ARCADIS

Infrastructure · Water · Environment · Buildings

New York State Department of Environmental Conservation

Site Number 7-54-012

Tioga Casting Site Quarterly Report and Drilling Activities Summary

Third and Fourth Quarter 2014

January 2015

ARCADIS

Bruce Nelson, CPG
Principal Geologist \ Vice President

Jeremy Wyckoff
Project Geologist

Tioga Castings Site Quarterly Report and Drilling Activities Summary

Third and Fourth Quarter 2014

Site Number 7-54-012

Prepared for:
New York State Department of Environmental Conservation

Prepared by:
Malcolm Pirnie, Inc.
855 Route 146
Suite 210
Clifton Park
New York 12065
Tel 518 250 7300
Fax 518 250 7301

Our Ref.:
00266403.0000

Date:
January 2015

Malcolm Pirnie, Inc. was acquired by ARCADIS in July 2009.

Table of Contents

Table of Contents

Appendices

Tioga Castings Site Quarterly Report and Drilling Activities Summary Third and Fourth Quarter 2014

Site Number 7-54-012

1. Introduction

The New York State Department of Environmental Conservation (NYSDEC) has issued a Work Assignment (# D004443-8) to Malcolm Pirnie, Inc. (Malcolm Pirnie) for Operation, Maintenance, and Monitoring at the Tioga Castings Site (NYSDEC site number 7-54-012) in New York State. This report has been prepared to summarize third and fourth quarter 2014 operation and maintenance (O&M) and drilling activities.

2. Site Description

The Tioga Castings site is located on Foundry Street, Owego, Broome County, New York (Figure 2-1). The former foundry buildings have been razed, leaving the concrete slabs in-place. A capped, closed landfill is present at the western end of the site. In August 2011, the boundaries of the site (originally encompassing approximately seven acres) were reduced by the NYSDEC to only include the approximately one acre landfill (Figure 2-2).

3. Operation and Maintenance

Operation and Maintenance (O&M) activities were performed on October 1, 2014 in accordance with the NYSDEC-approved SMP. A Post Closure O&M Checklist (Appendix A) was used to document the current status of the landfill, including security and landfill cap maintenance and repairs. Site photographs taken during the landfill inspection are provided in Appendix B. The next O&M event is scheduled to be performed during the first quarter 2015.

3.1 Landfill Security

The landfill perimeter fence, entry gate, and locks were inspected for proper operation and signs of deterioration. As indicated in the O&M Checklist, no problems were observed with the operation or integrity of these components. In addition, the Foundry Street entry gate warning sign was in place and in acceptable condition.

3.2 Landfill Cap Maintenance

A visual inspection of the landfill cap was performed to assess the landfill for burrowing rodents, erosion, woody vegetation, and settlement.

As shown in the O&M Checklist (Appendix A), no burrowing rodent holes were observed in the landfill.

Brush was growing along the perimeter swales of the landfill, but was not encroaching on the landfill cap.

As indicated in Appendix A, the machine used by the NYSDEC to mow the landfill cap made ruts in the northeast corner of the landfill, but no damage to the liner was visible. Photographs of the damage are presented in Appendix B. The NYSDEC was notified of the damage on October 2, 2014. The landfill cap was repaired by Malcolm Pirnie on November 10, 2014 by restoring the perimeter rip-rap slope and placement of new topsoil to fill the ruts. Grass seed was spread in areas that received new topsoil. Photographs of the cap following the repair are provided in Appendix B. Grass in the repair area will inspected in 2015.

3.3 Groundwater Monitoring Wells

Groundwater monitoring wells were inspected for security and signs of deterioration in accordance with the SMP during the fourth quarter 2013 groundwater monitoring event. Based on the inspection, the flush-mount protective casing for monitoring well MW-4 was damaged and could no longer be secured. The flush-mount protective casing and concrete pad was replaced by Parratt Wolff on September 30, 2014. Photographs of the repaired flush-mount and concrete pad are provided in Appendix B.

4. Drilling Activities

Based on a review of historical groundwater data, and at the direction of the NYSDEC, six groundwater monitoring wells, generally located down-gradient of the landfill (Figure 2-2), were abandoned and replaced with one new down-gradient monitoring well. A summary of drilling activities is presented below.

4.1 Well Decommissioning

Six 2-inch PVC overburden groundwater monitoring wells (Figure 2-2) were decommissioned in accordance with NYSDEC CP-43: Groundwater Monitoring Well Decommissioning Policy. A summary of well construction details is provided below:

Well	Stickup / Flush-mount	Depth (feet bgs)
MW-1R	S	22
MW-2	S	17
MW-3	S	16
MW-5	F	17
MW-7	F	23
MW-8	S	24

Decommissioning was completed by Parratt Wolff on September 30, 2014 and October 1, 2014. The wells were abandoned by filling the 2-inch PVC wells with a cement-bentonite grout using a tremie line. The surface completion (stickup or flush-mount) was removed and the PVC well riser pipe was cut and removed to a depth of approximately five feet below ground surface (bgs). However, due to the shallow depth to grout in the annular space at MW-5 when the well was originally completed, the riser pipe could not be cut and removed at the required depth. Therefore, the well was first filled with grout using a tremie pipe and then over-drilled to a depth of five feet

(bgs). Following removal of the well riser pipes, the remainder of the borehole was filled with native soil and/or clean silica sand. All decommissioning debris was removed and disposed off-site by Parratt Wolff. Well decommissioning logs are provided in Appendix C.

4.2 Groundwater Monitoring Well Installation

One new groundwater monitoring well (MW-9) was installed along the eastern edge of the existing landfill (Figure 2-2) as described below.

4.2.1 Drilling

Groundwater monitoring well, MW-9, was installed by Parratt Wolff on September 29, 2014 and September 30, 2014. The monitoring well was drilled via hollow-stem auger (HSA) drilling techniques with 4.25-inch inside diameter drilling augers. The soil boring and well construction log is presented in Appendix D.

4.2.2 Soil sampling

Continuous split-spoon samples were collected to characterize subsurface soils from the ground surface to the final depth of the boring. The samples were characterized by the on-site geologist and generally consisted of gravel and sands. Soil was screened for evidence of contamination (staining, odors, and sheen) continuously from ground surface to the final depth of the boring. A photo ionization detector (PID) was also used to screen the soil. None of the PID readings were greater than 0.1 ppm.

Previous investigations at the site (Investigation Report, 2008; and Tioga Casting Site Quarterly Report, Second and Third Quarter, 2009) were performed to evaluate the horizontal and vertical distribution of soil contamination in the vicinity of the former foundry area and on-site landfill. Therefore, since this well was being drilled for purposes of long-term monitoring, and since no field evidence of contamination (staining, odors, sheen, or elevated PID readings) were observed in the soil, no analytical soil samples were collected from this boring location.

4.2.3 Well construction

Groundwater monitoring well MW-9 was drilled to a depth of 21 feet bgs. Groundwater was encountered at approximately 13 feet bgs. Ten feet of schedule 40, 0.010 inch slot PVC screen was placed from 11 feet to 21 feet bgs, with approximately 13 feet of

PVC riser above the screen. Filter sand was placed in the annulus between the borehole and the well screen. A two foot bentonite seal was placed above the filter pack sand. The remainder of the borehole was filled with a Portland cement grout. The well was completed at the surface with a 4-inch, steel stick-up protective casing.

4.3 IDW

Investigation-derived waste (IDW) and decontamination fluids were contained in UN-approved 55-gallon drums for characterization and proper disposal.

One composite sample was collected from the IDW for Resource Conservation Recovery Act (RCRA) waste characterization (pH and flashpoint) and Toxicity Characteristic Leaching Procedure (TCLP) analysis for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals and pesticides. Laboratory analytical results are provided in Appendix E.

Based on the laboratory data and waste profile, the IDW was characterized as non-hazardous/non-DOT regulated. The three drums (two soil cuttings and one decontamination water) were transported for off-site disposal by Veolia Environmental Solutions (Veolia) on November 10, 2014. Copies of the waste profile and shipping documents are presented in Appendix F.

4.4 Monitoring Well Development

Monitoring well MW-9 was developed on October 1, 2014 to minimize turbidity to improve hydraulic properties. The monitoring well was developed using a surge block and a peristaltic pump. Approximately 15 gallons of water was purged from the well during development. The well development log is provided in Appendix G.

4.5 Well Survey

The location of groundwater monitoring well MW-9 was surveyed using a Trimble GPS.

The top of casing elevation for MW-9 was surveyed on November 10, 2014 using a Pentax automatic level and referenced from existing monitoring well MW-3D. A summary of well elevations is provided in Table 4-1.

5. Recommendations

The SMP should be updated to reflect changes in the groundwater monitoring network.

6. References

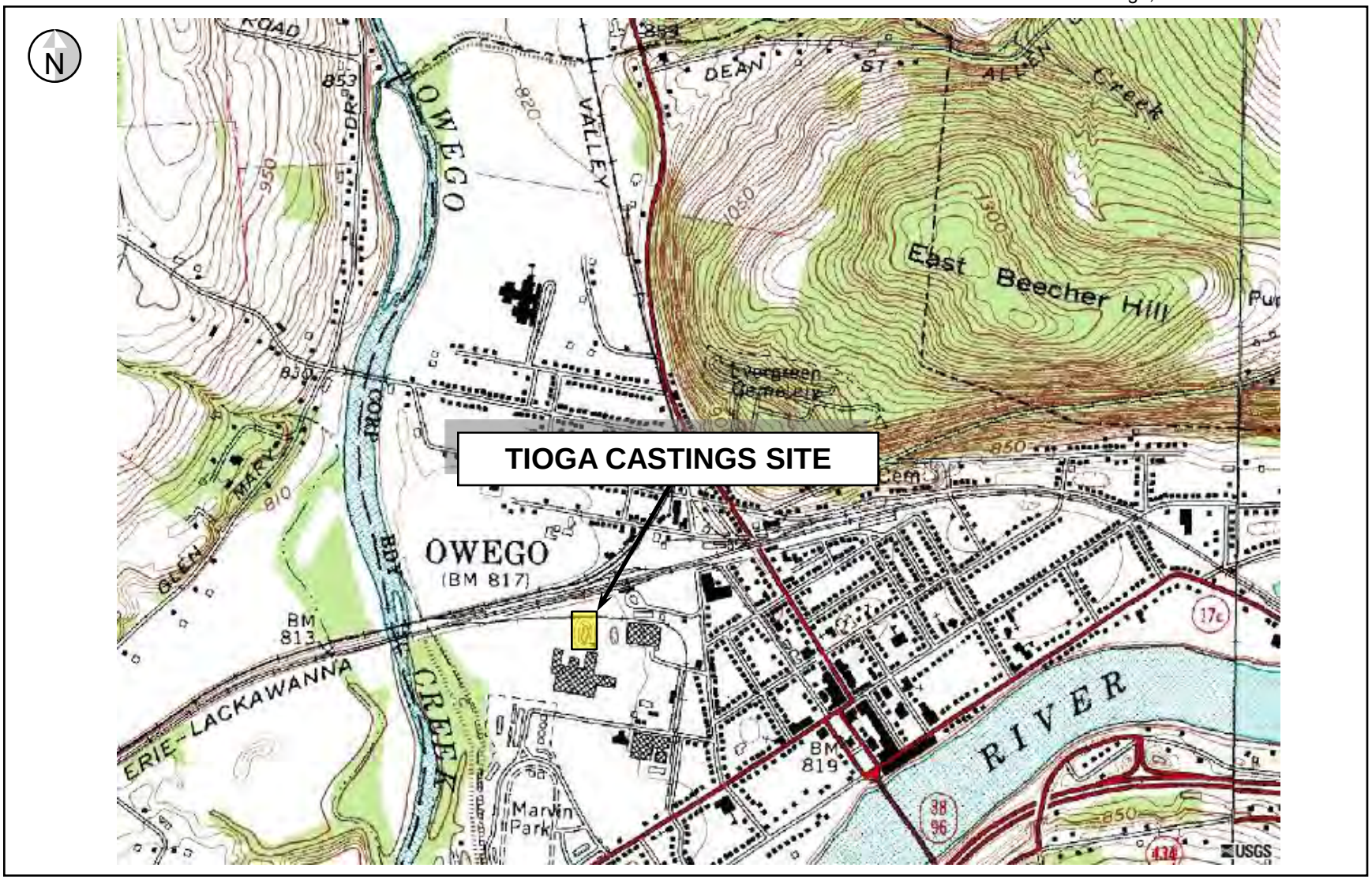
Malcolm Pirnie, 2008, Investigation Report, Tioga Casting Site, Malcolm Pirnie, Inc., August 2008.

Malcolm Pirnie, 2009, Tioga Casing Site Quarterly Report, Second and Third Quarter 2009, Malcolm Pirnie, Inc., December 2009.

ARCADIS

Figure 2-1
Site Location
Tioga Castings Site
NYSDEC Site Number 7-54-012
Owego, New York

0 2,000 ft



Source: USGS 7.5-minute Series Topographic Quadrangle, OWEGO (1990).

G:Project/0266362/File/Reports/1st Qtr 2012/Figure 2-1.ppt

Legend

- Monitoring Well
- Abandoned Well
- Former Casting Facility
- On-Site Landfill/Site Boundary
- Approximate Parcel Boundary

0 60 120 240 360 480 Feet

N

Note: Site feature boundaries are approximate.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SITE NUMBER 754012

Tioga Casting Facility, Owego, New York

SITE FEATURES

ARCADIS

FIGURE
2-2

G:\GIS\MXD\00266403.0000\Site Map.mxd
G:\PROJECT\00266403.0000\Reports\4th Qtr 2014-drilling\Figure 2-2.pdf

Table 4-1
Summary of Well Elevations
Tioga Casting
Owego, New York
NYSDEC Site No. 7-54-012

Well	Measuring Point Elevation (feet)	
MW-3D	812.42	(2)
MW-4	806.33	(1)
MW-6	815.53	(3)
MW-9	809.97	(4)

Notes:
(1) - Source: Monitoring Plan - Tioga Casting (NYSDEC, April 25, 2005)
(2) - From Malcolm Pirnie, Inc. level survey performed 10/28/2010
(3) - From Malcolm Pirnie, Inc. level survey performed 2/28/2011
(4) - From Malcolm Pirnie, Inc. level survey performed 11/10/14

Appendix A

Post-Closure Operation and Maintenance Checklist

TIOGA CASTINGS SITE LANDFILL

Post-Closure Operation and Maintenance Checklist

Inspected by: Jeremy Wyckoff

Date: 10/1/2014 Time: 11:00

Weather Conditions: Cloudy ~65°F

LANDFILL COVER SYSTEM

Erosion		YES	X	NO
Holes or Cracks in Cover		YES	X	NO
Cap Settlement		YES	X	NO
Ponded Water or Wet Areas		YES	X	NO
Burrowing Rodents		YES	X	NO
Sparse Vegetation/Bare Soil		YES	X	NO
Brush or Other Woody Vegetation,		YES	X	NO
Excessive Weeds in Grass		YES	X	NO
Grass Mowed	X	YES		NO

DRAINAGE DITCHES

Erosion		YES	X	NO
Obstructions		YES	X	NO
Sediment Accumulation		YES	X	NO
Evidence of Surcharging		YES	X	NO
Presence of Brush	X	YES		NO

Comments: Brush growing in swales. Tractor used to mow made ruts on northeast corner of the landfill.

Took pictures of the damage, no liner visible is the ruts.

Continued

FENCING

Warning Signs	X	OK		OTHER
Gates and Locks	X	OK		OTHER
Posts	X	OK		OTHER
Top Tension Wire	X	OK		OTHER
Barbed Wire	X	OK		OTHER

Comments:

MONITORING WELLS

Capped and Locked	X	YES		NO
Casing Damage		YES	X	NO

Comments: Abandoned MW-1R, MW-2, MW-3, MW-5, MW-7 and MW-8. Drilled and installed MW-9 along the East side of the landfill. Work performed 9/29/14-10/1/14. Generated three drums of IDW.

INSPECTOR'S SIGNATURE JRW DATE 10/1/2014

ARCADIS

Appendix B

Photograph Log

ARCADIS

Appendix B
Photograph Log

Tioga Castings Site
NYSDEC Site #7-54-012
Owego, New York

Northeast corner of landfill – facing east (10/1/14)
Ruts visible from mower.

Northeast corner of landfill – facing west (10/1/14)
Ruts visible from mower.

Northeast corner of landfill – facing east (11/10/14)
following repairs

Northeast corner of landfill – facing west (11/10/14)
following repairs

ARCADIS

Appendix B
Photograph Log

Tioga Castings Site
NYSDEC Site #7-54-012
Owego, New York

West side of landfill – facing south

East side of landfill – facing north

North side of landfill – facing east

South side of landfill – facing west

ARCADIS

Appendix B
Photograph Log

Tioga Castings Site
NYSDEC Site #7-54-012
Owego, New York

Center of landfill – facing southeast

Center of landfill – facing southwest

Center of landfill – facing northwest

Center of landfill – facing northeast

Landfill access gate

MW-4 new flush-mount and concrete pad

Parratt Wolff installing MW-9

Drill cuttings from MW-9 (0-5 feet bgs)

Drill rig set up at MW-9

Well developing at MW-9

Abandoned MW-1R

Abandoned MW-2

Abandoned MW-3

Abandoned MW-5

Abandoned MW-7

Abandoned MW-8

ARCADIS

Appendix C

Well Abandonment Logs

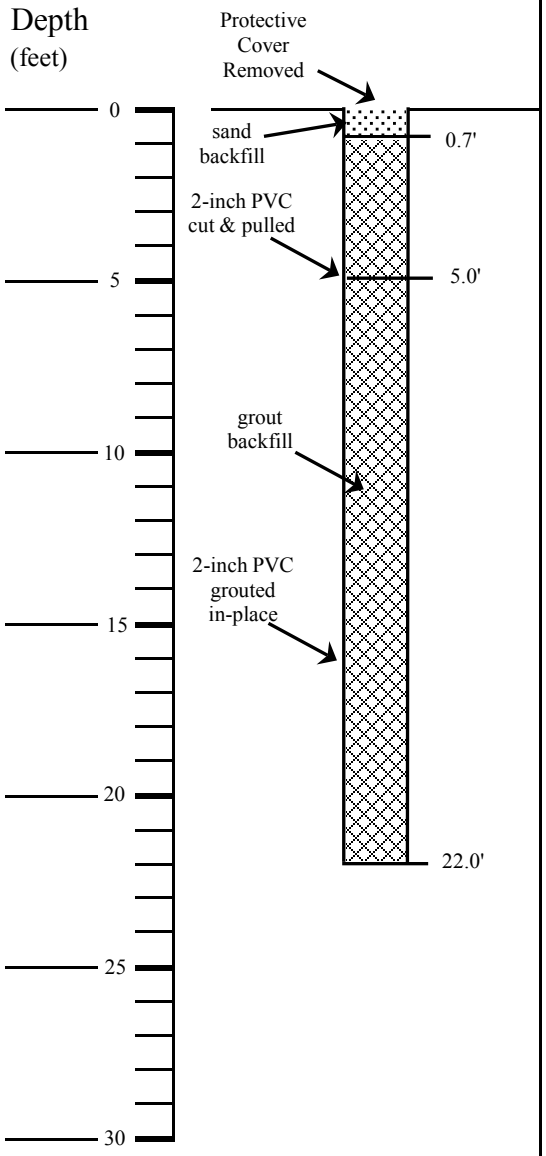
WELL DECOMMISSIONING RECORD

Site Name: **Tioga Castings Site**	Well I.D.: **MW-1R**
Site Location: **Owego, New York**	Driller: **William Rice**
Drilling Co.: **Parratt-Wolff, Inc.**	Inspector: **Breanna Quaglieri**
	Date: **10/1/14**

DECOMISSIONING DATA
(Fill in all that apply)

OVERDRILLING	
Interval Drilled	NA
Drilling Method(s)	NA
Borehole Dia. (in.)	NA
Temporary Casing Installed? (y/n)	N
Depth temporary casing installed	NA
Casing type/dia. (in.)	NA
Method of installing	NA
CASING PULLING	
Method employed	cut & pull
Casing retrieved (feet)	5.0'
Casing type/dia. (in)	PVC - 2"
CASING PERFORATING	
Equipment used	NA
Number of perforations/foot	NA
Size of perforations	NA
Interval perforated	NA
GROUTING	
Interval grouted (FBLS)	0.7 - 22.0'
# of batches prepared	2
For each batch record:	
Quantity of water used (gal.)	4
Quantity of cement used (lbs.)	47
Cement type	Portland
Quantity of bentonite used (lbs.)	2
Quantity of calcium chloride used (lbs.)	0
Volume of grout prepared (gal.)	10
Volume of grout used (gal.)	9

WELL SCHEMATIC*



COMMENTS:

* Sketch in all relevant decommissioning data, including: interval overdrilled, interval grouted, casing left in hole, well stickup, etc.

Drilling Contractor

Department Representative

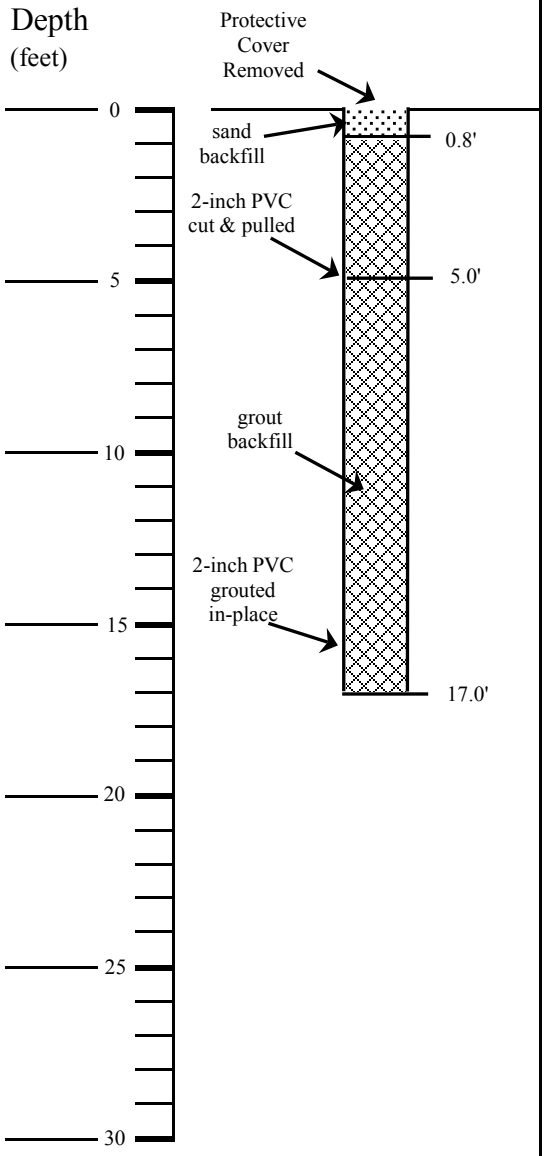
WELL DECOMMISSIONING RECORD

Site Name: **Tioga Castings Site**	Well I.D.: **MW-2**
Site Location: **Owego, New York**	Driller: **William Rice**
Drilling Co.: **Parratt-Wolff, Inc.**	Inspector: **Breanna Quaglieri**
	Date: **10/1/14**

DECOMISSIONING DATA
(Fill in all that apply)

OVERDRILLING	
Interval Drilled	NA
Drilling Method(s)	NA
Borehole Dia. (in.)	NA
Temporary Casing Installed? (y/n)	N
Depth temporary casing installed	NA
Casing type/dia. (in.)	NA
Method of installing	NA
CASING PULLING	
Method employed	cut & pull
Casing retrieved (feet)	5.0'
Casing type/dia. (in)	PVC - 2"
CASING PERFORATING	
Equipment used	NA
Number of perforations/foot	NA
Size of perforations	NA
Interval perforated	NA
GROUTING	
Interval grouted (FBLS)	0.8 - 17.0'
# of batches prepared	1
For each batch record:	
Quantity of water used (gal.)	3.9
Quantity of cement used (lbs.)	47
Cement type	Portland
Quantity of bentonite used (lbs.)	2
Quantity of calcium chloride used (lbs.)	0
Volume of grout prepared (gal.)	5
Volume of grout used (gal.)	5

WELL SCHEMATIC*



COMMENTS:

* Sketch in all relevant decommissioning data, including: interval overdrilled, interval grouted, casing left in hole, well stickup, etc.

Drilling Contractor

Department Representative

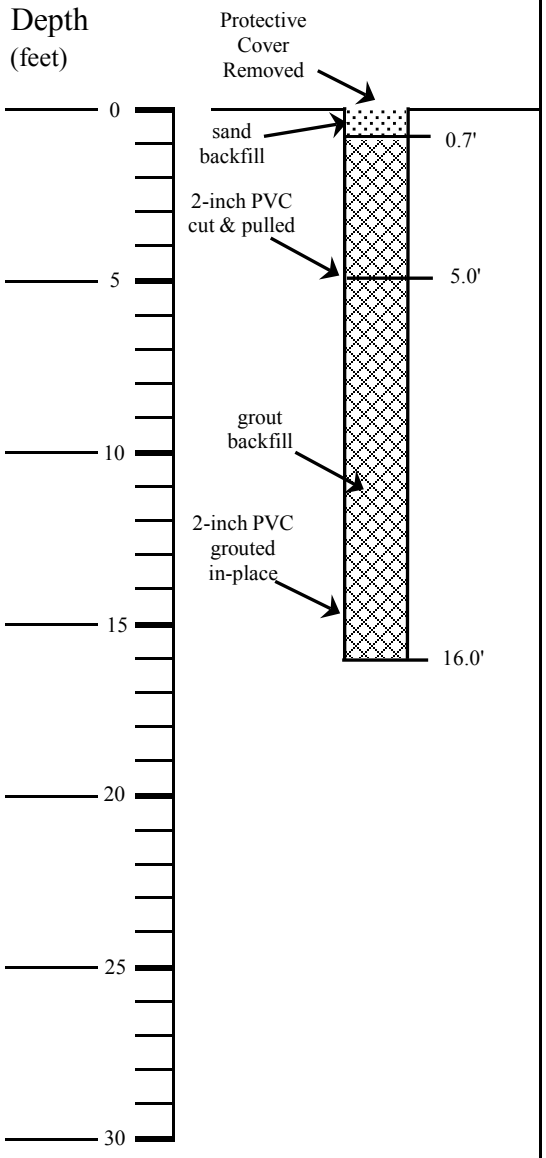
WELL DECOMMISSIONING RECORD

Site Name: **Tioga Castings Site**	Well I.D.: **MW-3**
Site Location: **Owego, New York**	Driller: **William Rice**
Drilling Co.: **Parratt-Wolff, Inc.**	Inspector: **Breanna Quaglieri**
	Date: **10/1/14**

DECOMISSIONING DATA
(Fill in all that apply)

OVERDRILLING	
Interval Drilled	NA
Drilling Method(s)	NA
Borehole Dia. (in.)	NA
Temporary Casing Installed? (y/n)	N
Depth temporary casing installed	NA
Casing type/dia. (in.)	NA
Method of installing	NA
CASING PULLING	
Method employed	cut & pull
Casing retrieved (feet)	5.0'
Casing type/dia. (in)	PVC - 2"
CASING PERFORATING	
Equipment used	NA
Number of perforations/foot	NA
Size of perforations	NA
Interval perforated	NA
GROUTING	
Interval grouted (FBLS)	0.7 - 16.0'
# of batches prepared	1
For each batch record:	
Quantity of water used (gal.)	3.9
Quantity of cement used (lbs.)	47
Cement type	Portland
Quantity of bentonite used (lbs.)	2
Quantity of calcium chloride used (lbs.)	0
Volume of grout prepared (gal.)	5
Volume of grout used (gal.)	5

WELL SCHEMATIC*



COMMENTS:

* Sketch in all relevant decommissioning data, including: interval overdrilled, interval grouted, casing left in hole, well stickup, etc.

Drilling Contractor

Department Representative

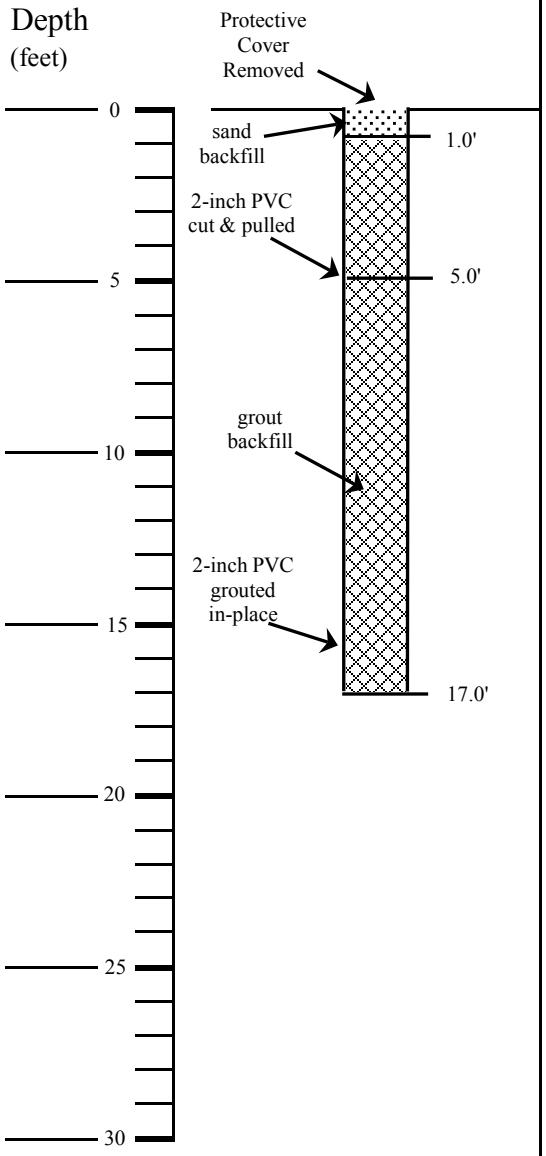
WELL DECOMMISSIONING RECORD

Site Name: **Tioga Castings Site**	Well I.D.: **MW-5**
Site Location: **Owego, New York**	Driller: **William Rice**
Drilling Co.: **Parratt-Wolff, Inc.**	Inspector: **Breanna Quaglieri**
	Date: **10/1/14**

DECOMISSIONING DATA
(Fill in all that apply)

OVERDRILLING	
Interval Drilled	0 - 5.0'
Drilling Method(s)	HSA
Borehole Dia. (in.)	8
Temporary Casing Installed? (y/n)	N
Depth temporary casing installed	NA
Casing type/dia. (in.)	NA
Method of installing	NA
CASING PULLING	
Method employed	cut & pull
Casing retrieved (feet)	5.0'
Casing type/dia. (in)	PVC - 2"
CASING PERFORATING	
Equipment used	NA
Number of perforations/foot	NA
Size of perforations	NA
Interval perforated	NA
GROUTING	
Interval grouted (FBLS)	1.0 - 17.0'
# of batches prepared	1
For each batch record:	
Quantity of water used (gal.)	11.5
Quantity of cement used (lbs.)	188
Cement type	Portland
Quantity of bentonite used (lbs.)	8
Quantity of calcium chloride used (lbs.)	0
Volume of grout prepared (gal.)	20
Volume of grout used (gal.)	19

WELL SCHEMATIC*



COMMENTS:

* Sketch in all relevant decommissioning data, including: interval overdrilled, interval grouted, casing left in hole, well stickup, etc.

Drilling Contractor

Department Representative

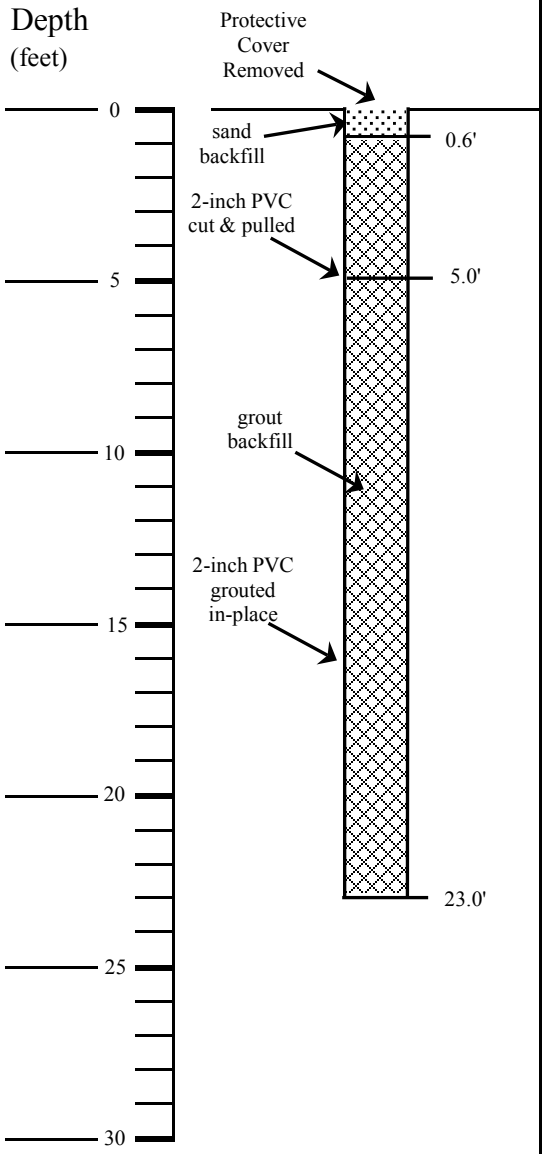
WELL DECOMMISSIONING RECORD

Site Name: **Tioga Castings Site**	Well I.D.: **MW-7**
Site Location: **Owego, New York**	Driller: **William Rice**
Drilling Co.: **Parratt-Wolff, Inc.**	Inspector: **Breanna Quaglieri**
	Date: **9/30/14**

DECOMISSIONING DATA
(Fill in all that apply)

OVERDRILLING	
Interval Drilled	NA
Drilling Method(s)	NA
Borehole Dia. (in.)	NA
Temporary Casing Installed? (y/n)	N
Depth temporary casing installed	NA
Casing type/dia. (in.)	NA
Method of installing	NA
CASING PULLING	
Method employed	cut & pull
Casing retrieved (feet)	5.0'
Casing type/dia. (in)	PVC - 2"
CASING PERFORATING	
Equipment used	NA
Number of perforations/foot	NA
Size of perforations	NA
Interval perforated	NA
GROUTING	
Interval grouted (FBLS)	0.6 - 23.0'
# of batches prepared	2
For each batch record:	
Quantity of water used (gal.)	4
Quantity of cement used (lbs.)	47
Cement type	Portland
Quantity of bentonite used (lbs.)	2
Quantity of calcium chloride used (lbs.)	0
Volume of grout prepared (gal.)	10
Volume of grout used (gal.)	8.5

WELL SCHEMATIC*



* Sketch in all relevant decommissioning data, including: interval overdrilled, interval grouted, casing left in hole, well stickup, etc.

COMMENTS:

Drilling Contractor

Department Representative

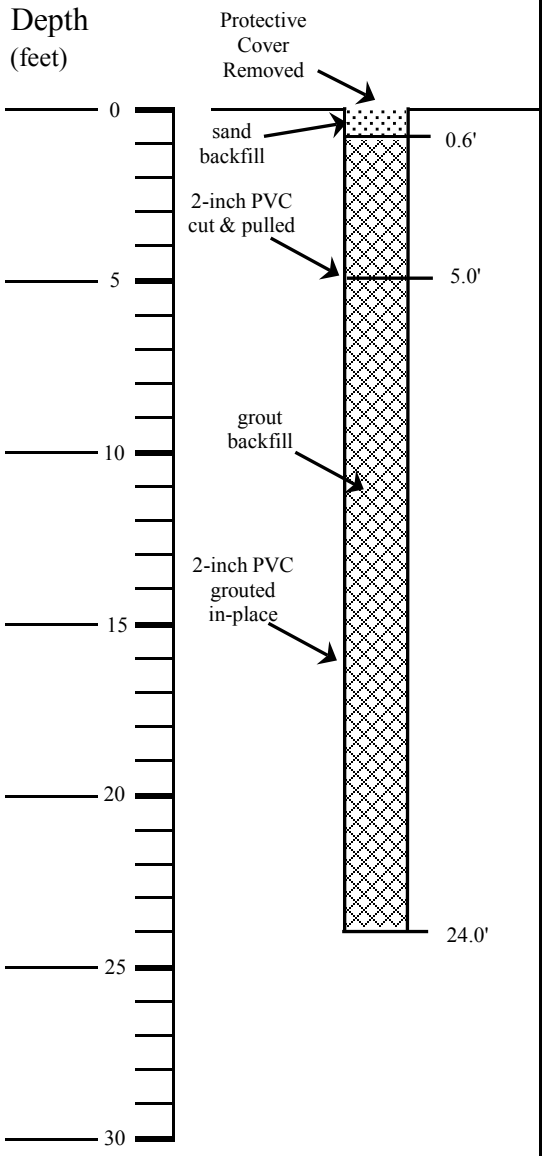
WELL DECOMMISSIONING RECORD

Site Name: **Tioga Castings Site**	Well I.D.: **MW-8**
Site Location: **Owego, New York**	Driller: **William Rice**
Drilling Co.: **Parratt-Wolff, Inc.**	Inspector: **Breanna Quaglieri**
	Date: **10/1/14**

DECOMISSIONING DATA
(Fill in all that apply)

OVERDRILLING	
Interval Drilled	NA
Drilling Method(s)	NA
Borehole Dia. (in.)	NA
Temporary Casing Installed? (y/n)	N
Depth temporary casing installed	NA
Casing type/dia. (in.)	NA
Method of installing	NA
CASING PULLING	
Method employed	cut & pull
Casing retrieved (feet)	5.0'
Casing type/dia. (in)	PVC - 2"
CASING PERFORATING	
Equipment used	NA
Number of perforations/foot	NA
Size of perforations	NA
Interval perforated	NA
GROUTING	
Interval grouted (FBLS)	0.6 - 24.0'
# of batches prepared	2
For each batch record:	
Quantity of water used (gal.)	4
Quantity of cement used (lbs.)	47
Cement type	Portland
Quantity of bentonite used (lbs.)	2
Quantity of calcium chloride used (lbs.)	0
Volume of grout prepared (gal.)	10
Volume of grout used (gal.)	10

WELL SCHEMATIC*



* Sketch in all relevant decommissioning data, including: interval overdrilled, interval grouted, casing left in hole, well stickup, etc.

COMMENTS:

Drilling Contractor

Department Representative

ARCADIS

Appendix D

Soil Boring Log

ARCADIS
Infrastructure · Water · Environment · Buildings

TEST BORING LOG

BORING No.MW-9

PROJECT	**Tioga Castings**	LOCATION	**Owego, NY**	SHEET	**1** OF **2**
CLIENT	**NYSDEC**			PROJECT No.	**00266403.0000**
DRILLING CONTRACTOR	**Parratt Wolff**			MEAS. PT. ELEV.	**809.97**
PURPOSE	**Monitoring**			GROUND ELEV.	
WELL MATERIAL	**PVC**			DATUM	
DRILLING METHOD(S)	**HSA**	SAMPLE	CORE / CASING	DATE STARTED	**9/29/14**
DRILL RIG TYPE	TYPE			DATE FINISHED	**9/30/14**
GROUND WATER DEPTH	**13.0'** DIA. **"**			DRILLER	**Bill**
MEASURING POINT	WEIGHT **#**			PIRNIE STAFF	**B. Quaglieri**
DATE OF MEASUREMENT	FALL **"**				

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. DEPTH	WELL Constr.	REMARKS
2			0.0		Light gray, well-graded, sub-rounded, GRAVEL. With dark brown Sandy Silt. Dry.			Monitoring well is a ~3' stick-up.
4								
6	0.5		0.0		Light brown to gray, well-graded, sub-rounded GRAVEL. With dark brown, fine-medium SAND. Dry.	5.0		
8	1.0		0.0		Brown, fine-medium SAND. With light gray, sub-rounded Gravel. Dry.	7.0		
					Light gray, well-graded, sub-rounded to angular GRAVEL. Dry.	8.5		
	0.4		0.1		Dark brown, medium SANDY SILT. Dry.	9.0		
10	1.0		0.0		Light gray, well-graded, angular GRAVEL. Dry.	9.3		
					Red-brown, well-graded, sub-angular GRAVEL. With trace red-brown, fine-medium sand. Dry.	9.5		
12	1.2		0.0		Dark brown, medium SAND. With trace light gray, well-graded, sub-angular gravel. Dry.	10.0 12.0		
14	1.5		0.0		Dark brown, fine-medium SAND. With trace light gray, well-graded, sub-angular gravel. Wet.	14.0		
					Light gray, fine-medium SAND. Wet.	15.0		
16	1.6		0.0		Brown, fine-medium SAND. With trace dark gray, well-graded, angular gravel. Very wet.			
18					Brown, fine-medium SAND. Very wet.	18.0		
	0.3		0.0					

6.7

8.9

ARCADIS
Infrastructure · Water · Environment · Buildings

TEST BORING LOG

BORING No.MW-9

PROJECT **Tioga Castings**	LOCATION **Owego, NY**	SHEET **2** OF **2**
CLIENT **NYSDEC**		PROJECT No. **00266403.0000**

DEPTH FT.	SAMPLE TYPE, RECOVERY, NUMBER	BLOWS ON SAMPLE SPOON PER 6"	PID	GRAPHIC LOG	GEOLOGIC DESCRIPTION KEY - Color, Major, Minor Moisture, Etc.	ELEV. / DEPTH	WELL Constr.	REMARKS
	0.3		0.0					21.0
					Gray, well-graded, angular GRAVEL. Very wet.	20.9		
						21.0		

ARCADIS

Sample/Core Log

Boring/Well MW-9 Project/No. 00266403.0000 Page 1 of 2

Site Location: Tioga Castings Owego, NY

Drilling Started: 1125 9/29/2014 Drilling Completed: 1620 9/29/2014

Total Depth Drilled: 21 Feet Hole Diameter: inches Type of Sample/ Coring Device: HSA/SS

Length and Diameter of Coring Device: 6' x 8" Sampling Interval: NA feet

Land-Surface Elev. feet Surveyed Estimated Datum

Drilling Fluid Used: None Drilling Method: HS.A

Drilling Contractor: Parratt Wolff Driller: Bill Helper: Brian

Prepared By: B. Quaglieri Hammer Weight: Hammer Drop: ins.

Sample/Core Depth (feet below land surface) From (ft)	To (ft)	Core Recovery (feet)	PID Reading (ppm)	Sample/Core Description
0	5	NA	0.0	Hand auger - Well graded GRAVEL, light gray, sub-rounded, with dark brown Sandy Silt
				Dry.
5	7	0.5	0.0	5.0-7.0: Light brown to gray GRAVEL, well graded, sub-rounded, with dark brown Sand
				fine-medium. Dry
7	9	1.0	0.0	7.0-8.5: Brown, fine-medium SAND with light gray Gravel sub-rounded. Dry
				8.5-9.0: Light gray GRAVEL, well graded, sub-rounded to angular, medium-coarse Dry.
9	10	0.4	0.1	9.0-9.3: Dark brown, medium SANDY SILT, Dry.
				9.3-9.5: Light gray GRAVEL, angular, well graded. Dry.
				9.5-10.0: Red-brown GRAVEL, sub-angular, well graded with trace red-brown sand
				fine-medium. Dry.
10	12	1.0	0.0	10.0-12.0: Dark brown, medium SAND with trace light gray gravel, sub-rounded, poorly
				graded. Dry.
12	14	1.2	0.0	12.0-12.8: Dark brown fine-medium SAND with trace light gray gravel, sub-angular,
				well graded. Dry.
				12.8-14.0: Dark brown, fine, SAND, with dark gray Gravel, sub-angular, well graded. Wet
				Water table at ~13ft
14	16	1.5	0.0	14.0-15.0: Light gray, fine-medium SAND. Wet.
				15.0-16.0: Brown fine-medium SAND with trace dark gray gravel, angular, well graded.
				Very wet.
16	18	1.6	0.0	16.0-18.0: Brown fine-medium SAND with trace dark gray gravel, angular, well graded.

ARCADIS

Sample/Core Log (Cont.d)

Boring/Well MW-9

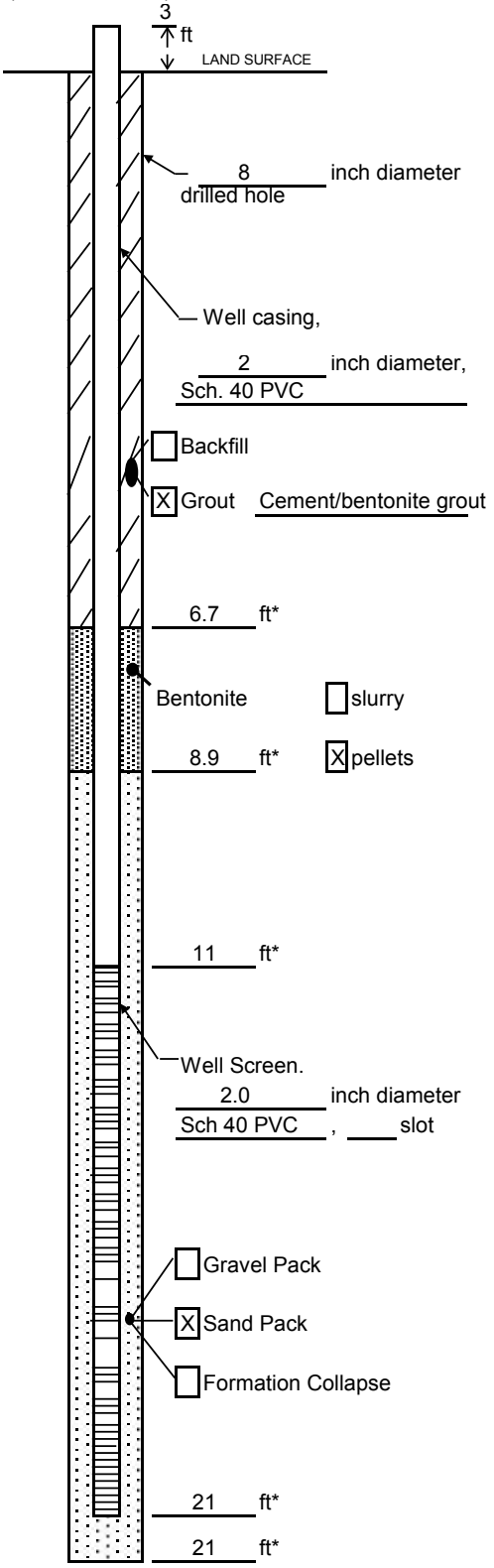
Prepared by B. Quaglieri

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Sample/Core Description
				Very wet.
18	20	0.3	0.0	18.0-20.0: Brown fine-medium SAND. Very wet.
20	21	0.3	0.0	20.0-20.9: Brown fine-medium SAND. Very wet.
				20.9-21.0: Gray, GRAVEL, angular, well graded. Very wet.

ARCADIS

Well Construction Log

(Unconsolidated)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

* Depth Below Land Surface

Project	Tioga Castings	Well	MW-9
Town/City	Owego, NY		
County	Tioga	State	NY
Permit No.			

Land-Surface Elevation and Datum:

____ feet ☐ Surveyed ☐ Estimated

Installation Date(s)	9/29/14-9/30/14
Drilling Method	HSA/SS
Drilling Contractor	Parratt Wolff
Drilling Fluid	None

Development Technique(s) and Date(s)

Fluid Loss During Drilling	0 gallons
Water Removed During Development	____ gallons
Static Depth to Water	____ feet below M.P.
Pumping Depth to Water	____ feet below M.P.
Pumping Duration	____ hours
Yield	____ gpm Date ____
Specific Capacity	____ gpm/ft
Well Purpose	Monitoring Well

Remarks

Prepared by B. Quaglieri

ARCADIS

Appendix E

Analytical Results - IDW

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Tel: (716)691-2600

TestAmerica Job ID: 480-68628-1
Client Project/Site: NYSDEC-Standby TIOGA CASTINGS

For:
ARCADIS U.S. Inc
855 Route 146
Suite 210
Clifton Park, New York 12065

Attn: Jeremy Wyckoff

Joseph V. Giacomazza

Authorized for release by:
10/21/2014 10:06:21 AM
Joe Giacomazza, Project Management Assistant II
joe.giacomazza@testamericainc.com

Designee for

Judy Stone, Senior Project Manager
(484)685-0868
judy.stone@testamericainc.com

Table of Contents

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Analyzed for but not detected.

GC/MS Semi VOA

Qualifier	Qualifier Description
U	Analyzed for but not detected.
*	LCS or LCSD exceeds the control limits

GC Semi VOA

Qualifier	Qualifier Description
U	Analyzed for but not detected.
*	Surrogate exceeds the control limit

Metals

Qualifier	Qualifier Description
U	Indicates analyzed for but not detected.
B	Compound was found in the blank and sample.
J	Sample result is greater than the MDL but below the CRDL

General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 480-68628-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative
480-68628-1

Receipt
The sample was received on 10/4/2014 9:00 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.2º C.

GC/MS VOA
Method(s) 8260C: The following sample(s) was diluted due to the nature of the TCLP matrix: IDW 1012014 (480-68628-1), IDW 1012014 (LB 480-206140/1-A). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA
Method(s) 8270C: The laboratory control sample (LCS) for preparation batch 206487 recovered outside control limits for the following analyte: Hexachlorobenzene This analytes was based high in the LCS and was not detected in the associated samples; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA
Method(s) 8081B: The closing calibration verification (CCV) associated with batch 256587recovered above the upper control limit for ddd, alpha-BHC and Endrin ketone on the secondaty column.The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: (CCV 460-256587/14).

Method(s) 8151A: Surrogate recovery for the following samples was outside control limits: (LB 480-206136/1-E), IDW 1012014 (480-68628-1). This is routine for TCLP herbicides, due to the pH effects created during the leaching process, inhibiting the herbicide derivatization of the free acid components.

Method(s) 8151A: All primary data is reported from the RTX-CLPI column.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
Method(s) 6010C: The analyte total barium was detected in the TCLP Extractor Blank, LB 480-206136, at a concentration above the TestAmerica Laboratories standard quantitation limit. Sample IDW 1012014 (480-68628-1) associated with the blank was evaluated and determined to be at least five times less than the TCLP Regulatory Limit. The sample data was therefore accepted and no corrective action was performed.

Method(s) 6010C: The TCLP Extractor Blank, LB 480-206136, contained total chromium above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of sample IDW 1012014 (480-68628-1) was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
Method(s) 9045D: The following sample(s) was received outside of holding time: IDW 1012014 (480-68628-1).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
Method(s) 3510C: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with batch 206487.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Client Sample ID: IDW 1012014
Date Collected: 10/01/14 13:15
Date Received: 10/04/14 09:00

Lab Sample ID: 480-68628-1
Matrix: Solid

Method: 8260C - Volatile Organic Compounds by GC/MS - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	0.010	U	0.010	0.0021	mg/L			10/09/14 02:36	10
2-Butanone (MEK)	0.050	U	0.050	0.013	mg/L			10/09/14 02:36	10
Benzene	0.010	U	0.010	0.0041	mg/L			10/09/14 02:36	10
Carbon tetrachloride	0.010	U	0.010	0.0027	mg/L			10/09/14 02:36	10
Chlorobenzene	0.010	U	0.010	0.0075	mg/L			10/09/14 02:36	10
Chloroform	0.010	U	0.010	0.0034	mg/L			10/09/14 02:36	10
Tetrachloroethene	0.010	U	0.010	0.0036	mg/L			10/09/14 02:36	10
Trichloroethene	0.010	U	0.010	0.0046	mg/L			10/09/14 02:36	10
Vinyl chloride	0.010	U	0.010	0.0090	mg/L			10/09/14 02:36	10
1,1-Dichloroethene	0.010	U	0.010	0.0029	mg/L			10/09/14 02:36	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*66 - 137*		*10/09/14 02:36*	*10*
4-Bromofluorobenzene (Surr)	*97*		*73 - 120*		*10/09/14 02:36*	*10*
Toluene-d8 (Surr)	*101*		*71 - 126*		*10/09/14 02:36*	*10*
Dibromofluoromethane (Surr)	*103*		*60 - 140*		*10/09/14 02:36*	*10*

Method: 8270C - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	0.010	U	0.010	0.00046	mg/L		10/08/14 05:43	10/10/14 14:20	1
2,4-Dinitrotoluene	0.0050	U	0.0050	0.00045	mg/L		10/08/14 05:43	10/10/14 14:20	1
Hexachlorobenzene	0.0050	U *	0.0050	0.00051	mg/L		10/08/14 05:43	10/10/14 14:20	1
Hexachlorobutadiene	0.0050	U	0.0050	0.00068	mg/L		10/08/14 05:43	10/10/14 14:20	1
Hexachloroethane	0.0050	U	0.0050	0.00059	mg/L		10/08/14 05:43	10/10/14 14:20	1
3-Methylphenol	0.010	U	0.010	0.00040	mg/L		10/08/14 05:43	10/10/14 14:20	1
2-Methylphenol	0.0050	U	0.0050	0.00040	mg/L		10/08/14 05:43	10/10/14 14:20	1
4-Methylphenol	0.010	U	0.010	0.00036	mg/L		10/08/14 05:43	10/10/14 14:20	1
Nitrobenzene	0.0050	U	0.0050	0.00029	mg/L		10/08/14 05:43	10/10/14 14:20	1
Pentachlorophenol	0.010	U	0.010	0.0022	mg/L		10/08/14 05:43	10/10/14 14:20	1
Pyridine	0.025	U	0.025	0.00041	mg/L		10/08/14 05:43	10/10/14 14:20	1
2,4,5-Trichlorophenol	0.0050	U	0.0050	0.00048	mg/L		10/08/14 05:43	10/10/14 14:20	1
2,4,6-Trichlorophenol	0.0050	U	0.0050	0.00061	mg/L		10/08/14 05:43	10/10/14 14:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol	*129*		*52 - 132*	*10/08/14 05:43*	*10/10/14 14:20*	*1*
2-Fluorobiphenyl	*115*		*48 - 120*	*10/08/14 05:43*	*10/10/14 14:20*	*1*
2-Fluorophenol	*65*		*20 - 120*	*10/08/14 05:43*	*10/10/14 14:20*	*1*
Nitrobenzene-d5	*114*		*46 - 120*	*10/08/14 05:43*	*10/10/14 14:20*	*1*
p-Terphenyl-d14	*140*		*67 - 150*	*10/08/14 05:43*	*10/10/14 14:20*	*1*
Phenol-d5	*44*		*16 - 120*	*10/08/14 05:43*	*10/10/14 14:20*	*1*

Method: 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlordane (technical)	0.0050	U	0.0050	0.00021	mg/L		10/16/14 08:05	10/17/14 11:33	1
Endrin	0.00050	U	0.00050	0.000017	mg/L		10/16/14 08:05	10/17/14 11:33	1
gamma-BHC (Lindane)	0.00050	U	0.00050	0.000014	mg/L		10/16/14 08:05	10/17/14 11:33	1
Heptachlor	0.00050	U	0.00050	0.000014	mg/L		10/16/14 08:05	10/17/14 11:33	1
Heptachlor epoxide	0.00050	U	0.00050	0.000016	mg/L		10/16/14 08:05	10/17/14 11:33	1
Methoxychlor	0.00050	U	0.00050	0.000015	mg/L		10/16/14 08:05	10/17/14 11:33	1
Toxaphene	0.0050	U	0.0050	0.00034	mg/L		10/16/14 08:05	10/17/14 11:33	1

Client: ARCADIS U.S. Inc
Project/Site: NYSDEC-Standby TIOGA CASTINGS

TestAmerica Job ID: 480-68628-1

Client Sample ID: IDW 1012014
Date Collected: 10/01/14 13:15
Date Received: 10/04/14 09:00

Lab Sample ID: 480-68628-1
Matrix: Solid

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*118*		*40 - 150*	*10/16/14 08:05*	*10/17/14 11:33*	*1*
DCB Decachlorobiphenyl	*114*		*40 - 150*	*10/16/14 08:05*	*10/17/14 11:33*	*1*
Tetrachloro-m-xylene	*106*		*42 - 150*	*10/16/14 08:05*	*10/17/14 11:33*	*1*
Tetrachloro-m-xylene	*108*		*42 - 150*	*10/16/14 08:05*	*10/17/14 11:33*	*1*

Method: 8151A - Herbicides (GC) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silvex (2,4,5-TP)	0.0020	U	0.0020	0.00036	mg/L		10/08/14 15:46	10/15/14 16:19	1
2,4-D	0.0020	U	0.0020	0.00040	mg/L		10/08/14 15:46	10/15/14 16:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*13*	*	*29 - 135*	*10/08/14 15:46*	*10/15/14 16:19*	*1*
2,4-Dichlorophenylacetic acid	*15*	*	*29 - 135*	*10/08/14 15:46*	*10/15/14 16:19*	*1*

Method: 6010C - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.015	U	0.015	0.0056	mg/L		10/07/14 12:00	10/08/14 14:49	1
Barium	**0.42**	**B**	0.0020	0.00070	mg/L		10/07/14 12:00	10/08/14 14:49	1
Cadmium	**0.013**		0.0020	0.00050	mg/L		10/07/14 12:00	10/08/14 14:49	1
Chromium	**0.0032**	**J B**	0.0040	0.0010	mg/L		10/07/14 12:00	10/08/14 14:49	1
Lead	**0.15**		0.010	0.0030	mg/L		10/07/14 12:00	10/08/14 14:49	1
Selenium	0.025	U	0.025	0.0087	mg/L		10/07/14 12:00	10/08/14 14:49	1
Silver	0.0060	U	0.0060	0.0017	mg/L		10/07/14 12:00	10/08/14 14:49	1

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00020	U	0.00020	0.00012	mg/L		10/07/14 12:30	10/09/14 18:12	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Flashpoint	**>200**		1.00	1.00	Degrees F			10/13/14 11:44	1
pH	**7.63**	**HF**	0.100	0.100	SU			10/07/14 12:37	1

Lab Chronicle

Client: ARCADIS U.S. Inc
Project/Site: NYSDEC-Standby TIOGA CASTINGS

TestAmerica Job ID: 480-68628-1

Client Sample ID: IDW 1012014
Date Collected: 10/01/14 13:15
Date Received: 10/04/14 09:00

Lab Sample ID: 480-68628-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			206140	10/06/14 08:24	TRG	TAL BUF
TCLP	Analysis	8260C		10	206715	10/09/14 02:36	LCH	TAL BUF
TCLP	Leach	1311			206136	10/06/14 08:19	TRG	TAL BUF
TCLP	Prep	3510C			206487	10/08/14 05:43	MCZ	TAL BUF
TCLP	Analysis	8270C		1	207025	10/10/14 14:20	DMR	TAL BUF
TCLP	Leach	1311			256070	10/15/14 16:00	YAH	TAL EDI
TCLP	Prep	3510C			256245	10/16/14 08:05	HAW	TAL EDI
TCLP	Analysis	8081B		1	256587	10/17/14 11:33	SAK	TAL EDI
TCLP	Leach	1311			206136	10/06/14 08:19	TRG	TAL BUF
TCLP	Prep	8151A			206667	10/08/14 15:46	RJS	TAL BUF
TCLP	Analysis	8151A		1	207907	10/15/14 16:19	JRL	TAL BUF
TCLP	Leach	1311			206136	10/06/14 08:19	TRG	TAL BUF
TCLP	Prep	3010A			206375	10/07/14 12:00	SLB	TAL BUF
TCLP	Analysis	6010C		1	206661	10/08/14 14:49	LMH	TAL BUF
TCLP	Leach	1311			206136	10/06/14 08:19	TRG	TAL BUF
TCLP	Prep	7470A			206382	10/07/14 12:30	LRK	TAL BUF
TCLP	Analysis	7470A		1	207052	10/09/14 18:12	LRK	TAL BUF
Total/NA	Analysis	1010A		1	151376	10/13/14 11:44	TPH	TAL CAN
Total/NA	Analysis	9045D		1	206764	10/07/14 12:37	MDL	TAL BUF
Total/NA	Analysis	Moisture		1	206243	10/06/14 16:04	ZJR	TAL BUF

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

TAL EDI = TestAmerica Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

Certification Summary

Client: ARCADIS U.S. Inc
Project/Site: NYSDEC-Standby TIOGA CASTINGS

TestAmerica Job ID: 480-68628-1

Laboratory: TestAmerica Buffalo

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
New York	NELAP	2	10026	03-31-15

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
7470A	7470A	Solid	Mercury
8270C	3510C	Solid	1,4-Dichlorobenzene
8270C	3510C	Solid	2,4,5-Trichlorophenol
8270C	3510C	Solid	2,4,6-Trichlorophenol
8270C	3510C	Solid	2,4-Dinitrotoluene
8270C	3510C	Solid	2-Methylphenol
8270C	3510C	Solid	3-Methylphenol
8270C	3510C	Solid	4-Methylphenol
8270C	3510C	Solid	Hexachlorobenzene
8270C	3510C	Solid	Hexachlorobutadiene
8270C	3510C	Solid	Hexachloroethane
8270C	3510C	Solid	Nitrobenzene
8270C	3510C	Solid	Pentachlorophenol
8270C	3510C	Solid	Pyridine
Moisture		Solid	Percent Moisture
Moisture		Solid	Percent Solids

Laboratory: TestAmerica Canton

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
New York	NELAP	2	10975	03-31-15

Analysis Method	Prep Method	Matrix	Analyte

Laboratory: TestAmerica Edison

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Connecticut	State Program	1	PH-0200	09-30-14 *
DE Haz. Subst. Cleanup Act (HSCA)	State Program	3	N/A	12-31-14
New Jersey	NELAP	2	12028	06-30-15
New York	NELAP	2	11452	03-31-15
Pennsylvania	NELAP	3	68-00522	02-28-15
Rhode Island	State Program	1	LAO00132	12-30-14
USDA	Federal		NJCA-003-08	04-04-17

* Certification renewal pending - certification considered valid.

Method Summary

Client: ARCADIS U.S. Inc
Project/Site: NYSDEC-Standby TIOGA CASTINGS

TestAmerica Job ID: 480-68628-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL BUF
8270C	Semivolatile Organic Compounds (GC/MS)	SW846	TAL BUF
8081B	Organochlorine Pesticides (GC)	SW846	TAL EDI
8151A	Herbicides (GC)	SW846	TAL BUF
6010C	Metals (ICP)	SW846	TAL BUF
7470A	Mercury (CVAA)	SW846	TAL BUF
1010A	Ignitability, Pensky-Martens Closed Cup Method	SW846	TAL CAN
9045D	pH	SW846	TAL BUF
Moisture	Percent Moisture	EPA	TAL BUF

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

TAL EDI = TestAmerica Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

Sample Summary

Client: ARCADIS U.S. Inc
Project/Site: NYSDEC-Standby TIOGA CASTINGS

TestAmerica Job ID: 480-68628-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-68628-1	IDW 1012014	Solid	10/01/14 13:15	10/04/14 09:00

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 480-68628-1

Login Number: 68628

List Source: TestAmerica Buffalo

List Number: 1

Creator: Kolb, Chris M

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	arcadis
Samples received within 48 hours of sampling.	False	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	

Login Sample Receipt Checklist

Client: ARCADIS U.S. Inc

Job Number: 480-68628-1

Login Number: 68628
List Number: 3
Creator: Rivera, Kenneth

List Source: TestAmerica Edison
List Creation: 10/12/14 11:36 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	316933
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.2°C, IR #5
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	No analysis requiring residual chlorine check assigned.

TestAmerica Albany
25 Kraft Road
Albany, NY 12205

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: J. Wyckoff	Lab PM: Stone, Judy L	Carrier Tracking No(s):	COC No: 480-55862-14740.1
Client Contact: Jeremy Wyckoff	Phone: 518-250-7300	E-Mail: judy.stone@testamericainc.com		Page: Page 1 of 1
Company: ARCADIS U.S. Inc				Job #:
Address: 855 Route 146 Suite 210	Due Date Requested:			
City: Clifton Park	TAT Requested (days): STD/10 day			
State, Zip: NY, 12065	PO #: JAW Project 00266362.000 00266403,0000			
Phone: 518-250-7300(Tel)	WO #: Contract D004439			
Email: jeremy.wyckoff@arcadis-us.com	Project #: 48006187			
Project Name: NYSDEC-Standby TIOGA CASTINGS	SSOW#:			
Site:				

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010C, 7471B	Moisture - Local Method	6010C, 7470A, 8081B, 8151A, 8270C - TCLP	8260C - TCLP Volatiles	1010A, 9045D	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N	N	N	N		
IDW 10/2014	10/1/14	1315	C	Solid				X	X	X	X		
				Solid									
				Solid									
				Solid									

480-68628 Chain of Custody

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	10/2/14 0900		[signature]	10-2-14 0900	TAB
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: #2 4.2

TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

4-7-14

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Stone, Judy L	Carrier Tracking No(s):	COC No: 480-20176.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: judy.stone@testamericainc.com		Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Analysis Requested		Job #: 480-68628-1

Address: 4101 Shuffel Street NW, ,	Due Date Requested: 10/14/2014
City: North Canton	TAT Requested (days):
State, Zip: OH, 44720	
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:
Email:	WO #:
Project Name: NYSDEC-Standby TIOGA CASTINGS	Project #: 48006187
Site:	SSOW#:

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	1010A	Total Number of containers	Special Instructions/Note:
			Preservation Code:						G244
IDW 1012014 (480-68628-1)	10/1/14	13:15 Eastern		Solid			X	1	

Possible Hazard Identification
Unconfirmed

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For _____ Months*

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:	
Relinquished by:	Date/Time: 10/6/14 1700	Company TA Buff	Received by:		Date/Time: 10/7/14 9:30	Company TAL	
Relinquished by:	Date/Time:	Company	Received by:		Date/Time:	Company	
Relinquished by:	Date/Time:	Company	Received by:		Date/Time:	Company	

Custody Seals Intact: △ Yes △ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

TestAmerica Canton Sample Receipt Form/Narrative Login # :_____
Canton Facility

Client TA Buffalo Site Name NYSDEC-Standby Cooler unpacked by: Zachelucci

Cooler Received on 10/7/14 Opened on 10/7/14

FedEx: 1st Grd (Exp) UPS FAS Stetson Client Drop Off TestAmerica Courier Other_____

TestAmerica Cooler # _____ Foam Box Client Cooler Box (Other) SeaNER

Packing material used: (Bubble Wrap) Foam Plastic Bag None Other _____

COOLANT: (Wet Ice) Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt

IR GUN# A	(CF +2 °C)	Observed Cooler Temp._____°C	Corrected Cooler Temp._____°C	
IR GUN# 4	(CF -2 °C)	Observed Cooler Temp._____°C	Corrected Cooler Temp._____°C	(X) See Multiple Cooler Form
IR GUN# 5	(CF 0 °C)	Observed Cooler Temp._____°C	Corrected Cooler Temp._____°C	
IR GUN# 8	(CF 0 °C)	Observed Cooler Temp._____°C	Corrected Cooler Temp._____°C	

2. ~~Were custody seals on the outside of the cooler(s)?~~ If Yes Quantity 2 (Yes) No
   -Were custody seals on the outside of the cooler(s) signed & dated? (Yes) No NA
   -Were custody seals on the bottle(s)? Yes (No)
3. Shippers' packing slip attached to the cooler(s)? (Yes) No
4. Did custody papers accompany the sample(s)? (Yes) No
5. Were the custody papers relinquished & signed in the appropriate place? (Yes) No
6. Did all bottles arrive in good condition (Unbroken)? (Yes) No
7. Could all bottle labels be reconciled with the COC? (Yes) No
8. Were correct bottle(s) used for the test(s) indicated? (Yes) No
9. Sufficient quantity received to perform indicated analyses? (Yes) No
10. Were sample(s) at the correct pH upon receipt? Yes No (NA) pH Strip Lot# HC412469
11. Were VOAs on the COC? Yes (No)
12. Were air bubbles >6 mm in any VOA vials? Yes No (NA)
13. Was a trip blank present in the cooler(s)? Yes (No)

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other
Concerning _____

14. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES Samples processed by:

15. SAMPLE CONDITION
Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

16. SAMPLE PRESERVATION
Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____

TestAmerica Multiple Cooler Receipt Form/Narrative Login # : _____
Canton Facility

Cooler #	IR Gun #	Observed Temp °C	Corrected Temp °C	Coolant
TA Nofh	8	1.6	1.6	ICE
TA Nofh	8	4.2	4.2	↓

TestAmerica Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

480-68628 Chain of Custody

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Stone, Judy L	COC No: 480-20392.1
Client Contact: Shipping/Receiving	Phone	E-Mail: judy.stone@testamericainc.com	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.			Job #: 480-68628-1
Address: 777 New Durham Road, ,	Due Date Requested: 10/15/2014		
City: Edison	TAT Requested (days):		
State, Zip: NJ, 08817			
Phone: 732-549-3900(Tel) 732-549-3679(Fax)	PO #:		
Email:	WO #:		
Project Name: NYSDEC-Standby TIOGA CASTINGS	Project #: 48006187		
Site:	SSOW#:		

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8081B/1311_T TCLP Compound List	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
IDW 1012014 (480-68628-1)	10/1/14	13:15 Eastern		Solid			X	1	

Possible Hazard Identification
Unconfirmed

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by: Cameron Wallace	Date/Time: 10/10/14 1700	Company: TAB	Received by: Kim Horne (FedEx)	Date/Time: 10/11/14 11:50	Company: TAB
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: (Δ Yes) Δ No
Custody Seal No.: 316933
Cooler Temperature(s) °C and Other Remarks: IR#5 1.2/3.2°C

10/21/2014

ARCADIS

Appendix F

Waste Profile and Shipping Documents

VEOLIA
ENVIRONMENTAL SERVICES

WASTESTREAM INFORMATION PROFILE

☐ Recertification

Disposal Code _____

Veolia ES LOCATION

☐ Invoice Address

ADDRESS _____ CITY _____ ST __

☐ Manifest from – blank if direct

Veolia ES TSDF requested _____ Technology requested _____ Generator No._____ **Generator EPA ID No.** _____

1. **Generator Name** New York State Department of Environmental Conservation **Generator State No.** _____

Address Foundry Street **State Wastestream No.** _____

City Owego **State** NY **Country** USA **ZIP** 13827

NAICS (SIC) Code _____ _____ _____ **Source** _____ **Origin** _____ **Form** _____ **System Type** _____

2. **Waste Name** Investigation Derived Waste Soils **Lab or Waste Area**_____

3. **Process Generating Waste** Subsurface Investigation

4. **Shipping Name** NON HAZARDOUS, NON DOT REGULATED

Hazard Class None **UN/NA No.**_____ **PG**___ **RQ amt**_____**lb**

RQ Desc:	1.	2.
DOT Desc:	1.	2.

5. **Waste Codes** _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Wastewater ☐ **Non Wastewater** ☒ **Sub Category** _____

6. **Physical and chemical properties** *(check all that apply)*

pH
- a ☐ < 2
- b ☐ 2 - 5
- c ☒ 5 - 9
- d ☐ 9 - 12.5
- e ☐ > 12.5

_____ exact

Specific Gravity
- a ☐ < .8
- b ☐ .8 - 1.0
- c ☐ 1.0
- d ☐ 1.0 - 1.2
- e ☐ > 1.2

_____ exact

Flash Point (F)
- a ☐ < 80
- b ☐ 80 - 100
- c ☐ 101 - 140
- d ☐ 141 - 200
- e ☒ > 200
- f ☐ no flash _____exact

Solids

_____ % suspended
_____ % settleable
_____ % dissolved

Free Liquid Range ___to ___%

_____ % ash
_____ water solubility
_____ BTU/lb

Physical State
- s ☒ solid
- m ☐ semi-solid
- l ☐ liquid
- p ☐ pumpable semi-solid
- f ☐ flowable powder
- g ☐ gas
- a ☐ aerosol
- r ☐ pressurized liquid
- d ☐ debris per 40 CFR 268.45
- h ☐ sharps

Hazardous Characteristics
- a ☐ air reactive
- w ☐ water reactive
- c ☐ cyanide reactive
- f ☐ sulfide reactive
- e ☐ explosive
- o ☐ oxidizing acid
- p ☐ peroxide former
- r ☐ radioactive or NRC regulated
- s ☐ shock sensitive
- t ☐ temp sensitive
- m ☐ polymerization/monomer
- n ☐ OSHA carcinogen
- l ☐ infectious
- h ☐ inhalation hazard Zone: _

Odor
- a none ☒
- b mild ☐
- c strong ☐

describe_____

Halogens
- Br _____ % Bromine
- Cl _____ % Chlorine
- F _____ % Fluorine
- I _____ % Iodine

Layers:	a ☐ **multilayered:**	b ☐ **bi-layered:**	c ☒ **single phase:**
	Top Layer	Second Layer	Bottom Layer
Viscosity by Layer:	☐ high (syrup) ☐ medium (oil) ☐ low (water) ☐ solid	☐ high (syrup) ☐ medium (oil) ☐ low (water) ☐ solid	☐ high (syrup) ☐ medium (oil) ☐ low (water) ☐ solid

Color
Gray-brown
_____
_____

Used oil y/n _ **HOC <1000 ppm** ☐ **or > 1000 ppm** ☐

WIP No. _____

7. **Chemical Composition** [M = Marine Pollutant, S - Severe Marine Pollutant, O = Ozone Depleting Substance, U = Underlying Hazardous Constituent, B = Benzene NESHAP, T = TRI Chemical, C = OSHA Carcinogen]

	Constituents	Range	Units		Constituents	Range	Units
	Soils	98-100	%				
	Water	0-2	%				

Total Composition Must Equal or Exceed 100%

Other:

8. Is the wastestream being imported into the USA? Yes ☐ No ☒
9. Does the wastestream contain PCBs regulated by 40CFR? Yes ☐ No ☒
   PCB concentration _____ppm
10. Is the wastestream subject to the Marine Pollutant Regulations? Yes ☐ No ☒
11. Is the wastestream from an industry regulated under Benzene NESHAP? Yes ☐ No ☒
    If yes, is the wastestream subject to Notification and Control Requirements? Yes ☐ No ☐
    Benzene concentration _____ ppm
    Does it contain >= 10% water? Yes ☐ No ☐
    What is the TAB at your facility? _____ Mg/Yr
12. Is the wastestream subject to RCRA subpart CC controls? Yes ☐ No ☒
    Volatile organic concentration, if known _____ ppmw
    CC approved analytical method ☐ Generator Knowledge ☐
13. Is the wastestream from a CERCLA or state mandated cleanup? Yes ☒ No ☐

14. **Container Information** (*Identify UN container marking if known*)
    Packaging: Bulk Solid ☐ Type/Size: _____ **Bulk Liquid** ☐ Type/Size: _____ **Drum** ☒ Type/Size: **STL/55 gal**
    Other _____
    Shipping Frequency: Units **2** Per Month ☐ Quarter ☐ Year ☐ One Time ☒ Other _____

15. **Additional Information**: **Generator Mailing Address: NYS DEC - Division of Environmental Remediation**
    Attn: Payson Long
    625 Broadway - Albany, NY 12233
    Phone: 518-402-9813

Is analytical or an MSDS available that describes the waste? Yes ☒ No ☐ If yes, please attach.

GENERATOR CERTIFICATION

I hereby certify that all information submitted in this and all attached documents contains true and accurate descriptions of this waste. Any sample submitted is representative as defined in 40 CFR 261 - Appendix I or by using an equivalent method. All relevant information regarding known or suspected hazards in the possession of the generator has been disclosed. I authorize sampling of any waste shipment for purposes of recertification.

Payson Long	(518) 402-9813	11/5/2014
NAME (PRINT OR TYPE)	**PHONE**	**DATE**
Payson D Long	Project Manager	
SIGNATURE	**TITLE**	

FACILITY NOTIFICATION

If approved for management, Veolia ES has all the necessary permits and licenses for the waste that has been characterized and identified by this profile.

TSDF PROCESSING USE ONLY: PPE REQUIRED No _____ Yes _____ Describe _____

WIP No. _____

VEOLIA
ENVIRONMENTAL SERVICES

WASTESTREAM INFORMATION PROFILE

☐ Recertification

Disposal Code _____

Veolia ES LOCATION
☐ Invoice Address
☐ Manifest from – blank if direct

ADDRESS _____ CITY _____ ST _____

Veolia ES TSDF requested _____ Technology requested _____ Generator No._____ **Generator EPA ID No.** _____

1. **Generator Name** New York State Department of Environmental Conservation **Generator State No.** _____
Address Foundry Street **State Wastestream No.** _____
City Owego **State** NY **Country** USA **ZIP** 13827
NAICS (SIC) Code _____ _____ _____ **Source** _____ **Origin** _____ **Form** _____ **System Type** _____

2. **Waste Name** Decontamination Water **Lab or Waste Area**_____
3. **Process Generating Waste** Drill Rig Decontamination
4. **Shipping Name** NON HAZARDOUS, NON DOT REGULATED
Hazard Class None **UN/NA No.**_____ **PG**___ **RQ amt**_____**lb**

RQ Desc:	1.	2.
DOT Desc:	1.	2.

5. **Waste Codes** _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Wastewater ☐ **Non Wastewater** ☒ **Sub Category** _____

6. **Physical and chemical properties** *(check all that apply)*

pH
a ☐ < 2
b ☐ 2 - 5
c ☒ 5 - 9
d ☐ 9 - 12.5
e ☐ > 12.5
_____ exact

Specific Gravity
a ☐ < .8
b ☐ .8 - 1.0
c ☐ 1.0
d ☒ 1.0 - 1.2
e ☐ > 1.2
_____ exact

Flash Point (F)
a ☐ < 80
b ☐ 80 - 100
c ☐ 101 - 140
d ☐ 141 - 200
e ☒ > 200
f ☐ no flash _____exact

Solids
_____ % suspended
_____ % settleable
_____ % dissolved
_____ % ash
_____ water solubility
_____ BTU/lb
Free Liquid Range ___to ___%

Physical State
s ☐ solid
m ☐ semi-solid
l ☒ liquid
p ☐ pumpable semi-solid
f ☐ flowable powder
g ☐ gas
a ☐ aerosol
r ☐ pressurized liquid
d ☐ debris per 40 CFR 268.45
h ☐ sharps

Hazardous Characteristics
a ☐ air reactive
w ☐ water reactive
c ☐ cyanide reactive
f ☐ sulfide reactive
e ☐ explosive
o ☐ oxidizing acid
p ☐ peroxide former
r ☐ radioactive or NRC regulated
s ☐ shock sensitive
t ☐ temp sensitive
m ☐ polymerization/monomer
n ☐ OSHA carcinogen
I ☐ infectious
h ☐ inhalation hazard
Zone: _

Odor
a none ☒
b mild ☐
c strong ☐
describe_____

Halogens
Br _____ % Bromine
Cl _____ % Chlorine
F _____ % Fluorine
I _____ % Iodine

Layers: a ☐ **multilayered:** b ☒ **bi-layered:** c ☐ **single phase:**

Viscosity by Layer:	Top Layer	Second Layer	Bottom Layer
	☐ high (syrup)	☐ high (syrup)	☐ high (syrup)
	☐ medium (oil)	☐ medium (oil)	☐ medium (oil)
	☒ low (water)	☐ low (water)	☐ low (water)
	☐ solid	☐ solid	☒ solid

Color
_____
_____
_____

Used oil y/n _ **HOC <1000 ppm** ☐ **or > 1000 ppm** ☐

WIP No. _____

7. **Chemical Composition** [M = Marine Pollutant, S - Severe Marine Pollutant, O = Ozone Depleting Substance, U = Underlying Hazardous Constituent, B = Benzene NESHAP, T = TRI Chemical, C = OSHA Carcinogen]

	Constituents	Range	Units		Constituents	Range	Units
	Water	98-100	%				
	Soils	0-2	%				

Total Composition Must Equal or Exceed 100%

Other:

8. Is the wastestream being imported into the USA? Yes ☐ No ☒
9. Does the wastestream contain PCBs regulated by 40CFR? Yes ☐ No ☒
   PCB concentration _____ppm
10. Is the wastestream subject to the Marine Pollutant Regulations? Yes ☐ No ☒
11. Is the wastestream from an industry regulated under Benzene NESHAP? Yes ☐ No ☒
    If yes, is the wastestream subject to Notification and Control Requirements? Yes ☐ No ☐
    Benzene concentration _____ ppm
    Does it contain >= 10% water? Yes ☐ No ☐
    What is the TAB at your facility? _____ Mg/Yr
12. Is the wastestream subject to RCRA subpart CC controls? Yes ☐ No ☒
    Volatile organic concentration, if known _____ ppmw
    CC approved analytical method ☐ Generator Knowledge ☐
13. Is the wastestream from a CERCLA or state mandated cleanup? Yes ☒ No ☐

14. **Container Information** (*Identify UN container marking if known*)
    Packaging: Bulk Solid ☐ Type/Size: _____ **Bulk Liquid** ☐ Type/Size: _____ **Drum** ☒ Type/Size: **STL/55 gal**
    Other _____
    Shipping Frequency: Units **1** Per Month ☐ Quarter ☐ Year ☐ One Time ☒ Other _____

15. **Additional Information**: **Generator Mailing Address: NYS DEC - Division of Environmental Remediation**
    Attn: Payson Long
    625 Broadway - Albany, NY 12233
    Phone: 518-402-9813

Is analytical or an MSDS available that describes the waste? Yes ☒ No ☐ If yes, please attach.

GENERATOR CERTIFICATION

I hereby certify that all information submitted in this and all attached documents contains true and accurate descriptions of this waste. Any sample submitted is representative as defined in 40 CFR 261 - Appendix I or by using an equivalent method. All relevant information regarding known or suspected hazards in the possession of the generator has been disclosed. I authorize sampling of any waste shipment for purposes of recertification.

Payson Long	(518) 402-9813	11/5/2014
NAME (PRINT OR TYPE)	**PHONE**	**DATE**
Payson Long	Project manager	
SIGNATURE	**TITLE**	

FACILITY NOTIFICATION

If approved for management, Veolia ES has all the necessary permits and licenses for the waste that has been characterized and identified by this profile.

TSDF PROCESSING USE ONLY: PPE REQUIRED No _____ Yes _____ Describe _____

WIP No. _____

VEOLIA
ENVIRONMENTAL SERVICES

SHIPPING DOCUMENT

1 Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Shipping Document Tracking Number
NYCRSOG	1	(877) 518-5087	ZZ 00344086

GENERATOR

5. Generator's Name and Mailing Address

NYS DEC DIVISION OF ENV. REM
ATTN: PAYSON LONG
625 BROADWAY
ALBANY, NY 12233

Generator's Phone: 518 402-9213

Generator's Site Address (if different than mailing address)

NYS DEC FOUNDRY STREET, OSWEGO
FOUNDRY STREET
OSWEGO, NY 13827

6. Transporter 1 Company Name: US ENVIRONMENTAL, INC — U.S. EPA ID Number: PAR000524041

7. Transporter 2 Company Name: VEOLIA ES TECHNICAL SOLUTIONS — U.S. EPA ID Number: NJD080631369

8. Designated Facility Name and Site Address

VEOLIA ES TECHNICAL SOLUTIONS
4301 INFIRMARY ROAD
WEST CARROLLTON, OH 45449

Facility's Phone: 937 859-6101

U.S. EPA ID Number: OHD093945293

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Codes
	1. NON HAZARDOUS, NON DOT REGULATED MATERIAL	001 (5)	DM	2250	P	NONE / L
	2. NON HAZARDOUS, NON DOT REGULATED MATERIAL	002 (5)	DM	00500	P	NONE / L
	3.					
	4.					

14. Special Handling Instructions and Additional Information

ER Service Contracted by VESTS

15. **GENERATOR S/OFFEROR S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: Jenny Wyckoff on behalf of NYSDEC — Signature — Month 10 — Day 15 — Year 14

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:

Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Shipment

Transporter 1 Printed/Typed Name: SEAN HANNES — Signature — Month 10 — Day 15 — Year 14

Transporter 2 Printed/Typed Name — Signature — Month — Day — Year

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Shipping Document Tracking Number:

18b. Alternate Facility (or Generator) — U.S. EPA ID Number

Facility's Phone:

18c. Signature of Alternate Facility (or Generator) — Month — Day — Year

19. Report Management Method Codes (i.e., codes for treatment, disposal, and recycling systems)

1.	2.	3.	4

20. Designated Facility Owner or Operator: Certification of receipt of shipment except as noted in Item 18a

Printed/Typed Name — Signature — Month — Day — Year

GENERATOR / SHIPPER'S INITIAL COPY

VEOLIA
ENVIRONMENTAL SERVICES

PACKING SUMMARY

Generator Number: 617707
NYS DEC FOUNDRY STREET, OWEGO
FOUNDRY STREET
OSWEGO, NY 13827
Attn: PAYSON LONG
EPA ID:NYCESQG

Manifest Number: ZZ00344086
Field System ID: FR
Work Order Number: 2117457000
Date Shipped: 11/06/2014

Container#: FR-2117457000-002 Waste Area: Manifest Page/Line: 01 / 1

WP: 691307 DisposalCode: SRRLFLIQ-NH PHY State: L

Date Accumulated: 11/06/2014 Gen Drum ID:

Shipping Name: NON HAZARDOUS, NON DOT REGULATED MATERIAL

No. of Commons: 01 Outer Container: 55A1-DM Inner Container:

Primary Waste Codes: NONE,L PCB Serial #: OOS Date: / /

Total Cmns Wt: ~~1200~~ 400 SIC: 9512 Source: G19 Form: W219 System: H141 Cubic Ft.: 7.50

Individual Common Weights: ~~400, 400, 400~~ 400 (POUNDS)

Units	Container Size	Net Weight	Chemical Name	EPA/State Codes
1	55 GAL	400	WATER [98-100%] SOIL [0-2%]	NONE, L

Container#: FR-2117457000-001 Waste Area: Manifest Page/Line: 01 / 2

WP: 691309 DisposalCode: SRRLFSOLID-NH PHY State: S

Date Accumulated: 11/06/2014 Gen Drum ID:

Shipping Name: NON HAZARDOUS, NON DOT REGULATED MATERIAL

No. of Commons: 03 Outer Container: 55A2-DM Inner Container:

Primary Waste Codes: NONE,L PCB Serial #: OOS Date: / /

Total Cmns Wt: ~~1200~~ 1200 SIC: 9512 Source: G19 Form: W219 System: H141 Cubic Ft.: 7.50

Individual Common Weights: ~~400, 400, 400~~ 400, 400, 400 (POUNDS)

Units	Container Size	Net Weight	Chemical Name	EPA/State Codes
1	55 GAL	400	SOIL [98-100%] WATER [0-2%]	NONE, L

VEOLIA
ENVIRONMENTAL SERVICES

Activity Report

JOB NO: 2117457000 WO NO: 2117457000
BILL DOC NO FR40100289
GENERATOR NO 617707 EPA ID: NYCESQG

BILL TO: ARCADIS
28550 CABOT DRIVE
NORVI, MI 48377
(123) 456-7890

JOB SITE: NYS DEC FOUNDRY STREET, OWEGO
FOUNDRY STREET
OSWEGO, NY 13827
(518) 402-9813

CONTACT: LIZ MARSH

CONTACT: PAYSON LONG

MANIFEST NUMBER(S):
ZZ00344086

CUSTOMER P.O. NUMBER	PROJECT NUMBER	SHIP DATE	TERR.
		11/06/2014	NY2

DESCRIPTION	# CONT.	CONT./CODE	QTY	UOM	PG/LN	WASTE AREA
Manifest # ZZ00344086 WP 691307 / Approval SRRLFLIQ-NH DECONTAMINATION WATER	1	551A1-DM	50	P	1 / 1	
Manifest # ZZ00344086 WP 691309 / Approval SRRLFSOLID-NH INVESTIGATION DERIVED WASTE SOILS	3	551A2-DM	500	P	1 / 2	

Total Hours: 0
# of Containers: 6

Comments:

Signature: Jeremy Wychoff

Print Name: Jeremy Wychoff on behalf of NYSDEC.

Veolia Environmental Solutions is permitted for and has capacity to accept waste listed above in container quantities.

FORM# VES-6

ARCADIS

Appendix G

Well Development Log

ARCADIS
Infrastructure · Water · Environment · Buildings

WELL DEVELOPMENT/ PURGING LOG

WELL NUMBER: MW-9 DATE: 10/1/14

PROJECT NAME: Tioga Castings
PROJECT NUMBER: 00266403.0000
SAMPLERS: B. Quaglieri

A: Total Casing and Screen Length: 23.33'

B: Casing Internal Diameter: 2"

C: Water Level Below Top of Casing: 15.68'

D: Volume of Water in Casing: 1.3 gal

$v = 0.0408 (B)^2 \times (A-C) = D$

$v = 0.0408 (\quad)^2 \times (\quad - \quad) =$ _____ gal.

Well I.D.	Vol. Gal./ft.
1"	0.04
2"	0.17
3"	0.38
4"	0.66
5"	1.04
6"	1.50
8"	2.60

PARAMETER	ACCUMULATED VOLUME PURGED											
Time	0920	0930	0940	1100	1110	1120	1130	1140	1150	1310	1320	
Gallons				~6	~7				~10	~14	~15	
Well Volume												
Depth to Water (ft.)				21.22	21.10							
Temperature (°C)	14.83	14.60	14.61	18.34	16.49	16.49	16.57	16.53	16.43	15.20	14.82	
pH	7.28	6.89	6.66	6.39	6.76	6.40	6.47	6.57	6.36	6.42	6.49	
REDOX (mV)	212	209	156	93	60	79	72	67	77	156	118	
Conductivity (mohm/cm)	0.376	0.336	0.333	0.214	0.348	0.345	0.344	0.338	0.339	0.351	0.337	
Turbidity	over	over	over	171	291	89.1	135	69.8	47.2	82.9	34.7	
Dissolved Oxygen	3.50	3.34	2.53	0.76	0.06	0.00	0.00	0.00	0.00	0.98	0.00	
TDS	0.244	0.218	0.217	0.206	0.226	0.224	0.224	0.220	0.220	0.228	0.218	
Salinity	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	

Notes: 0900-Surged with slug.
0945-Surged with slug.
1155-Surged with slug.