200 5	6 1,205 13,600 6 842 12,400 6	7 1,162 13,100 7 1,015 12,300 7	8 1,236 16,000 8 1,224 12,700 8	9 1,293 15,000 9 1,299 12,700 9	10 1,379 14,000 10 1,129 12,700 10	11 1,305 13,600 Mean (µ) 1,040 12,510 11	12 1,311 13,500 StDev (σ) 147 176 12	13 1,436 13,200 μ+3(σ) 1,481 13,037 13	14 1,322 12,600 14	15 1,377 13,100 15	1ean (μ)   1,172   13,513   Mean (μ	tDev (σ) 230 913 StDev (σ	u + 3(σ) 1,863 16,252 μ + 3(σ)															

 34
 12,200

 35
 12,300

 Mean (μ)
 1,270
 12,314

 StDev (σ)
 273
 335

 μ+3(σ)
 2,090
 13,319

Gamma Scanning of Open Boreholes and Soil Cores

Appendix D: Groundwater Well Development Logs

	A_C	.UM	An	y lask -	Anywhere	00	TIDEWAT	ER INC	
		PROJE	CT NUMBER	4		R-MW-	8.I	SHEET	OF /
1971 - 19 19	1. 19	1.		WELL	PURGE A	ND SAMPL	ING FIEL	D SHEE	т
	WATER (FT): =	30.10		CASING DIAMETER		GAL/FT	L/FT	IG	
WELL DEPT	TH (FT): 50,00			1 JN. 2 IN.		0.0408	0.154	)	
WATER CO	LUMN (FT): =	20		4 IN.		0.6528	0.618		
GAL/FT OF	CASING x	0.1630		6 IN		1 4699	0.010		
CASING VO	LUME (GAL) =	32		8 IN		0.044	5.560		
		91.		0 IN.		2.611	9.884		
		500		10 IN.		4.0797	15.444		
-ORGE VOL	LOME (GAL) =	0 40		12 IN. METHOD OF F	PURGING (cir	5.8748 cle one)	22.240		
TIME ON: FLOW RATE PUMP TIME /OL. PURGE	(ml/min): (min): (min): (gals):	51.	OTHER:		BAILER : TE BAILER VOL REQUIRED I VOL. PURGE OTHER:	:FLON, SS ,OTH (gal) PULLS: ED (gals):	ER:		
Date	Water Volume Discharged	Water Level	Turbidity	Temperature	pН	Conductivity	ORP	Dissolved Oxygen	Remarks
Time	(gal)	(ft BTOC)	(NTU)	(°C)		(mS/cm)	mV	/ mg/L	(color, odor, shee sediment, etc.)
1010	0:0	30.08	SW	se up ba	iler, u	later Dlain	+ twbi	d	
1013	0.8	30:05	BE	sida 4	1 what	e puni	þ		
1021	14:0	30,10	142	15.11	5.64	1.43	-73	190	Clarit
1030	18.0	30.10	22.7	15.00	6.85	1.52	-35	1.50	(leaving up
1038	23.0	30.10	Su	ging		0.5			
1040	30.0	30,10	20.4	14.95	6.99	1.50	-98	1.6	
1043	34.0	30,10	60	1100	700	151	al	100	
1052	40.0	30.10	0.0	14.92	7.00	1.52		4:08	
1055	44.0	30.10	0.0	14.90	7.01	1,52	.49	0.90	
1100	50.0	30.10	0.0	14.90	7.01	1.35	-98	0.80	Clean and
				17:01	1.61	10/2	-90	Deco	production
				+					
-									
			1						

10/23/18

			1	my lask	anywher	e oo	TIDEW	ATER	
1		PRO	2016	FR -004	WELL NUM	IBER UU2-	MW-0	BWT	OF 1
				WELL	PURGE	AND SAMF	LING FIE	LD SHEE	т
DEPTH T	O WATER (FT): =	21.95				GAL/FT	L/F	r	
WELL DE	EPTH (FT): 25	8 (suree	10 ft	) 1 IN.		OF CASING 0.0408	OF CAS 0.154	SING L	
WATER	COLUMN (FT): =	2 85				0.1632	0.618	D	
GAL/FT C	FCASING	× 1 163	2	4 11.		0.6528	0.618		
CASING	/OLUME (GAL) =	0 63		6 IN.		1.4688	5.560		
NO. OF V	OLUMES min (3)	182		8 IN.		2.611	9.884	4	
PURGE V	OLUME (GAL)	52.5	anl	10 IN.		4.0797	15.44	4	
PUMP		IOT	701	12 IN. METHOD OF	PURGING (ci	5.8748 rcle one)	22.24	0	1.1
TIME ON: FLOW RA PUMP TIN VOL. PUR	TE (ml/min): IE (min): GED (gals):	winp # 4	OTHER: 301 RG	15	BAILER : TE BAILER VOI REQUIRED VOL. PURG	EFLON, SS ,OTH L (gal) PULLS: ED (gals):	ERace	tate fo	redicate
Date	Water Volume Discharged	Water	Turbidity	Tomporature	OTHER:	F.1.0- 7	- arm	Dissolved	
Time	(gal)	(ft-BTOC)	(NTU)	(°C)	рн	Conductivity	ORP	Oxygen	Remai (color, odor
1450	0.0	21.95	Surg	2 + purge	e with	bailer. 1	mV Vater	mg/L	sediment
1510	1.1	21.95	Keyin	PUMDin	a with	hale and	-		very
1513	3.5	27 19	OOR	16.16	5.188	1.47	P-91	9.61	)
1515	7.0		703	15.59	6.60	1.71	-01	7 70	Surgi
1522	14.0		302	1401	1.00		-11	4.60	( with
1525	17.5		163	11.11	DIES	1.76	-96	1.97	11
1532	245		79.3	14.75	7.00	1.76	-94	1.93	1
1535	28.0		90.9	1110	1 / 10			1.12	/
1538	31.5		33.2	14.69	201	1.76	-94	0.74	100
1541	35-0		20.0	14.49	6 70	1.16	45	0.92	
1244	38.5		16.6	14.50	6 70	1.77	-76	0.94	
1341	72.0		12.4	14.36	6.70	1.78	- 76	5.10	
1502	43.5		9.6	14.41	6.70	1.77	- 45	0.96	
1556	87 -		8.6	14.40	6.70	1.78	-95	0.96	
1220	2003	Y	8.2	14.36	6.	1.78	-96	0.96	
					-				
_					-				
1									
		-							

OOR = out of range

-	A	COM	A	ny Task	Anywher	e 8	TIDEWA	TERIN	Í
1		PRO	JECT NUMBE	R	WELL NUM	BER		in the second	
		2	016-01	04	00:	2 - MW	- 9WT	SHEET	OF /
				WELL	PURGE	AND SAMP	LING FIE	LD SHEE	T
DEPTH TO	WATER (FT): =	8.0'		CASING DIAMETER		GAL/FT OF CASING	L/FT	NG	
WELL DEP	TH (FT): 16.0	0'		1 IN. (2 IN)		0.0408	0.154		
WATER CO	DLUMN (FT): =	5		4 IN.		0.6529	0.018		
GAL/FT OF	CASING 8	x D.16	32	6 IN.		1 4699	0.618		
CASING VC	DLUME (GAL) =	1.3		8 IN		0.000	5.560		
NO. OF VO	LUMES min.(3) >	× 3.9		10 IN		2.611	9.884		
PURGE VO	LUME (GAL) =	= 16		10 11.		4.0797	15.444	ł.	
PUMP: SUE		NOT		METHOD OF	PURGING (ci	5.8748 rcle one)	22.240		
TIME ON: FLOW RATE PUMP TIME VOL. PURG	0 8 5 5 E (ml/min): /. / ED (gals): / 6	OGAM GALLONS	OTHER:		BAILER : TI BAILER VO REQUIRED VOL. PURG OTHER:	EFLON, SS ,OTH L. (gal) PULLS: ED (gals):	IER:	PPM	
Date	Discharged	Water Level	Turbidity	Temperature	pH	Conductivity	000	Dissolved	-
Time	(gal)	BGS (ft BTOC)	(NTU)	(°C)	pri	(mS/cm)	ORP	Oxygen	Remarks (color, odor, sheen,
0839	0		277	19.86	542	(	inv	mg/L	sediment, etc.)
0944	0.5	9.6	740	11.00	5175	0.000	227	10.31	
0855		9.0	286	NA ICH	651	0.184	6	8.71	
0905	3	8.3	100	16.71	6.77	0.018	14	9.78	REDRISH BR.
0918	2.5	0.5	217	16.08	6.04	NR	37	8.90	
3025	3.5	7.0	518	16,10	7.11	0.776	-108	4.41	
0030	0	10.6	787	16.05	7.30	0,977	-125	4.55	
MOUS	1/3	16	186	16.07	7.33	0.190	-113	3.05	1.10 6PM
2775	1661465								RAN CEEAR
		-					_		
					_		-		
	_						_		
							-		
		-							

		AL		T NUMPER	y Jobson - 1	soy where	8	TIDEWAT	ER INC O	
	1.17		2	016-	004		2-MW	-10	SHEET /	OF /
					WELL	PURGE A		ING FIEL	D SHEE	г
		WATER (FT): =	7.09, f+ 1	for	CASING DIAMETER		GAL/FT OF CASING	L/FT OF CASIN	IG	Alter at the
	WELL DEPT	'H (FT):	- ++ 6+0C	(inities)	2 IN		0.1632	0.154	>	
	WATER CO	LUMN (FT): =	6.23	0	4 IN.		0.6528	0.618		
	GAL/FT OF	CASING x	0.1632	4.02	10/23/13 6 IN.		1.4688	5.560		
	CASING VO	LUME (GAL) =	1.0Z		8 IN.		2.611	9.884		
	NO. OF VOL	.UMES min.(3) x	3.06		10 IN.		4.0797	15.444		
	PURGE VOL	.UME (GAL) =	3.1		12 IN.		5 8748	22 240		
	DUMD CUD		T	ATUER	METHOD OF F	PURGING (cir	cle one)	22.240		the second
	TIME ON: FLOW RATE PUMP TIME VOL. PURGE	(min): ED (gals):	575 (Wha # 106	292 (P	P) Pactine Alex, 52.0)	BAILER : TE BAILER VOL REQUIRED F VOL. PURGE OTHER:	FLON, SS ,OTH (gal) PULLS: ED (gals): PIA - 16	EB: ad	etate (	dedicated
	Date	Water Volume	Water	Turbidity	Temperature	рH	Conductivity	ORP	Dissolved	Remarks
	Time	(cumulative)	2.2 fr	(NTLI)	(°C)	P	(mS/cm)		oxygen	(color, odor, sheen,
18	1450	0.0	9.09	Surg	e well	with	whale p	Ump	mg/L	sediment, etc.)
	1457	0.0	9.09	Begin	n psinpin	ng. Veri	dark gro	y. Turl	id. Ini	ake at bottom
	1458	1.5	15.32	Well	is dry	7		/		
	1519	1.5	11.70	Wait	ng for re	charge				
	-1534	-15-	-11-68	Begin	pumpin	g w/per	istaly c	gent 10	23/18	
	1550	1.5	11.60	Begin	pumpine	w/per	istaltic	Intak	at bo	ttom.
	1605	1.9	13.30	Walk si	Adrawine	down, e	ven at 1	20 ml/	mine In	neise rate,
	1615	2.2	14.26	Well	18.20	6.83.	+ for rech	-76/ urge	7.41	@ 300 m L/min
	1700	2.5	14.05	Begin	pumping	with p	eristalt	il Inte	the at	
	1713	3.1	15.20	145	17.16	7.01	0.611	-48	2.29	
10	Not	e that so	climity a	ot pour	rga w	iter =	0.2 PF	ot.		
10	0843	3.1	Bail w	ell.	1	01	1			
	0852	4.1	Well b.	ailed,	dry. (	NOCKY	Cruz			
18	1219	4.1	11.90	Take	writer le	vel mea.	vrement.			
	1100	4.1	Beach	haiti	1.11					
	110	5.0	Well 6	ailed	dry.					
									-	
		_ (								
									_	
	1									

Appendix E: Groundwater Purge and Sampling Logs

	000	4200/	N	A	ny Task	– Añywh	nere	8	TIDEWATE	S 190
			GROUN	DWATER	R SAMPLI	E COLLEC	TION FIF	LD SHE	ET	
	GENERAL IN	FORMATIO	N.							
	SITE NAME	GKP Ph	ase 1 P	I OUZ		PROJECT NO.	2016	- 0:04		
	SAMPLE NO.	012-1	-mwo	08I Mulan	ST-F	WELL NO.	002	- MW-	.08.I	
	DATE/TIME C	OLLECTED	10/30/	18 10	40	PERSONNEL	Johr	C Sul	hroeder	
	SAMPLE MET	THOD $UEL$	1 Sample	- Piro blie	ilder ps	mp	Andre	w Fle	ming	
		114.	v	* 214	61					
	SAMPLE QC I	DUPLICATE:	YES	NO	DUPLICAT	TE SAMPLE NO.	NA			
	MS/MSD REQ	UESTED	YES	NO	MS/MS	SD SAMPLE NO.	same	as a	yove	
	SAMPLE CO	NTAINEDS D	DESEDVATI	VES ANALVO	216					
	, Sample Contain	ner	Preservative	IV ES, ANAL IS	Analysis Reque	ested	ſ	Volume	e per linear ft of	fcasing
(	3 40ml	L vial	HC1 V	1065 (82	60C)			ID (in)	Gallons	Liters
(	5 250 m	nL amber	none -	SVOL5 (82	270B) P	PAHs (8270	D-SIM	1	0.0408	0.1544
11			/	Pesticides	(80813).	PLBS (808)	ZA	1 1/2	0.0918	0.3475
~	1 250 W	eL plassie	HNOZ	1 In	organies (	6020A 1	Mercury	2	0.1632	0.6178
)	1250 m	L plastic	HNO2 fi	Her J (	7470A)	"	/	3	0.3672	1.3900
1	41L .	amber	nour	Herbici	des (81511	A Dioxins/F	wars BZ999	4	0.6528	2.4711
· )	314	plastic	HNO3	Rad	1 wm 226	1228 (EPP	4 904/903	6	1.4688	5.5600
	31L p	lastic 1	FILOZ Fili	ter )	(A ] ]	1 B	1001	8	2.611	9.8837
1	2 500m 1	plastic	HAUN C.	600	ross Alpha	+ Gross Be	sa (EPH	700 ) .		
L	2 900mL	plastic	HINU3, +,	(ter) 10	ral Oran	ium (EPI	7 200, 0)	-		
	WELL PURG	ING DATA		4				1 <b>1</b> 00 3	~	
	D		10/20/	18		Well De	epth (ft BTOC)	59.3	<u> </u>	
	Date Time Started		0000	-		Depth to W	ater (ff BIOC)	29 2	2 4	
	Time Complete	ed	132	5		Well Casing V	Volume (per ft)	0.61	78	
	PID Measurem	ents		0 .		Volume of Wa	ter in Well (L)	18.00	2	
	Background Breathing 70	ne		0.0 ppv	n	Casing Vo	in to Purge (1)	NA		
	Well Head	Sile		0.6 pm	<b>~</b>	- A	ctual Purge (L)	11.60		
	Purge Water	•	(	D.O ppm	v					
	FIELD MEAS	SUREMENTS						-		
	Time	Amount	рн	(Celsius)	(mS/cm)	Dissolved Oxygen (mg/L)	(mV)	(NTU)	(f) BTOC)	(mL/min)
	0950	Liters	Cell	filling	(morem)	oulen (men)	(	(110)	30.05	(mas, imm).
	0955	0.01.4	56.75	14.02	1.48	2.31	-67	4.6	30.05	290
	1000	2.40	6.92	14.37	1.49	0.81	-108	0.0	30.05	
	1010	5.80	7.01	14 21	1.49	0.24	-127	0.0	30 05	
	1015	7.25	7.02	14.60	1.49	0.14	-131	0.0	30.05	
	1020	8.70	7.03	14.55	1.49	0.06	-132	0,0	30.05	
	1025	10.15	7.04	14.59	1.49	0.00	-134 -12r	0.0	30.05	
	1 1 1 1 1 1 1	11.00	1.07	14.05	1.11	0.00	- 135	0.0	- WH	Sh 10/3
	1030								100	
	FIELD EQUI Equipment Horiba Oaktou Minin	PMENT AND U-52 Turbid AE 30	CALIBRATI Model #6CH Timeter	ON RRPT1 <u>T-100</u> 592-01	#25684 00821	Calibration 7377	0/30/19	3	/	
	FIELD EQUI Equipment Horiba Oaktou Mini GENERAL C	PMENT AND U-52 Turbid RAE 31 COMMENTS	CALIBRATI Model #6CH imeter 000 #	ON RRPT1 7-100 592-01	#25684 00821	Calibration 7377	0 /30/19	3		
	FIELD EQUI Equipment Horiba Oaktou Mini GENERAL C Multi-Paramet	PMENT AND U-52 Turbid PMENTS er Probe Unit #	CALIBRATI Model #6 C.H inveter 500 #	ON RRPT1 7-100 592-00 above	#25684 00821	Calibration 7377	0 /30 /19	3		
	FIELD EQUI Equipment Horiba Oaktou Multi-Paramete Field Paramete	PMENT AND U-52 Tur bid AE 32 COMMENTS er Probe Unit # rrs Measured in wit Denth = 4	CALIBRATI Model # G C.H inveter 500 H See Flow-Through 4 2 L;	ON <i>RRPT</i> <i>T-100</i> <i>592-00</i> <i>above</i> <i>above</i> <i>cell</i> <i>cell</i>	#25684 D0821	Calibration 73 /	0/30/19	3		
	FIELD EQUI Equipment Horiba Ooktou Minin GENERAL C Multi-Paramete Field Paramete Pump Placeme Pump Rate =	PMENT AND U-52 Tur bid AE 30 OMMENTS er Probe Unit # ers Measured in nut Depth = $2$ 290  MC	CALIBRATI Model # 6 C.H imeter 500 Flow-through 54.3 54 Main 1	ON 7-100 592-00 25	#25684 00821	Calibration 7377	0 /30 /19	3		
	FIELD EQUI Equipment Horiba Oaktou Multi-Paramete Field Paramete Pump Placeme Pump Rate = Well Diameter	PMENT AND U - 52 Tur bid RAE 30 OMMENTS er Probe Unit # ers Measured in ent Depth = $5$ Z90 MZ = 2 inc	CALIBRATI Model # 6 C.H imeter 500 # See Flow-Through 4.3 fit	ON 7-100 592-00 above 1 Cell 6+0 C	#25684 00821	Calibration 7377	0 /30 /09	3	, , , , , , , , , , , , , , , , , , , ,	

	AECO	M Any	Task Anywher			TIDEWATER	2 mc 00	
		GROUNDWATER SA	MPLE COLLECTIO	ON FIEL	D SHE	e <b>r</b>	and the second second	
	GENERAL INFORMATIO	N		- Zer				
	CKP PL	ALL I RT DU2		2016.	- 1:04	r		
	SITE NAME ON IT	MWOOBWT OUZ-	- MWOUEWT- AUT	5	An i	1 00 : 17		
	SAMPLE NO. DUZ-1-	MWOOBWT-F	WELL NO.	002	-mh	1-08 W/	<u>, 1</u>	
	002-1	- MW00 0W7-1 (	JOP	Tolon	C S.A	moder		
	DATE/TIME COLLECTED	OFD Sangle Pro Ward	PERSONNEL	Andrew	Flo	hains		
	STIM DE METHOD	pump #2	21461	11001000	/	1	· · · · · · · · · · · · · · · · · · ·	
	SAMPLE MEDIA:			<b>^</b>	1.0			
	SAMPLE QC DUPLICATE:	YES NO I	DUPLICATE SAMPLE NO.	see as	oc w			
	M5/M5D REQUESTED	YES (NO)	M5/M5D SAMPLE NO.					
	SAMPLE CONTAINERS, I	RESERVATIVES, ANALYSIS						
	Sample Container	Preservative Ana	lysis Requested		Volume	per linear ft of	casing	
(	3 40mL vial	HC1 VOCS (8260	٢)		D (in)	Gallons	Liters	
1	5 250 mL amber	none SVOCs (8270	D) PAHS (82700-	SIM	<u>1</u>	0.0408	0.1544	
	1 25hul dage	Testicides (80	0913, PCBS (80824		1 1/2	0.0918	0.34/5	
241	1250 mL plastic	HNO filter ( 174)	TOA)	reury	3	0.3672	1.3900	
2. 2	4 1L amber	nour Herbicides	(8151A) Dioxins/Fura	NS 62994	4	0.6528	2.4711	
	3 1L plastic	HNO3, ? Radium	1 226/228 (EPA 90	04/903	6	1.4688	5.5600	
1	3 12 plastic	FINOz filter S	ALL IC BE	10010	8	2.611	9.8837	
L	2 SOUM L plastic	HAMDA Filipir Total	Uraning FRA	(Erry 1	00 ]			
	- 2 Jun - prosinc	11103, 111121 ) 1014	Cruning (LITT-					
	WELL PURGING DATA	1 (	W-11 D1 (		28.4	6		
	Date	10/31/18	Depth to Water (	(ft BTOC)	24.7	5		
	Time Started	0930	Water Colum	nn Length	3.71	(m) ()		
	Time Completed PID Measurements	1405	Well Casing Volun Volume of Water in	me (per ft) Well (L)	2.20	18		
	Background	0.0	Casing Volumes	s to Purge	NA			
	Breathing Zone Well Head	0,0	Minimum to	Purge (L)	34 8	0		
	Purge Water	0,0		T ungo (1)	21.0			
	FIELD MEASUREMENTS					~		
	Time Amount	fors pH Temperature Co	nductivity Dissolved mS/cm) Oxygen (mg/L)	ORP 1 (mV)	(NTU)	Depth to Water (ft BTOC)	Purge Rate (mL/min)	
	1007 0.00	Cell Filling		-		24.76	290	
	1012 1.45	6.41 15.87 1	62 8.45 -	106 1	152			
	1022 4.35	6.55 15.34 1	71 6.27 -1	124 1	40 (	veret 1		
	1027 5.80	6.72 15.36 1.	72 5.68 -1	124 1	37 (	white thant	Men	F/on
	1032 1.23	6.60 13.37 1	13 1.74	121 1	30			•
	1042 10.15	6.59 15.46 1	74 3.80	119	9.6			
	1057 13.05	6.60 15.621.	15 <u>3.31</u> 74 2.97 -	118	6.6		×	
	FIELD EQUIPMENT AND	CALIBRATION			0.7			
11	Equipment	Hodel CHRRPTI	Calibration					
2/31/18 Jus	Dakton Forbia	Timeter 7-100 #2	568473 2 10/311	118		t	£	
	MiniRAE 30	100 #592-000	821 THA	CH 2100	P 70-6	iclimeter -	818924	B
	GENERAL COMMENTS Multi-Parameter Probe Unit #	see above						
	Field Parameters Measured in	1 Flow-Through Cell						
	Pump Placement Depth =	26,75 H bruc	-		· _ · · · · · · ·			
	Well Diameter = $2 ind$				· ·	13		
	Screen Interval = 18.14	1-28.14 Ft bitoc	(sumpadds 0.3	32 to te	tol de	zpth)		•
	Very slight	sheen on water	- Looks like H	here is	diss	olved y	ias in	
	purge	water nEl	EDALIC			/		
		SEF	BHUK	-				

Time	Amt Purged	PH	Temp	Cond	DO	ORP	Turk	ΔΤω	Purge Refe	ł	
10.57	(L: for 3) 14 50	6.60	15:78	1.74	2.64	-118	4.2	24.76	Z90	i - me	
1102	15 95	6.60	15.97	1.74	2.38	-117	3.8		l		
1102	17.15	0.00	15/2	170	217	-116	3.4			-	
1107	17.40	6.60	13.03	1.15	2.16	- 116	2.				
1112	18,85	6.39	15.58	1.75	1.86	-11-	3.6				
1117	20.30	6.58	13.67	1.15	1.14	-113	2.0				
1126	21,15	6.59	15.81	1.15	1.52	-114	2.6				
1121	23.20	6.51	15,79	1.13	1.24	-113	2.2				
1132	24.65	6.59	16.13	1-17	111	-113	2.4				
11 31	26.10	6,56	10.21	1.14	1.00	-113	26				
1142	21.55	6,56	16,56	1,13	0.90	-117	2.0				
114 (	29.00	6.57	16.48	1.13	0.10	-114	2.8				
1152	30,75	6.56	16.00	1.12	0.71	-113	2.6				
1202	51.10	6.57	16.86	1:72	0.62	-112	76			2 hours	may
/207	24 80	1 (7)	16.90	171	0.57	-/13	23	¥	v	purge	
•	51.00	63									
				Refe	K				n National National National		
			n s Na s Na s	a she si a		10/3,1					
			•			X	8 N	N N N			
								N		230 	
									s -, , - <sup>5</sup> ,		
	N	and S.	7	e svel e		~		n i vi			
002	2 - mW	-00W	1					N - 2.22			

	GROUNDWAT	ER SAMPL	E COLLEC	TION FIF	LD SHE	ET	
GENERAL INFORMATIO	N	1 21			\	3 10	
STENANE GEPPI	ALE I BT. OU	2	DROIFOTNO	2016	5-0:04	/	
002~1	- MWOOYWT	-	PROJECT NO.				
SAMPLE NO. 002-1	- MW009 WT-	F	WELL NO.	002-	MW-0	09W7	
DATE/TIME COLLECTED	Intalia E	1655	DEDSONDEL	Joh.	CSch	roedan	
SAMPLE METHOD	QEA Sample 1	to bladde	- FERSONNEL	Andre	w Fla	mina	
	pump #2	1461	<u>-</u>			1	4
SAMPLE MEDIA:	, C			NA			1
SAMPLE QC DUPLICATE: MS/MSD REQUESTED	YES NO	DUPLICA MS/MS	TE SAMPLE NO.	7 7			<u>11</u>
Mombe Regoldile		1415/1410	D Dravil DE 140.				
SAMPLE CONTAINERS, F	PRESERVATIVES, ANA	LYSIS	í.	1			
Sample Container	Preservative	Analysis Requ	ested		Volume	e per linear ft o	fcasing
5 70mh Vial	TTCI VOCS (	8270BL	ALL 1017	nn et mal	ID (in)	Gallons	Liters
J LJUML amber	Pestinin	65/8091R	PLBs / 80%	24	1 1/2	0.0408	0.3475
1 250 mL plassic	HNO2 7-	Inorganizel	6020A 1	Mercury	2	0.1632	0.6178
1 250 mL plastic	HNO2 filter 5	(7470A)	·····///	/	3	0.3672	1.3900
4 11 amber	nour Herbi	icides (8151	A Dioxins/	Ewang 82999	4	0.6528	2.4711
3 16 plastic	HINO3 (A	adium 226	[228 (EPI	4 904/903	6 8	1.4688	5.5600 9.8837
2 500m L plastic	I-INO, 2	Gross Alaha	+ Gross Ro	to IFPA	900).	2.011	9.0007
2 500mL plastic	HNOZ filter )	Total Uran	ium (EP)	A 200,8	1		
WELL BUDCINC DATA	.,			)			
WELL FURGING DATA	1.1.0	200	Well D	epth (ft BTOC)	18.99	8	
<b>D</b> .	10/21/10						
Date	10/21/10		_ Depth to W	ater (ft BTOC)	11.09	s	
Date Time Started Time Completed	1530		Depth to W Water ( Well Casing	Vater (ft BTOC) Column Length Volume (per ft)	11.09 7.09 0.61	78 Litaus	
Time Started Time Completed <u>PID Measurements</u>	//////////////////////////////////////		Depth to W Water ( Well Casing Volume of Wa	Vater (ft BTOC) Column Length Volume (per ft) tter in Well (L)	11.09 7.09 0.61 4.8	78 Liteus 7	
Date Time Started Time Completed <u>PID Measurements</u> Background Breathing Zone	1530 1530 1800 0.0 0	<i>86</i> 5	Depth to W Water ( Well Casing ' Volume of Wa Casing Vo Minimu	Vater (ft BTOC) Column Length Volume (per ft) ater in Well (L) plumes to Purge um to Purge (L)	11.09 7.00 0.61 4.8 NA	78 Litaus 7	
Date Time Started Time Completed <u>PID Measurements</u> Background Breathing Zone Well Head	0.0 0.0 0.0 0.0 0.0 0.0 0.0	9m gn-	Depth to W Water ( Well Casing V Volume of Wa Casing Vo Minimu	Vater (ft BTOC) Column Length Volume (per ft) titer in Well (L) Jumes to Purge um to Purge (L) cctual Purge (L)	11.09 7.09 0.61 4.8 NA NA 14.	78 Litous 7 1 1 7 75	
Date Time Started Time Completed PID Measurements Background Breathing Zone Well Head Purge Water Field D ME ASUREMENTS	1530 1530 1800 0.0 12 0.0 12 0.0 12	om on pon 	Depth to W Water ( Well Casing ' Volume of Wa Casing Vo Minimu	Vater (ft BTOC) Column Length Volume (per ft) tter in Well (L) blumes to Purge um to Purge (L) cctual Purge (L)	11.09 7.8 9.67 9.8 NA NA 14.	78 Liteus 7 1 1 75	
Date Time Started Time Completed <u>PID Measurements</u> Background Breathing Zone Well Head <u>Purge Water</u> FIELD MEASUREMENTS Time Amount (2)	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	en en en en en en en en en en en en en e	Depth to W Water ( Well Casing V Volume of Wa Casing Vo Minimu Dissolved	Vater (ft BTOC) _ Column Length _ Volume (per ft) _ tter in Well (L) _ blumes to Purge _ um to Purge (L) _ .ctual Purge (L) _ ORP	11.09 7.00 0.61 9.8 NA NA 14.	78 <i>Lifeus</i> 7 7 7 7 75 Depth to Water	Purge Rate
Date Time Started Time Completed PID Measurements Background Breathing Zone Well Head Purge Water FIELD MEASUREMENTS Time Amount Z. Purged (get)	0.0 12 0.0 12 0.0 12 0.0 12 0.0 12	2n 2n 2n 2n 2n 2n 2n ture Conductivity s) (mS/cm)	Depth to W Water ( Well Casing V Volume of Wa Casing Vo Minimu A Dissolved Oxygen (mg/L)	Vater (ft BTOC) Column Length Volume (per ft) inter in Well (L) olumes to Purge int to Purge (L) cctual Purge (L) ORP (mV)	11.09 7.89 0.61 9.8 NA NA 14. Turbidity (NTU)	78 Lifeus 7 7 75 Depth to Water (ft BTOC)	Purge Rate (mL/min)
Date Time Started Time Completed PID Measurements Background Breathing Zone Well Head Purge Water FIELD MEASUREMENTS Time Amount 2. Purged (get) 1550 U.00	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	2m 2m 2m 2m ture Conductivity s) (mS/cm) - - - - - - - -	Depth to W Water ( Well Casing Vo Volume of Wa Casing Vo Minimu A Dissolved Oxygen (mg/L)	Vater (ft BTOC) _ Column Length _ Volume (per ft) _ tter in Well (L) _ blumes to Purge _ um to Purge (L) _ .ctual Purge (L) _ ORP (mV)	11.09 7.89 0.61 9.8 NA 14. Turbidity (NTU)	78 <i>Lifeus</i> 7 75 Depth to Water (ft BTOC) <i>II.05</i> <i>II.20</i>	Purge Rate (mL/min) . 200   230
Date Time Started Time Completed <u>PID Measurements</u> Background Breathing Zone Well Head <u>Purge Water</u> FIELD MEASUREMENTS Time Amount /. <u>Purged (gel)</u> 1555 1.00 1555 .00 1600 Z.15	0.0 1530 0.0 0.0 0.0 0.0 16 0.0 17 17 17 17 17 17 17 17 17 17	200 200 200 200 200 200 200 200	Depth to W Water ( Well Casing ' Volume of Wa Casing Vo Minimu A Dissolved Oxygen (mg/L)	Vater (ft BTOC) _ Column Length _ Volume (per ft) _ iter in Well (L) _ olumes to Purge (L) _ int to Purge (L) _ cctual Purge (L) _ ORP (mV)	11.09 7.00 0.00 9.8 24 24 24 24 24 24 24 24 24 24 24 24 24	78 2:7305 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	Purge Rate (mL/min) 230 230 260
Date Time Started Time Completed <u>PID Measurements</u> Background Breathing Zone Well Head Purge Water FIELD MEASUREMENTS Time Amount 2. Purged (gelf) /555 /. 60 /605 2.15 /605 3.45 /600 2.95	0.0 1530 1800 0.0 0.0 0.0 10.0 0.0 10.0	$2n_{1}$ $2n_{2}$ $2n_{$	Depth to W Water ( Well Casing V Volume of Wa Casing Vo Minimu A Dissolved Oxygen (mg/L) 	Vater (ft BTOC) _ Column Length _ Volume (per ft) _ itter in Well (L) _ olumes to Purge _ im to Purge (L) _ .ctual Purge (L) _ ORP	11.09 7.89 0.61 9.8 NA 14. 14. 14. 14. 14. 14. 14. 14. 14. 14.	78 Lifeus 7 7 75 75 75 75 75 75 75 75 75 75 75 75	Purge Rate (mL/min) 230 230 260 280 260
Date Time Started Time Completed <u>PID Measurements</u> Background Breathing Zone Well Head Purge Water FIELD MEASUREMENTS Time Amount / Purged (gal) /555 /. 60 /605 3.45 /605 3.45 /615 6.15	0.0 1530 0.0 0.0 0.0 0.0 0.0 0.0 1900 1900 1000 10	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Depth to W Water O Well Casing Vo Volume of Wa Casing Vo Minimu A Dissolved Oxygen (mg/L) 	Vater (ft BTOC) _ Column Length _ Volume (per ft) _ itter in Well (L) _ blumes to Purge _ im to Purge (L) _ .ctual Purge (L) _ ORP (mV)	11.09 7.09 0.61 9.8 NA NA 14. 14. 14. 14. 7.0 6.8 7.1 4.5	78 Lifeus 7 7 7 75 75 75 75 75 75 75 75 75 75 75	Purge Rate (mL/min) 200 230 260 280 260 260 260
Date         Time Started         Time Completed         PID Measurements         Background         Breathing Zone         Well Head         Purge Water         FIELD MEASUREMENTS         Time       Amount Z.         Purged (get)         /555       /.00         /555       /.00         /600       2.15         /605       3.45         /610       4.95         /615       6.15         /620       7.45	$\begin{array}{c} 1530\\ 1530\\ \hline 1530\\ \hline 1530\\ \hline 0.0 \\ \hline 0$	$\begin{array}{c} 2n_{1} \\ 2n_{2} \\ 2n_{2$	Depth to W Water ( Well Casing Volume of Wa Casing Vo Minimu A Dissolved Oxygen (mg/L) 	Vater (ft BTOC) _ Column Length _ Volume (per ft) _ iter in Well (L) _ olumes to Purge _ im to Purge (L) _ ctual Purge (L) _ $CRP (mV) = \frac{68}{35} = \frac{35}{-3} = \frac{-35}{-3} =$	11.09 7.00 0.67 9.8 NA NA 14. 14. 14. 14. 7 .0 6.8 7.1 4.5 3.6 22	78 Lifeus 7 7 7 75 75 75 75 75 75 75 75 75 75 75	Purge Rate (mL/min) 200 230 260 280 260 1 4 7
Date         Time Started         Time Completed         PID Measurements         Background         Breathing Zone         Well Head         Purge Water         FIELD MEASUREMENTS         Time       Amount 2.         / 555       /. 60         / 605       3. 45         / 605       3. 45         / 605       6. / 5         / 605       7. 45         / 620       7. 45         / 625       8. 75         / 625       9. 75	$\begin{array}{c} 1530\\ 1530\\ \hline 1530\\ \hline 1530\\ \hline 0.0\\ \hline $	$\begin{array}{c} 2m \\ 2m $	Depth to W Water O Well Casing V Volume of Wa Casing Vo Minimu A Dissolved Oxygen (mg/L) 	Vater (ft BTOC) Column Length Volume (per ft) tter in Well (L) Jumes to Purge Im to Purge (L) .ctual Purge (L) ORP (mV) $\overline{68}$ $\overline{35}$ $\overline{35}$ $\overline{35}$ $\overline{35}$ $\overline{35}$ $\overline{35}$ $\overline{77}$ $\overline{77}$ $\overline{78}$ $\overline{-83}$ $\overline{35}$ $\overline{35}$	11.09 7.09 0.61 9.8 NA 14.7 14.7 14.7 7.0 6.8 7.1 4.5 3.6 2.8 3.5	78 Lifeus 7 7 7 75 75 75 75 75 75 75 75 75 75 75	Purge Rate (mL/min) 200 230 260 280 260 1 4 260 1
Date Time Started Time Completed PID Measurements Background Breathing Zone Well Head Purge Water FIELD MEASUREMENTS Time Amount /. Purged (gelf) / 555 /. 00 / 605 3.45 / 605 3.45 / 605 3.45 / 605 3.45 / 605 6.15 / 620 7.45 / 625 8.75 / 630 9.95 / 635 //.55	$\begin{array}{c} 1530\\ 1530\\ 1800\\ \hline 0.0 \\ 0.0 \\ \hline 0.0 \\$	$\begin{array}{c} 2n_{1} \\ 2n_{2} \\ n_{2} \\ n_$	Depth to W Water W Well Casing V Volume of Wa Casing Vo Minimu A Dissolved Oxygen (mg/L) 	Vater (ft BTOC) _ Column Length _ Volume (per ft) _ tter in Well (L) _ blumes to Purge (L) _ .ctual Purge (L) _ .ctual Purge (L) _ .ctual Purge (L) _ $ORP (mV) _\overline{} \overline{} \overline{ \overline{} \phantom$	11.09 7.00 0.61 9.8 NA NA 14. 14. 14. 7 9.0 6.8 7.1 4.5 3.6 2.8 3.5 2.5	78 2:7405 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	Purge Rate (mL/min) 200 230 260 280 260 1 4 240 1 4
Date Time Started Time Completed <u>PID Measurements</u> Background Breathing Zone Well Head <u>Purge Water</u> FIELD MEASUREMENTS Time Amount 2. <u>Purge (get)</u> 1555 1.00 1555 1.00 1605 3.45 1605 3.45 1605 3.45 1605 3.45 1615 6.15 1625 0.75 1625 0.75 1630 9.955 1635 11.15 FIELD EQUIPMENT AND Equipment	1530         1530         1800         0.0         14         17.0         17.10         17.13         17.53         0         7.14         17.53         0         7.14         17.53         0         7.14         17.53         0         0         17.14         17.53         0         0.14         17.53         0         0.14         17.53          0.15	$\begin{array}{c} 2n_{1} \\ 2n_{2} \\ 2n_{3} \\ 2n_{4} \\ 2n_{5} \\ 2n_{5$	Depth to W Water ( Well Casing Vo Uolume of Wa Casing Vo Minimu A Dissolved Oxygen (mg/L) 	Vater (ft BTOC) Column Length Volume (per ft) tter in Well (L) Jumes to Purge Im to Purge (L) ctual Purge (L) CRP (mV) $\overline{G8}$ $\overline{35}$	11.09 7.09 0.61 9.8 NA NA 14. 14. 14. 14. 7 11.7 9.0 6.8 7.1 4.5 3.6 2.8 3.5 2.5	78 Lifeus 7 7 7 75 75 75 75 75 75 75 75 75 75 75	Purge Rate (mL/min) 200 230 260 280 260 260 4 240
Date Time Started Time Completed <u>PID Measurements</u> Background Breathing Zone Well Head <u>Purge Water</u> FIELD MEASUREMENTS Time Amount /, <u>Purged (gat)</u> 1555 1.00 1555 1.00 1555 1.00 1600 2.15 1605 3.45 1615 6.15 1615 6.15 1615 6.15 1620 7.45 1620 7.45 1620 7.45 1630 9.95 1635 11.15 FIELD EQUIPMENT AND Equipment Horiba U-52	1530         1530         1800         0.0         1.10         1.10         1.10         1.13         1.14         1.15         0.14         1.15         0.14         1.15         0.15         1.14         1.15         0.115         0.14         1.15         0.14         1.15         0.14         1.15         0.14         1.15         0.15         0.16         1.15         1.16	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Depth to W Water O Well Casing Vo Volume of Wa Casing Vo Minimu A Dissolved Oxygen (mg/L) 	Vater (ft BTOC) Column Length Volume (per ft) tter in Well (L) Jumes to Purge Im to Purge (L) .ctual Purge (L) .ctual Purge (L) ORP (mV) $\overline{CB}$ $\overline{35}$ $\overline{59}$	11.09 7.09 0.61 9.8 NA NA 14. 14. 14. 14. 7.0 6.8 7.1 4.5 3.6 2.8 3.5 2.5	78 Lifeus 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	Purge Rate (mL/min) 200 230 260 280 260 260 4 4 4 4 4 4 4 4
Date         Time Started         Time Completed         PID Measurements         Background         Breathing Zone         Well Head         Purge Water         FIELD MEASUREMENTS         Time       Amount /.         Purged (get)         / 550       0.00         / 555       /.00         / 605       3.45         / 605       3.45         / 605       3.45         / 605       3.45         / 605       3.45         / 605       3.45         / 605       3.45         / 605       3.45         / 605       3.45         / 605       3.45         / 605       3.45         / 605       3.45         / 605       0.75         / 605       1.15         FIELD EQUIPMENT AND         Equipment       Horiba. U-52         / 005       4.50         / 005       4.50	1530         1530         1800         0.0         1.0         7.00         7.00         7.00         7.00         7.00         7.00         7.00         7.00         7.10         7.13         7.14         7.15         7.14         7.15         0.11         1.12         1.13         1.14         1.15         0.14         1.15         0.15	$\begin{array}{c} 2n_{-}\\	Depth to W Water W Well Casing Vo Uolume of Wa Casing Vo Minimu A Dissolved Oxygen (mg/L) 7.5 7.5 7.5 7.5 7.5 7.5 7.5 7.5 7.5 7.5	Vater (ft BTOC) Column Length Volume (per ft) iter in Well (L) obumes to Purge int to Purge (L) int to Purge (L) ctual Purge (L) ORP (mV) $\overline{}$  $\overline{}$ $\phantom{0$	11.09 7.09 0.61 9.8 NA NA 14.7 14.7 14.7 7.0 6.8 7.1 4.5 3.6 2.8 3.5 2.5	78 Lifeus 7 7 7 7 75 75 75 75 75 75 75 75 75 75 7	Purge Rate (mL/min) 200 230 260 260 1  240    240   
Date         Time Started         Time Completed         PID Measurements         Background         Breathing Zone         Well Head         Purge Water         FIELD MEASUREMENTS         Time       Amount 2.         Purged (get)         /555       /.60         /600       2.15         /605       3.45         /610       4.95         /620       7.45         /620       7.45         /625       8.75         /625       8.75         /630       9.955         /635       //.75         FIELD EQUIPMENT AND         Equipment       Horiba         Horiba       U-52         Ock Tother Forbia         //n.i.RAE       30         GENERAL COMMENTS	$\begin{array}{c} 1530\\ 1530\\ \hline 1530\\ \hline 1530\\ \hline 1530\\ \hline 1530\\ \hline 0.0 \\ \hline 0$	$\begin{array}{c} 2n_{1} \\ 2n_{2} \\ n_{2}	Depth to W Water ( Well Casing Volume of Wa Casing Vo Minimu A Dissolved Oxygen $(mg/L)$ - 3.5' 2.15' 1.22 0.97' 0.94' 0.94' 0.97' 0.94' 0.93' 0.93' 0.93' 0.93' 0.93' 0.93' 0.93'	Vater (ft BTOC) Column Length Volume (per ft) itter in Well (L) Jumes to Purge int to Purge (L) int to Purge (L) CORP (mV) $\overline{08}$ $\overline{35}$ $\overline{57}$ 57	11.09 7.09 0.61 9.8 NA NA 14.7 14.7 14.7 7.0 6.8 7.1 4.5 3.6 2.8 3.5 2.5	78 Lifeus 7 7 7 7 7 7 7 7 7 7 7 7 7	Purge Rate (mL/min) 200 230 260 260 260 260 4 240 4 5 818924
Date         Time Started         Time Completed         PID Measurements         Background         Breathing Zone         Well Head         Purge Water         FIELD MEASUREMENTS         Time       Amount ().         Purged (geh?)         / 550       / 600         / 555       / 600         / 605       3. 45         / 605       3. 45         / 605       3. 45         / 605       3. 45         / 605       3. 45         / 605       3. 45         / 605       3. 45         / 605       3. 45         / 620       7. 45         / 620       7. 45         / 625       9. 75         / 630       9. 95         / 635       //. /5         FIELD EQUIPMENT AND         Equipment       Horiba         Horiba       U-52         Ock Toth Forbid       Milti-Parameter Probe Unit #	1530 1530 1800 0.0 1 0.0 0 0.0	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Depth to W Water $($ Well Casing $V$ Volume of Wa Casing Vo Minimu A Dissolved Oxygen (mg/L) $\overline{3.51}$ 2.15 1.52 $\overline{1.52}$	Vater (ft BTOC) _ Column Length _ Volume (per ft) _ iter in Well (L) _ blumes to Purge (L) _ int to Purge (L) _ .ctual Purge (	11.09 7.09 0.61 9.8 NA NA 14. 14. 14. 14. 7 7.0 6.8 7.1 4.5 3.6 2.8 3.5 2.5	78 Lifeus 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	Purge Rate (mL/min) 200 230 260 280 260 4 260 4 500 260 260 4 500 260 260 260 260 260 260 280 260 260 260 280 260 280 260 280 260 280 260 280 260 260 280 260 260 280 260 260 280 260 260 260 280 26
Date         Time Started         Time Completed         PID Measurements         Background         Breathing Zone         Well Head         Purge Water         FIELD MEASUREMENTS         Time       Amount Z.         Purged (geht)         / 550       0.00         / 555       /.00         / 605       3.45         / 605       3.45         / 605       3.45         / 605       3.45         / 605       3.45         / 605       3.45         / 605       3.45         / 605       3.45         / 605       3.45         / 605       3.45         / 605       3.45         / 605       3.45         / 605       3.45         / 625       0.75         / 625       0.75         / 635       //.5         / 635       //.5         / 635       //.5         / 707       7.45         / 707       7.45         / 707       7.45         / 707       7.45         / 707       7.45	1530         1530         1800         0.0         7.0         7.12         7.00         7.00         7.00         7.00         7.00         7.00         7.00         7.00         7.00         7.10         7.13         7.14         7.15         7.14         7.14         7.14         7.14         7.14         7.15         7.14         7.15         7.14         7.15         7.14         7.15	$\begin{array}{c} 2n_{1} \\ 2n_{2} \\ nn_{2} \\ nn_{2$	Depth to W Water ( Well Casing Vo Uolume of Wa Casing Vo Minimu A Dissolved Oxygen (mg/L) 	Vater (ft BTOC) Column Length Volume (per ft) iter in Well (L) Jumes to Purge im to Purge (L) cetual Purge (L) CRP (mV) $\overline{C88}$ $\overline{355}$ 355	11.09 7.09 0.61 9.8 NA NA 14.7 14.7 7.0 6.8 7.1 4.5 3.6 2.8 3.5 2.5	78 Liftus 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	Purge Rate (mL/min) 200 230 260 260 260 1 4 240 1 4 5 818924
Date Time Started Time Completed PID Measurements Background Breathing Zone Well Head Purge Water FIELD MEASUREMENTS Time Amount $\angle$ . Purged (gelt) 1555 $1.001555$ $1.001600$ $2.151600$ $2.151605$ $3.451615$ $6.151615$ $6.151615$ $6.151620$ $7.451625$ $9.751625$ $9.751635$ $11.15FIELD EQUIPMENT ANDEquipmentHoriba U-520.570Mini, RAE 30GENERAL COMMENTSMulti-Parameter Probe Unit#Field Parameters Measured inPump Placement Depth = 1Pump Rate = 240 pm$	1530         1530         1800         0.0         1.0         7.12         18.02         7.00         18.02         7.00         7.00         17.12         18.02         7.00         7.12         17.13         7.14         17.53         CALBRATION         Model         ±         6         6         6         6         6         6         6         6         6         6         6	$\begin{array}{c} 2n_{1} \\ 2n_{2} \\ n_{2}	Depth to W Water ( Well Casing Vo Uolume of Wa Casing Vo Minimu A Dissolved Oxygen (mg/L) 	Vater (ft BTOC) _ Column Length _ Volume (per ft) _ iter in Well (L) _ olumes to Purge (L) _ into Purge (L) _ .ctual Purge (L) _ ORP (mV) $\overline{CB}$ $35^{-}$ $35^{-}$ $35^{-}$ $71^{-}$ $78^{-}$	11.09 7.09 0.61 9.8 NA NA 14. 14. 14. 14. 14. 7 14. 7 9.0 6.8 7.1 4.5 3.6 2.8 3.5 2.5	$78 \ Liftus \\7$ $7$ $7$ $7$ Depth to Water (ft BTOC) <i>II. 05 II. 25 II. 25 II. 26 II. 29 I</i>	Purge Rate (mL/min) 200 230 260 280 260 4 4 500 240 4 500 240 4 500 260 280 260 260 260 280 260 280 260 280 260 280 260 260 280 260 280 260 260 280 260 260 260 260 260 260 260 260 260 260 260 260 260 4 4 500 260 4 4 500 260 4 4 500 260 4 4 500 260 4 4 260 4 4 500 4 500 4 500 4 500 4 500 260 4 4 500 4 500 4 500 4 500 4 500 4 500 4 500 4 500 4 500 4 500 4 500 4 500 4 500 50
Date Time Started Time Completed PID Measurements Background Breathing Zone Well Head Purge Water FIELD MEASUREMENTS Time Amount $\mathcal{L}$ Purged (get) 1555 $0.001555$ $1.001600$ $2.151605$ $3.451605$ $3.451615$ $6.151615$ $6.151620$ $7.451620$ $7.451620$ $7.451620$ $7.451620$ $7.451635$ $11.15FIELD EQUIPMENT ANDEquipmentHoriba U-520000GENERAL COMMENTSMulti-Parameter Probe Unit #Field Parameters Measured inPump Placement Depth = 1000Pump Rate = 2400 mWell Diameter = 2100$	$\begin{array}{c} 1530\\ 1530\\ 1530\\ \hline 1530\\ \hline 1530\\ \hline 1530\\ \hline 1530\\ \hline 0.0 \\ \hline 0.0$	$\begin{array}{c} 2n_{1} \\ 2n_{2} \\ nn_{2} \\ nn_{2$	Depth to W Water O Well Casing Vo Uolume of Wa Casing Vo Minimu A Dissolved Oxygen (mg/L) 	Vater (ft BTOC) _ Column Length _ Volume (per ft) _ iter in Well (L) _ blumes to Purge (L) _ ctual Purge (L) _ ctual Purge (L) _ ORP (mV) =	11.09 7.00 0.61 9.8 NA NA 14.7 14.7 7.0 6.8 7.1 4.5 3.6 2.8 3.5 2.5	$78 \ 2ifws$ $7$ $7$ Depth to Water (ft BTOC) <i>II. 05 II. 20 II. 25 II. 28 II. 31 II. 29 II. 30 </i>	Purge Rate (mL/min) 200 230 260 260 1  240 1  818924
Torbidity (NTU) Amt Poived (Liter; (mg/L) рH (°C) (1)700 (11/2) Time Conduct? ORP (mV) Rayte (me/min 240 17.53 D. 623 - 92 11.29 2.0 12.35 0.74 7.14 1640 1645 1.4 -94 0,627 0.76 17.53 7.15 0.632 1.1 1 1650 14.75 7.16 17.47 -96 0.76 31/18 10

r

002-MW-09WT

	8	Any Task	– Anywh	ere	00	TIDEWATE	Risc O.
G	ROUNDWATE	R SAMPLE	COLLEC	TION FI	ELD SHE	ET	
CUE Ch	IPTONT			0.01	0.011	4	
SITE NAME GRI	METHICZ	Y	PROJECT NO.	ZUIE	,-004	Als 10/24	10
SAMPLENO. DU2-1	1- MWOID 0	DUZ-1-MWC	VIO-WELL NO.	-002	2-to-M	W-010-h	0- 00Z
	0/20/18 15	40		Toh	n CS	chroe de	•
SAMPLE METHOD Bail	dry + return	to sample	PERSONNEL	And	trew f	lemins	
ill i f	h bailer		· · · · <del>;</del>	.,		1	*
SAMPLE MEDIA:				1	NA		
AMPLE QC DUPLICATE: AS/MSD REOUESTED	YES	DUPLICATI MS/MSI	SAMPLE NO	1	IA		2017 - 11 T
		31 m. 18	44 - A.	1. 49 A. N			
AMPLE CONTAINERS, PRE	SERVATIVES, ANALY	YSIS					i de deper
ample Container 3 40 mal	H(1	Analysis Reques	ted e cl	$h \in [h_{1,2}]$	Volum	e per linear ft o	of casing
250ml ambiers	alass non	SVOL: 197	DAL PAHA	8270A-	1 (III)	0.0408	0 1544
		SIM) Pesti	cides/8081	B)	1 1/2	0.0918	0.3475
	H	PUB\$ (80)	OZA)	<i>)</i>	2	0.1632	0.6178
250mL plastic	HNO3	7 Inurga	nies (602	OA)	3	0.3672	1.3900
250 mL plastic	11/03 tilter	5 Mercon	y (7470)	9)	4	0.6528	2.4711
1 Lamber glas	NORAL P	(RZgoA)	ISIN DIG	s/Forces	8	2.611	9.8837
16 plastic	HNO3	ZRadium	226/228	LEFA 90	1903		0.0001
12 plaitie	HNO3 filter	5	04200			Valor C. 1	EDA
VELL PURGING DATA						3,511	
Date	10/23/18		Well Dep Depth to Wat	th (ft BTOC) er (ft BTOC)	11.00	0 (10/29)	18 015
ime Started /c	123/18 @ 1100		Water Co	humn I onoth	1 7	6.	
ime Completed	ITALIA D DGI	2	Wall Cosing Ve	Juma (nor ft)	7.6	10.	
ime Completed 10	31/18 2041	3	Well Casing Vo Volume of Wate	olume (per ft)	0.617	3	
Time Completed 76	0.0	3	Well Casing Vo Volume of Water Casing Volu	blume (per ft) r in Well (L) mes to Purge	0.617 2.6 NA	290 3	
Image: Completed     Image: Completed       ID Measurements     Image: Completed       Background     Image: Completed       Breathing Zone     Image: Completed       Well Head     Image: Completed	0.0 0.0 0.3	3	Well Casing Vo Volume of Wate Casing Volu Minimum Actu	blume (per ft) r in Well (L) mes to Purge to Purge (L) ual Purge (L)	7.2 0.617 2.6 NA NA 6.	7 <sub>0</sub> 3 7	2013 19
Time Completed //	0.0 0.3 0.3 0.3 0.0	3	Well Casing Vo Volume of Wate Casing Volu Minimum Act	blume (per ft) r in Well (L) mes to Purge to Purge (L) ual Purge (L)	7.2 0.617 2.6 NA NA 6.	7 	
Time Completed TD Measurements Background Breathing Zone Well Head Purge Water TIELD MEASUREMENTS Time Amount	0.0 0.0 0.3 0.3 0.0 pH Temperature	3 e Conductivity	Well Casing Vo Volume of Water Casing Volu Minimum Actu	olume (per ft) r in Well (L) mes to Purge to Purge (L) ual Purge (L)	7.2 0.617 2.6 NA NA 6.	7 3 Depth to Water	Purge Rate
Time Completed //	Ø. Ø	Z e Conductivity (mS/¢m)	Well Casing Vo Volume of Water Casing Volu Minimum Actr Dissolved Oxygen (mg/L)	ORP (mV)	7.2 0.617 2.6 NA NA 6. Turbidity (NTU)	7 Depth to Water (ft BTOC)	Purge Rate (mL/min)
Time Completed     Io       PID Measurements     Background       Breathing Zone	D.0 D.0 D.0 D.0 D.3 D.0 pH Temperature (Celsius)	e Conductivity (mS/cm)	Well Casing Vol Volume of Water Casing Volu Minimum Actr Dissolved Oxygen (mg/L)	ORP (mV)	7.2 0.617 2.6 NA NA 6. Turbidity (NTU)	Depth to Water (ft BTOC)	Purge Rate (mL/min)
Time Completed     Io       ID Measurements     Io       Background     Io       Breathing Zone     Io       Well Head     Io       Purge Water     Io       TIELD MEASUREMENTS     Time       Amount     Purged (gol)       I i losis     Io       III O     O.O       III O     Io.O	D.0 D.0 D.0 D.3 D.0 pH Temperature (Celsius) Well will not sc Dal hered dry	e Conductivity (mS/cm) 15 Fain 50 pr 1 Reform	Well Casing Vol Volume of Water Casing Volu Minimum Actu Dissolved Oxygen (mg/L)	ORP (mV)	7.2 0.617 2.6 NA NA 6. Turbidity (NTU)	Depth to Water (ft BTOC)	Purge Rate (mL/min)
Time Completed     Io       21D Measurements     Background       Breathing Zone	D.0 D.0 D.0 D.3 D.0 pH Temperature (Celsius) Well will not sc Well will not sc Well will not sc Well will not sc	e Conductivity (mS/cm) 15 Fain 50 m 1. Herbirn 1. H3	Well Casing Volume of Water Casing Volu Minimum Activ Dissolved Oxygen (mg/L) $\frac{1}{2}$ , $\frac{1}{2}$ , $\frac{1}{47}$	ORP (mV)	7.2 0.617 2.6 NA NA 6. Turbidity (NTU) Ficial Field	Depth to Water (ft BTOC)	Purge Rate (mL/min) Bezg in MA
Time Completed     Io       21D Measurements     Background       Breathing Zone	D.0 D.0 D.0 D.0 D.3 D.0 pH Temperature (Celsius) Well will not sc Well will not sc We will not sc Well will will not sc Well will will not sc W	e Conductivity (mS/cm) 1. Refurm 1. Refurm 2. Amber 2. Refurm	Well Casing Vol Volume of Water Casing Volu Minimum Actu Dissolved Oxygen (mg/L) $\frac{1}{2}$ / $m_i n_i u_j$ $\frac{1}{2}$ / $m_i n_i u_j$ $\frac{1}{2}$ / $m_i n_i u_j$ $\frac{1}{2}$ / $m_i n_i u_j$ $\frac{1}{2}$ / $m_i n_i u_j$	ORP (mV) ORP (mV) OSIGNIN	7.2 0.617 2.6 NA NA 6. Turbidity (NTU) ficient a 0.0 Th bailer	7 Depth to Water (ft BTOC) 7 7 7 7 7 7 7 7 7 7 7 7 7	Purge Rate (mL/min)
Time Completed     Io       ID Measurements     Background       Breathing Zone	D.0 D.0 D.0 D.3 D.0 pH Temperature (Celsius) Well will not sc Well will not sc Well will not sc Well will not sc Uell will not sc Uell will not sc Uell will not sc Uell beiled dry offect H 1-2; K Uell beiled dry offect S 250	e Conductivity (mS/cm) 1. Refurn 1. 43 2. ambers . Refurn to a Lyling a	Well Casing Volume of Water Casing Volu Minimum Activ Dissolved Oxygen (mg/L) $\frac{1}{100} \int any fill\frac{1}{100} \int any fill \frac{1}{100} \int any fill\frac{1}{100} \int any fill \frac{1}{100} \int any fill \frac{1}$	ORP (mV) ORP (mV) OSIGNI CS CS CS CS CS CS CS CS CS CS CS CS CS	7.2 0.617 2.6 NA NA 6. Turbidity (NTU) ficient a 0.0 ith bailer L plantic	7 Depth to Water (ft BTOC) 7 11. 06 - 11. 32	Purge Rate (mL/min)
Time CompletedIo21D MeasurementsBackgroundBreathing ZoneWell HeadPurge WaterTIELD MEASUREMENTSTimeAmountPurged (gel) $1/100$ 0.0 $1/100$ 0.0 $1/100$ 0.0 $1/100$ 0.0 $1/100$ 0.0 $1/100$ 0.0 $1/100$ 0.0 $0.00$ 0.0 $1/100$ 0.0 $0.00$ 0.0 <td>D.0 D.0 D.0 D.0 D.3 D.0 pH Temperature (Celsius) Well will not sc Well beiled dry offert 5 250 Vell beiled dry offert 5 250 Vell beiled dry offert 2 600.</td> <td>2 e Conductivity (mS/cm) 1. Refuer 1. Refuer 2. Amher . Refuer . Refu</td> <td>Well Casing Vol Volume of Water Casing Volu Minimum Activ Dissolved Oxygen (mg/L) <math>\frac{1}{2}/m_{1}n</math> <math>\frac{1}{2}</math> <math>\frac{1}{2}/47</math> <math>(E_{1}51A, B_{2})</math> <math>\frac{1}{2}/m_{1}A + \frac{1}{2}</math> <math>(E_{1}51A, B_{2})</math> <math>\frac{1}{2}/m_{1}A + \frac{1}{2}</math> <math>(E_{1}51A, B_{2})</math> <math>\frac{1}{2}/m_{1}A + \frac{1}{2}</math> <math>(E_{1}51A, B_{2})</math></td> <td><math display="block">\frac{\text{ORP}}{\text{ORP}}</math></td> <td>V. C. 0. 617 2. 6 NA NA 6. Turbidity (NTU) fice of a fea 2. 6 NA 0. 0 The bailed 2. 6 NA 0. 0 The bailed</td> <td>Depth to Water (ft BTOC) (ft</td> <td>Purge Rate (mL/min)</td>	D.0 D.0 D.0 D.0 D.3 D.0 pH Temperature (Celsius) Well will not sc Well beiled dry offert 5 250 Vell beiled dry offert 5 250 Vell beiled dry offert 2 600.	2 e Conductivity (mS/cm) 1. Refuer 1. Refuer 2. Amher . Refuer . Refu	Well Casing Vol Volume of Water Casing Volu Minimum Activ Dissolved Oxygen (mg/L) $\frac{1}{2}/m_{1}n$ $\frac{1}{2}$ $\frac{1}{2}/47$ $(E_{1}51A, B_{2})$ $\frac{1}{2}/m_{1}A + \frac{1}{2}$ $(E_{1}51A, B_{2})$ $\frac{1}{2}/m_{1}A + \frac{1}{2}$ $(E_{1}51A, B_{2})$ $\frac{1}{2}/m_{1}A + \frac{1}{2}$ $(E_{1}51A, B_{2})$	$\frac{\text{ORP}}{\text{ORP}}$	V. C. 0. 617 2. 6 NA NA 6. Turbidity (NTU) fice of a fea 2. 6 NA 0. 0 The bailed 2. 6 NA 0. 0 The bailed	Depth to Water (ft BTOC) (ft	Purge Rate (mL/min)
Time Completed     Io       21D Measurements     Background       Breathing Zone     Well Head       Purge Water     Purge Water       TIELD MEASUREMENTS     Time       Time     Amount       Purged (gel)     I (1 - 2 - 5)       I/IO     O.O	D.0 D.0 D.0 D.0 D.3 D.0 D.3 D.0 pH Temperature (Celsius) Well will not sc Uell beiled dry offect 4 1-2;6 Uell beiled dry offect 250 Uell beiled dry clact 2 600 ml	e Conductivity (mS/cm) / Refurn / Refurn / Refurn / Refurn / All / Haitie / Haitie / Haitie /	Well Casing Vol Volume of Water Casing Volu Minimum Actu Dissolved Oxygen (mg/L) $\frac{1}{100} \int a_{mp} dz$ $\frac{2}{100} \int a_{m} dz$ $\frac{1}{100} \int a_{m} dz$	ORP (mV) ORP (mV) ORP (mV) OSIGNI CSI CSI CSI CSI CSI CSI CSI CSI CSI CS	7.2 0.617 2.6 NA NA 6. Turbidity (NTU) Fiecent a 0.0 Th bailer 2 plantic	7 Depth to Water (ft BTOC) 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	Purge Rate (mL/min)
Time Completed     Io       21D Measurements     Background       Breathing Zone	D.0 D.0 D.0 D.0 D.3 D.0 D.3 D.0 pH Temperature (Celsius) Well will not sc Usell bailed dry uller 5, 250 Usell bailed dry Usell bailed dry	2 e Conductivity (mS/cm) 1. Fain 50 m 1. Keturn 1. Keturn Return Keturn Keturn 1. H 2. Alwit 2. Alwit 1. Al 2. Alwit 2. Alwit 1. Alwit 2. Al	Well Casing Vol Volume of Water Casing Volu Minimum Active Dissolved Oxygen (mg/L) $\frac{1}{100} \frac{1}{100} \frac$	ORP (mV) ORP (mV) OSIGNAL SUPURE CH CH CH CH CH CH CH CH CH CH CH CH CH	7.2 0.617 2.6 NA NA 6. Turbidity (NTU) ficium f a 0.0 ith bailer L plantic	С С С С Порт to Water (ft BTOC) Посо П. ОС С П. 32 1141 ( see ba	Purge Rate (mL/min)
Time Completed       Io         PID Measurements       Background         Breathing Zone       Well Head         Purge Water       Well Head         TIELD MEASUREMENTS       Time         Time       Amount         Purged (gel),       1:125         1100       0.0       0         1100       0.0       0         1100       0.0       0         1100       0.0       0         1100       0.0       0         1100       0.0       0         1100       0.0       0         1100       0.0       0         1100       0.0       0         1100       0.0       0         1100       0.0       0         1100       0.0       0         12400       -       0         12400       -       0         12400       -       0         12400       -       0         12400       -       0         12400       -       0         12400       -       0         12400       -       0         12400       -	D.0 D.0 D.0 D.0 D.3 D.0 D.3 D.0 pH Temperature (Celsius) Well will not sc Uell beiled dry Uell heiled dry	2 e Conductivity (mS/cm) 1. Return 1. 43 2. amber . Return . Return	Well Casing Vol Volume of Water Casing Volu Minimum Actu Dissolved Oxygen (mg/L) $\frac{1}{2}$ / $m_1 n_1$ $\frac{1}{2}$ / $m_1 n_2$ $\frac{1}{2}$ / $m_2 n_2$ 1	$\frac{1}{100} \frac{1}{100} \frac{1}$	18	С С С С П П С С С С С С С С С С С С С	Purge Rate (mL/min) $\frac{1}{\sqrt{NA}}$
Time Completed       Io         ID Measurements       Background         Breathing Zone       Well Head         Purge Water       Well Head         TIELD MEASUREMENTS       Time         Time       Amount         Purged (gal)       I (1 < r > )         I (1 < r > )       0.0       0         III 0       0.0       0         IIII 0       0.0       0	D.0 D.0 D.0 D.0 D.3 D.0 D.3 D.0 pH Temperature (Celsius) Well will not sc Well bailed dry Sched dry S	3 e Conductivity (mS/cm) / Refurn / Refurn / Refurn / Keturn / Haitie / Hai	Well Casing Vol Volume of Water Casing Volu Minimum Actu Dissolved Oxygen (mg/L) $2/m_{1}n_{2}n_{3}n_{4}n_{5}n_{4}n_{5}n_{4}n_{5}n_{4}n_{5}n_{5}n_{5}n_{5}n_{5}n_{5}n_{5}n_{5$	$\frac{1}{10} \frac{1}{10} \frac$	1 B	7 Depth to Water (ft BTOC) 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	Purge Rate (mL/min) NA
Time Completed       Io         PID Measurements       Background         Breathing Zone       Well Head         Purge Water       Well Head         TIELD MEASUREMENTS         Time       Amount         Purged (gel),       1/1/10         1/1/10       6.4         //00       -         //2/00       -	D.0 D.0 D.0 D.0 D.3 D.0 D.3 D.0 pH Temperature (Celsius) Well will not sc Usel bailed dry Usel bailed dry Scoutter for sc dry Scoutter for sc dry dry dry dry dry dry dry dry	3 e Conductivity (mS/cm) 1. Return 50 m 1. Return 1 2. amherx . Return 1 4. 43 2. amherx . Return 1 4. 42 . Return 1 4. 42 . Return 4 . R	Well Casing Volume of Water Casing Volume of Water Casing Volu Minimum Activ Dissolved Oxygen (mg/L) $\frac{1}{2}/m_1 + \frac{1}{2}/m_2 + \frac{1}{2}/m_1 + \frac{1}{2}/m_2	$\frac{1}{100} \frac{1}{100} \frac{1}$	118	7 7 Depth to Water (ft BTOC) 7 7 7 7 7 7 7 7 7 7 7 7 7	Purge Rate (mL/min) $\frac{1}{\sqrt{NA}}$
Time Completed       Io         PID Measurements       Background         Breathing Zone       Well Head         Purge Water       Purge Water         TIELD MEASUREMENTS       Time         Time       Amount         Purged (gel) $i:i:xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx$	D.0 D.0 D.0 D.0 D.0 D.0 D.0 D.0	3 e Conductivity (mS/cm) 1. Refurn 1. 43 e amhers . Refurn to 21 071 #256847 0821	Well Casing Volu Volume of Water Casing Volu Minimum Actu Dissolved Oxygen (mg/L) $\frac{1}{2}/m_{1} + \frac{1}{2}$ $\frac{1}{2}/M_{1} + \frac{1}{2}/M_{1}$ $\frac{1}{2}/M_{1} + \frac{1}{2}/M_{1}$ $\frac{1}{2}/M_{1} + \frac{1}{2}/M_{1}$ $\frac{1}{2}/M_{1} + \frac{1}{2}/M_{1}$	$\frac{1}{100} \frac{1}{100} \frac{1}$	118	7 7 Depth to Water (ft BTOC) 7 7 7 7 7 7 7 7 7 7 7 7 7	Purge Rate (mL/min) $\frac{Beze in}{MA}$
Time Completed     Io       ID Measurements     Background       Breathing Zone     Well Head       Purge Water     Well Head       TIELD MEASUREMENTS       Time     Amount       Purged (gel)     1/100       1/100     0.0 </td <td>D.0 D.0 D.0 D.0 D.3 D.0 D.3 D.0 pH Temperature (Celsius) Well will not sc Well beiled dry offer 5 250 Well beiled dry offer 5 250 Well ha led dry offer 5 250 Well ha led dry offer 7-100 H 592-00 Sce above w-Through Cell</td> <td>3 e Conductivity (mS/cm) / Refurn / Refurn / Keturn / +2 n/aitic + / / #256847</td> <td>Well Casing Vol Volume of Water Casing Volu Minimum Actu Dissolved Oxygen (mg/L) <math>2/m_{1} = 0</math> <math>2/m_{1} = 0</math> <math>4/m_{1} = 0</math> <math>2/m_{1} = 0</math> <math>4/m_{1} = 0</math> <math>2/m_{1} = 0</math> <math>4/m_{1} = 0</math> <math>2/m_{1} = 0</math> <math>4/m_{1} = 0</math> 4/m</td> <td><math display="block">\frac{1}{1000} \frac{1}{1000} \frac{1}{10000} \frac{1}{100000} \frac{1}{10000000000000000000000000000000000</math></td> <td>1 B</td> <td>7 Depth to Water (ft BTOC) 7 7 7 7 7 7 7 7 8 7 8 7 8 7 8 7 8 7 8</td> <td>Purge Rate (mL/min) 1. Bezy in NA</td>	D.0 D.0 D.0 D.0 D.3 D.0 D.3 D.0 pH Temperature (Celsius) Well will not sc Well beiled dry offer 5 250 Well beiled dry offer 5 250 Well ha led dry offer 5 250 Well ha led dry offer 7-100 H 592-00 Sce above w-Through Cell	3 e Conductivity (mS/cm) / Refurn / Refurn / Keturn / +2 n/aitic + / / #256847	Well Casing Vol Volume of Water Casing Volu Minimum Actu Dissolved Oxygen (mg/L) $2/m_{1} = 0$ $2/m_{1} = 0$ $4/m_{1} = 0$ $2/m_{1} = 0$ $4/m_{1} = 0$ $2/m_{1} = 0$ $4/m_{1} = 0$ $2/m_{1} = 0$ $4/m_{1} = 0$ 4/m	$\frac{1}{1000} \frac{1}{1000} \frac{1}{10000} \frac{1}{100000} \frac{1}{10000000000000000000000000000000000$	1 B	7 Depth to Water (ft BTOC) 7 7 7 7 7 7 7 7 8 7 8 7 8 7 8 7 8 7 8	Purge Rate (mL/min) 1. Bezy in NA
Time Completed       Io         PID Measurements       Background         Breathing Zone       Well Head         Purge Water       Well Head         TIELD MEASUREMENTS       Time         Time       Amount         Purged (gel),       1:125         1100       0.0         1100	D.0 D.0 D.0 D.0 D.3 D.0 D.3 D.0 pH Temperature (Celsius) Well will not sc Uself bailed dry offect 4 1-2; K Uself bailed dry offect 2 600 m/L bailed dry offect 2 600 m/L bailed dry offect 2 600 m/L bailed dry offect 2 600 m/L bailed dry offect 7 - 100 See a 50 V2 w-Through Cell	3 e Conductivity (mS/cm) 1. Fain 50 m 1. Return 1. 43 2. amber . Return . Retur	Well Casing Vol Volume of Water Casing Volu Minimum Actu Dissolved Oxygen (mg/L) $\frac{2}{m_1}$ $\frac{m_2}{m_1}$ $\frac{2}{m_2}$ $\frac{2}{m_1}$ $\frac{2}{m_2}$ $\frac{2}{m_1}$ $\frac{2}{m_2}$ $\frac{2}{m_1}$ $\frac{2}{m_2}$ $\frac{2}{m_1}$ $\frac{2}{m_2}$ $\frac{2}{m_1}$ $\frac{2}{m_2}$ $\frac{2}{m_1}$ $\frac{2}{m_2}$ $\frac{2}{m_2}$ $\frac{2}{m_1}$ $\frac{2}{m_2}$ $\frac{2}{m_2}$ $\frac{2}{m_1}$ $\frac{2}{m_2}$ $\frac{2}{$	$\frac{1}{100} \frac{1}{100} \frac{1}$	1 B	7 7 Depth to Water (ft BTOC) 7 7 7 7 7 7 7 7 7 7 7 7 7	Purge Rate (mL/min) $\frac{1}{\sqrt{A}}$
Time Completed       Io         ID Measurements       Background         Breathing Zone       Well Head         Purge Water       Well Head         TIELD MEASUREMENTS       Time         Time       Amount         Purged (gel) $1.4 + s_5$ 1100       0.0         1110       6.4         1110       6.4         1110       6.7         1111       11.4         1111       11.4         11111       11.4         11111<	D.0 D.0 D.0 D.0 D.0 D.0 D.0 D.0	3 e Conductivity (mS/cm) / Refurn / Refurn / Refurn / A / H / H / H / H / H / H / H / H	Well Casing Volu Volume of Water Casing Volu Minimum Actu Dissolved Oxygen (mg/L) $4/m_r$ $4/m_r$ $2/m_r$ $4/m_r$ $4/m_r$ $2/m_r$ $4/m_r$ $4/m_r$ $4/m_r$ $2/m_r$ $4/m_r$ $4/$	num Lengun num Lengun lume (per ft) r in Well (L) mes to Purge (L) to Purge (L) ORP (mV) O Signi $2C$ $B2$ $G$ $B2$ $G$ $Aa$ $s$ $f$ $ab$ $f$ $ca$ $s$ $f$ $af$ $a$ $s$ $f$ $aa$ $a$ $ba$ $b$ $ba$ $ba$ $b$ $b$ $ba$ $b$ $b$ $b$ $ba$ $b$ $b$ $b$ $ba$ $b$	1 B	7 Depth to Water (ft BTOC) 7 11. 32 11. 32 11.41 (see bu	Purge Rate $(mL/min)$ Bezy in NA $c \in J$

STW (6for) 12.14

1610 Collect 3 I Liter plastic 12.14 1638 Well bailed dry 10/31/18 0907 Collect 1 1 Liter plastic 11.46 0913 Done.

Note that when well was completed, a 0.5 ft extension was added to caring. Measurements on this sheet made prior to the 0.5 ft extension (reference height before extension)

Appendix F: Sediment and Surface Water Sampling Logs

AECOM

SE	DIMENT SAMPLE CO	LLECTION FO	ORM	
Project Name: GKP Phase	1 RIOUZ			
Date(s): 10/22/18	10/22/18			
Project #:	200 2016-0	0'7 Da	ate: 10/22/18	3
Sample Location ID:	002-SED-01	Ti	me: 0900	
Sample #:	002-1-SE001	W	eather: Mostly	closd.
Samplers:	John C.Schroeder	•	42°F	one exy
	Ryan Wansink			
Sample Information:	1			
Sample Depth:	0-6 inches	Sampling Dev	ice: Nedicate	d acetate
Water Depth:	3 inches	core	device.	
Distance from River Bank:	1.5 Ft			
River Flow Rate:	Jee surface water	field sheet		
Field Decon:	Yes No	Sample Type:	Grab	Composite
	(Dedicated )			
Sample Description: Classer				
Caracter Contract	= 702 C wet	(1)		
(approx )	-2010 fine-medium	sana		
Other physical characteristics of w	ater body at sample locati	0.0.1		
(Water color, turbidity, odor, prese	nce of sheens dead/stress	ed vegetation	ote )	
Water clear (very 1	ow turbidity	Vo uplan	Al chan	- 1 1 -
of leaves on water	cortace Some d	labric il	100 SHEER	S. Lots
of leaves on white	surjade, some s	coris apo	ng stream	banks
and in stream.				
19.				
PID= 0.0 ppm				
Rad Scan = 4,00	O CPM			
,				
Sample Commonts (Description				
C / / /		1	0	1
Sample homogenized	I prior to colla	ection la	except for	- VOCa
	,	. (		·)-
				r (1

AECOM

TIDEWATER INC

SE	DIMENT SAMPLE CO	LLECTION	FORM
Project Name: $GKPPhase I$ Date(s): $\frac{10}{22}/18$	R.I 002		
Project #:	2016-007		Date: 10/22/18
Sample Location ID:	002-SED-02		Time: 10/0
Sample #:	002-1- SF007	,	Weather: Mostly cloud.
Samplers:	John C Schroede	~	440F
	Ryan Wensink		11.
Sample Information:			
Sample Depth:	0-6 inches	Sampling D	Device: De l'auteril
Water Depth:	2 inches	aceta	te LOFE device
Distance from River Bank:	2 ft .	1	
River Flow Rate:	See surface water	field sh	ee.t.
Field Decon:	Yes No	Sample Typ	composite
	Dedicated		
Munsell Color: Dark brown	١,		
Sample Description: Sil+(ML)	15% sand and gi	ravel : 1	Wet
/	)	1	
011			
Other physical characteristics of w	ater body at sample locat	ion:	
(Water color, turbidity, odor, prese	nce of sheens, dead/stress	ed vegetatio	on, etc.)
Vary light brown to clear	color. Slightly	turbid	Significant sheap on
water. Phragmite a	with at sample	2 location	A few leaves
water surface	, , <i>, .</i>		, it four teaves or
0-10			
PID= 0.0 ppm			
Rad scan = 4000	6 m la		
1192 5000 - 4,000	cpm		
Semula Communication			
Sample Comments/Description:		11 .	1
Jample homogenized	l prior to co	llection	(except for VOCS)
	/		
· · · ·			
			-
1			
	~		

AECOM

SEDIMENT SAMPLE COLLECTION	N FORM
Date(s): 10 22 18	
Project #: 2016-007	Dato: 10/22/10
Sample Location ID: 0U2-5EB-03	Time: 1435
Sample #: 002-1-5E003	Weather: Mastly cloudy
Samplers: John CSchroeder	51°F.
Sample Information:	
Sample Depth: 0- 6 inchas Sampling	Device: Dedicated
Distance from Diver Day 1 5 ace to	te core device.
Biver Flow Pater	
Field Deserver Var Var Var Field shu	set )
Dedicated	ype: Grab Composite
Munsell Color: Very dark brown to black	
Sample Description: 0-4 inches well graded sand (SV	V): 95% fine to coarse sand
4-6 inches Silt (ML): 957 silt;	5% very fire sand; wet;
Other physical characteristics of water body at sample location:	
(Water color, turbidity, odor, presence of sheens, dead/stressed vegetat	ion, etc.)
Water clear (very low turbidity No	color No choose
No leaves or debris_	or the sheet.
PID = 0.0 ppm	
Rad scan = 4,000 cpm	
Sample Comments/Description:	
Sample homogenized prior to collection	(except for Vacs).

SE	DIMENT SAMPLE CO	OLLECTION FOR	M	
Project Name; GKP Phase	1 RI 0J2			
Date(s): 10 22 18				
Project #:	2016-007	Date	: 10/22/18	
Sample Location ID:	002-SED-04	Time	: 1130	
002-1-5E004-AUP Sample #:	002-1-SE00	(MS/MS/Wea	ther: Mostly	cloudy to
Samplers:	John CSchroe	der 1		- //-
	Ryan WENSIN	rk		
Sample Information:	. / .			
Sample Depth:	0-6 inches	Sampling Device	: Dedicas	2d
Water Depth:	3 inches	acetat	e core de	vice
Distance from River-Bank:	4 St from wetle	and perimeter	-	
River Flow Rate:	See surface what	e field shee	+	
Field Decon:	Yes No	Sample Type:	(Grab)	Composite
Manager	(Dedicated)		$\sim$	
Sample Descritions		ph 10/22	18	
sample Description: Well gri	eded sandswig	0% freezenja	fire to coars	e sand,
10% 000,0	11			/
ree gran	1 act			
Other physical characteristics of w (Water color, turbidity, odor, prese Water clear (very lo or, debris. Phragmin	water body at sample loca ence of sheens, dead/stress w turbidity). Note the growth (thick	tion: sed vegetation, etc b, color. No k) at sam	sheen 1	Vo leaves
Other physical characteristics of w (Water color, turbidity, odor, prese Water clear (very lo or, debris. Phragmin location. P.I.A = 0. 0 ppm Rad scan = 5,00	rater body at sample loca ence of sheens, dead/stres w turbidity). N te growth (thic 00 cpm	tion: sed vegetation, etc b, color. No k) at sam	sheen 1 pp/e colle	Vo leaves
Other physical characteristics of w (Water color, turbidity, odor, prese Water clear (very lo or debris. Phragmin location. P.I.A = 0. 0 ppm Rad scan = 5,00	rater body at sample loca ence of sheens, dead/stres w turbidity). N te growth (thic 00 cpm	tion: ssed vegetation, etc b, color. No k) at sam	sheen 1 uple colle	Vo leaves
Other physical characteristics of w (Water color, turbidity, odor, prese Water clear (very lo or, debris. Phragmin location. PIA = 0. Oppm Rad scan = 5,00 Sample Comments/Description:	rater body at sample loca ence of sheens, dead/stres w turbidity). N te growth (thic	tion: sed vegetation, etc b, color. No k) at sam	sheen 1 ysk colle	Vo leaves
Other physical characteristics of w (Water color, turbidity, odor, prese Water clear (very lo or debris. Phragmin location. PIA = 0. Oppm Rad scan = 5,00 Sample Comments/Description: Samph homogeni	rater body at sample loca ence of sheens, dead/stres w turbidity). N the growth (thic 00 cpm zed prior to	tion: sed vegetation, etc b, color. No k) at sam collection	sheen 1 ys/e colle	Vo leaves ction
Other physical characteristics of w (Water color, turbidity, odor, prese Water clear (very lo or debris. Phragmin location. P.I.A = 0. Oppm Rad scan = 5,00 Sample Comments/Description: Samph homogeni	rater body at sample loca ence of sheens, dead/stres w turbidity). N te growth (thic 00 cpm zed prior to	tion: sed vegetation, etc b, color. No k) at sam	sheen 1 sheen 1 ple colle	Vo leaves ction
Other physical characteristics of w (Water color, turbidity, odor, prese Water clear (very lo or, debris. Phragmin location. PIA = 0. Oppm Rad scan = 5,00 Sample Comments/Description: Samph homogeni	rater body at sample loca ence of sheens, dead/stres w turbidity). N te growth (thic 00 cpm zed prior to	tion: sed vegetation, etc b, color. No k) at sam collection	except	Vo leaves ction
Other physical characteristics of w (Water color, turbidity, odor, prese Water clear (very lo or debris. Phragmin location. PIA = 0. 0 ppm Rad scan = 5,00 Sample Comments/Description: Samph homogeni	zed prior to	tion: sed vegetation, etc b, color. No t) at sam collection	sheen 1 ys/e colle	Vo leaves ction
Other physical characteristics of w (Water color, turbidity, odor, prese Water clear (very lo or debris. Phragmin location. PIA = 0. Oppm Rad scan = 5,00 Sample Comments/Description: Samph homogeni	rater body at sample loca ence of sheens, dead/stres w turbidity). No the growth (thic 00 cpm zed prior to	tion: sed vegetation, etc b, color. No k) at sam collection	sheen 1 ys/e colle	Vo leaves ction
Other physical characteristics of w (Water color, turbidity, odor, prese Water clear (very lo or, debris. Phragmin Tocation. PIA = 0. 0 ppm Rad scan = 5,00 Sample Comments/Description: Samph homogeni	zed prior to	tion: sed vegetation, etc b, color. No k) at sam collection	sheen 1 yple colle	Vo leaves ction
Other physical characteristics of w (Water color, turbidity, odor, prese Water clear (very lo or debris. Phragmin location. PIA = 0. 0 ppm Rad scan = 5,00 Sample Comments/Description: Samph homogeni	zed prior to	tion: sed vegetation, etc b, color. No k) at sam collection	sheen 1 sheen 1 ple colle	Vo leaves ction
Other physical characteristics of w (Water color, turbidity, odor, prese Water clear (very lo or debris. Phragmin location. PIA = 0. Oppm Rad scan = 5,00 Sample Comments/Description: Samph homogeni	zed prior to	tion: seed vegetation, etc b, color. No k) at sam collection	sheen 1 ys/e colled (except 7	Vo leaves ction For VOCs

AECOM

SE	DIMENT SAMPLE CO	LLECTION	FORM	
Project Name: CKP Phase 1	RI OUZ			
Date(s). 10/25/10	19-11			
Project #:	2016-007		Date: 10/23/18	3
Sample Location ID:	001-515-05	~	Time: '08'35	-
Samplere:	The Charles		Weather: 48 °F	, partly
Julipiers.	Rugs Uppersint	er	sunny	/
Sample Information:	rigan weres in		,	
Sample Depth:	0-6 inches	Sampling D	evice: And I'mad	1
Water Depth:	binches	aceta	te core devicase	201
Distance from River Bank:	1.5 feet		a device	-
River Flow Rate:	See surface water	fields	heet	
Field Decon:	Yes No	Sample Typ	e: Grab	Composite
Munsell Color: Dark brown	Qedicated			
Sample Description: well and	dad in 1/cut			
weitgra	and sand (sw	); time	to medium so	and; wet
Other physical characteristics of w	ater body at sample location	on:		
(Water color, turbidity, odor, prese	nce of sheens, dead/stresse	ed vegetation	n etc)	
Water clear (very	low turbidity	· na m	(, etc.)	(111
minimal leaves or	water surface	11 no 0	lebris/garb	(slight); uge
PIA= D.O com				
naa scan = 4,000	cpm			
Sample Comments/Description:			11 /	
Sample homoge. for VOUS).	nized prior	to a	lection (e	reept
•				
				1

AECOM TIDEWATER INC SEDIMENT SAMPLE COLLECTION FORM Project Name: GKP Phile 1 RIOUZ Date(s): 10/23/18 Project #: 2016-007 Date: 23/18 Sample Location ID: 2002 REF-SED-01 Time: 0910 Sample #: REF-1-SEODI Weather: 5 John C Schroeder Samplers: Junny puril Ryan Wensink Sample Information: 0-6 inches Sampling Device: Dedicated Sample Depth: Water Depth: 2 inches acetate core device **Distance from River Bank:** 1.54 See surface water field sheet. **River Flow Rate:** Field Decon: Yes Sample Type: No Grab ) Composite Dedicated Munsell Color: -Sample Description: 0-4 inches well graded sand (SW); dark brown gray; Slight fine to medium sand; wet 4-6 inches silt (ML); very dark brown to black; wet Scotor (petroleum?) Other physical characteristics of water body at sample location: (Water color, turbidity, odor, presence of sheens, dead/stressed vegetation, etc.) Water color clear (very low turb. dity). No color. Slight sheen. Some leaves on water surface. Some debris /garbage in water (channel. PIA= 0.0 ppm Rad scan = 4,000 cpm Sample Comments/Description: Sample honogenized prior to collection (except for VOCs).



GENERAL I	NFORMATION
-----------	------------

SITE NAME		Great Kill	s Park OU2		PROJECT NO					
SAMPLE NO	002-	1- 5W	001	_	18					
DATE/TIME SAMPLE ME	Collected Thod:	10/18 perist	110 VINC P	1010 mp	PERSONNEL	John Greg	C Sch Headin	g ton		
SAMPLE ME SAMPLE QC MS/MSD REG	DIA: DUPLICATE: QUESTED	YES YES	NO	DUPLICAT MS/MS	TE SAMPLE NO. SD SAMPLE NO.		NA			
SURFACE W	ATER COLL	ECTION DAT	A		_					
Date Time Started Time Complet	ed j	10 13 0953 1035	18		Begin Sampling Record Water Q	using water dip uality parameter	per NA	p		
Background Breathing Z Stream Surf	one profile PID	Measurements 	0.0 0.0 0.0		Screen Surface w	vater for RAD	11,00	00 cpm		
FIELD MEAS	SUREMENTS									
Time	pН	Temperature (Celsius)	Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Rad Screen	Salinity	Notes	
1000	6.33	9.97	1.86	11.16	3,42	5.8				
FIELD EQUI Equipment Horiba ( Min; RAE	PMENT AND 552 3000	CALIBRATIC Model	DN		Calibration 10/19/18 10/18/18	3				at
GENERAL C Multi-Paramete Field Paramete Sample Depth Location: C Mo	OMMENTS er Probe Unit fu rs Measured inf = 1 inch hann = 1 flow	6CHR below c is 7	RPT/ Bell yess vater s 5 fd	(cal usp) Vrface across	total de at sampl	oth of c 2 location	drainaye a 1. Depth	-houvel :. From O	s Binches - 3 inche	10 cakon
Slig	h+ fili	n/shae	h on	water	a)					



GENERAL INFORMATIC	DN							
SITE NAME	Great Kills Park OU2		PROJECT NO					
SAMPLE NO. 002	-1-5W002							
DATE/TIME COLLECTED SAMPLE METHOD:	10/19/18 1 peristaltic p	250 Smp	PERSONNEL	Jol	in C.	Schwede	r	
SAMPLE MEDIA: SAMPLE QC DUPLICATE: MS/MSD REQUESTED	YES NO	DUPLICA MS/M	TE SAMPLE NO SD SAMPLE NO		VA			
SURFACE WATER COLI	ECTION DATA							
Date Time Started Time Completed	10/19/18 1205 1410		_Begin Sampling _Record Water Q	using water dip uality parameter	per N rs	1		
PII Background Breathing Zone Stream Surface	Deasurements D.O.ppm D.O.ppm D.O.ppm		_Screen Surface v 	vater for RAD	11,00	o cpm		
FIELD MEASUREMENTS	5	_	_					
Time pH	Temperature Conductivity (Celsius) (mS/cm)	Dissolved Oxygen (mg/L	ORP (mV)	Turbidity (NTU)	Rad Screen	Salinity	Notes	
1245 7.28 1250 7.33	11.69 1.06 11.54 1.07	3.15 7.10	-85 -90	103 29.0		Adjusted for sample sediment, pulled of	tubing to e such to was not bottom	han be
						through	tubing.	-
FIELD EQUIPMENT ANI	CALIBRATION							
Horiba Mini RAK	Model USZ 3000	-	Calibration 10/19/18 10/19/18					
GENERAL COMMENTS Multi-Parameter Probe Unit Field Parameters Measured in Sample Depth = 1 in ch Location: a + 14	6CHRRPTI Flow Through Coll July July below water 07. Channel is	18 cal c surface 15 ft	Depth	at sai	nste la	ecation is	5 3 inc. D-4 inc	hes
Sheen on	water at s	ample	- locatic	n.				
No flow	r							



## TIDEWATER INC

GENERAL INFORMATIO	N				
SITE NAME	Great Kills Park OU2	PROJECT NO			
SAMPLE NO. DUZ	-1 - SW003				
DATE/TIME COLLECTED SAMPLE METHOD:	10/18/18 peristaltic	1140 PERSONNEI	Joh Gre	n C Schroed Headingta	ler 1
SAMPLE MEDIA: SAMPLE QC DUPLICATE: MS/MSD REQUESTED	YES NO	DUPLICATE SAMPLE NO MS/MSD SAMPLE NO	рн	4	
SURFACE WATER COLL	ECTION DATA				
Date Time Started Time Completed	10/18/18 1130 1225	Begin Sampling Record Water Q	using water dipper uality parameters	NA	
PIE Background Breathing Zone Stream Surface	0.0 Pl 0.0 Pl 0.0 Pl	Screen Surface	vater for RAD	11,000 yom	
FIELD MEASUREMENTS					
Time pH	Temperature Conductivit (Celsius) (mS/cm)	y Dissolved ORP Oxygen (mg/L) (mV)	Turbidity Rad (NTU)	I Screen Salinity	Notes
1140 6.94	10.54 4.18	4.84 2.4	19.9		
FIELD EQUIPMENT AND Equipment Horika Min, RAE	CALIBRATION Model USZ 3000	Calibration 10/18/1 10/18/1	e B		
GENERAL COMMENTS Multi-Parameter Probe Unit	6CHRRPT				at samp focation
Field Parameters Measured in Sample Depth = / / / / / / / / / / / / / / / / / /	he low water	surface. Total	depth of	drainage is	4.5 inches P 120
Location: at d	accept point.	Channel is 4.5	ff acros	1 at sample	location -
i spin	covery ere	the varies fr	om U-E	, nikes,	
Flow rat	e = 0.127	m/s a	mid das	16	
(Proce	tive Alexis	2.0 # 3376	26)		
C.					



### TIDEWATER INC

## SURFACE WATER SAMPLE COLLECTION FIELD SHEET

#### GENERAL INFORMATION

SITE NAME	Great Kills Park OU2	PROJECT NO.
SAMPLE NO. 002-	1- SW004	
DATE/TIME COLLECTED SAMPLE METHOD:	10/18/18, 1355 peristaltic pump	PERSONNEL John C Schroeder Greg Headington
SAMPLE MEDIA: SAMPLE QC DUPLICATE: MS/MSD REQUESTED	YES NO DUPLIC YES NO MS/	CATE SAMPLE NO
SURFACE WATER COLL	ECTION DATA	
Date Time Started Time Completed	10 18 18 1340 1430	Begin Sampling using water dipper NA Record Water Quality parameters
PID Background Breathing Zone Stream Surface	Measurements 0.0 ppm 0.0 ppm 0.0 ppm	Screen Surface water for RAD 11,000 m
FIELD MEASUREMENTS Time pH	Temperature Conductivity Dissolvec (Celsius) (mS/cm) Oxygen (mg	d ORP Turbidity Rad Screen g/L) (mV) (NTU) Salinity Notes
1355 7.44	11.66 0.435 5.53	5 1.52 3.9
FIELD EQUIPMENT AND	CALIBRATION	
Horiba Mini RAE	<u>Model</u> USZ 3000	Calibration 10/18/18 10/18/18
GENERAL COMMENTS Multi-Parameter Probe Unit # Field Parameters Measured in Sample Depth = / 19ch Location: A + /4	MGCHRRPTT Plow Through Cell below water surfa- 10, Location is pon	ce. Depth at sample location is 3 inches ind we thand.

No flow.



## TIDEWATER INC

## SURFACE WATER SAMPLE COLLECTION FIELD SHEET

#### GENERAL INFORMATION

SITE NAME	Great Kills	s Park OU2		PROJECT NO.				
SAMPLE NO. 002	-1-5 10/19	W005	0910	DEDSONNIEL	Tol	nCI	Chroede	~
SAMPLE METHOD:	parist	altic p	ump	PERSONNEL	Zli	f Gra	y	
SAMPLE MEDIA: SAMPLE QC DUPLICATE: MS/MSD REQUESTED	YES YES	No.	DUPLICAT MS/MS	FE SAMPLE NO. SD SAMPLE NO.		NA		
SURFACE WATER COLL	ECTION DAT	4						
Date Time Started Time Completed	10/19/1 083 100 Measurements			Begin Sampling Record Water Qu	using water dipp ality parameters	er NA		
Background Breathing Zone Stream Surface			ppm	Screen Surface w	ater for RAD	11,00	o yom	
FIELD MEASUREMENTS	Temperature	Conductivity	Dissolved	OPP	Turbidity	Pad Saraan		
inne pri	(Celsius)	(mS/cm)	Oxygen (mg/L)	) (mV)	(NTU)	Rau Scieen	Salinity	Notes
0910 6.29	9.93	0,990	3.20	101	8,0			
	CALIDDATI	N						
Herbed Equipment AND Horsha Mini RAE	Model US2 3000		-	<u>Calibration</u> 10/19/1 10/19/1	8			
GENERAL COMMENTS Multi-Parameter Probe Unit # Field Parameters Measured in Sample Depth = 1 100 Location: 0 00 CCC00	Plow Through balow 140. Cha s chan	RRPT Walter Walter knnel is ne( ve	f (cal sorta 9 f.f a f.f	cup ce. Depth across rom 0-	at sa at sa 5 snc	mak tour inple to hes	ation is	4.5 inches Depth
Flow	z (). (	025 m	15	Q mi	d dep	th		
(Pro	active	Alexi	\$ 2.0	# 33	7626)	)		



GENERAL INFORMATION		
SITE NAME	Great Kills Park OU2	PROJECT NO.
SAMPLE NO. REF-1	- SW001	
DATE/TIME COLLECTED	10/18/18 1540 peristaltic pump	PERSONNEL John C Schroeder Greg Headington
SAMPLE MEDIA: SAMPLE QC DUPLICATE: MS/MSD REQUESTED	YES NO DUPLICATE YES O MS/MSE	TE SAMPLE NO.
SURFACE WATER COLLECTI	ION DATA	
Date // Time Started // Time Completed	0/18/18 1520 1620	Begin Sampling using water dipper NA Record Water Quality parameters
PID Mea Background Breathing Zone Stream Surface	isurements 0.0 ppm s 0.0 ppm 0.0 ppm	Screen Surface water for RAD 11,000 cpm
FIELD MEASUREMENTS		
Time pH Ten (C	mperature Conductivity Dissolved Celsius) (mS/cm) Oxygen (mg/L)	ORP Turbidity Rad Screen (mV) (NTU) Salinity Notes
1540 7.33 1	1.20 0.874 4.04	19 6.2
FIELD FOUPMENT AND CAL	IPRATION	
Equipment Mod Horiba 52 MiniRAE 30	<u>lel</u> <u>c</u> 2 200	Calibration 10/10/18 10/10/18
GENERAL COMMENTS Multi-Parameter Probe Unit	SCHRRPTI	
Sample Depth = inch	2/ow water surface.	Bepth at sample location is 3 inches @1555
channels	s 4 ff across af	-3 inches.
No flow		
Slight film	Isheen on water	r.

Appendix G: Chains of Custody

	ALS Environmental			Chain	-of-Cu	stody							A	LS WORI	CORDER		
	225 Commerce Drive, Fort Collins, Colorado 80524 TF: (800) 443-1511 PH: (870) 490-1511 FX: (970) 490-1522	Turnaround time for Turnaround time	or samples re for samples r	ceived after 2 p eceived Saturd	o.m. will be ca ay will be cal	alculated beginning culated beginning	from the r from the ne	lext bus ext busi	siness da ness day	÷.			012	4	6		
(ALS)		TURNAROUND TII	ME		SAMPLE	R JOH	ن ۲	Sch	2021	der		PA	ш		đ	-	
PROJECT NAME	Phuse 1 RI 002 Gourt Kills Part	SITE	9									DISP	DSAL	BYLA		orRE	ETURN
PROJECT No.	2016 - 007	EDD FORM/	in curt	act R	van W	mink			đ	URAMET	ER/MET	HOD RE	QUEST	FOR AN	ALYSIS		
		PURCHASE ORDE	R					•	Rud	wr	22 61	1228	E	Hd.	903	190	1
COMPANY NAME	Tideworter	BILL TO COMPAN	N Tide	zwater				6	(ani)	Alt	1+ John	ta	2	69	206		
SEND REPORT TO	Rvan Wensink (Tidewater)	INVOICE ATTN T	0 R	an Win	vink			υ	Tote	1 Un	4, 14		9	Pd.	20	0. D	
ADDRESS	Davon Chicoine (MECUM)	ADDRES	85 M	761 A+	tuck	S Drive		6					•				
CITY / STATE / ZIP	devon in icoine Qaecon com	CITY / STATE / Z	4	well .	oH 1	13065		ш									
PHONE	6703 966-5484	NOHA	E 6	14-38	3-6	251		L.									
FAX	Colley Scott	FI	X					υ									
E-MAIL	colleen. soft @ a com. com	E-MA	L LV	an.w	ensin	k @		Ŧ									
			· ·	tideh	20 1	ide h 20.	net	_									
			×,	1) biler	a			~									
	FIELD ID	MATRIX	SAMPLE S DATE	AMPLE TIME	# OF BOTTLES	PRESERVATIVE	8	۲	60	о 0	ш	L.	U	I		z IJ r	SEE NOTES ECTION
Θ	0U2-1-SW001	M N	8/8/	1010	5	HNO3		x	X	Y							
Ċ	0U2-1-5W003	W V	6181	0/11	5	HNU3		X	X	Y							
3	002 - 1 - 5W004	e M	BIRI	1355	У	F/NO2		X	X	0							
9	REF-1-SWOOL	У Э	1010	1540	2	HNO3		x	X	v v							
ଓ	001-1- 5W005	W	9/6/	040	5	HNUZ		X	X	v							
٩	0U2-1-SW002	W N	1918 ,	1250	5	HNUZ		X	^ x								
											1						
		/	Ruha	110													
				3/		10/19/18											
						7	$\parallel$	-/									
									$\vdash$	+							
														$\mathcal{H}$	_	_	
*Time Zone (Circle):	EST CST MST PST Matrix: O = oil S = soil NS = non-soi	il solid W = water L	= liquid E = e	extract F = filter				ł							╞		
	NOTES		Form 20	12r9		SIGNATURE				PRINTED	NAME			DATE		TIMI	w
	REPOS	RT LEVEL / QC EQUIRED Summary	RELINQ	UISHED BY	Wer L	کر ا			ri Yo	5	hroe	der	2	3//6		190	0
		(Standard QC) LEVEL II				~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		+		۲ ۲	9	Τ		2/2		2	<u>ې</u>
		(Standard QC) LEVEL III (Std	RECE	EVED BY				+	1-		415	Τ	えら	81 ~	60	2	
		LEVEL IV (Std QC + forms + raw	RELINQ	UISHED BY				1	5								
<b>PRESERVATION KEY</b>	1-HCI 2-HNO3 3-H2SO4 4-NaOH 5-NaOHIZnAcetate 6-NaHSO4 7	-4°C 8-Other	RECE	EVED BY				$\square$									

	<b>ALS Environmental</b>			Chain	-of-Cus	stody							ALS	WORKO	RDER #	
	225 Commerce Drive, Fort Collins, Colorado 80524 TF: (800) 443-1511 PH: (970) 490-1511 FX: (970) 490-1522	Turnaround time Turnaround tim	for samples rec e for samples re	eived after 2 p. ceived Saturda	.m. will be ca ly will be cald	lculated beginnir sulated beginning	g from the from the I	next bu: next busi	siness da ness day	۲.			1810	$\int \mathcal{C}$	5	\
(ALS)		TURNAROUND T	IME		SAMPLE	R Ju	hr C	Sel	2003	der		PAG		-	of	3
PROJECT NAME	CKP Phuss 1 RI OUZ	шs	013									DISPO	SAL	BY LAB	o	RETURN
PROJECT No.	2016-007	EDD FORM	INT CONFO	et Rr	- n Wer	nink			٩.	ARAME	ERIMET	HOD REC	QUEST FO	R ANA	YSIS	
		PURCHASE ORE	)ER					۲	Ura	nj Un	1-23	3				_
COMPANY NAME	Tide wuter	BILL TO COMP/	WY Tid	ewster				8	Rad	1. Jm	- 22	2	μ	A S	101	1 10/
SEND REPORT TO	Ryan Weysink (Tidowater	INVOICE ATTN	το Κγώ	n Wen	sink			υ	Thur	mui.	~ 23	2				/
ADDRESS	Devon Chicoine (AEco	AT) ADDRE	ss 376	1 Atto.	cks D	rive		٥								
CITY / STATE / ZIP	devon. chicoine e accom.	UM CITY / STATE /	ze Bu	Nell, 0	H 43	065		ш								
PHONE	703-966-5484	рна	NE 614	- 384-	6251			L								
FAX	Colleen Switt		-AX					υ								
E-MAIL	collean. scott Qaecum.i	E-W	ML LYUY	r. Wens	inke	H, deh 20.	ton	I								
			-					-								
								ſ								
LAB ID	CI CT314	MATRIX	SAMPLE SU		# OF BOTTLES	RESERVATIVE	g	۲	ß	ີ ບ	ш	L	۲ ن	- -	<b>-</b>	SEE NOTES SECTION
	012-1-SE001	seel ment 1	02219	0900	1			×	$\times$	X						
5	0U2-1-SE002	se di ment /	02218	0/0/	/			X	~ X	Ū.						
$\sim$	0U2-1-SE004	sed iment	02218 1	1130	n		ms/ins	X	× ×							
5	002-1-SEOU4-DUP	sed mently	022/8 1	1/30	-		: 1506	X	X	X						
5	0U2-1-5E003	sedument 1	1 81220	1435	1			X	X	X						
6	001-1-5E005	setmont a	12318 6	2835	/			X	X	$\overline{\mathbf{v}}$						
¢.	REF-1- 5E001	sedimento	2310 6	0160	/			×	×	X						
Š	012-1-55007	soil k	023/9 /	sha	~			×	×	Y						
9	042-1-55003	50: 0	1 81520	105	~			×	X							
0/	002-1-55001	soil A	1 81820	120	~			X	X	×						
11	002-1-55005	ا )، مر	023/3 1	1145	,			X	X	x						
11	042-1-55005-DUP	1 1:05	1 B/EZO	145	<u> </u>		whe	X	^ X	~						
*Time Zone (Circle):	EST CST MST PST Matrix: O = oil S = soil NS =	non-soil solid W = water	L = liquid E = e	xtract F = filter				ŀ							+	
	NOTES		Form 20	2r9		SIGNATURE			ľ	PRINTE	NAME		A	E I	_	TIME
		REPORT LEVEL / QC REQUIRED	RELINQ	UISHED BY	Philes				r F	2	chroe	ş	10/29	E.		600
6	1	Summary (Standard QC)	RECE	EVED BY	FedE	×			2	Y N	8	Ì	129	613		1800
of	1	LEVEL II (Standard QC)	RELINQ	UISHED BY					H	S	X		10.	31.05	C,	851
624		LEVEL III (Std QC + forms) LEVEL IV/ Std	RECE	EVED BY			Ŵ	A	KEL	1-1	AN SH		10.30	18	0	851
ł		LEVEL IV (500 QC + forms + raw	RELING	UISHED BY		С		+				•			+	
<b>PRESERVATION KEY</b>	1-HCI 2-HNO3 3-H2SO4 4-NaOH 5-NaOHIZnAcetate 6-Na	ISO4 7-4°C 8-Other	RECE	ENED BY												

	ALS Environmental			Chain	-of-Cu	stody							ALS	WORK	RDER #	
	225 Commerce Drive, Fort Collins, Colorado 80524 TF: (800) 443-1511 PH: (970) 490-1511 FX: (970) 490-1522	Turnaround tim Turnaround tir	e for samples ( ne for samples	received after 2 p i received Saturd	p.m. will be ca lay will be cal	ulculated beginnin culated beginning	g from the from the r	next bus	iness da ness day	÷.			(8)	101	027	A
(ALS)		TURNAROUND	TIME		SAMPLI	ER Jo	hn C	Sch	r020	ler		PAG		2	of	M
PROJECT NAME	CKP Phuse IRI OUZ	S	TE ID									DISPO	۶Ţ	BY LAB	o	RETURN
PROJECT No.	2016-067	EDD FOR	WAT CU	tout R	yun h	lansiak			ď	RAMET	ERVMETH	IOD REQ	UEST FC	DR ANA	LYSIS	
		PURCHASE OF	<b>DER</b>					۲	Uran	L'NN	2 -	8	$\sim$			
COMPANY NAME	Ti decunter	BILL TO COMF	ANY 7.	devater				۵	Rad	UM	- 22	6 2	F	40	901	1/2
SEND REPORT TO	Ryan Wensink (Tidewater)	INVOICE ATT	NTO R.	Jan Wei	nink			υ	Ther	ium	- 23	2				
ADDRESS	Bron Chilleine (AELOM)	ADDF	r S. Issau	761 A1+	uts 1	rive		٥								
CITY / STATE / ZIP	devon. inicine & decom. vom	CITY / STATE	arzı	owall of	4 430	65		ш								
PHONE	703-966-5484	Ŧ	ONE 6	514-380	9-62	51		L								
FAX	Colleen Scott		FAX					U								
E-MAIL	collien - scott @ accom . com	ш́	MAL LY	an . wen	isin k a	etideh 2.	tan.	I								
								-								
								٦								
	FIELD ID	MATRIX	SAMPLE Date	SAMPLE TIME	# OF BOTTLES	PRESERVATIVE	S	•	ß	<u>م</u> د	ш	Ľ.	- 0	- -	<b>ر</b>	SEE NOTE: SECTIC
13	002-1-55004	) joś	102418	5160	<b>\</b>			×								
14	002-1-55006	1 1 1 0 5	81/201	0450	m		Vsw/sw	×	へえ	5						
15	002-1-55002	1:05	A1201	Shal	-			×	X	·>						
10	002 1 - 5500B	105	102418	1130	/			X	アメ							
(	002-1-50002-07	501 (	61220	0111	/			X	∧ ×							
18	012-1-50004-10	) !07	R15201	1430	1			Х	Y	×						
61	012-1-50004-16	1) 105	125/3	1510	/			Х	メ	x						
20	002-1-50004-29	1 1:05	02518	1545	/			×	X	×						
$\mathcal{I}$	10-2-1- 20002-1- 200	501/	102618	0420	/			X	X	V						
32	002-1-50005-01-DUP	sei (	102618	0420	<b>\</b>		dup!	~	X	<u> </u>						
55	002-1-Subus-14	1 ];05	12618	0011	/			×	× ×							
ht	002-1-50006-10	sei ( 1	102618	Shh1	1			×	×	<b>×</b>						
*Time Zone (Circle):	EST CST MST PST Matrix: O = oil S = soil NS = non-	soil solid W = water	· L = liquid E =	= extract F = filter	5											
	NOTES		Form	202r9	0	SIGNATURE				PRINTEC	NAME		2	VTE		TIME
	REP	PORT LEVEL / QC REQUIRED	RELIN	IQUISHED BY	/ol	Joy J			h	2	2ch	ver	2	29/10	-	300
7		Summary (Standard QC)	Ĩ	CENED BY	pal,	Fx			4	cel 1	۲ĩ		10/2	1/10		200
′ of		LEVEL II (Standard QC)	RELIN	IQUISHED BY						202	K		9	5048	0	851
624		QC + forms)	R	CEIVED BY	9				KELI	-JEA	N SWI	1 H	10.31	P.C	2	12
4		LEVEL IV (Sto QC + forms + raw	RELIN	IQUISHED BY		С		+							+	
<b>PRESERVATION KEY</b>	1-HCi 2-HNO3 3-H2SO4 4-NaOH 5-NaOH/Znacetate 6-NaHSO4	4 7-4°C 8-Other	RE	CEIVED BY				_							_	

ALS WORKORDER #	1810021	PAGE Z of 3	DISPOSAL BY LAB OF RETURN	OD REQUEST FOR ANALYSIS	2 3 8 J	26 4 EPA 901.1m	32 )								F G H J NOTES												7415		ran 10/24/18 1 000	10/2 9/10 1800	15.30 \$1.20.01	178 10.3018 0851		
	next business day. ext business day.	Schroeder		PARAMETER/METH	A Uraniver-2	B Radion-2	c Thorivan - 2	Δ	ш	Ľ	0	A	-	7		XXX	XXX	- インX	X X	X X X									while was	Fedex	FEDEX	D RELI-JEAN SH		
n-of-Custody	p.m. will be calculated beginning from the n day will be calculated beginning from the ne	SAMPLER JUNN (		t Ryan Werint	/	er	Jersiak	HJ CKS DOINE	0H 43065	1529-68		mint @ tideh 20, my			# OF BOTTLES PRESERVATIVE QC	/	/		/	/			12. 1	0/1-1	_				park su	' Fed Ka			)	
Chai	time for samples received after 2 d time for samples received Satur	IND TIME	SITE ID	FORMAT CONVITAC	ORDER	MPANY T. dewart	VITN TO RVAN 6	DDRESS 3761 A	NTE/ZIP POUND	PHONE 614-3	FAX	E-MAIL LY a.N. WE	-		SAMPLE SAMPLE TIME DATE	102618 1530	102618 1635	0/0/ 216201	102918 1135	102918 1245		111	The second secon	./		alor I - liquid E - actract E - filt		LOIM 20208	RELINQUISHED BY	RECEIVED BY		RECEIVED BY		RECEIVED BY
	t Turnaround 1522 Turnaround	TURNAROU	2	EDD	PURCHASE	BILL TO CC	E WAYED INVOICE A	com M	om. CUM CITYISTA			com. com			MATRIX	5011	1:05	500	):مز	) !c s		$\sim$				ui NC - non-soil solid w - W		REPORT LEVEL / DC	REQUIRED	Summary (Standard QC)	LEVEL II (Standard QC)	LEVEL III (Std QC + forms)		tate 6-NaHSO4 7-4°C 8-Other
<b>ALS Environmental</b>	225 Commerce Drive, Fort Collins, Colorado 8052. TF: (800) 443-1511 PH: (970) 490-1511 FX: (970) 490-		GKP Phase 1 RI OU	2016-007		Tidewater	Ryan Wenink (Tia	Deven Chicsine 192	devon chicuine eauch	703-906-5484	Colleen Scutt	culleen. soft eau			Lield ID	002-1-50006-13	012-1-50008-03	002-1-50001-08	002-1-50003-09	002-1-50002-08						13. TCET MET DET Matrix. O - Ail S - or		NOIES						1-HCI 2-HNO3 3-H2SO4 4-NaOH 5-NaOH/Znace
		(ALS)	PROJECT NAME	PROJECT No.		COMPANY NAME	SEND REPORT TO	ADDRESS	CITY / STATE / ZIP	PHONE	FAX	E-MAIL			LAB ID	35	20	JF	3E	101	/					*Time Zona (Circle)				8	6 of	62	4	PRESERVATION KEY

	<b>ALS Environmental</b>			Chain-of-	Custo	dy					
Ĵ	225 Commerce Drive, Fort Collins, Colorado 80524 TF: (800) 443-1511 PH: (970) 490-151 FX: (970) 490-15	22						Form 202rð	WORKORDER	8106	5
(ALS)		SAMPLER	John C	Schrocole	Ţ	DA	TE 10/24/18-	61/08/01-	PAGE	/ of	-
PROJECT NAME	GKP Phuse IRI OUZ	SITE ID				TURNAROUI	9		DISPOSAL	3y Labor Re	urn to Client
PROJECT No.	2016-007	EDD FORMAT	Contact K	yan Wens	ink	( 16/2	(g·				
		PURCHASE ORDER			[	00J	007				
COMPANY NAME	Tidruater	BILL TO COMPANY	Tidewate	5		413,	Ha				
SEND REPORT TO	Ryan Wenink/ Tidewa	Ver AVOICE ATTN TO	Ryan We	asiak		] ] ] ] ] ] ] ] ]					
ADDRESS	Deven Chicine (AECOM)	ADDRESS	3761 14	HUCKS Dr	ž	10 22/5	m,				
CITY / STATE / ZIP	deven chiccine @ accom	LORITY I STATE / ZIP	Powell	0H 430	5	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	s/1279				
PHONE	703-966-5484	PHONE	614-30	9-6251		Dye.	20				
FAX	Colleen Scott	FAX				יז און אין יר	1-21				
E-MAIL	colleen. scott & acom.	cong E-MAIL	ryan wens	intetide	120.02	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	+0/_				
Lab ID	Field ID	Matrix D	mple Sample Date Time	# Bottles	ç						<u> </u>
		arevad									
1	002 - MW010	mater box	ater Note	5 parts	$\left\langle \right\rangle$	××	{ } }	<b>/</b> /	- Hore	+	a/25/10
(	- A- A- A- A- A- A- A- A-	Sarter 105	atse BH	Cantor S	$\left\langle \right\rangle$	XX			at the		AN/OZ/a
	012-1-MW008I	91000 1030	010 1040	15 HINGS	N.R.W	X	L				
2	7-1-800MW-1-200	ground 105	0H01 810	15 HAB	Ms/ MS/	イス	X				
<i>ر</i>	002EB103018-001	water 103	019 1510	5 11143	EB	XX	×	8	OHES: Bairs	dark pom	21461
		,									
		Pet !	XX								
					130	2					
					<b>&gt;</b>		7				
*Time Zone (Circle):	EST CST MST PST Matrix: 0 = oil S = soil	NS = non-soil solid W:	= water L = liquid E = ex	tract F = filter	L						
For metals or anic	ons, please detail analytes below.					SIGN	ATURE	PRIN	TED NAME	DATE	TIME
Comments:		QC PACKAGE (c)	heck below)	RELINQUIS	HED BY	/ Jelle A	-yr	しょうし	Schnede,	103018	1830
		LEVEL	II (Standard QC)	RECE	VED BY	Hedty		Fally		103013	1830
		LEVEL	III (Std QC + forms)	RELINQUIS	НЕД ВҮ	FED	ŁX +				
		LEVEL raw date	IV (Std QC + forms +	RECE	VED BY	う い	mbl	てして	JIGMI	10-21-11	093K
				RELINQUIS	НЕО ВҮ						
Preservative Key:	1-HCI 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4	4 7-Other 8-4 degrees	C 9-5035	RECE	IVED BY						

	ALS Environmental				Chair	n-of-Cu	stody						WORKORDER		NC
ed in the	225 Commerce Drive, Fort Collins, Colorado 80524 TF: (800) 443-1511 PH: (970) 490-1511 FX: (970) 490-152	2								``	Fo	rm 202r\$	*	101/C	
(ALS)		SAM	PLER	John C Si	hree	der	-		DATE	10/3	81/1		PAGE	/ of	/
PROJECT NAME	GKP Mare / RI OUZ	3						TURNARC	DNND				DISPOSAL B	Lab or Re	turn to Client
PROJECT No.	2016-007	EDD FOI	RMAT CU	n tact R	you	litensin	Ł	() 24	8			~			
		PURCHASE O	RDER					200	PZ		40	1.10			
COMPANY NAME	Fickence by	BILL TO COM	PANY 7	dewater	,			413	40	(	<i>1</i> 1	26			
SEND REPORT TO	Ryan Whowink (Tick coted	INVOICE AT	IN TO	yan W	ensie	¥		]) 1)8:	]]			/ -			
ADDRESS	Dever Chining (AECOM)	ADD	RESS	3761 A	rtuck	SDri	ر ار	40 21/2	Ma	89	92				
CITY / STATE / ZIP	deven chiroine & accon, c	DALPHY / STATE		Powell, Ot	443	2065		SJ⊅ 9ZZ	, Ny	22-	-7-				
PHONE	703-966-5484	Ā	HONE 6	14-389	-62	51		) ,	M	W	) )))	Mr C.			
FAX	Colleen Suft (AECOM		FAX			-		יז או סיים	12	ייעיָיכ	-: <i>P</i> 1	1.001		-	
E-MAIL	collect-scott eaccom,	COAN E	MAIL FY	AN, WENS	116	Fidehi	20.42+	<u>רי</u> אצי	10/	חיי	7 <u>5</u> 77	u1			
Lab ID	Field ID	Matrix	Sample Date	Sample Time	# Bottles	Pres.	U								
		•		.:											
ð	002-1-MW010	grand	A14201	1540	ζ	HNUS		X X	×						
(7)	0U2-1-MW010-F	giveral a	02910	15.40	٦,	HND3		X X	X				Fill F. Her	pa	
'n	0U21-MW008 WT	grather	N3118	1210	5	HANG.		X X	X						
E	002-1-MW008WT-DUP	ground	BIISOL	1210	Ś	HAD OUT	2	X	X						
	02-1-MW008WT-F	parad	1150	1210	5	ONH		*	X				Ald Alia	ber	
E	OUZ-1-AWOOBWT-F-JUP	grand	31120	1210	5	PUD PUT	्य	X X	く				Fidd Rich	eved	
E	002-1-MW009WT	quand	N3118	1655	5	HAU;		×	x						
8	002-1-MW009WT-F	s'iver	BILLOI	1655	r	Egn/H		メメ	X				Field Fifte	per	
(6)	OUZIOWSOILNONB-001	1 :05	110118	0001	/	1				×	×	×	n so w DZ	Part	
01	002 TOW WATER 110118 - 001	TOW	110:18	0440	Ś	GNH		X X	×				IAW ZAN	Ala	
*Time Zone (Circle):	EST CST MST PST Matrix: O = oil S = soil	NS = non-soil soli	d W = water	L = liquid E = ext	ract F = fi	ter									
For metals or ani	ions, please detail analytes below.							is .	GNATUR	щ		9	RINTED NAME	DATE	TIME
Comments:		QC PACK	AGE (check below	5	REI	LINQUISHED	BY /	Mul	J.	(		ملانكد	n C Schrücker	011011	1700
	1		EVEL II (Standar	d ac)		RECEIVED	BY Y	2 E				Z	whe	110118	1700
			EVEL III (Std QC	+ forms)	RE	LINQUISHED	BY	TED	22			F	DEX	81.2.11	PSP0
-5.			-EVEL IV (Std QC aw data)	+ forms +		RECEIVED	BY		-	$\left  \right $	_	KEL	-JEAN SNITI	11.2.18	09SY
of					RE	LINQUISHED	BY	С			$\uparrow$				
Preservative Key:	1-HCI 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4	7-Other 8-4 de	grees C 9-50	35		RECEIVED	BY								

The white copy should accompany samples to Eurofins Lancaster Laboratories Environmental. The yellow copy should be retained by the client.



61
0
0
$\mathcal{O}$

	GKP-OO 1	81/61/01																							10/19/18/	Date
	Survey Log #	Date					1			 (410225)	tret in tre	an an an An anns													IF Green	all a
													- -												9/18 Reviewer: Q	te Signature:
	Shipping	B. cole				and the second	~				¢	4		-		J Ann									701 - 10/4	Part Da
	Survey Type	Surveyor												V											Surveyor:	Signature:
				(microR)	3 result	Ч	Ч	S	Ч	5						Ę								-19		
_	<ul><li>Cills Park</li></ul>	100	y	Dose Rate	Location	Right Side	Back Side	Left Side	Top	Bottom					- -	MicroRe	19147							5-29		
	Great F	GKP-0	ipping Surve	$00 \text{ cm}^2$	β result	Ham>	<m0a< th=""><th><mar></mar></th><th><m0a< th=""><th><math data<="" th=""><th></th><th></th><th></th><th></th><th></th><th>30 E</th><th>1:00</th><th>1-01</th><th>1364</th><th>- 19</th><th>1200 83</th><th></th><th></th><th>anken:</th><th></th><th></th></math></th></m0a<></th></m0a<>	<mar></mar>	<m0a< th=""><th><math data<="" th=""><th></th><th></th><th></th><th></th><th></th><th>30 E</th><th>1:00</th><th>1-01</th><th>1364</th><th>- 19</th><th>1200 83</th><th></th><th></th><th>anken:</th><th></th><th></th></math></th></m0a<>	$30 E1:001-011364- 191200 83anken:$						30 E	1:00	1-01	1364	- 19	1200 83			anken:		
KADIOLOGI			Sh	ılts in dpm/1(	a Result	<m0a< td=""><td>HOM&gt;</td><td><mult< td=""><td><mpa< p=""></mpa<></td><td>HOW&gt;</td><td></td><td></td><td></td><td></td><td></td><td>303</td><td>217F(</td><td>43-1</td><td>229</td><td>01-10</td><td>20x,</td><td><u> </u></td><td>act 4.UR</td><td>for mic</td><td></td><td></td></mult<></td></m0a<>	HOM>	<mult< td=""><td><mpa< p=""></mpa<></td><td>HOW&gt;</td><td></td><td></td><td></td><td></td><td></td><td>303</td><td>217F(</td><td>43-1</td><td>229</td><td>01-10</td><td>20x,</td><td><u> </u></td><td>act 4.UR</td><td>for mic</td><td></td><td></td></mult<>	<mpa< p=""></mpa<>	HOW>						303	217F(	43-1	229	01-10	20x,	<u> </u>	act 4.UR	for mic		
	Location	Cooler No		Smear Rest	Location	Right	Back	Left	Top	Bottom						Meter	Serial No.	Detector	Serial No.	Cal Due Date	MDA	Comments	Dose Rate on cont	Cal due.		

Seurofins Lancaster Laboratories Lancaster Laboratories Environmental Client Information Client Information	Acct. # $435.67$ Acct. # Acct. # Acct. # PWSID # Acct. # Acct	Composite	Potable Ground Mater		ق الم	Bris (82700)	And a contraction of the contrac	Merwory (7471B) and and	Pest cudes (8082 A)	Harpicides (8151A)	Jor (Prinda Kanna)		b Use Only b Use Only creservation Co b B=Na SO4 B=H3 d Filtered 0=Oth Remarks	<b>des</b> osultate PO4 her
01278102218-001	102218 0815		178		XX	X		1 X		X	. Â	9 4 1	o blaint	
002-1-5E001	0060 84220		.>		X	. X )	· X ·	X	X 4	X	י א. י א		1 1 .	
002-1-56004 002-1-56004 002-1-56004	1022/8 1010 1022/8 1130 102218 1120	>>>>	>>>		<u> </u>	<u> </u>	X	XXX	x	XXX	$\langle \times \rangle$		5/MSD	
002-1-5E003	10210 1435	• > /	→ >>	Å		X	X	X	X / Z Z	X no				
Turnstond Time (TAT) Domosted		Relinoaisheo	l bv	Ļ		Date	Time		eceived	Ш.	+	Щ	Date  T	em
Rush TAT is subject to laboratory approval and surcharge	(prease uncie) ush の	Relinguished	1 by	$\left( \right)$		10221 Date	8 17 Time	30	<i>F-U</i> eceived b	えて	.¥		1022/ 0	1730 me
ate results are needed: ryan, wensin deven chicoine e ac.	KETACHLO.	Policy ferection	1 by			Date Date	Time Time	<u>x x</u>	eceived b eceived <u>b</u>				Date Date	me
Data Package Options (circle if re         Type I (EPA Level 3         Equivalent/non-CLP)	squired) Raw Data Only)	Relinquished	d by			Date	Time	X	eceived b	Ŵ,	N,	J.	Date 10/23/18	ne U3O
Type III (Reduced non-CLP) NJ DKQP NYSDEC Category A or B MA MCP	• TX TRRP-13 CT RCP	No.	EDD F If yes, format: te-Specific Q	cov1	SD/Dup)	Kylun ? Yes	Wer No	LS IN K	telinqui UPS_	shed by	FedEx_	hercia/Ca	ther I of 0, 8 °	
Eurofins L	Lancaster Laboratories	(II ye Environme	s, indicate uu sa ental, LLC • 242	mple and s 5 New Ho	upmit triplic olland Pik	e, Lancas	ter, PA	)   17601 • ]	717-656	-2300			-	

-

The white copy should accompany samples to Eurorins Lancaster Laboratories Environmental. The yellow copy should be retained by the client.

1044 0/1/

	# GKP-007	10/22/18												1800, AL .							10/22/18	Date
8 <u>5</u> -0	Survey Log	Date																			B. Cole	S Colo
S-986335																					10/22/18 Reviewer:	Date Signature:
012 <i>(</i> 08	Shipping	H. white									5										H. White	Han My
61-201	Survey Type	Surveyor																			Surveyor:	Signature:
13062				(microR)	y result	1-1	4	4	4	4	Ч		Rem	42								
s A -	Kills Park	1.0 1.0	ey .	Dose Rate	Location	Right Side	Back Side	Left Side	Front Side	Top	Bottom		Mirco	191								
VATER ICAL SERVICE	Great	3KP-0	ipping Surv	$00 \text{ cm}^2$	β result	<mda< td=""><td><mda< td=""><td><mda< td=""><td><mda< td=""><td><mda< td=""><td><mda< td=""><td></td><td>0 E</td><td>607</td><td>-10</td><td>364</td><td>/2019</td><td>00By</td><td></td><td></td><td></td><td></td></mda<></td></mda<></td></mda<></td></mda<></td></mda<></td></mda<>	<mda< td=""><td><mda< td=""><td><mda< td=""><td><mda< td=""><td><mda< td=""><td></td><td>0 E</td><td>607</td><td>-10</td><td>364</td><td>/2019</td><td>00By</td><td></td><td></td><td></td><td></td></mda<></td></mda<></td></mda<></td></mda<></td></mda<>	<mda< td=""><td><mda< td=""><td><mda< td=""><td><mda< td=""><td></td><td>0 E</td><td>607</td><td>-10</td><td>364</td><td>/2019</td><td>00By</td><td></td><td></td><td></td><td></td></mda<></td></mda<></td></mda<></td></mda<>	<mda< td=""><td><mda< td=""><td><mda< td=""><td></td><td>0 E</td><td>607</td><td>-10</td><td>364</td><td>/2019</td><td>00By</td><td></td><td></td><td></td><td></td></mda<></td></mda<></td></mda<>	<mda< td=""><td><mda< td=""><td></td><td>0 E</td><td>607</td><td>-10</td><td>364</td><td>/2019</td><td>00By</td><td></td><td></td><td></td><td></td></mda<></td></mda<>	<mda< td=""><td></td><td>0 E</td><td>607</td><td>-10</td><td>364</td><td>/2019</td><td>00By</td><td></td><td></td><td></td><td></td></mda<>		0 E	607	-10	364	/2019	00By				
			Sh	lts in dpm/1(	o. Result	<mda< td=""><td><mda< td=""><td><mda< td=""><td><mda< td=""><td><mda< td=""><td><mda< td=""><td></td><td>303</td><td>217</td><td>43-</td><td>229</td><td>9/10/</td><td>2α/2</td><td></td><td>ict L</td><td></td><td></td></mda<></td></mda<></td></mda<></td></mda<></td></mda<></td></mda<>	<mda< td=""><td><mda< td=""><td><mda< td=""><td><mda< td=""><td><mda< td=""><td></td><td>303</td><td>217</td><td>43-</td><td>229</td><td>9/10/</td><td>2α/2</td><td></td><td>ict L</td><td></td><td></td></mda<></td></mda<></td></mda<></td></mda<></td></mda<>	<mda< td=""><td><mda< td=""><td><mda< td=""><td><mda< td=""><td></td><td>303</td><td>217</td><td>43-</td><td>229</td><td>9/10/</td><td>2α/2</td><td></td><td>ict L</td><td></td><td></td></mda<></td></mda<></td></mda<></td></mda<>	<mda< td=""><td><mda< td=""><td><mda< td=""><td></td><td>303</td><td>217</td><td>43-</td><td>229</td><td>9/10/</td><td>2α/2</td><td></td><td>ict L</td><td></td><td></td></mda<></td></mda<></td></mda<>	<mda< td=""><td><mda< td=""><td></td><td>303</td><td>217</td><td>43-</td><td>229</td><td>9/10/</td><td>2α/2</td><td></td><td>ict L</td><td></td><td></td></mda<></td></mda<>	<mda< td=""><td></td><td>303</td><td>217</td><td>43-</td><td>229</td><td>9/10/</td><td>2α/2</td><td></td><td>ict L</td><td></td><td></td></mda<>		303	217	43-	229	9/10/	2α/2		ict L		
	Location	Cooler No		Smear Resu	Location	Right	Back	Left	Front Side	Top	Bottom		Meter	Serial No.	Detector	Serial No.	Cal Due Date	MDA	Comments	Dose Rate on conta		

				100					in the second second					1000 - 1000 - 1000			z						Q	BI-SZ			
- U - U - U	<b>COC #</b> 561371	For Lab Use Only	FSC:	SCR#: ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	H=HCI T=Thiosulfate	<b>N</b> =HNO <sub>3</sub> <b>B</b> =NaOH <b>S</b> =H <sub>2</sub> SO <sub>4</sub> <b>P</b> =H <sub>3</sub> PO <sub>4</sub>	F=Field Filtered O=Other		1. AA	t trin blind / VOCS oak	Sediment	scdiment	< surface soil	s surtaine roil	< SUV Pace Soil	surface soil	Surtau suil doptiu		Date Time 102318 7700	Date Date Time O'	Date Time	Date Time		0. (0.) 11. (1. 23. 4)	lercial/Carrier:	on receipt 1.7 °C	
ی میں میں میں میں میں میں میں میں میں می	)-67	s Requested	nid Filtration Codes		(H)	5287 1518 (H 8,18 (9)	280 08)	5017 1017 1017 1017 1017 1017 1017	1000 1000 1000 1000 1000 1000 1000 100	2 2 2 2 2 3 1 2 3 1	X X X X X X	X X X X X X	^ X X X X V	X X X X X	X X X X X	× ベ × ×	x X X X X		30 Mart &	Received by	Received by	Received by		Keceived by	Relinquished by Comm UPS FedEx	Temperature up	01 • 717-656-2300
OI CUSIO	Environmental use only uple # <u> </u>	Analysis	Preservation a		(1) (1)	N 2 VIS W 2 SIV	LAL 09) - 00/ (00/ 5/(~~	28) 28) 28) 28,000	2570 540 5701 2570 0 # 181 0 # 181	W V V V V V V V V V V V V V V V V V V V		X X X X Z	X X X X X X X	$X \times X \times X$	<pre>x x x x x</pre>	X X X X X X X X	X X X X X X X X X X X X X X X X X X X	10/2.3/18	Land Time	Date Time	Date	Date Time		Lake I me	t Kyun Wensink	D/Dup)? <u>(es)</u> No omit triplicate sample volume.)	and Pike, Lancaster, PA 1760
esuunaim	ofins Lancaster Laboratories up # <i>コン</i> の190	Matrix		] ] ] ] ]	nssiT bnuo 926ħi	ן פי כיי ביי	<b>109m</b>	Sedi Potab NPDE	per:	05 010 010 010	SE SE	SE .	So	50	co	Sv 6	50	phert		PU LA	ed by	ed by		ed by	EDD Required? If yes, format: <u>し<sup>の</sup> いんし</u>	Site-Specific QC (MS/MS /es, indicate QC sample and sut	nental, LLC • 2425 New Holl
IVSIS Redu	For Eur Acct. # <u>インのんス</u> Grou		Acct. #:	A Sector as a survey of the sector and the sector as a	PWSID #:	20.7.02 - 007.02	Quote #;	Direction of the second	Collected ab	Date         Time         0         0           10.7 = 10         0.74 に         √         √	102318 0835 1	102318 0910 V	102310 1045 V	102318 1105 V	02318 1120 1	102318 1145 V	1023 P3 1145 V		 olease circle) Relinquist	Relinquest	24 deh 20. nagethaust	Relinquist	luired)	taw Data Only)	TX TRRP-13	CT RCP	ancaster Laboratories Environn
IMENTEL ZANGI	Lancaster Laboratories	Client Information	7		7. 0U2/2016-00 7	int	worder	ollected: For Compliance: Yes	Identification	10-101	)5		1 2.0	63	, I		5-200		d Time (TAT) Requested (	t to laboratory approval and surcharge.	ted: ryan, wantink a	NON, UNICOINE ED	Package Options (circle if req	vel 3 Type VI (F CLP)	ed non-CLP) NJ DKQP	ory A or B MA MCP	Eurofins L
	🐝 eurofins		Client:	- 11 Je warter	Project Namer#: CKP Phuse 1 H	Project Manager: Wens	Sampler hn CSU	State where samples were or	Sample	11127810221	001-1-5E00	REF-1-5E001	002-1-550	002-1-550	002-1-5500	002-1-55002	002-1-5500		Turnaroun	(Rush TAT is subjec	Date results are need	E-mail address:	Data	Type I (EPA Lev Equivalent/non-	Type III (Reduce	NYSDEC Categ	

Lo			
9366460-1	Shipping	H, White	
43062/2001908	Survey Type	Surveyor	
IDEWATER INC Adiological Services	Great Kills Park	GKP-010	Shipping Survey
L L	0N	•No	

10/23/18

Date

Survey Log # GKP- O 1 O

Survey Type	Surveyor																				
			(microR)	y result	J	7	J	5	J	7	ßem	ßem	42								
t Kills Park	010	'ey	Dose Rate	Location	Right Side	Back Side	Left Side	Front Side	Top	Bottom	Mirco	Mirco	191								
Great	GKP-	pping Surv	$0 \text{ cm}^2$	β result	<mda< td=""><td><mda< td=""><td><mda< td=""><td><mda< td=""><td><mda< td=""><td><mda< td=""><th>) E</th><td>) E</td><td>507</td><td>10</td><td>64</td><td>2019</td><td>0BY</td><td></td><td></td><td></td><td></td></mda<></td></mda<></td></mda<></td></mda<></td></mda<></td></mda<>	<mda< td=""><td><mda< td=""><td><mda< td=""><td><mda< td=""><td><mda< td=""><th>) E</th><td>) E</td><td>507</td><td>10</td><td>64</td><td>2019</td><td>0BY</td><td></td><td></td><td></td><td></td></mda<></td></mda<></td></mda<></td></mda<></td></mda<>	<mda< td=""><td><mda< td=""><td><mda< td=""><td><mda< td=""><th>) E</th><td>) E</td><td>507</td><td>10</td><td>64</td><td>2019</td><td>0BY</td><td></td><td></td><td></td><td></td></mda<></td></mda<></td></mda<></td></mda<>	<mda< td=""><td><mda< td=""><td><mda< td=""><th>) E</th><td>) E</td><td>507</td><td>10</td><td>64</td><td>2019</td><td>0BY</td><td></td><td></td><td></td><td></td></mda<></td></mda<></td></mda<>	<mda< td=""><td><mda< td=""><th>) E</th><td>) E</td><td>507</td><td>10</td><td>64</td><td>2019</td><td>0BY</td><td></td><td></td><td></td><td></td></mda<></td></mda<>	<mda< td=""><th>) E</th><td>) E</td><td>507</td><td>10</td><td>64</td><td>2019</td><td>0BY</td><td></td><td></td><td></td><td></td></mda<>	) E	) E	507	10	64	2019	0BY				
		Shi	ts in dpm/10	a Result	<mda< td=""><td><mda< td=""><td><mda< td=""><td><mda< td=""><td><mda< td=""><td><mda< td=""><th>303(</th><td>303(</td><td>2176</td><td>43-</td><td>2293</td><td>9/10/2</td><td>2α/20</td><td></td><td>a H</td><td></td><td></td></mda<></td></mda<></td></mda<></td></mda<></td></mda<></td></mda<>	<mda< td=""><td><mda< td=""><td><mda< td=""><td><mda< td=""><td><mda< td=""><th>303(</th><td>303(</td><td>2176</td><td>43-</td><td>2293</td><td>9/10/2</td><td>2α/20</td><td></td><td>a H</td><td></td><td></td></mda<></td></mda<></td></mda<></td></mda<></td></mda<>	<mda< td=""><td><mda< td=""><td><mda< td=""><td><mda< td=""><th>303(</th><td>303(</td><td>2176</td><td>43-</td><td>2293</td><td>9/10/2</td><td>2α/20</td><td></td><td>a H</td><td></td><td></td></mda<></td></mda<></td></mda<></td></mda<>	<mda< td=""><td><mda< td=""><td><mda< td=""><th>303(</th><td>303(</td><td>2176</td><td>43-</td><td>2293</td><td>9/10/2</td><td>2α/20</td><td></td><td>a H</td><td></td><td></td></mda<></td></mda<></td></mda<>	<mda< td=""><td><mda< td=""><th>303(</th><td>303(</td><td>2176</td><td>43-</td><td>2293</td><td>9/10/2</td><td>2α/20</td><td></td><td>a H</td><td></td><td></td></mda<></td></mda<>	<mda< td=""><th>303(</th><td>303(</td><td>2176</td><td>43-</td><td>2293</td><td>9/10/2</td><td>2α/20</td><td></td><td>a H</td><td></td><td></td></mda<>	303(	303(	2176	43-	2293	9/10/2	2α/20		a H		
Location	Cooler No		Smear Resul	Location	Right	Back	Left	Front Side	Top	Bottom	Meter	Meter	Serial No.	Detector	Serial No.	Cal Due Date	MDA	Comments	Dose Rate on contact		





Environmental Ana	lysis R	equ	<b>B</b>	t/Cha	<i>din</i>	of	S	St	00							
・ eurofins Lancaster Laboratories Environmental	Acot. # <u>1306</u>	For Euro	ofins La	uncaster Labor 70 ひろろん	atories E	invironi le #	nental u 86	se only	0-1	10		I	ŏ	0C #	207	372
Client Information	l			Matrix	•			An	alysis	Requ	estec			or Lab Use	Only	
Client, Videavater	Acct. #:						Pre	serva	ion an	d Filtr	ation	Codes		SC:		
Project Name#: GKP Phase 1 RI 22/2016-007	PWSID #:		ənssiT	utace Dund	andara termenya ana ang	BAR		1		(5		6		Preserv H=HCI	'ation C T=⊺	odes hiosulfate
Project Manager. Ryan Wensink	P.O.# 2016 -00	20-1		ns [	6L2	°W Z	(9	15-	8 IL	180	62	1/51		N=HNO₃ S=H₂SO₄	∠ = <b>B</b> H = <b>B</b>	aOH ₃PO₄
sampler CSchreder	Quote #:		դսәա ∣	] SE	onieżn	/( <sup>7</sup> 0	1027		J14 09)	6]	7.80	19.73 19.73		F=Field Filter	ed 0=0	other
State where samples were collected: For Compliance: $\int \partial z \omega \int \partial r k$	No No		ibəZ	NPDE Potab	en lo	978	(g)	z8]	1410	יקריצן ארב	87	rap!	1			
Sample Identification	Collected	de de	X Ii	ater	tal # her:	15.70	570A	5HV	102.00	7.11	587					
00278102418-001	Date Time		°S	w t	10 01 <i>U</i>	2/ X	5	2		2/	d	/ ?[]		tria klart	101	CC AM/
002-1-55004	100 011201	> >			3 		×		<u>X</u>	X	X	X   X		surface Su		1.112 2
042-1-55006	102414 0950	>	<u>,                                     </u>		8	×	X	$ \sim$		X	X	X X		surface so	2M 1	(ms.)
002-1-55002	102418 1045	/			2	X	X	X	X	X	X	X X		surfaces	/;;	
002-1-55008	1130 NOZ 11 811-201	>	×		9	× `	X	へ く	X V	X	X	X X		surface s	se?/	
			$\rightarrow$													
			\$I	16	24/1	-								na n		
					+			1	+		17					
			_													
Turnaround Time (TAT) Requested	(please circle)	Relinquish	- Por		-	-	Date 1024	( <u>⊫</u>   	73 U	Receiv	ed by			Dat Dat	е 24/ в	Time ∕73⇔
(Rush TAT is subject to laboratory approval and surcharge $U_{0}$ (Rush TAT is subject to laboratory approval $U_{0}$ (Rush TAT $U_{0}$ ).	ы) .) Десоил. Сом.	Relinquish	ed by				Date		e /	Receiv	ed by			Dat		Time
Date results are needed: MAN, WCMSINK	@ 1.de h 20.1	/ C Kelinquish	ed by				Date	<u>≓</u>	Je	Receiv	ed by		$  \setminus$	Dat	e	Time
E-mail address:	144-00-1440	Relinquish	ed by		$\left  \right $		Date	Ë	Je	Receiv	ed by			Dat	e	Time
Data Package Options (circle if re Type I (EPA Level 3 Equivalent/non-CLP)	quired) Raw Data Only)	Relinquish	ed by				Date	Ē	6	Recei	ha by			Dar IV	ent -	Time
Type III (Reduced non-CLP) NJ DKQP	TX TRRP-13		If ye	EDD Requ s, format: <u>/</u>	uired? extres	J'A	No Vain 6	Uens	ink	Rélir UI	iquishe SS	ed by C		ial Carrier: Other		
NYSDEC Category A or B MA MCP	CT RCP	(if )	Site-S /es, ind	pecific QC (N icate QC sample	AS/MSD and subn	//Dup)	? <del>것e</del> ate samp	le volun	) ()	ļ	Ten	Iperatul	e upon	receipt <u>Ú</u>	0	٥ ٥
Eurofins I The white copy should	_ancaster Laboratori   accompany sample	es Environn s to Eurofin	nental, s Lanc	LLC • 2425 N aster Laborato	ew Holla ries Env	nd Pike ironme	e, Lanca ntal. Th	ster, P e yellov	A 1760 <sup>.</sup> v copy :	l • 717-	656-23 oe retai	00 ned by t	he client			7044 0717



COCCOOR

	NAUIOLUG	ICAL SERVICI	Ď						
Location		Great	t Kills Park		Survey Type	Shipping		Survey Log #	GKP- 012
Cooler No		GKP-	012		Surveyor	H. White		Date	10/24/18
	Sh	ipping Surv	vey						
Smear Resu	ilts in dpm/1(	$00 \text{ cm}^2$	Dose Rate	et (microR)					
Location	a Result	β result	Location	y result					-
Right	<mda< td=""><td><mda< td=""><td>Right Side</td><td>μ</td><td></td><td></td><td></td><td></td><td></td></mda<></td></mda<>	<mda< td=""><td>Right Side</td><td>μ</td><td></td><td></td><td></td><td></td><td></td></mda<>	Right Side	μ					
Back	<mda< td=""><td><mda< td=""><td>Back Side</td><td>ĥ</td><td></td><td><u></u></td><td></td><td>1</td><td></td></mda<></td></mda<>	<mda< td=""><td>Back Side</td><td>ĥ</td><td></td><td><u></u></td><td></td><td>1</td><td></td></mda<>	Back Side	ĥ		<u></u>		1	
Left	<mda< td=""><td><mda< td=""><td>Left Side</td><td>5</td><td></td><td></td><td></td><td></td><td></td></mda<></td></mda<>	<mda< td=""><td>Left Side</td><td>5</td><td></td><td></td><td></td><td></td><td></td></mda<>	Left Side	5					
Front Side	<mda< td=""><td><mda< td=""><td>Front Side</td><td>2</td><td></td><td></td><td>ter e</td><td></td><td></td></mda<></td></mda<>	<mda< td=""><td>Front Side</td><td>2</td><td></td><td></td><td>ter e</td><td></td><td></td></mda<>	Front Side	2			ter e		
Top	<mda< td=""><td><mda< td=""><td>Top</td><td>5</td><td></td><td>Ministra -</td><td></td><td>ana a</td><td></td></mda<></td></mda<>	<mda< td=""><td>Top</td><td>5</td><td></td><td>Ministra -</td><td></td><td>ana a</td><td></td></mda<>	Top	5		Ministra -		ana a	
Bottom	<mda< td=""><td><mda< td=""><td>Bottom</td><td>Ч</td><td></td><td>•</td><td></td><td></td><td></td></mda<></td></mda<>	<mda< td=""><td>Bottom</td><td>Ч</td><td></td><td>•</td><td></td><td></td><td></td></mda<>	Bottom	Ч		•			
					-		integra		
Meter	303	0 E	Mirco	Rem					
Serial No.	217	607	191	42					
Detector	43-	·10							
Serial No.	229.	364							
Cal Due Date	9/10/	2019							
MDA	2α/21	00βγ							
Comments									
Dose Rate on conta	let 4								
					Surveyor:	H. White	10/ 24/18 Reviewer: B	3. Cole	10/24/18

Date

0

Signature:

Date

2

Signature:

Environmental Ana	lysis Re	<i>que</i>	st/Ch	ain pratories F		<b>CU</b> ental us		<u>j</u>					0	
Lancaster Laboratories Environmental	Acct. # 43060	Group #	100071	<u>99</u> Samp	le # 0	870	32(	0-2	_	1		8	<b>U</b>	61373
Client Information	_		Matrix				Anal	ysis R	eque	sted		For	Lab Use On	ly
slient Tide worker	Acct. #:				$\mathbf{b}$	Pres	ervatic	n and	Filtrat	ion Co	des	SCI TSC		
roject Name##	PWSID #;		rface ound Tissue		. <u> </u>		140	$\Box$	(9	( 11/2	Idzie	<u> </u>	<b>Preservat</b> HCI	ion Codes T=Thiosulfate
Project Manager: Kyan Wensink	P.O.# 2016- 00 1	20-	] 2n ] eu	ers	45.04	<u>در م</u> (	2.09 	θIL,	180	5/8/	a)sin	z s	HNO₃ H₂SO₄	<b>B</b> =NaOH P=H₃PO₄
sampler. The C Schroeder	Quote #:		tnemt ] SE	nietn	77/(	002 002		42)	375	200	nin	Ë	Field Filtered Ren	O=Other Iarks
State where gamples were collected: For Compliance:	No	əfie	<b>NPDI</b> Potat IDGN		20928	.28] 78)	- + 01	hen	-195-		152			
Sample Identification	Collected	ubo: sp	ii 🗙	:19n Tel #	1)57	5708	5116	520	<u>ys</u> ş	14 97	×3!			
	Date Time	Grs Coi	ios eW d	150 ToT 4	0A )	9 15	I	W	/ /	/ /	0		1 11	1 1917
005-21005-1-200	0240 012201	××			<b>Κ</b> γ	^  }		X	X	X 8	X	<u> </u>	1 wiener	vuci enty
002-1-50004-09	-22/1/ R/SZOL	< x x	×		$\langle \times$			X	X	X X	. X	2	bstrac	2 5 er
002-1-50004-14	N25/8 1515	×	×		X	X	X V	X	X	<u>۲</u>	X	2	bsurfac	liaso
002-1-50004-22	102518 1550	X	X	2	X	X	X V	X	X	X v	Y	<u>ير</u>	hsurta	1:05-00
	$\mathcal{A}_{\mathbf{r}}$			<u>,</u>										
	×	Z Z	10/ J	7	9									
			•	¥	5									
							$\frac{1}{1}$							
Turnaround Time (TAT) Requested	(please circle) ush	Relinquished	"he d	ل		Date アロビジノ	B 28 28	300	Received	SYF	\$		Date RZ	170 1800
(Rush TAT is subject to laboratory approval and surcharge この人をひん、らいいそう	alecom, com	Relinguished I	λ.			Date	Time		Received	þą			Date	Time
Date results are needed: Yuuuuuuuuu sink (	0 7. de h 20. me.	Relinquished I	Кс		$\backslash$	Date	Time		Received	by	$  \setminus$	$\mathbb{N}$	Date	Time
E-mail address: devon. chicoine & de	come come	Relinquished I	A			Date	Time		Received	dig:			Date	Time
Uata Package Uptions (circle if re Type I (EPA Level 3 Equivalent/non-CLP)	quired) Raw Data Only)	Relinquished t				Date	Time		Received	M <sub>A</sub>	M	2	10126	16 Time 18 1030
Type III (Reduced non-CLP) NJ DKQP	TX TRRP-13	-	EDD Red f yes, format: <u>_</u>	quired? brfac	t Col	No Jary l	er.	ik k	Reling UPS	uished	by Com FedEy		Carrier: Other	
NYSDEC Category A or B MA MCP	CT RCP	Site (If yes,	<ul> <li>Specific QC ( indicate QC samp</li> </ul>	(MS/MSE)	)/Dup)? nit triplica	te sample	Volume			Tempe	erature u	npon rec	beipt 0,4	°°
Eurofins L The white conv should	Lancaster Laboratories Lacompany samples to	Environmer Furofins L	atal, LLC • 2425   ancaster I abora	New Holla tories Env	ind Pike,	Lancas tal The	er, PA vellow	17601 • conv sh	717-65 011d be	56-2300 retaine	d by the	o אישר סי client.	× 741,5	LOC 7044 0717



PUCCOOL

ing Survey Log # GKP- O [3	11-10 Date 10/25/18																			
Survey Type Ship	Surveyor H. W											J								
	S		Rate (microR)	result	le S	le N	s N	le S	Ŋ	Ŋ		ircoRem	19142							NDA W
reat Kills Park	10-2	urvey	Dose I	t Location	A Right Sic	A Back Sic	A Left Side	A Front Sic	A Top	A Bottom	,	W								S BELON
9	GK	Shipping S	$m/100 \text{ cm}^2$	ult ß result	A <mda< td=""><td>ADA ADA</td><td>A <mda< td=""><td>ADA <mda< td=""><td>ADA <mda< td=""><td>A <md <="" td=""><td></td><td>3030 E</td><td>217607</td><td>43-10</td><td>229364</td><td>9/10/2019</td><td>2α/200βγ</td><td></td><td></td><td>RESOLT</td></md></td></mda<></td></mda<></td></mda<></td></mda<>	ADA ADA	A <mda< td=""><td>ADA <mda< td=""><td>ADA <mda< td=""><td>A <md <="" td=""><td></td><td>3030 E</td><td>217607</td><td>43-10</td><td>229364</td><td>9/10/2019</td><td>2α/200βγ</td><td></td><td></td><td>RESOLT</td></md></td></mda<></td></mda<></td></mda<>	ADA <mda< td=""><td>ADA <mda< td=""><td>A <md <="" td=""><td></td><td>3030 E</td><td>217607</td><td>43-10</td><td>229364</td><td>9/10/2019</td><td>2α/200βγ</td><td></td><td></td><td>RESOLT</td></md></td></mda<></td></mda<>	ADA <mda< td=""><td>A <md <="" td=""><td></td><td>3030 E</td><td>217607</td><td>43-10</td><td>229364</td><td>9/10/2019</td><td>2α/200βγ</td><td></td><td></td><td>RESOLT</td></md></td></mda<>	A <md <="" td=""><td></td><td>3030 E</td><td>217607</td><td>43-10</td><td>229364</td><td>9/10/2019</td><td>2α/200βγ</td><td></td><td></td><td>RESOLT</td></md>		3030 E	217607	43-10	229364	9/10/2019	2α/200βγ			RESOLT
			tesults in dp	a Resi	≤MD	GM⊳	⊂MD		⊲MD	⊲MD									sontact S	NEAR
Location	Cooler No		Smear F	Location	Right	Back	Left	Front Side	Top	Bottom		Meter	Serial No.	Detector	Serial No.	Cal Due Date	MDA	Comments	Dose Rate on (	ALL SI

10/22/18

B. Cole

0/25/18 Reviewer:

H. White

Surveyor:

Signature:

Date

0

Signature:

~ Date

Environmental Ana	IJSIS KE	<b>For Eurofit</b>	SU/CI	<b>B</b> ahorator			US aluse c			0						
Lancaster Laboratories Environmental	Acct. # <u>19065</u>	Group	# 2003	<u>997</u> 8	ample #	98	101	59	$\tilde{\mathcal{S}}$				<b>၀</b>	# 0	61374	
Client Information			Matri	×	6		A	nalys	is Re	quest	þé		<u>و</u>	Lab Use O	nly	
client. Tideworter	Acct. #:					" -	reser	ation	and F	Itratio		es	Ω Ω Ω Ω			
Project Name#: CKP Phase   RI 002/2016-007	PWSID #:		punc punc	อาย	<u>.</u>	- Print	/	(2	10	10	(	₩0b	±	<b>Preserva</b> HCI	tion Codes T=Thiosulfate	
Project Manager: Wansink	P.O.# 2016 - 007-	20	ייים בייי פייס [ פייס -	ine F	sts	(V siou	wis-	10209	9121	1000	6151	Z8/5	Ξ ő	HNO <sub>3</sub> H₂SO₄	B=NaOH P≕H <sub>3</sub> PO₄	
sampler CSUNVEDEr	Quote #;		jnem   9le		nistn	02 Z 26-7	-702	a) 5	567	2801	8)5.	مردون	Ë [	Field Filtered	i <b>O</b> =Other narks	1
State where samples were collected: For Compliance: $\mathcal{N}e \omega \neq \mathcal{N}r \neq \mathcal{R}$	No R		ibe2 Potab		ioD fo	B] 0973	Z <u>8)</u>	7.407	hips	3/3	حزم	1/ 75				
Sample Identification	Collected	odu qe	il 🔀	Jer:	) # [P]	)570	s HK	<u>vol</u>	1 0 200	IN (150	ורקי	1201				
600 TR 10 26 18-001	Date Time ルップんパッ わめの	× قات دە	os M	130	oT U	13 17	/	T		/	4	0	-+e	ون السالية	V VOLS Dal	
012-1-50005-06	102618 17930		? X			X X	X	X	V V		K	X	: v	besta	105 2	*
002-1-50005-06-DUP	102618 0930	X	. X		0	X	X	R	$X$	X	X	- 又	3	heinture	soil, dupter	2
012-1-50005-16	NZ618 1110	X	×		9	X X	X	X	X	× v	X	X	~	ubsurtac	l'ing a	1
002-1-50006-05	102618 1455	X	×		6	× X	X	X	X	X V	٤	X	<u>ير</u>	ih wirtac	1/105 2	
002-1-50006-14	102610 1540	×	×		9	X X	X	X	× X	X	X	X	N	u bsurfa	liar an	
002-1-50008-02	102618 1645	8	×		``	X X	X	X	~ X	X	X	X	N	whenta	l'os a	
	10															a conservation of a
	What I	1	1.	201	<del>.</del> р					_						
		Ralinguishad		Ę	Ī.	Date	_	Time _	- A A	hived hv	]		_	IDate	Time	Î
Iurnaroung Line (IAI) Kequested	(please circle) ush		C Sut	red	1	10.	2610	183	2	Feo	IEx.			102	2618 1830	-
(Rush TAT is subject to laboraton/approval and surcharge	a occom. Com	Rejunding Rejuicited	by			Date		Time	Re	ceived by				Date	Time	ny in chi va ta ta da anna anna ga
Date results are needed: ryon, wensing	ke tide h20, N	Belinduished	by		$  \rangle$	Dat	0	Time	Re	ceived by				Bate	Time	ĺ
E-mail address:	al com. com	Relinquished	by			Date	6	Time	Re	seived by		X		Date	Time	
Data Package Options (circle if re-	quired)								1		$\backslash$	4			i	ungun marangan
Type I (EPA Level 3 Equivalent/non-CLP) Type VI (I	Raw Data Only)	Relinquished	à			Date	0	lime	*	ceived by	X	X		100 Late	27/ , 9:R	<del>S</del> T
Type III (Reduced non-CLP) NJ DKQP	TX TRRP-13		EDD F If yes, format:	con 1	E A	NA SE	anl	vers	in Re	elinquis UPS	hed by	/ Comn FedEx	nercia	Carrier: Other		
NYSDEC Category A or B MA MCP	CT RCP	Sit (If yes	e-Specific Q	C (MS/) mple and	ASD/Di submit ti	up)? <sup>v</sup> iplicate s	ample vo	No lume.)		Ť	empera	ature u	oon re	ceipt <u> </u>	°.	
Eurofins L The white conv should	Lancaster Laboratories	Environme Environme	ntal, LLC • 242 ancester Lahr	5 New Fortan	folland Enviror	Pike, La	ncaster The ve	PA 17	501 • 7 V shou	l 7-656- Id he re	2300 tained	ov the c	lient		7044 071	~



Interact Legendration         Aut N T OUT DUI TOTAL	ofins	lalysis		For m	urofins	SUNC Lancaste	<b>Jite</b> r Labora	atories I		mental	USE on			and the	~	· ·		, L		
Client information	Lancaster Laboratories Environmental	Acct. #	9 9 9	ت اک <sup>ر</sup>	# dno	888	(r.3)	Samp	ار # او		hha	1-0	M				Ŋ,	Ω Ω <b>≵</b>	C) 21	
Перегодион         Перего	Client Informat	ıtion				Ma	ıtrix				An	alysis	Req	Jeste	4		For Lab	Use Only		
AL     AI     DUZ     Part Production     Presentation Codes       AL     AI     DUZ     Pol     Pol     Pol     Pol     Pol       AL     AI     DUZ     Pol     Pol     Pol     Pol     Pol       AL     PUZ     Pol     POL     Pol     Pol     Pol     Pol       AL     PUZ     PUZ     POL     Pol     Pol     Pol     Pol       AL     PUZ     PUZ     PUZ     PUZ     PUZ     PUZ     POL       SUD     PUZ     PUZ     PUZ     PUZ     PUZ     PUZ     PUZ       SUD     PUZ     PUZ     PUZ     PUZ     PUZ     PUZ     PUZ       SUD     PUZ     PUZ     PUZ     PUZ     PUZ     PUZ     PUZ       SUD     PUZ     PUZ     PUZ     PUZ     PUZ     P	iter	Acct. #:								Pre	serva	tion ar	id Filt	ration	Code:	<u>ه</u>	FSC: SCR#:			
Ubs.nr.in, K     Post Lot     P	ase 1 R.I 0UZ/2016-0	Do PWSID#:				puno nss <u>i</u> 1	цясе		רמידים -		M	(H)	(8		6	Hob	H=HCI	servation	1 Codes r=Thiosulfate	pptostantions and an
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Wensink	P.O.#	100-	0 -		] eu	ns [	212	1.5.94	(7	<u> </u> <u> </u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u>	812	71800	(4	11518	70)3	N=HNO <sub>3</sub>	ш ш	3=NaOH 5=H₃PO₄	i lan la gjina sonta on targo teorga
Manual Internation         For Complexity         For	C Schneder	Quote #:				<b>Jnem</b>	] si	nieta	8/(3	OLZ	702	<u>_HL/</u> g) 5.	2)50	280	)57	5-12	F=Field I	Filtered C	D=Other KS	
ample Identification         Collected         a         b         S	s were collected: For Compliance	No No			ətiə	Sedi Potab	NPDE	10-0 fc	0928	18)	28)	9 22 17	hac	8):	<u>-1</u> c! y?	2/152				
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	ample Identification	Colle	cted	яр	sodu		IGL	. :19h her: .	570	5701	SHB	bin	452	970	19.20	1-12-05				
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	117018-111	Date 102010	Time 1031/5	(Gr	00	os	enn Q	130 101 (	2/ ×	5	10	1/ 17	1	1	r H	/7	7 - ; -7	7.7	1	
-3003 3 - 08 $-30007 - 10$ $-5003 3 - 08$ $-50007 - 10$ $-500007 - 10$ $-50007 - 10$ $-5000000000000000000000000000000000000$	- 50 001-10	102918	1070	( X		-    x	1			X	X	ג ג'	X	X	- V		20/11/	1 april	Coll Pt	¥.
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	-50003-08	102918	1145	i X				2 22		X			12	X	i x	, Y	subsul	face s	rei/ 1	herd
And Control     And	- 50007-10	016201	1255	×		R		0	R	X	X	X	X	٤	K	x	suber	rface	1.05	-
And Constant     And Constant     <																				2011040-00000
Consistent of the set of th			$\geq$					~												
round Time (TAT) Requested (please circle)     Relative (TAT) Requested (please circle)     Relative (TAT) Requested (please circle)       Standard)     Rush     Relative (TAT) Requested (please circle)     Relative (TAT) Requested (please circle)       Standard)     Rush     Relative (TAT) Requested (please circle)     Relative (TAT) Requested (please circle)       Standard)     Rush     Relative (TAT) Requested (please circle)     Relative (TAT) Requested (please circle)       Standard)     Rush     Relative (TAT) Requested (please circle)     Relative (TAT) Requested (please circle)       Standard)     Relative (TAT) Requested (please circle)     Relative (TAT) Requested (please circle)     Relative (TAT) Requested (please circle)       Standard)     Relative (TAT) Requested (please circle)     Relative (TAT) Requested (please circle)     Relative (TAT) Relative (TAT)       A Level     A Level     Date     Time     Received (please circle)       A Level			$\backslash$		Ť	3/	3/	Ž	1/6											prosense pros
Cound Time (TAT) Requested (please circle)     Reinquished by     Date     Time     Received by     Date     Time       Standard     Standard     Rush     Reinquished by     Reinquished by     Received by <td></td> <td></td> <td></td> <td></td> <td></td> <td>_</td> <td></td> <td>-</td> <td>4</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td><math>\rightarrow</math></td> <td></td> <td></td> <td></td> <td></td>						_		-	4							$\rightarrow$				
Cound Time (TAT) Requested (please circle)     Reinquished by Rush     Cound Time (TAT) Requested (please circle)       Standard)     Rush     Rush     Rush       Standard)     Rush     Rush       Standard     Rush     Reinquished by       Standard     Rush     Reinquished by       Standard     Rush     Reinquished by       Standard     Reinquished by     Date       Jacush     Level 3     Type VI (Raw Data Only)       A Level 3     Type VI (Raw Data Only)     Reinquished by       Mon-CLP)     NJ DKQP     TX TRRP-13       If yes, format:     Level 3     Time       Received by     Date     Time       A Level 3     Type VI (Raw Data Only)     Reinquished by       Mon-CLP)     NJ DKQP     TX TRRP-13       If yes, format:     Line     Received by       Conno-CLP)     NJ DKQP     TX TRRP-13       If yes, format:     Line     Received by       Conno-CLP)     NJ DKQP     TX TRRP-13       If yes, format:     Line													Д	1						etcidnamentiprof
Cound Time (TAT) Requested (please circle)     Reinquisped fy Rush     Cound Time (TAT) Requested (please circle)     Reinquisped fy Rush     Reinquisped fy Rush     Reinquisped fy Rush     Date     Time     Received by     Date     Time       Standard     Standard     Rush     Reinquisped fy     Parte     Time     Received by     Parte     Time     Parte     Pa																				anneeg
Subject to laboration approval and surgharge.       Relindished by       Date       Time       Received by       Date       Time         e needed:       r/arn.ucn.int.ext.ic.n2.       decvm.com       intentioned       pate       Time       Received by       Date       Time         e needed:       r/arn.ucn.int.ext.ic.n2.       decvm.com       pate       Time       Received by       Date       Time         Alevel3       Type VI (Raw Data Only)       Relinquished by       Date       Time       Received by       Date       Time         PA Level3       Type VI (Raw Data Only)       Relinquished by       Date       Time       Received by       Date       Time         PA Level3       Type VI (Raw Data Only)       Relinquished by       Date       Time       Received by       Date       Time         PA Level3       Type VI (Raw Data Only)       Relinquished by       Date       Time       Received by       Date       Time         PA Level3       Type VI (Raw Data Only)       Relinquished by       Date       Time       Received by       Date       Time         Pate       Time       Received by       No       No       Time       Received by       Date       Time         Reduced non-CLP)	rround Time (TAT) Requeste Standard	i <b>ed</b> (please circle Rush	()	Relinqu	ished by	CL	2	(		Date 1029	1.81	BOO BOO	Rece	Ved by	12			Date /vZy/	8 1800	
e needed: <i>FVan. Wen.inL &amp; Fideh Zu. Ma R inquished by</i> <i>Javon. Ch. i ev. inv. @ du. m. uom</i> <i>indum. Ch. i ev. inv. @ du. m. uom</i> <i>Reinquished by</i> <i>A Level</i> 3 Type VI (Raw Data Only) A Level 3 Type VI (Raw Data Only) Reinquished by <i>Reinquished by</i> <i>Reinquished by</i> <i>Reind</i> <i>Reinquished by</i> <i>Reinquished by</i> <i>Reinquished by</i> <i>Reinquished by</i> <i>Reinquished by</i> <i>Reinquished by</i> <i>Reind</i> <i>Reind</i> <i>Reinquished by</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i> <i>Reind</i>	s subject to laboratopy approval and surch	harge.) C que c un	madr	Relind	lished by					Date	<u> </u>	au	Rece	ved by				Date	Time	
Javin M. Ch. i cui ne and intervention       Reinquished by       Date       Time       Received by       Date       Time         Data Package Options (circle if required)       PA Level 3       Type VI (Raw Data Only)       Reinquished by       Date       Time       Received by       Date       Time         PA Level 3       Type VI (Raw Data Only)       Reinquished by       Date       Time       Received by       Date       Time         Reduced non-CLP)       NJ DKQP       TXTRP-13       If yes, format: <i>Low, Fac.</i> )       No       Relinquished by Commercial Carrier: 10/30/16/16/30       If No         Reduced non-CLP)       NJ DKQP       TXTRP-13       If yes, format: <i>Low, Fac.</i> )       No       No       Site-Specific QC (MS/MSD/Dup)?       Yes       Other       Other       Other         Category A or B       MA       MCP       CT RCP       (If yes, indicate QC sample and submit triplicate sample volume.)       Temperature upon receipt       0.0       0.0       0	e needed: ryan, wensi	int & tide	420.M	Relinqu	lished by					Data	VF \	ne	Rece	ved by			ŀ	Date	Time	e ndompo realista
Data Package Options (circle if required)       Relinquished by       Date       Time       Received by       Date       Time         PA Level 3       Type VI (Raw Data Only)       Relinquished by       Date       Time       Received by       Date       Time         PA Level 3       Type VI (Raw Data Only)       Relinquished by       Date       Time       Received by       Date       Time         Reduced non-CLP)       NJ DKQP       TX TRRP-13       If yes, format: <i>Law Fair</i> )       Not	devola. chievine	r Q alcon	2.001	Relinat	ished by			X		Date	j=	he	Rece	ved by	N			Date	Time	
PA Level 3 Type VI (Raw Data Only) Athon-CLP) NJ DKQP TX TRP-13 Reinquisted by Commercial Carrier: Time Received by MMM 10/30 11/10/10/10/10/10/10/10/10/10/10/10/10/1	Data Package Options (circle	if required)			6					2		2		N.				5		
Reduced non-CLP)       NJ DKQP       TX TRRP-13       EDD Required?       Cell No       Relinquished by Commercial Carrier:       I         Reduced non-CLP)       NJ DKQP       TX TRRP-13       If yes, format:       Convert       Cell No       Cell	PA Level 3 Type \ thron-CLP)	VI (Raw Data C	(ylu	Relinqu	ished by					Date	<u> </u>	ne	Rece	ved by	A	Š		Date 10130	Time 13 1020	
Category A or B MA MCP CT RCP Site-Specific QC (MS/MSD/Dup)? Yes No Temperature upon receipt 0. 6°C	Seduced non-CLP) NJ DK	ΚαΡ ΤΧ ΤΙ	RP-13		#	EDI yes, form	ס Requ at: במ	ired? h <i>rta</i> -		No	N.	nin	k Reli	nquish PS	ed by (	Comme	ercial Carri	ler: T		gudalwi arwings
	Category A or B MA M	ICP CT R	СР		Site- (If yes, i	Specific ndicate QC	QC (M sample	S/MSE and subr	)/Dup) nit triplic	? CY6 ate sam	ple volur	je.)		Ter	nperati	nre upo	n receipt	9.0	ပ္	aladahada Sanga ayan da
	the Advantance and	Condition and a state	· · · · · · · · · · · · · · · · · · ·		1			1				~~~~ L		)			1111	י רכר	;;;;	


						-		;	
Location		Great	t Kills Park		Survey Type	Shipping		Survey Log #	GKP- 01 +
Cooler No		GKP	+10-		Surveyor	H.White		Date	10/29/18
	Sh	tipping Surv	ley						
Smear Resu	lts in dpm/1(	$00 \text{ cm}^2$	Dose Rate (	(microR)					
Location	α Result	β result	Location	y result					
Right	<mda< th=""><th><mda< th=""><th>Right Side</th><th>c,</th><th></th><th>7</th><th></th><th></th><th></th></mda<></th></mda<>	<mda< th=""><th>Right Side</th><th>c,</th><th></th><th>7</th><th></th><th></th><th></th></mda<>	Right Side	c,		7			
Back	<mda< td=""><td><mda< td=""><td>Back Side</td><td>Ц</td><td></td><td></td><td></td><td></td><td></td></mda<></td></mda<>	<mda< td=""><td>Back Side</td><td>Ц</td><td></td><td></td><td></td><td></td><td></td></mda<>	Back Side	Ц					
Left	<mda< td=""><td><mda< td=""><td>Left Side</td><td>Ч</td><td></td><td></td><td></td><td></td><td></td></mda<></td></mda<>	<mda< td=""><td>Left Side</td><td>Ч</td><td></td><td></td><td></td><td></td><td></td></mda<>	Left Side	Ч					
Front Side	<mda< td=""><td><mda< td=""><td>Front Side</td><td>7</td><td></td><td></td><td></td><td>in the second seco</td><td></td></mda<></td></mda<>	<mda< td=""><td>Front Side</td><td>7</td><td></td><td></td><td></td><td>in the second seco</td><td></td></mda<>	Front Side	7				in the second seco	
Top	<mda< td=""><td><mda< td=""><td>Top</td><td>ų</td><td></td><td></td><td></td><td></td><td></td></mda<></td></mda<>	<mda< td=""><td>Top</td><td>ų</td><td></td><td></td><td></td><td></td><td></td></mda<>	Top	ų					
Bottom	<mda< th=""><th><mda< th=""><th>Bottom</th><th>2</th><th></th><th>¢</th><th></th><th></th><th></th></mda<></th></mda<>	<mda< th=""><th>Bottom</th><th>2</th><th></th><th>¢</th><th></th><th></th><th></th></mda<>	Bottom	2		¢			
						2			
						Ń			
Meter	303	10 E	Mircol	Rem					
Serial No.	217	.607	1914	12				Strange.	
Detector	43-	-10							
Serial No.	229.	364							
Cal Due Date	9/10/	/2019							
MDA	$2\alpha/2^{1}$	00BY							
Comments									
Dose Rate on conta	ct H								
					Surveyor:	H. White	10/29/18 Reviewer:	B. Cole	\$1/102/01
						11 11		1 1 4	-
					Signature:	A ton the	Date Signature:	D. Colo	Date

er 002 Grat Kills Park asink	For Eurofin Acct. # $\underline{H3002}_{\text{COUP}}$ Group # Acct. #: PWSID #: P.O. #:	s Lancaster Laboratories # 2004 50 Ground Matrix San San San San San San San San	ers Pre	Analysis Analysis iservation ar iservation ar	Requested Requested 100 100 100 100 100 100 100 10	C se do 628)50
rue de r cted: For Compliance: Yes dentification	Composite Collected Time	Soil 🗌 Sedimer Water Other:	Total # of Contail VOC5 (8260C	PAHS (8270	PCBs (808	FI - The second second
18-002	102918 1355 X	7.8	: : X : X			8 .
0-F	× 02418 1540 ×	××	x x x	< X X X X	× × ×	
Tao	103018 1040 &	X	39 × ×	, X X X	ペ ス メ	
08.IF	1030/8/040 ×	<u>م در</u>	005	X ·		
100-01	x 0101 alucar		x v	२ २ २	* K	
			31/32			
						#2 L
Time (TAT) Requested d)	d (please circle) Relinguished 1 Rush	" Hh	Date 1030	10 1820	Received by	
laboratory approval and surchard	ge.) 2 accm. cov. Rolinquished 1	λq	Date	Time	Received by	1 1
: ryan. wens in p on. chicoine e ae	200 M. COM Relinquished 1 200 M. COM Relinquished 1	by	Date	Time Time	Received by Received by	
ickage Options (circle if 1 13 Type VI _P)	required) (Raw Data Only)	- La	Date	Time	Received by	}
non-CLP) NJ DKQ	P TX TRRP-13	EDD Required? If yes, format: Con fac	Lt Kyan	Vensink	Relinquished UPS	ا ف
Y A or B MA MCF	D CT RCP Site	e-Specific QC (MS/MS indicate QC sample and su	bmit trinticate same	S> No	Temp	610

The white copy should accompany samples to Eurofins Lancaster Laboratories Environmental. The yellow copy should be retained by the client.

7044 0717

	Survey Log # GKP- 023	Date 10/30/15							in den stand Stand Stand Stand Stand Stand Stand											B. Cole 10/30/18	Late Date
	Ding	hit							1		5									hite 10/20/15/ Reviewer:	TUNT Date Signature:
2004155	Survey Type Ship	Surveyor H. W.			-															 Surveyor: H. W	Signature: Xtow
INC	Kills Park	- 023	ey	Dose Rate (microR)	Location <b>Y result</b>	Right Side 5	Back Side S	Left Side	Front Side S	Top S	Bottom	MircoRem	19142								
TIDE WATER Radiological Service	Great	GKP.	Shipping Surve	s in dpm/100 cm <sup>2</sup>	α Result β result	<mda <mda<="" td=""><td><mda <mda<="" td=""><td><mda <mda<="" td=""><td><mda <mda<="" td=""><td><mda <mda<="" td=""><td><mda <mda<="" td=""><td>3030 E</td><td>217607</td><td>43-10</td><td>229364</td><td>9/10/2019</td><td>2α/200βγ</td><td></td><td>t S</td><td></td><td></td></mda></td></mda></td></mda></td></mda></td></mda></td></mda>	<mda <mda<="" td=""><td><mda <mda<="" td=""><td><mda <mda<="" td=""><td><mda <mda<="" td=""><td><mda <mda<="" td=""><td>3030 E</td><td>217607</td><td>43-10</td><td>229364</td><td>9/10/2019</td><td>2α/200βγ</td><td></td><td>t S</td><td></td><td></td></mda></td></mda></td></mda></td></mda></td></mda>	<mda <mda<="" td=""><td><mda <mda<="" td=""><td><mda <mda<="" td=""><td><mda <mda<="" td=""><td>3030 E</td><td>217607</td><td>43-10</td><td>229364</td><td>9/10/2019</td><td>2α/200βγ</td><td></td><td>t S</td><td></td><td></td></mda></td></mda></td></mda></td></mda>	<mda <mda<="" td=""><td><mda <mda<="" td=""><td><mda <mda<="" td=""><td>3030 E</td><td>217607</td><td>43-10</td><td>229364</td><td>9/10/2019</td><td>2α/200βγ</td><td></td><td>t S</td><td></td><td></td></mda></td></mda></td></mda>	<mda <mda<="" td=""><td><mda <mda<="" td=""><td>3030 E</td><td>217607</td><td>43-10</td><td>229364</td><td>9/10/2019</td><td>2α/200βγ</td><td></td><td>t S</td><td></td><td></td></mda></td></mda>	<mda <mda<="" td=""><td>3030 E</td><td>217607</td><td>43-10</td><td>229364</td><td>9/10/2019</td><td>2α/200βγ</td><td></td><td>t S</td><td></td><td></td></mda>	3030 E	217607	43-10	229364	9/10/2019	2α/200βγ		t S		
	Location	Cooler No		Smear Results	Location	Right	Back	Left	Front Side	Top	Bottom	Meter	Serial No.	Detector	Serial No.	Cal Due Date	MDA	Comments	Dose Rate on contact		

				155			an with the grade with				Vilell	head	Ser S	med 1		instanting they be	in to be a start of the	frank service algorithm of the	American	esterna da seconda da s		lpronaen die verschiede die verschiede die verschiede die verschiede die verschiede die verschiede die verschie						sugg
	<b>COC #</b> 561377	For Lab Use Only	FSC:	SCR#:	Preservation Codes H=HCI T=Thiosulfate	N=HNO <sub>3</sub> B=NaOH S=H <sub>2</sub> SO <sub>4</sub> P=H <sub>3</sub> PO <sub>4</sub>	F=Field Filtered O=Other Remarks			dein blante	the in the	duplicate	Giold F. Hever	Hald Filtever dynics te		field Filtered				Date Time 11 01/8 1700	Date Time	Date	Date Time	Date Time	0101 Bile/11 -2	hercial Carrier:	on receipt <u>0, 0 - i. 6</u> °C	
• •		Requested	Filtration Codes		( + + + + + + + + + + + + +	3) 518 1518 (+1 9,180	$r_{2}$	1/5/1- 1, c 1, c	10×10) 10×10 10×10 10×10 10×10 10×10	// / /	x x x x	XXXXXX			× X X X					Received by F	Received by	Received by	Received by	Received by	/NNV	Relinquished by Comm UPS FedEx _	Temperature up	• 717-656-2300
<b>UUSIOON</b>	mental use only 18313018- 1 ー	Analysis R	Preservation and			HO. HZO WIS	2. hL 9) r - QC QOL	1 hai 1 aris 2 B)	уелен Инело ИНг ( ЛоСг	W. I V S	X X X X	X X X X	XX	× ×	ペ × × × ×	× ×				Date Time Time 1101119 1700	Date	Date Time F	Date	Date Time F		an Wennich	)? Yes No cate sample volume.)	e, Lancaster, PA 17601 •
V SATEILAR OF	ncaster Laboratories Enviror うじうつし Sample # C	Matrix			əəeju puno	C) site ] S <sup>n</sup> ] Ci	0 <i>92</i>	Potab of Coi	10 C 4	5 ₩ 10 10 10	X EV X EV	X /3 X	~ ×	X	×  /3 ×	\ X	1/1/10	9/1/1		Am						EDD Required? (	ecific QC (MS/MSD/Dup) ate QC sample and submit tripli	LC • 2425 New Holland Pik
cednes l	For Eurofins Lan			Ð	, ussiT	7-02	3nəm	Sedii	de de	20 C0 C0	< X	. X	X	 义	× ×	R. .:c	de la			Relinquished by	Relivenished by	Relinquished by	Relinguished by	Relinauished bv		3 If yes,	Site-Spi (If yes, indici	ies Environmental, L
allysis n	Acct. # <u>H3CN</u>	u	Acct. #:		PWSID #:	P.O.#: 206-00	Quote #:	No N	Collected	Date Time	0/2/ 8/1201	103118 1210	103/19 1210	103118 1210	13118 1650	103/18 1653	A-lo			l (please circle) Rush	e.) deco M. com	etice hZo.ne	com. com	equired)	(Raw Data Only)	P TX TRRP-1	OCT RCP	Lancaster Laborator
ENVIRONMENTAL AVIA	Curofins Lancaster Laboratories Environmental	Client Informatio	Client:	(Idewater	Project Name#	Project Manager. Ryan Wensink	Sampler. John C Schreeder	State where samples were collected: For Compliance:	Sample Identification	1112 48 10 21 18-001	002-1-MV008WT	002-1-MW008WT-DUP	0U2-1-MW008WT-F	002-1-MN008W7-F-20P	002-1-MW009WT	0U2-1-MW009WT-F				Turnaround Time (TAT) Requested	(Rush TAT is subject to laboratory approval and surcharg $\mathcal{CO}(\mathcal{Rec}, \mathcal{Fecff})$	Date results are needed: Fyun. Wans in K	E-mail address: devou, chiwine @ de	Data Package Options (circle if r Time 1/EDA Level 3	Equivalent/non-CLP)	Type III (Reduced non-CLP) NJ DKQ	NYSDEC Category A or B MA MCF	Eurofins



3005271

e Shipping	H. White									- -
Survey Type	Surveyor		croR)	sult	S	5	2	N	5	
	1		ate (mi	Y res	de	ide	ide	Side	d	ttom
Kills Park		۷	Dose R	Location	Right Si	Back S	Left S	Front	T	Bo
Great Kills Park	P-035	pping Survey	<sup>0</sup> cm <sup>2</sup> Dose R	β result Location	<mda right="" si<="" td=""><td><mda back="" s<="" td=""><td><mda left="" s<="" td=""><td><mda front<="" td=""><td><mda td="" to<=""><td><mda bo<="" td=""></mda></td></mda></td></mda></td></mda></td></mda></td></mda>	<mda back="" s<="" td=""><td><mda left="" s<="" td=""><td><mda front<="" td=""><td><mda td="" to<=""><td><mda bo<="" td=""></mda></td></mda></td></mda></td></mda></td></mda>	<mda left="" s<="" td=""><td><mda front<="" td=""><td><mda td="" to<=""><td><mda bo<="" td=""></mda></td></mda></td></mda></td></mda>	<mda front<="" td=""><td><mda td="" to<=""><td><mda bo<="" td=""></mda></td></mda></td></mda>	<mda td="" to<=""><td><mda bo<="" td=""></mda></td></mda>	<mda bo<="" td=""></mda>
Great Kills Park	CKP-035	Shipping Survey	ts in dpm/100 cm <sup>2</sup> Dose R.	a Result b result Location	<mda <mda="" right="" si<="" td=""><td><mda <mda="" back="" s<="" td=""><td><mda <mda="" left="" s<="" td=""><td><mda <mda="" front<="" td=""><td><mda <mda="" td="" to<=""><td><mda <mda="" bo<="" td=""></mda></td></mda></td></mda></td></mda></td></mda></td></mda>	<mda <mda="" back="" s<="" td=""><td><mda <mda="" left="" s<="" td=""><td><mda <mda="" front<="" td=""><td><mda <mda="" td="" to<=""><td><mda <mda="" bo<="" td=""></mda></td></mda></td></mda></td></mda></td></mda>	<mda <mda="" left="" s<="" td=""><td><mda <mda="" front<="" td=""><td><mda <mda="" td="" to<=""><td><mda <mda="" bo<="" td=""></mda></td></mda></td></mda></td></mda>	<mda <mda="" front<="" td=""><td><mda <mda="" td="" to<=""><td><mda <mda="" bo<="" td=""></mda></td></mda></td></mda>	<mda <mda="" td="" to<=""><td><mda <mda="" bo<="" td=""></mda></td></mda>	<mda <mda="" bo<="" td=""></mda>

81-1-11

B. Cole

//-/~ Reviewer:

H. White

Surveyor:

Signature:

Date

atom at

Signature:

Date

	<b>COC #</b> 569485	For Lab Use Only	FSC: SCR#: 23399 /	Preservation Codes H=HCl T=Thiosulfate	N=HNO <sub>3</sub> B=NaOH S=H <sub>2</sub> SO <sub>4</sub> P=H <sub>3</sub> PO <sub>4</sub>	F=Field Filtered 0=Other	11977	u'ubI	trip blank.	IDW Sample	× IDV sample						Date Time バコのノピ / ダロン		110/18 1700	Date Time	Date Time		WP [1]]]]3]3]13]1010	Ex V Other	e upon receipt°C	IT https://www.eurofinsus.com/coc
2	illo	s Requested	Ind Filtration Codes	/	אליביי ד	570/ 1554/ 1554 1004	15 0 I d I d I I I I I I I I I I I I I I I I	1771 1771 1771 1057	·	×	XXX						Received by n n	JAN AR	o received of the	Received by	Received by		Received by	Relinquished by Co UPS Fed	Temperature	TING FORM ONECK OL
	*# <u>9681340-</u>	Analysi	Preservation a		670	ل H 12 14 15 14 15 14 14		של אל	/ / - X	× × ×	×						Date Time	CI VI SIIIXPION	110118 170	Date Time	Date Time		Date Time	Yes No Ryay Wensig	Dup)? Yes No triplicate sample volume.)	300 • FOR HELP COMPLE onmental. The yellow copy
Concept of the office Ev	2005300 ample	Matrix		nnace bnno brind	€L2 2n CL 	) elo S=	ib98 Potat IDGN	otal X	10 × 10 178 12	x 9	× H				a//10/11			y law	M					EDD Required? ( yes, format: しかん f ない	-Specific QC (MS/MSD/ ndicate QC sample and submi	ter, PA 17601 • 717-656-2 ncaster Laboratories Envir
Inter Eurofine	DOC Group #				007-02			sompo:		04-10 ×	1000 ×		1 1 1	Le N.	/		Relinquished by	(un n	om. was helinguanea o	ChZa, Beijdquished by	Relinquished by		Relinquished by	RP-13	P Site	Holland Pike, Lancas samples to Eurofins La
	es Acct. # 4	rmation	Acct. #:	PWSID #:	P.O.# 2016-0	W Redaing	pliance: es 🔲 No 🗹	Collec	1/0//9	8/1011	Q11011			2 A			Lested (please circle)	Rush	I surcharge.)	wens . n/ e tid	Q Que Lo M. Lom	circle if required)	ype VI (Raw Data Or	υ σκαρ τχ τr	A MCP CT RC	nental, LLC • 2425 New py should accompany s
	Lancaster Laboratorie Environmental	Client Info	client Tidewater	Project Namel# GKP Phuse/RI 002	Project Manager. Ryca Wensink	Sampler. John C Schroeder/Andre	State where samples were collected: For Com New York Y	Sample Identification	00278110118-001	002.IDWWATERHOUB-001	002 IOW SOLL 110118-001	and it is the second					Turnaround Time (TAT) Requ	Standard	(Rush TAT is subject to laboratory approval and	Requested TAT in business days: $r/w n$	E-mail address: dewn, chine i	Data Package Options (	Type I (EPA Level 3 Equivalent/non-CLP)	Type III (Reduced non-CLP) N	NYSDEC Category A or B N	Eurofins Lancaster Laboratories Environn The white co

Environmental Analysis Request/Chain of Custody

ŕ



3005380

Location		Grea	tt Kills Park		Survey Type Shipping	
Cooler No	GK	(P- 0)	36		Surveyor $H$ , $L$	UKP-056
	Sh	ipping Surv	vey			01 1 1
Smear Resu	ilts in dpm/1(	$30 \text{ cm}^2$	Dose Rate	(microR)		
Location	a Result	β result	Location	y result		
Right	<mda< td=""><td><mda< td=""><td>Right Side</td><td>У</td><td></td><td></td></mda<></td></mda<>	<mda< td=""><td>Right Side</td><td>У</td><td></td><td></td></mda<>	Right Side	У		
Back	<mda< td=""><td><mda< td=""><td>Back Side</td><td>4</td><td></td><td></td></mda<></td></mda<>	<mda< td=""><td>Back Side</td><td>4</td><td></td><td></td></mda<>	Back Side	4		
Left	<mda< td=""><td><mda< td=""><td>Left Side</td><td>4</td><td></td><td></td></mda<></td></mda<>	<mda< td=""><td>Left Side</td><td>4</td><td></td><td></td></mda<>	Left Side	4		
Front Side	<mda< td=""><td><mda< td=""><td>Front Side</td><td>7</td><td></td><td>-</td></mda<></td></mda<>	<mda< td=""><td>Front Side</td><td>7</td><td></td><td>-</td></mda<>	Front Side	7		-
Top	<mda< td=""><td><mda< td=""><td>Top</td><td>V</td><td></td><td></td></mda<></td></mda<>	<mda< td=""><td>Top</td><td>V</td><td></td><td></td></mda<>	Top	V		
Bottom	<mda< td=""><td><mda< td=""><td>Bottom</td><td>5</td><td></td><td></td></mda<></td></mda<>	<mda< td=""><td>Bottom</td><td>5</td><td></td><td></td></mda<>	Bottom	5		
Meter	3030	E	MircoR	Rem		
Serial No.	2176	07	19142	2		
Detector	43-1	0				
Serial No.	2293(	64				
Cal Due Date	9/10/2(	019				
(DA	2α/200	βγ				_
Comments						
Dose Rate on contact						
					Currentineer 11 With 11 m 1	
					Surveyor: I. Write $7//g$ <b>Reviewer:</b> B. Cole $7//g$	11/18
					Signature: 21. A. M. Date Sionature: 1/	
				<u>1955</u>	a market of a second and a second a sec	Date

Date

Signature: