

PENTOXSD Analysis Results

Wasteload Allocations

RMI	Name	Permit Number							
0.76	Keystone 19PEL	12142018							
	ACROLEIN		0	0	0	0	3	3	13,139
	ALDRIN		0	0	0	0	0.1	0.1	0.438
	alpha-BHC		0	0	0	0	NA	NA	NA
	alpha-ENDOSULFAN		0	0	0	0	0.056	0.056	0.245
	BENZENE		0	0	0	0	130	130	569.362
	BENZIDINE		0	0	0	0	59	59	258.403
	beta-BHC		0	0	0	0	NA	NA	NA
	beta-ENDOSULFAN		0	0	0	0	0.056	0.056	0.245
	BORON		0	0	0	0	1600	1600	7007.536
	CADMIUM		0	0	0	0	0.246	0.271	1.185
	CARBON TETRACHLORIDE		0	0	0	0	560	560	2452.638
	CHROMIUM, VI		0	0	0	0	10	10.395	45.527
	DICHLOROBROMOMETHANE		0	0	0	0	NA	NA	NA
	DIELDRIN		0	0	0	0	0.056	0.056	0.245
	ENDRIN		0	0	0	0	0.036	0.036	0.158
	gamma-BHC (LINDANE)		0	0	0	0	NA	NA	NA
	HEPTACHLOR		0	0	0	0	0.004	0.004	0.017
	HEPTACHLOR EPOXIDE		0	0	0	0	0.004	0.004	0.017
	HEXACHLOROBUTA-DIENE		0	0	0	0	2	2	8.759
	PHENOLICS (PWS)		0	0	0	0	NA	NA	NA
	SILVER		0	0	0	0	NA	NA	NA
	TETRACHLOROETHYLENE		0	0	0	0	140	140	613.159
	TOXAPHENE		0	0	0	0	0.0002	0.0002	0.000876

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RMI	Name	Permit Number							
0.76	Keystone 19PEL	12142018							
	VINYL CHLORIDE		0	0	0	0	NA	NA	NA
	1,3-DICHLOROPROPYLENE		0	0	0	0	61	61	267.162
	ENDOSÚLFAN, TOTAL		0	0	0	0	NA	NA	NA

THH									
Q7-10:	CCT (min)	0.781	PMF	1	Analysis pH	NA	Analysis Hardness		NA
	Parameter	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	
	1,1,2,2-TETRACHLOROETHANE	0	0	0	0	NA	NA	NA	
	1,1,2-TRICHLOROETHANE	0	0	0	0	NA	NA	NA	
	1,2-DICHLOROETHANE	0	0	0	0	NA	NA	NA	
	1,2 cis-DICHLOROETHYLENE	0	0	0	0	12	12	52.557	
	4,4'-DDD	0	0	0	0	NA	NA	NA	
	4,4'-DDE	0	0	0	0	NA	NA	NA	
	4,4'-DDT	0	0	0	0	NA	NA	NA	
	ACROLEIN	0	0	0	0	6	6	26.276	
	ALDRIN	0	0	0	0	NA	NA	NA	
	alpha-BHC	0	0	0	0	NA	NA	NA	
	alpha-ENDOSULFAN	0	0	0	0	NA	NA	NA	
	BENZENE	0	0	0	0	NA	NA	NA	
	BENZIDINE	0	0	0	0	NA	NA	NA	
	beta-BHC	0	0	0	0	NA	NA	NA	
	beta-ENDOSULFAN	0	0	0	0	NA	NA	NA	
	BORON	0	0	0	0	3100	3100	13577.1	
	CADMIUM	0	0	0	0	NA	NA	NA	

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RMI	Name	Permit Number						
0.76	Keystone 19PEL	12142018						
	CARBON TETRACHLORIDE		0	0	0	0	NA	NA
	CHROMIUM, VI		0	0	0	0	NA	NA
	DICHLOROBROMOMETHANE		0	0	0	0	NA	NA
	DIELDRIN		0	0	0	0	NA	NA
	ENDRIN		0	0	0	0	0.059	0.059
	gamma-BHC (LINDANE)		0	0	0	0	0.098	0.098
	HEPTACHLOR		0	0	0	0	NA	NA
	HEPTACHLOR EPOXIDE		0	0	0	0	NA	NA
	HEXACHLOROBUTA-DIENE		0	0	0	0	NA	NA
	PHENOLICS (PWS)		0	0	0	0	5	5
	SILVER		0	0	0	0	NA	NA
	TETRACHLOROETHYLENE		0	0	0	0	NA	NA
	TOXAPHENE		0	0	0	0	NA	NA
	VINYL CHLORIDE		0	0	0	0	NA	NA
	1,3-DICHLOROPROPYLENE		0	0	0	0	NA	NA
	ENDOSULFAN, TOTAL		0	0	0	0	62	62
								271.542

CRL

Qh:	CCT (min)	0.358	PMF	1				
	Parameter	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)
	1,1,2,2-TETRACHLOROETHANE	0	0	0	0	0.17	0.17	4.763
	1,1,2-TRICHLOROETHANE	0	0	0	0	0.59	0.59	18.531
	1,2-DICHLOROETHANE	0	0	0	0	0.38	0.38	10.647

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RMI	Name	Permit Number							
0.76	Keystone 19PEL	12142018							
	1,2 cis-DICHLOROETHYLENE		0	0	0	0	NA	NA	NA
	4,4'-DDD		0	0	0	0	0.00031	0.00031	0.009
	4,4'-DDE		0	0	0	0	0.00022	0.00022	0.006
	4,4'-DDT		0	0	0	0	0.00022	0.00022	0.006
	ACROLEIN		0	0	0	0	NA	NA	NA
	ALDRIN		0	0	0	0	0.000049	0.000049	0.001
	alpha-BHC		0	0	0	0	0.003	0.003	0.073
	alpha-ENDOSULFAN		0	0	0	0	NA	NA	NA
	BENZENE		0	0	0	0	1.2	1.2	33.621
	BENZIDINE		0	0	0	0	0.000086	0.000086	0.002
	beta-BHC		0	0	0	0	0.009	0.009	0.255
	beta-ENDOSULFAN		0	0	0	0	NA	NA	NA
	BORON		0	0	0	0	NA	NA	NA
	CADMIUM		0	0	0	0	NA	NA	NA
	CARBON TETRACHLORIDE		0	0	0	0	0.23	0.23	6.444
	CHROMIUM, VI		0	0	0	0	NA	NA	NA
	DICHLOROBROMOMETHANE		0	0	0	0	0.55	0.55	15.41
	DIELDRIN		0	0	0	0	0.000052	0.000052	0.001
	ENDRIN		0	0	0	0	NA	NA	NA
	gamma-BHC (LINDANE)		0	0	0	0	NA	NA	NA

PENTOXSD Analysis Results

Wasteload Allocations

RMI	Name	Permit Number							
0.76	Keystone 19PEL	12142018							
	HEPTACHLOR		0	0	0	0	0.000079	0.000079	0.002
	HEPTACHLOR EPOXIDE		0	0	0	0	0.000039	0.000039	0.001
	HEXACHLOROBUTA-DIENE		0	0	0	0	0.44	0.44	12.328
	PHENOLICS (PWS)		0	0	0	0	NA	NA	NA
	SILVER		0	0	0	0	NA	NA	NA
	TETRACHLOROETHYLENE		0	0	0	0	0.69	0.69	19.332
	TOXAPHENE		0	0	0	0	0.00028	0.00028	0.008
	VINYL CHLORIDE		0	0	0	0	0.025	0.025	0.7
	1,3-DICHLOROPROPYLENE		0	0	0	0	0.34	0.34	9.526
	ENDOSULFAN, TOTAL		0	0	0	0	NA	NA	NA



pennsylvania
DEPARTMENT OF ENVIRONMENTAL
PROTECTION

File-0013

L/D Albert
Jim [unclear]

May 12, 2016

Louis DeNaples
Keystone Sanitary Landfill Inc.
249 Dunham Drive
Dunmore, PA 18512-2827

Re: Preliminary Effluent Limitations
Keystone Sanitary Landfill
Lackawanna County

Dear Mr. DeNaples:

In response to your request dated 02/12/2016, the Department of Environmental Protection (DEP) has developed preliminary effluent limits (PELs) for a discharge of 0.107 MGD summer and 0.06 MGD winter of treated wastewater to Eddy Creek (Watershed 5-A). Any changes in the size or location of the discharge will require a reevaluation. The PELs are as follows:

Current Federal ELG's for Landfills Point Source Category 40 CFR Part 445
For RCRA Subtitle D
Non-Hazardous Waste Landfill

Regulated Parameter (mg/L, ppm)	Maximum	
	Maximum daily	Monthly Average
BOD5	140	37
TSS	88	27
Ammonia (as N)	10	4.9
a-Terpineol	0.033	0.016
Benzoic acid	0.12	0.071
p-Cresol	0.025	0.014
Phenol	0.026	0.015
Zinc	0.20	0.11
pH (S.U.)	6.0 to 9.0	6.0 to 9.0

Rec'd at Mill ... 4/16

Plus:

Pa Chapters 93, 95 & AMD TMDL's

Regulated Parameter (mg/L, ppm)	Maximum daily	Maximum Monthly Average
fecal coliform (5-1 to 9-30)	1,000 (IMAX)	200 colonies/ 100 ml as a geo. avg.
fecal coliform (10-1 to 4-30)	10,000 (IMAX)	2,000 colonies/ 100 ml- geo. avg.
TDS	4,000	2,000
Iron	3.75	1.5
Dissolved Iron	0.75	0.3
Manganese	2.5	1.0
Aluminum	1.88	0.75
Nitrate*	Report	Report
Boron*	Report	Report
Copper*	Report	Report
Arsenic*	Report	Report

*With site specific data- limits may be imposed

As the facility accepts fracking waste, the following additional limits will apply:

Gross Alpha (pCi/L)	3 pCi/L
Beta, Total (pCi/L)	4 pCi/L
Radium 226/228, Tot (pCi/L)	1 pCi/L
Strontium, Total (µg/L)	10 µg/L
Uranium, Total (µg/L)	2 µg/L

Issuance of these limits does not represent approval for a discharge to the waters of the Commonwealth. This information is provided as an aide in evaluating alternative wastewater disposal methods.

Mr. Louis Denaples

- 3 -

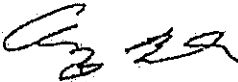
May 12, 2016

To meet the requirements of the Sewage Facilities Act, the proposed facility must be included in the municipality's Official Sewage Plan that is approved by DEP. For private projects, this may be done through the submission of sewage planning module components that are adopted by the municipality as a revision to the Official Plan. If you have not already done so, please initiate the sewage planning process by contacting Darryl Fritz at (570) 826-2576.

When the municipality has a DEP-approved Official Plan that addresses this project, permit applications may be submitted. An NPDES permit application must be filed with DEP at least 180 days before you propose to commence the discharge of treated wastewater. A Water Quality Management (WQM) permit must be obtained from DEP prior to starting construction of the proposed facilities. Permit applications can be obtained by contacting this office or by visiting DEP's website at www.eLibrary.dep.state.pa.us.

If you have any questions, please contact Bernie Feist at 570.830.3088.

Sincerely,



Amy Bellanca, P.E.
Environmental Engineer Manager
Clean Water Program

cc: Darryl Fritz - PADEP
Bernard Feist, P.E. - PADEP
File - NPDES PAR502203

SECTION 6.0

SECTION 6.0

EFFLUENT REUSE MONITORING PLAN

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1.0 INTRODUCTION

Keystone Sanitary Landfill, Inc. (KSL) is a privately owned 714-acre municipal waste landfill located in Dunmore and Throop Boroughs, Lackawanna County, Pennsylvania (see Figure 1 in Attachment A). KSL is permitted by the Pennsylvania Department of Environmental Protection (PA DEP) under Waste Management Permit No. 101247 to municipal waste, construction and demolition waste, and residual waste. The majority of the waste accepted at KSL is classified as municipal waste. No hazardous wastes are disposed at KSL.

Leachate generated by the landfill is conveyed to two double lined, 4.875 million gallon (MG) aerated leachate lagoons located near the leachate treatment plant building. Existing treatment includes physical/chemical and biological processes (moving bed biological reactors or MBBR) designed to treat an average of 150,000 gallons per day (gpd). Currently, treated effluent is discharged to the Pennsylvania American Water Company (PAWC) Scranton wastewater treatment plant for disposal.

KSL installed Phase I of a two-phase plan using reverse osmosis (RO) treatment equipment supplied by Rochem Americas (Rochem) inside the original leachate treatment building at the site. Phase I, consisting of an RO system with a design average treatment capacity of 90,000 gpd (100,000 gpd maximum), has been installed as approved under a minor permit amendment to KSL's solid waste management permit No. 101247- A183, in January 2019. A Certification of Facility Construction for this modification (Form 37) was approved by PA DEP on April 16, 2019. Phase II will consist of RO equipment with a design average capacity of 90,000 gpd (100,000 gpd maximum) is proposed for future installation. The total capacity for both phases of RO treatment will be 180,000 gpd (200,000 gpd maximum), bringing the leachate treatment capacity to 330,000 gpd at design conditions.

The RO equipment replaces the former aerobic reactor tanks inside the original leachate treatment building. The RO equipment treats leachate from the lagoons and/or MBBR effluent. RO treatment system is a demonstrated process that will produce a high quality effluent which provides the following options for effluent management:

- Discharge to the PAWC Scranton wastewater treatment plant consistent with the existing agreement;
- Discharge to Eddy Creek and Little Roaring Brook; and/or
- Beneficial use onsite for dust control and utility water.

As currently permitted, KSL discharges treated effluent to the PAWC Scranton wastewater treatment plant. In order to utilize the additional effluent management options listed above, KSL will submit the following applications to PA DEP for the proposed process:

- NPDES permit application to PA DEP for the proposed stream discharge to Eddy Creek and Little Roaring Brook;
- Part II – Water Quality Management (WQM) permit application for installation of the Rochem treatment process;
- Part II – WQM permit application for the beneficial use of treated effluent at the site (to be included with the Part II WQM permit application); and
- Major Permit Modification for Solid Waste Permit No. 101247 for KSL.
- A Request for Determination for the air emissions from the Rochem process was submitted to the PADEP in June 2018.

Upon receipt of the Part I NPDES and Part II WQM permits, treated effluent will be discharged to Eddy Creek and/or Little Roaring Brook and used onsite for dust control/utility water as needed. Concentrate from the reverse osmosis treatment process will be applied to the landfill

working face or hauled/conveyed to offsite disposal if needed. There are no proposed changes to the landfill size, capacity or operation contained within this permit modification.

Based on the quality of effluent obtained from the RO units, KSL proposes to use treated RO effluent onsite for dust control and utility water. High quality effluent will be used instead of groundwater or public water for dust control at the site. Effluent use is proposed within the KSL landfill permit boundary and, therefore, is included within the surface water and groundwater monitoring network for the landfill. KSL will obtain an NPDES permit to discharge treated effluent to Little Roaring Brook and Eddy Creek. Effluent meeting NPDES criteria will be used onsite as described in this application.

The application of treated effluent at KSL provides a number of environmental, social and economic benefits including, but not limited to, the following:

- Reducing the need for extraction of valuable groundwater and public water supplies;
- Control of dust emissions from Site roadways and aid in maintaining compliance with air quality permits and solid waste regulations; and
- Utilization of treated effluent that is of better quality than the current water sources at the Site.

This Effluent Reuse Monitoring Plan (ERMP) outlines the monitoring plan for treated effluent reuse at KSL and will be used by KSL to ensure environmental protection prior to, during, and after application. This ERMP is intended to formalize the locations and procedures used to conduct the monitoring events relative to the beneficial use of treated effluent at KSL as part of the WQM Permit.

1.1 General Facility Information

The KSL Leachate Treatment Plant is designed to provide options for leachate management. The discharge of treated effluent to the PAWC Scranton wastewater treatment plant, comprised primarily of MBBR effluent, will continue. RO effluent will be discharged to PAWC when not discharged to receiving streams under the NPDES permit or reused onsite for dust control. The RO equipment will treat leachate from the storage lagoons, but can treat MBBR effluent with proper pretreatment.

A schematic of the KSL RO treatment process is provided in Figure 2 in Attachment A. Leachate generated by the landfill is conveyed to two (2) 4.875 million gallon aerated lagoons located by the leachate treatment building and pumped to the leachate treatment plant (LTP) for processing using the following processes:

- 1) Equalization in aerated storage lagoons;
- 2) Pump through strainers for removal of debris and oversized material;
- 3) Oil/water separation for removal of two-phase oil (from gas condensate) to protect the membranes;
- 4) Clarification;
- 5) Filtration through bags filters;
- 6) pH adjustment;
- 7) Pump through sand filters and cartridge filters;
- 8) Two-stage reverse osmosis treatment process;
- 9) Degassifier - carbon dioxide removal using an air stripping column;
- 10) High pressure reverse osmosis treatment for concentrate volume reduction; and
- 11) Effluent storage, followed by discharge to publicly owned treatment works, stream discharge, or beneficial reuse.

All treated effluent used onsite will have undergone all steps in the RO treatment process prior to discharge.

1.2 Effluent Reuse Application

After treatment, effluent proposed for reuse will be pumped to the 800,000 gallon water tank located near the entrance where it will be stored and used by KSL in the following manner:

- Dust Control on the lined and unlined portions of the site; and
- Non-potable make-up water in the leachate treatment plant, buildings, and tire wash.

Treated effluent will be applied in a manner to minimize runoff and infiltration. The quality of effluent after RO treatment is higher than existing onsite water used for dust control purposes. KSL leachate flows are below design levels; therefore, treated effluent quantities are less than the design flow of 90,000 gpd for Phase I or 180,000 gpd for Phase II. Making the use of treated effluent generated by the site manageable in terms of quantity. Treated effluent will be sampled and analyzed for the specified parameters in the NPDES permit. Data on treated effluent quality and effluent use will be submitted to the Department monthly with the discharge monitoring report.

When conditions necessitate dust control and/or roadway cleaning, treated effluent will be loaded into tanker trucks at the treatment plant building, and the trucks will proceed to the designated use area to apply the water. Areas that will receive treated effluent include all roadways within the property boundary and areas within the Material Processing and Stockpile Area. Applications will occur on an as-needed basis throughout the year.

Effluent will be used under controlled conditions. The vehicle will be in motion at all times when the effluent is applied. Effluent will be used only in areas where needed and under conditions suitable for beneficial use. Effluent may be used to clean roadways to prevent tracking dirt offsite since runoff, if it occurs, from these areas is directed to sedimentation control basins. Prevention of offsite tracking is crucial for ensuring compliance with air quality permits and solid waste regulations. Discharges from the sedimentation basins are monitored in accordance with the KSL NPDES storm water permit.

Application rates are limited to minimize runoff and infiltration. Evaporative losses expected for the site on an annual basis were evaluated using weather data from the weather station in Scranton, PA.

Location	Monthly Mean Evaporation of Estimated Pan Evaporation (Inches)												Annual
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Scranton	0.94	1.13	2.12	3.87	5.41	6.10	6.22	5.45	3.71	2.60	1.52	0.98	40.05

The Site maintains the following roadways:

- 30,100 feet around the perimeter of the landfill;
- 49,400 feet inside the lined areas of the landfill; and
- 17,200 feet of roadway in the Material Processing Area.

Treated effluent is applied to these roadways to prevent dust emissions and prevent the off-site tracking of mud. Water is applied year round depending on site conditions. Assuming 50-foot wide cart ways, the following minimum volume of water can be applied at a rate equivalent to the evapotranspiration rate for the site in January:

*Perimeter roads: = 30,100' road length x 50' cart ways x 0.94" per month/12
 = (117,892 cu. ft. per month) x 7.48 gal/cu. ft. / 31
 = 28,450 gallons per day (gpd)

*Landfill roads: = 49,400' road length x 50' cart ways x 0.94" per month/12
 = (193,483 cu. ft. per month) x 7.48 gal/cu. ft. / 31
 = 46,685 gpd

*Processing Area roads: = 17,200' road length x 50' cart ways x 0.94" per month/12
 = (67,370 cu. ft. per month) x 7.48 gal/cu. ft. / 31
 = 16,255 gpd

*Roadway lengths are approximate based on changing site conditions

*TOTAL of all areas = 28,450 gpd + 46,685 gpd + 16,255 gpd
= 91,390 gpd

*The above data set is utilized as a usage guide; however, the actual use will vary based on site conditions and weather conditions.

This projected use, coupled with other designated effluent uses and storage, equates to the treated effluent generated by KSL. If needed, the effluent can also be stream discharged under the industrial wastewater NPDES permit and discharged to the PAWC wastewater treatment plan.

In summary, effluent reuse at KSL is intended to utilize a resource as opposed to disposal of a waste. KSL effluent is high quality water that will meet the PADEP effluent discharge limits to be set forth in the industrial wastewater NPDES permit.

1.3 Treated Effluent Reuse Benefits

The application of treated effluent at KSL provides a number of environmental, social and economic benefits including, but not limited to, the following:

- Reducing the need for extraction of valuable groundwater and public water supplies;
- Control of dust emissions from Site roadways and aid in maintaining compliance with air quality permits and solid waste regulations; and
- Utilization of treated effluent that is of better quality than the current water sources at the Site.

1.4 Sampling/Monitoring Background

Groundwater monitoring well samples are collected quarterly from the Site's groundwater monitoring wells and the analytical results are reported to PADEP in accordance with the Site's

solid waste permit. The groundwater monitoring points are analyzed quarterly for PADEP Form 19 parameters. There are currently 41 groundwater monitoring wells located at the Site. Of these 41 wells, 36 are sampled as part of the PADEP-approved groundwater monitoring program implemented at KSL and five (5) are used for water level monitoring only. Locations of the groundwater monitoring (sampling) points are identified on Figure 3 in Attachment A.

There is currently one (1) permitted storm water monitoring point (the outfall at Eddy Creek) sampled to evaluate stormwater conditions at the Site. A sample is collected from this stormwater monitoring point semi-annually, in accordance with the Site's NPDES Permit No. PAR 502203 for Discharge of Stormwater Associated with Industrial Activities (NPDES stormwater permit). The sample is analyzed for parameters listed in Appendix C, "Landfills and Land Application Sites", of the PADEP PAG-03 NPDES Permit, which include pH, Total Suspended Solids, Chemical Oxygen Demand, Ammonia-Nitrogen and Total Iron. The location of this surface water monitoring point is identified on Figure 3 in Attachment A.

Treated effluent will be sampled and analyzed per the Site's industrial wastewater NPDES permit when discharged to the stream or proposed for reuse.

2.0 CURRENT SITE MONITORING LOCATIONS AND SAMPLING PROCEDURES

This section identifies the current media that is sampled/monitored at the Site and provides exact locations for each sampling point, such that Site personnel, consultants, and regulatory personnel can identify each location in the field independently and without the need for specific knowledge of the Site. A Site location map is provided as Figure 1 and a monitoring point location map that includes all monitoring points at the Site is provided as Figure 3 in Attachment A.

2.1 Groundwater Monitoring Wells

There are currently 36 permitted groundwater monitoring wells sampled to evaluate groundwater conditions at the Site. Monitoring wells are positioned to evaluate groundwater conditions both upgradient and downgradient of the Site in both the shallow and deep aquifers. The monitoring wells are sampled and analyzed quarterly per the Site's solid waste permit. Sampling procedures and analysis are done in accordance with the Site's solid waste permit. Quarterly analysis of the groundwater quality at the Site is included in the Site's solid waste permit and will aid in determining if any adverse impacts result from the application of treated effluent.

2.2 Stormwater Monitoring Point

There is currently one (1) permitted stormwater monitoring point sampled to evaluate stormwater conditions at the Site. Stormwater is monitored at the Site semi-annually per the Site's NPDES stormwater permit. Results are reported to PADEP in accordance with the Site's NPDES permit.

2.3 Treated Effluent Monitoring Point

Treated effluent will be sampled and analyzed per the Site's NPDES permit when discharging to the stream.

3.0 PROPOSED MONITORING LOCATIONS AND PROCEDURES

This section identifies the proposed monitoring locations and provides exact locations for each sampling point, such that Site personnel, consultants, and regulatory personnel can identify each location in the field independently and without the need for specific knowledge of the Site. A Site location map is provided as Figure 1. The proposed monitoring points are shown on Figure 3 (Attachment A).

3.1 Proposed Monitoring Points

As treated effluent reuse will only occur within the disposal boundary at KSL, monitoring point locations are proposed to include all monitoring well and surface water (stormwater) monitoring locations currently in place at KSL. In addition to the required sampling requirements for the monitoring wells and surface water monitoring points at KSL, qualified personnel will visually inspect areas around the monitoring locations on a monthly basis immediately following effluent reuse application. The monthly visual inspections will be documented and will include the following:

- The date and time in which the monthly visual inspections take place;
- Who is completing the visual inspections; and
- Visual characteristics of the areas around the monitoring locations including color, clarity, suspended solids, sheen, foam, etc.

The established monitoring points provide a comprehensive network to monitor groundwater and surface water quality at the Site. The network covers the area proposed for effluent reuse within the landfill disposal boundary.

It should be noted that the effluent is of high quality and therefore, no effects to shallow waters are anticipated. However, monitoring wells at KSL monitor both an upper and lower aquifer allowing for monitoring to shallow waters.

3.2 Corrective Action

Although no adverse conditions are expected, if analytical results or visual inspections reveal any adverse conditions present in the treated effluent, KSL will notify PADEP personnel of any corrective measures taken.

4.0 DATA REPORTING

The following sections outline the requirements for data interpretation and reporting of monitoring results for the site.

4.1 Effluent Reporting

Discharge Monitoring Reports (DMR) with supporting materials for effluent will be submitted by KSL using the electronic discharge monitoring report (eDMR) program run by PADEP no later than 28 days following the end of the month in accordance with the existing NPDES permit for the Site. The results of the sampling prior to beneficial reuse are included with these monthly submissions. KSL will maintain onsite daily records of the amount and location of effluent reused.

4.2 Current Submittals

Currently, KSL submits the following monitoring results to PADEP inclusive of the following monitoring data:

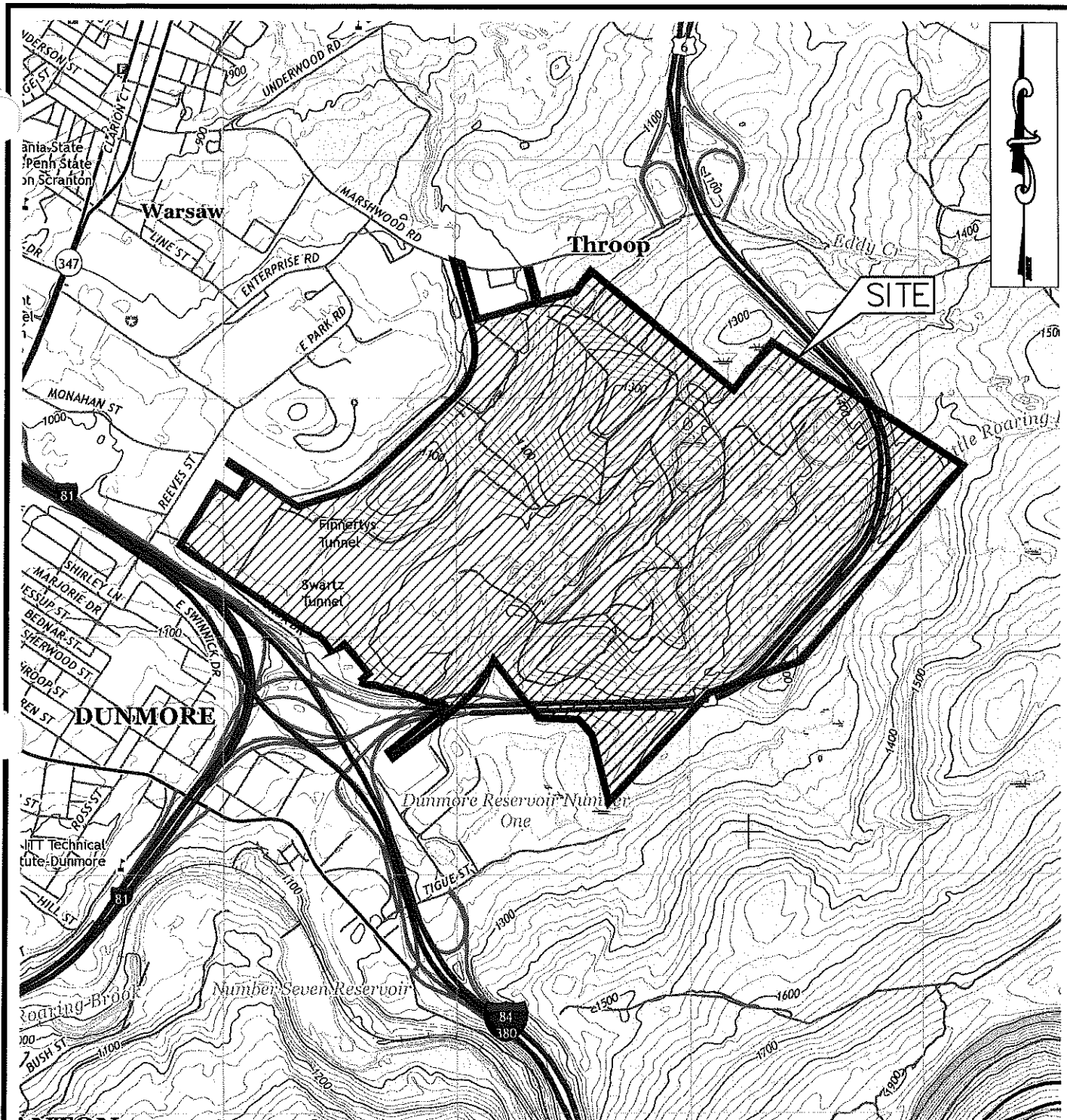
- DMRs with effluent analytical results are submitted to PADEP on a semi-annual basis per the NPDES permit for storm water runoff from the Site;
- Groundwater and surface water monitoring analytical results are submitted to PADEP on a quarterly basis per the Site's solid waste permit; and

KSL proposes to include the monthly inspections as part of the semi-annual stormwater monitoring analytical results submissions. It is proposed to submit copies of these reports to the PADEP Clean Water Program Hydrogeologist.

ATTACHMENTS

ATTACHMENT A
FIGURES

**FIGURE 1
SITE LOCATION MAP**



SOURCE: USGS 7.5 MINUTE QUADRANGLE - OLYPHANT, PA



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Morgantown, WV 26505

DRAWN BY:
RCC

DATE:
09/04/2019

DRAWING SCALE:
1" = 2,000'

CHECKED BY:
TGP

PROJECT NO:
091018.064

FIGURE 1
SITE LOCATION MAP

EFFLUENT REUSE MONITORING PLAN
KEYSTONE SANITARY LANDFILL, INC.
DUNMORE BOROUGH, THROOP BOROUGH
LACKAWANNA COUNTY, PENNSYLVANIA

FIGURE 2
PROPOSED LEACHATE TREATMENT SCHEMATIC