



**MIX PIT AIR PERMIT APPLICATION
SAFETY-KLEEN SYSTEMS, INC.**

NJDEP FACILITY # 40097

**Submitted to:
New Jersey Department of Environmental Protection
Bureau of Stationary Sources
401 E. State Street
PO Box 420
Trenton, New Jersey 08625**

September 13, 2023

**Submitted By:
Safety-Kleen Systems, Inc.
1200 Sylvan Street
Linden, New Jersey 07036**

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General Information

Safety-Kleen Systems, Inc. Linden Recycle Center is located at 1200 Sylvan Street in Linden New Jersey and has a New Jersey Department of Environmental Protection (NJDEP) Facility ID of 40097. The Linden Recycle Center receives used solvents, solvent mixtures, and other liquid and solid wastes from industrial and commercial generators/ customers, local, State and Federal agencies, Safety-Kleen service centers, and other Safety-Kleen Recycle Centers. Waste Characteristics include but are not limited to chlorinated hydrocarbons, amines, alcohols, aliphatic and aromatic compounds, waste oils, oil filters, paint wastes, aqueous wastes, and other hazardous and non-hazardous wastes. Wastes are received in various containers, in tank trucks and railcars. Used solvents, solvent mixtures, and other wastes are managed in several ways. These include recovery, fuel blending for off-site use, storage, transfer and shipment off-site. The recovery processes include but not limited to distillation, fractionation, and drying. Recovered products are either returned or distributed for use by Safety-Kleen customers or marketed as recovered solvent.

The Linden facility will be introducing a new treatment option with the treatment of metal-bearing hazardous wastes via stabilization in a mix pit in order to render it non-hazardous wastes.

Supporting Information

Process Description

The purpose of the mix pit is processing of contaminated soil waste by the solidification and/or stabilization of inorganic characteristic hazardous (RCRA heavy metals) and/or non-hazardous wastes. Please refer to the attached mix pit process flow diagram (**Attachment A**). The mix pit consists of a steel-lined concrete in-ground pit of the proper design to contain liquids and detect leaks in the secondary containment system. Please refer to **Attachment B** for diagrams of the mix pit and associated building.

An evaluation is made to determine the suitability of the waste for solidification and/or stabilization. The lab performs tests on the sample taken upon receipt of the waste (or for routine/consistent waste a pre-acceptance sample) to determine the most appropriate treatment recipe in order to render the waste non-hazardous. Decanting of excess water for aqueous mixtures of some wastes with high water content generates wastewater that may contain organic and/or inorganic chemicals. Wastewater generated by the facility is stored in Tank Farm 2 or pumped directly to tanker trucks for off-site disposal and/or discharged in accordance with the facility's wastewater discharge permit.

Treatment/stabilization is conducted in batches. Processing rate of 200 tons per day of hazardous waste or 99 tons per day of non-hazardous waste. Short term process rates could not exceed 60 tons per hour. Estimated annual rates would be ~70,000 tons of hazardous waste and ~36,000 tons of non-hazardous waste. Actual rates will be a combination of hazardous and non-hazardous wastes at lesser annual amounts each.

This single source, **Equipment E2000** operations are conducted within an enclosed building designed to control potential air emissions from the process through a dust collector (baghouse **Control Device CD2001**) and carbon adsorption bed (**Control Device CD2002**). Refer to **Attachment C** for location of the mix pit building from the Site Diagram.

Operating Scenarios

Operating Scenario 1: Loading stabilization material to the building

The facility uses reagents such as Portland cement, ferrous sulfate or kiln dust for the stabilization of hazardous waste. The stabilization reagents are contained in large bags/sacks and are stored in bunkers within the mix pit building. They are loaded by an excavator/backhoe. Water spray may be applied to control dust within the building. Please refer to **Attachment D** for the estimated particulate emissions from these operations.

Operating Scenario 2: Loading solidification material to the building

The facility uses dehydration media such as calcium sulfate, lime, fly ash, enviroite (burnt rice husks and silica), speedi-dri, sawdust, paper pulp, diaper dust and/or pozzolanic materials. The solidification media is also stored in bunkers within the mix pit building. These materials typically are not as “fine” as the stabilization materials, therefore different emissions rates would apply. Please refer to **Attachment D** for the estimated particulate emissions from these operations.

Operating Scenario 3: Loading RCRA hazardous waste material to the building

The facility conducts stabilization of heavy metal contaminated wastes in the mix pit. Lead would be the prevalent occurrence metal in the waste, with the potential for arsenic, barium, beryllium, cadmium, chromium, nickel, selenium and silver. This activity is conducted in the Mix Pit Building. The waste material may also include polychlorinated biphenyls (PCBs) at a maximum concentration of 49 parts per million (ppm). The Linden facility is not permitted to accept TSCA regulated PCB contaminated waste greater than 50 ppm. Volatile organic compounds (VOCs) are estimated at a worst-case scenario of 500 ppm. All waste that is stabilized will be managed to ensure compliance with the provisions of applicable regulations. The maximum daily stabilization limit for hazardous wastes is 200 tons per day in the mix pit. Please refer to **Attachment D** for the estimated particulate, lead, PCB, VOC and solid and volatile hazardous air pollutants (HAPs) emissions from these operations.

Operating Scenario 4: Loading non-hazardous waste material to the building

The facility may receive bulk and non-bulk containers of semi-solids that contain free flowing liquid requiring solidification before ultimate disposal in a landfill. The non-hazardous waste will not contain lead or PCBs, but may have a concentration of VOCs not to exceed 500 ppm. Please refer to **Attachment D** for the estimated particulate and VOC emissions from these operations.

Operating Scenario 5: Loading stabilization reagents to hazardous waste material in the mix pit

Hazardous waste is stabilized in the mix pit. The type and amount of reagents added to the wastes is determined by the Bench Scale Test. Bulk reagent (usually Portland cement dust or ferrous sulfate, lime, etc.) is measured and used. Based on the treatment recipe, the appropriate proportional amount of reagent is added as a measure or weight of reagent, maximum of 15% of the total waste. Please refer to **Attachment D** for the estimated particulate emissions from these operations.

Operating Scenario 6: Loading solidification media to non-hazardous waste material in the mix pit

Waste is solidified in the mix pit. The facility uses dehydration media such as lime, fly ash envirite (burnt rice husks and silica), speedi-dri, sawdust, paper pulp, diaper dust or pozzolanic materials. The type and amount of media added to the wastes is determined by the Bench Scale Test. Based on the treatment recipe, the appropriate proportional amount of media is added, maximum of 50% of the total waste. Please refer to **Attachment D** for the estimated particulate emissions from these operations.

Operating Scenario 7: Mixing of stabilization/solidification media to waste material in the mix pit

Necessary amount of stabilization media is placed in the mix pit and mixed with the hazardous waste. A backhoe or other mechanized equipment (e.g., excavator fitted with a mixing blade, robotic arm, etc.) is utilized to mix the waste and reagent. Based on the treatment recipe, water may be added during the mixing process to enhance the stabilization process. The waste and reagent are mixed until the mixture is homogeneous by visual examination. The approximate mixing time is typically 40 minutes per ~40 cubic yards or about 56 short tons of hazardous wastes (i.e., approximate capacity of the mix pit which can hold up to 8,372 gallons of hazardous wastes).

The maximum concentration of VOCs is 500 ppm. Predominately non-HAP VOCs may be present (i.e. hydrocarbons). However, potential VOCs that are also HAPs have been included as part of this application. Additional VOCs with minimal concentrations may include benzene, chlorobenzene, ethylene glycol, methanol, methyl ethyl ketone, methyl isobutyl ketone, methylene chloride (non-VOC but a HAP), phenol, tetrachloroethylene, toluene, trichloroethylene and xylenes. Please refer to **Attachment D, Table 1** for the estimated VOC and HAP emissions from this operation. It is assumed that all VOC emissions will be released during Operating Scenario 7.

After mixing is complete, two grab samples are taken to a NJDEP certified environmental laboratory for analysis.

Operating Scenario 8: Loading of stabilization/solidification material to trucks for off-site disposal

The stabilized/solidified waste is transferred to bulk containers (roll-off's, intermodals or dump trailers). These bulk containers are labeled and held in a permitted hazardous waste container storage area pending analytical test results. The proper analysis is conducted on the samples for

the metal of concern and the analytical results confirms that the results are below the regulatory threshold for the metal of concern. These wastes typically go to Subtitle D solid waste landfills.

Emission Calculations

As presented in Attachment D, the emissions were estimated by each operating scenario on an hourly and annual basis. Table 1 consists of the Volatile Organic Compounds (VOCs) and hazardous air pollutants (HAPs). The basis for emissions and assumptions are provided on the Table. PCB concentrations are established on a worst-case short term basis of 49 ppm (non-TSCA facility cannot accept greater). Typical concentration will be less than 7 ppm for overall annual basis. Analysis for PCBs is conducted on incoming loads.

Additional HAP maximum concentrations are provided on the Tables in Attachment D. Whereas a PDF copy of the Emissions Calculations is included, an Excel version of the emissions calculations showing all formulas and calculations is submitted separately through the NJDEP Online portal during the submittal of this permit application.

Table 2 includes the particulate and HAP emissions from the operating scenarios indicated above. Again, the basis for emissions and assumptions are provided on the Table.

Currently, the facility is a synthetic minor for volatile organic compounds (and other priority pollutants). The addition of this operation does not change the facility's status and will remain a synthetic minor, with potential to emit of VOCs less than 25 tons per year.

Technical Supporting Documents

Impacts Analysis

Due to the introduction hazardous air pollutants (HAPs) with this permit application, the facility is required to prepare a Risk Screening Analysis. The short-term and annual potential to emit of the following were input into the Risk Screening spreadsheet, with a Negligible result for all contaminants.

- Arsenic Compounds
- Barium Compounds
- Benzene
- Beryllium Compounds
- Cadmium Compounds
- Chlorobenzene
- Chromium Compounds
- Cumene
- Ethylene Glycol
- Lead Compounds

- Methanol
- Methyl Ethyl Ketone
- Methyl Isobutyl Ketone
- Methylene Chloride
- Nickel Compounds
- Phenol
- Polychlorinated Biphenyls (PCBs)
- Selenium Compounds
- Tetrachloroethylene
- Toluene
- Trichloroethylene
- Xylene

The spreadsheet will be attached to the Permit Application submittal under separate cover through the NJDEP Online Portal.

RADIUS Permit Application

The permit application for this new source was created through the mandated RADIUS software. A PDF copy of the application is included as **Attachment E**. The file was uploaded and submitted through the NJDEP Online portal.

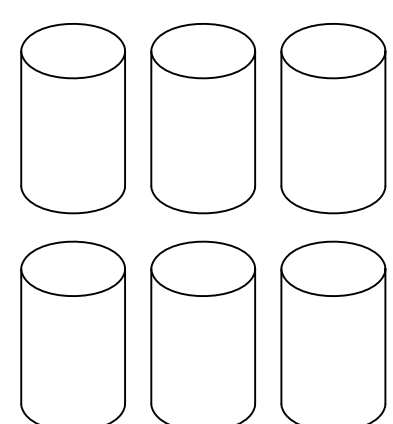
Attachment A

Process Flow Diagram

INCOMING SLUDGE WASTE
FROM PUBLIC & PRIVATE
UTILITY & TRANSIT
AUTHORITIES AND/OR
COMPANIES

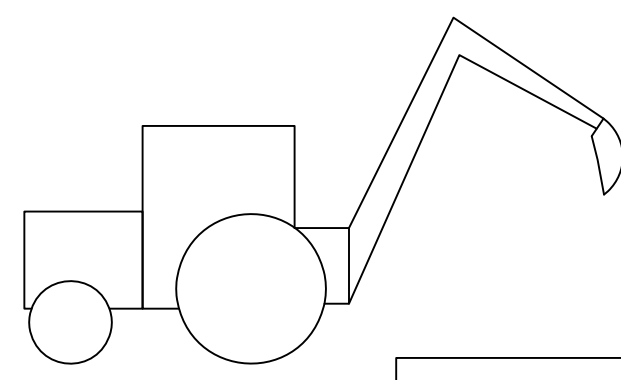
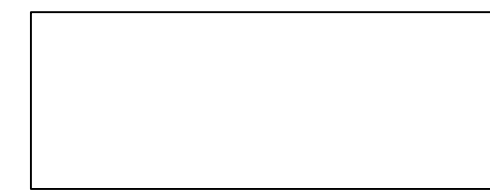


VIA VAC TRUCK/CUSCO



BATCH CONTAINERS FROM
BULK & VARIOUS INDUSTRIAL &
COMMERCIAL GENERATORS

STABILIZATION/
SOLIDIFICATION MATERIALS*



BACKHOE



STABILIZATION/
SOLIDIFICATION MIX PIT



SOLIDIFIED
WASTE

STABILIZED/
SOLIDIFIED WASTE
SHIPPED TO AUTHORIZED
LANDFILL



GENERAL NOTES

WASTE COMES FROM UTILITY MANHOLE CLEANOUTS,
OIL/WATER SEPARATOR CLEANOUTS, MAINTENANCE
GARAGE TRENCH CLEANINGS, ETC.

*NOTE: PAPER PULP, WOOD FLOUR, DIAPER
RESIDUALS, SWELL-GEL, PORTLAND CEMENT, KILN
DUST, FLY ASH, LIME, FERROUS SULFATE, SAW DUST
ETC.

PROPRIETARY STATEMENT

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TITLE
MIX PIT
PROCESS FLOW DIAGRAM

NO.	DESCRIPTION	BY	CHK	APPR	DATE
C	REVISE NOTES	JEK	DDS	DDP	083123
B	REVISE NOTES	JEK	DDP	DDP	082620
A	NEW ISSUE	JEK	DDP	DDP	041620
REVISIONS					

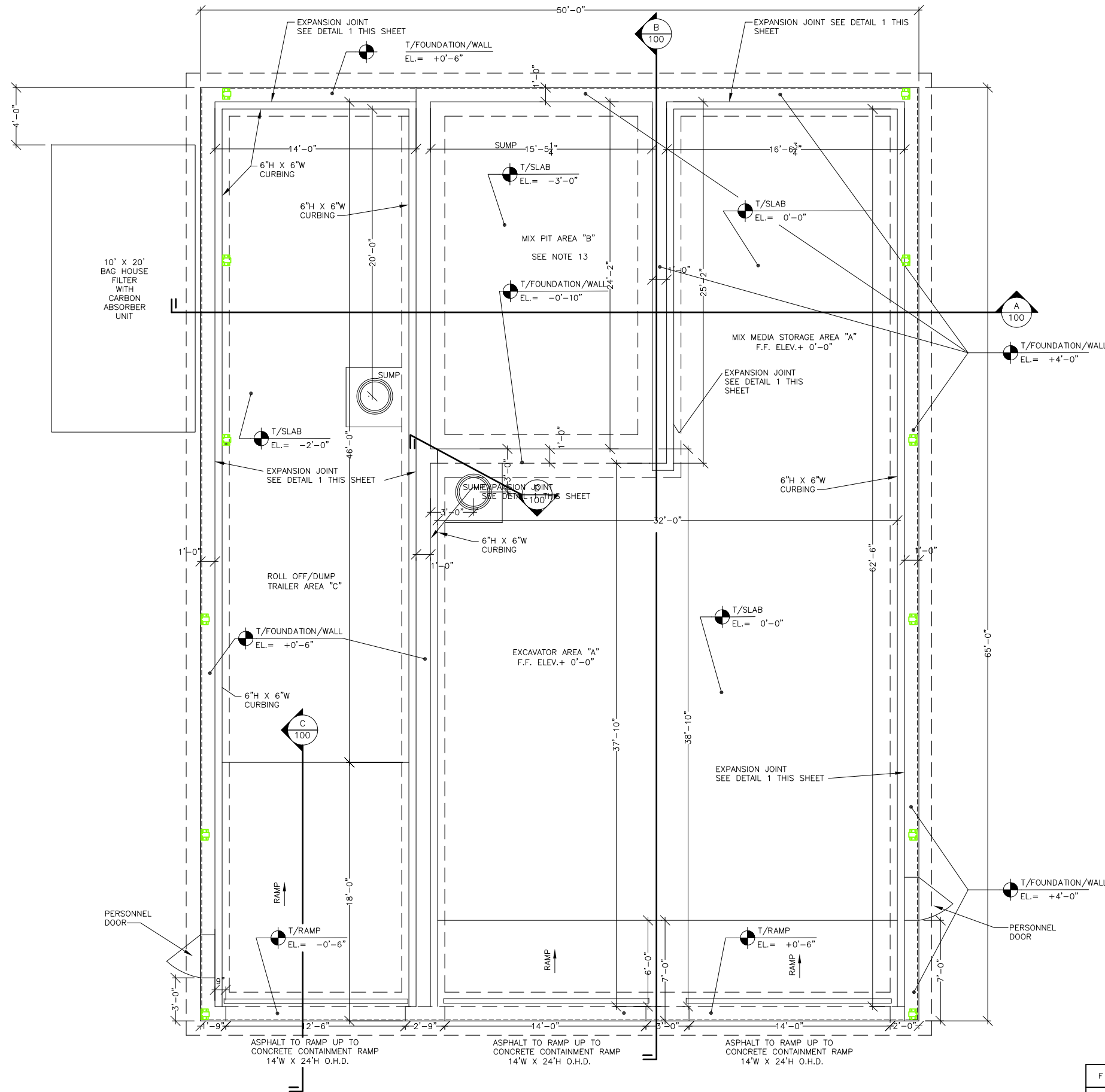
SAFETY-KLEEN SYSTEMS, INC.
42 LONGWATER DR. NORWELL, MA. 02061
PHONE 781-792-5000

SCALE 1/8" = 1'-0"	BY JEK	CHKD DDP	P.E. APPR DDP	DP. APPR DDP	DATE 4/6/20
STANDARD BRANCH LOCATION LINDEN, N.J.				STD-DWG-REV NO. M-100	

Attachment B

Mix Pit Diagrams

D-100 SOLIDS AREA RAMP CONCRETE PLAN.dwg, Aug 24, 2023, 2:02pm



SOLIDS AREA HANDLING CONCRETE PLAN

SCALE: 1/4" = 1'-0"

CONTAINMENT CALCULATIONS

AREA "A" - EXCAVATOR AND MIX MEDIA STORAGE AREA	
37'-10" X 32'-0" X 6" X 7.48 GAL/CF	= + 4,528 GAL.
25'-2" X 16'-6.75" X 6" X 7.48 GAL/CF	= + 1,559 GAL.
.5 X 32'-0" X 6'-0" X 6" X 7.48 GAL/CF	= -359 GAL.
	= +5,728 GAL.
AREA "B" - MIX PIT AREA	
24'-2" X 15'-5.25" X 3'-0" X 7.48 GAL/CF	= +8,372 GAL.
AREA "C" - ROLL-OFF/DUMP TRAILER AREA	
64'-0" X 14'-0" X 2'-0" X 7.48 GAL/CF	= +13,404 GAL.
.5 X 14'-0" X 18'-0" X 2'-0" X 7.48 GAL/CF	= -1,885 GAL.
	= +11,519 GAL.
TOTAL CONTAINMENT = 25,619 GAL.	

GENERAL NOTES

- ALL CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF ACI 301, 315 AND 318 LATEST EDITIONS. FOLLOW ACI RECOMMENDATIONS FOR COLD AND HOT WEATHER CONDITIONS.
- ALL CONCRETE SLABS SHALL BE COVERED WITH BURLAP AND KEPT CONTINUOUSLY MOIST FOR A MINIMUM PERIOD OF FIVE DAYS.
- ALL CURBS SHALL BE CAST MONOLITHICALLY WITH SLAB.
- SLOPE CONCRETE SLAB AS SHOWN ON PLAN.
- MINIMUM CONCRETE COVER FOR REINFORCEMENT SHALL BE 3" FOR CONCRETE CAST AGAINST SOIL AND 2" FOR CONCRETE EXPOSED TO WEATHER.
- ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS WITH MAX. SIZE AGGREGATE OF 1 1/2" AND ENTRAINED AIR OF 4% - 6% IN ADDITION FOR TRUCK STATION MIN. MODULUS OF RUPTURE OF 600 PSI AT 28 DAYS WITH MAX. W/C RATIO OF .50 AND MIN. CEMENT FACTOR OF 560 LB/CY.
- ALL REBAR SHALL BE GRADE 50 BILLET STEEL CONFORMING TO ASTM A-615.
- BLDG. SLAB ELEVATIONS ARE RELATIVE AND SHALL BE BASED ON THE ASSIGNED REFERENCE ELEVATION OF 0'-0" FOR EXISTING GRADE LEVEL.
- BLDG SLAB REQUIRED PREPARATION: REMOVE SURFACE AND UNDERCUT SOIL TO THE PROPER SUB GRADE ELEVATION. SCARIFY AND RECOMPACT THE TOP 8" OF EXISTING SUB GRADE SOIL. INSTALL MIRAFI 500X GEOFABRIC OR APPROVED EQUAL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. BACK FILL AND COMPACT WITH AN 8" LAYER OF STRUCTURAL FILL (3" MINUS WELL GRADED CRUSHED STONE) AND 6" LAYER OF GRANULAR FILL (1" MINUS WELL GRADED CRUSHED STONE). SUBGRADE MATERIAL SHALL BE COMPACTED TO 95%. STRUCTURAL FILL AND GRANULAR FILL MATERIALS SHALL BE COMPACTED TO 100% OF THE STANDARD PROCTOR MAX. DRY DENSITY AND UNIFORM OVER THE ENTIRE AREA. ACTUAL GRADE PREPARATION MAY VARY DUE TO EXISTING SOIL CONDITIONS.
- SLOPE GRADE AWAY FROM BUILDING AS REQUIRED TO ENSURE STORMWATER RUN-OFF AWAY FROM BUILDING.
- EXISTING GRADES AT PROPOSED BUILDING LOCATION VARIES. CONTRACTOR TO VERIFY EXISTING GRADES AND ELEVATIONS AND REPORT ANY DISCREPANCIES TO CHES/SK PROJECT MANAGER. CONTRACTOR TO STEP FOOTINGS AS REQUIRED PER LOCAL CODES. CONTRACTOR TO MEET CONCRETE ELEVATIONS AT DOORWAYS WITH ASPHALT AND SLOPE AWAY AT MAX. 1:12 SLOPE AND BLEND WITH EXISTING ASPHALT.
- CONTRACTOR TO INSTALL CHEMTEC SEALER TO CONCRETE SURFACE, CHEMTEC SEALER SUPPLIED BY S-K.
- MIX PIT TO BE LINED WITH 3/8" STEEL PLATING WITH ALL SEAMS WELDED WATER TIGHT.

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N. D. Eryou, PhD, PE
Consulting Engineer

Southwest Florida Office 5051 Castello Drive Suite 244 Naples, FL 34103 Phone: (352) 684-7275 Fax (800) 660-6724	Central Florida Office 1460 Breezy Way Spring Hill, FL 34608 Phone: (352) 684-7275 Fax (800) 660-6724	SEAL & SIGNATURE N.D. ERYOU NJ PE # GE34195
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Email: alex@eryouengineering.com

TITLE
**MIX PIT/SOLIDS AREA
CONCRETE PLAN**

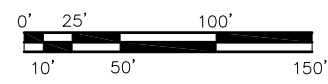
SAFETY-KLEEN SYSTEMS, INC.
42 LONGWATER DR. NORWELL, MA. 02061
PHONE 781-792-5000

F	REVISE CALCS	JEK	DDS	DDS	082423
E	REVISE NOTES	JEK	DDS	DDS	082223
D	REVISE OHD'S	JEK	DDP	DDP	052120
C	REVISE BLDG LAYOUT	JEK	DDP	DDP	043020
C	REVISE BLDG LAYOUT	JEK	DDP	DDP	043020
B	REVISE NOTES/SUMPS/LINER	JEK	DDP	DDP	042120
A	ISSUED FOR REVIEW	JEK	DDP	DDP	041620
NO.	DESCRIPTION	BY	CHK	APPR	DATE
REVISIONS					

SCALE 1/4" = 1'-0"	BY JEK	CHKD DDP	APPROVED DDP	OPERATIONS DDP	DATE 4/6/20
SERVICE CENTER LINDEN, N.J.	STD-DWG NUMBER D-100	REV. NO. F			

Attachment C

Site Diagram

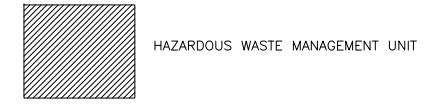
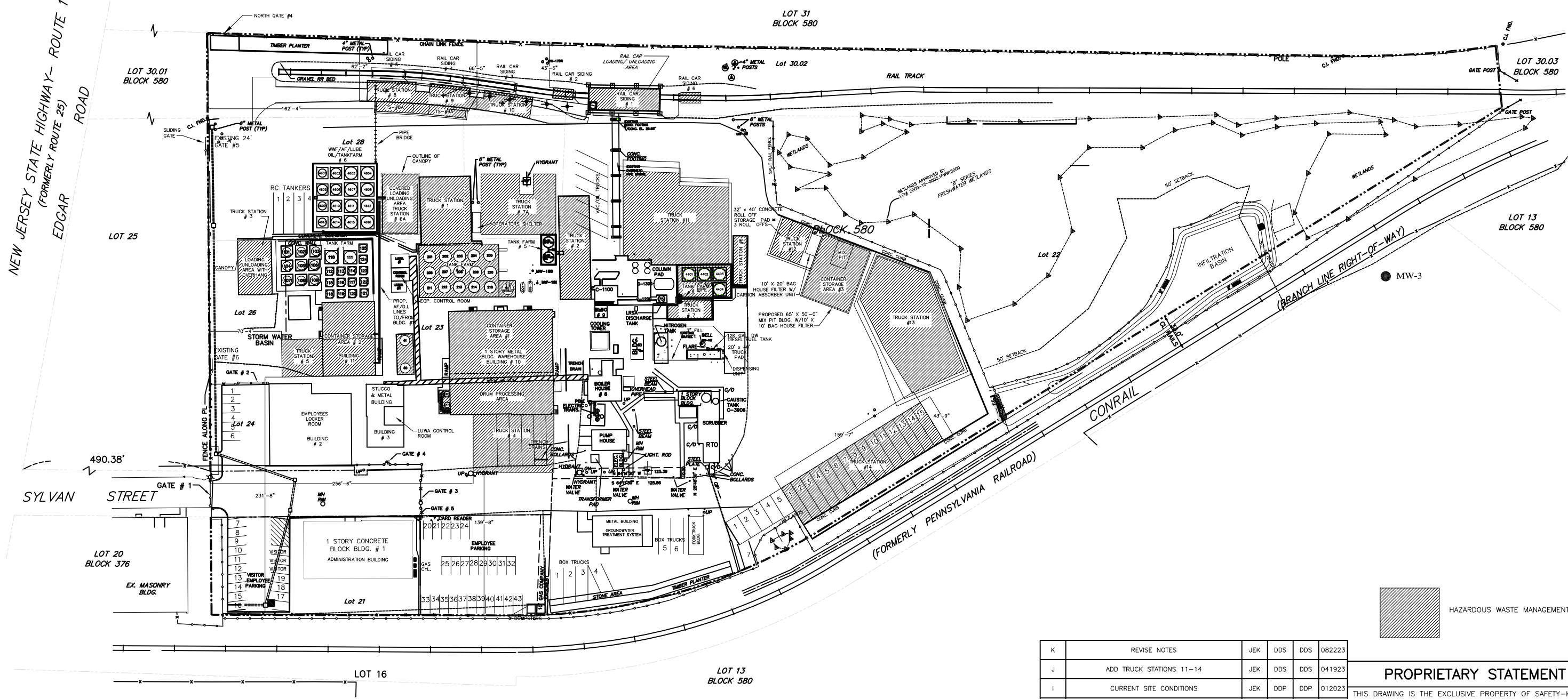


LINDEN AIRPORT

LOT 31
BLOCK 580

NEW JERSEY STATE HIGHWAY - ROUTE 1
(FORMERLY ROUTE 25)
EDGAR ROAD

SYLVAN STREET



K	REVISE NOTES	JEK	DDS	DDS	082223
J	ADD TRUCK STATIONS 11-14	JEK	DDS	DDS	041923
I	CURRENT SITE CONDITIONS	JEK	DDP	DDP	012023
H	CURRENT SITE CONDITIONS	JEK	DAD	DAD	080222
G	ADD T-4505 & HX-4501	JEK	FR	FR	042921
F	ADD DIESEL TANK	JEK	DAD	DAD	102319
E	REVISED PER D.A.D. COMMENTS	JEK	DAD	DAD	121217
D	REVISED PER DEP RESPONSE	JEK	DDP	DDP	050317
C	REVISED PER DEP RESPONSE	JEK	DDP	DDP	011317
B	ADD OTHER CONCEPTUAL ITEMS	JEK	DDP	DDP	102015
A	ADD CONCEPTUAL ITEMS	JEK	DDP	DDP	092215
O	ISSUED FOR REVIEW	JEK	DDP	DDP	032015
NO.	DESCRIPTION	BY	CHK	APPR	DATE
REVISIONS					

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SITE PLAN
1200 SYLVAN ST.
LINDEN, N.J. 07036

SAFETY-KLEEN SYSTEMS, INC.
42 LONGWATER DRIVE, NORWELL, MA. 02061
PHONE: 781-792-5000

SCALE 1"=50'-0"	BY JEK	CHKD KJM	APPROVED DP	OPERATIONS	DATE 3/20/15
SERVICE CENTER LOCATION LINDEN, N.J.			SC-DWG NUMBER 7404-SP00-010		REV. NO. K

Attachment D

Table 1: VOC and HAP Emissions

Table 2: Particulate and HAP Emissions

VOC/HAP Emissions (Carbon Adsorption)
LIN Mix Pit Operations
Safety-Kleen Systems Inc., Linden NJ Facility

Table 1

OS7

Process: Mixing of Waste Material in Mix Pit ^(a)

Pollutant	Worst Case Concentration ^(b) (ppm)	Pollutant Concentration (%)	Moisture Content ^(b) (%)	Maximum Hourly Throughput (lb/hr)	Maximum Annual Throughput (lb/year)	Uncontrolled Hourly Emissions (lb/hr)	Uncontrolled Annual Emissions (ton/yr)	Controlled Hourly Emissions ^(c) (lb/hr)	Controlled Annual Emissions ^(c) (ton/yr)	Controlled Annual Emissions (lb/yr)	Reporting Threshold ^(d) (lbs/yr)
VOC	500	0.05%	10%	120,000	140,000,000	54.0	31.5000	2.70	1.575000		
PCB ^(e)	49	0.0049%	40%	120,000		3.528		0.1764			
	7	0.0007%	40%		10,000,000	0.000	0.0210		0.001050	2.10	2.1
Benzene	1	0.0001%	10%	120,000	140,000,000	0.108	0.0630	0.0054	0.003150	6.30	6
Chlorobenzene	500	0.05%	10%	120,000	140,000,000	54.0	31.5000	2.70	1.575000	3150.0	2000
Cumene	500	0.05%	10%	120,000	140,000,000	54.0	31.5000	2.70	1.575000	3150.0	2000
Ethylene Glycol	500	0.05%	10%	120,000	140,000,000	54.0	31.5000	2.70	1.575000	3150.0	2000
Methanol	500	0.05%	10%	120,000	140,000,000	54.0	31.5000	2.70	1.575000	3150.0	2000
Methylene Chloride	500	0.05%	10%	120,000	140,000,000	54.0	31.5000	2.70	1.575000	3150.0	2000
Methyl Ethyl Ketone	500	0.05%	10%	120,000	140,000,000	54.0	31.5000	2.70	1.575000	3150.0	2000
Methyl Isobutyl Ketone	500	0.05%	10%	120,000	140,000,000	54.0	31.5000	2.70	1.575000	3150.0	2000
Phenol	500	0.05%	10%	120,000	140,000,000	54.0	31.5000	2.70	1.575000	3150.0	2000
Tetrachloroethylene	3	0.0003%	10%	120,000	140,000,000	0.3	0.1890	0.016	0.009450	18.900000	180
Toluene	500	0.05%	10%	120,000	140,000,000	54.0	31.5000	2.70	1.575000	3150.0	2000
Trichloroethylene	1	0.0001%	10%	120,000	140,000,000	0.108	0.0630	0.005	0.003150	6.300000	8
Xylene	500	0.05%	10%	120,000	140,000,000	54.0	31.5000	2.70	1.575000	3150.0	2000

Basis for Emissions:

- (a) Hourly, Daily, and Annual emissions based on the assumptions listed below.
- (b) Worst case concentration and moisture content of waste material based on Waste Profile information.
- (c) Controlled emissions based on the estimated volatile organic compound removal efficiency for the carbon adsorption system: 95%
- (d) Reporting Threshold as indicated in NJAC 7:27-17.9 (b) Table 3A
- (e) PCB concentrations are established on a worst-case short term basis of 49 ppm (non-TSCA facility cannot accept greater). Typical concentration will be less than 7 ppm for overall annual basis. Analysis for PCBs is conducted on incoming loads.

Assumptions:

RCRA Hazardous Waste

Daily Waste Throughput (Max)	200 tons
Hourly Waste Throughput (Max)	60 tons

Max Daily Operating Schedule	24 hrs/day
Annual Operating Schedule	365 days/yr
Annual RCRA Hazardous Waste	70,000 tons/yr
Annual Non-Hazardous Waste	36,000 tons/yr
Annual PCB Sludge Waste	5,000 tons/yr
Total Annual Waste Processed	111,000 tons/year

Assumptions:

Non Hazardous Waste

Daily Waste Throughput (Max)	60 tons
Hourly Waste Throughput (Max)	40 tons

Particulate Matter and Lead Emissions (Baghouse Control)

LIN Mix Pit Operations

Safety-Kleen Systems Inc., Linden NJ Facility

Table 2

OS1

Process: Loading Stabilization Material to Building ^(a) (Front end loader to bunker)

Pollutant	Moisture Content ^(b) (%)	k ^(c)	U ^(d) (mph)	Emission Factor ^(a) (lb/ton)	Maximum Hourly Throughput ^(e,f) (ton/hr)	Maximum Annual Throughput ^(e) (ton/yr)	Uncontrolled Hourly Emissions (lb/hr)	Uncontrolled Annual Emissions (ton/yr)	Controlled Hourly Emissions ^(g) (lb/hr)	Controlled Annual Emissions ^(g) (ton/yr)
PM	0.25	0.74	2.0	1.32E-02	30	29250	0.3967	0.1934	0.0003967	0.000193
PM 10	0.25	0.35	2.0	6.25E-03	30	29250	0.1876	0.0915	0.00188	0.00091
PM 2.5	0.25	0.053	2.0	9.47E-04	30	29250	0.0284	0.0139	0.000284	0.00014

OS2

Process: Loading Solidification Material to Building ^(a) (Front end loader to bunker)

Pollutant	Moisture Content ^(h) (%)	k ^(c)	U ^(d) (mph)	Emission Factor ^(a) (lb/ton)	Maximum Hourly Throughput ^(e,f) (ton/hr)	Maximum Annual Throughput ^(e) (ton/yr)	Uncontrolled Hourly Emissions (lb/hr)	Uncontrolled Annual Emissions (ton/yr)	Controlled Hourly Emissions ^(g) (lb/hr)	Controlled Annual Emissions ^(g) (ton/yr)
PM	11	0.74	2.0	6.62E-05	30	18000	0.0020	0.0006	0.0000020	0.0000006
PM 10	11	0.35	2.0	3.13E-05	30	18000	0.0009	0.0003	0.000009	0.0000028
PM 2.5	11	0.053	2.0	4.74E-06	30	18000	0.00014	0.00004	0.0000014	0.0000004

OS3

Process: Loading of Waste Material into Mix Pit ^(h) RCRA Hazardous Waste

Pollutant ⁽ⁱ⁾	Moisture Content ⁽ⁱ⁾ (%)	k ^(c)	U ^(d) (mph)	Emission Factor ^(a) (lb/ton)	Maximum Hourly Throughput ^(e) (ton/hr)	Maximum Annual Throughput ^(e) (ton/yr)	Uncontrolled Hourly Emissions (lb/hr)	Uncontrolled Annual Emissions (ton/yr)	Controlled Hourly Emissions ^(g) (lb/hr)	Controlled Annual Emissions ^(g) (ton/yr)
PM	10	0.74	2.0	7.56E-05	60	70000	0.0045	0.0026	0.0000045	0.000003
PM 10	10	0.35	2.0	3.58E-05	60	70000	0.0021	0.0013	0.00002	0.00001
PM 2.5	10	0.053	2.0	5.41E-06	60	70000	0.0003	0.0002	0.000003	0.0000018950
Arsenic	10	0.74	2.0	7.56E-05	0.030	35.0	0.0000023	0.0000013	0.000000023	0.0000000132
Barium	10	0.74	2.0	7.56E-05	0.600	700.0	0.0000454	0.0000265	0.000000454	0.0000002646
Beryllium	10	0.74	2.0	7.56E-05	0.060	70.0	0.0000045	0.0000026	0.000000045	0.0000000265
Cadmium	10	0.74	2.0	7.56E-05	0.030	35.0	0.0000023	0.0000013	0.000000023	0.0000000132
Chromium	10	0.74	2.0	7.56E-05	0.006	7.0	0.0000005	0.0000003	0.000000005	0.0000000026
Nickel	10	0.74	2.0	7.56E-05	0.300	350.0	0.0000227	0.0000132	0.000000227	0.0000001323
Selenium	10	0.74	2.0	7.56E-05	0.600	700.0	0.0000454	0.0000265	0.000000454	0.0000002646
Silver	10	0.74	2.0	7.56E-05	0.600	700.0	0.0000454	0.0000265	0.000000454	0.0000002646
Lead	10	0.74	2.0	7.56E-05	0.60	700.0	0.00005	0.000026	0.00000005	0.0000000265

Particulate Matter and Lead Emissions (Baghouse Control)

LIN Mix Pit Operations

Safety-Kleen Systems Inc., Linden NJ Facility

Table 2

OS4

Process: Loading of Waste Material into Mix Pit ^(a)

Non-Hazardous Waste

Pollutant	Moisture Content ⁽ⁱ⁾ (%)	k ^(c)	U ^(d) (mph)	Emission Factor ^(a) (lb/ton)	Maximum Hourly Throughput ^(e) (ton/hr)	Maximum Annual Throughput ^(e) (ton/yr)	Uncontrolled Hourly Emissions (lb/hr)	Uncontrolled Annual Emissions (ton/yr)	Controlled Hourly Emissions ^(g) (lb/hr)	Controlled Annual Emissions ^(g) (ton/yr)
PM	10	0.74	2.0	7.56E-05	40	36000	0.0030	0.0014	0.0000030	0.000001
PM 10	10	0.35	2.0	3.58E-05	40	36000	0.0014	0.0006	0.00001	0.00001
PM 2.5	10	0.053	2.0	5.41E-06	40	36000	0.0002	0.0001	0.000002	0.00000

OS5

Process: Loading of Reagent for Stabilization in Mix Pit ^(a)

Pollutant	Moisture Content ^(b) (%)	k ^(c)	U ^(d) (mph)	Emission Factor ^(a) (lb/ton)	Maximum Hourly Throughput ^(e,f) (ton/hr)	Maximum Annual Throughput ^(e,f) (ton/yr)	Uncontrolled Hourly Emissions (lb/hr)	Uncontrolled Annual Emissions (ton/yr)	Controlled Hourly Emissions ^(g) (lb/hr)	Controlled Annual Emissions ^(g) (ton/yr)
PM	0.25	0.74	2.0	1.32E-02	9	10500	0.1190	0.0694	0.00012	0.00007
PM 10	0.25	0.35	2.0	6.25E-03	9	10500	0.0563	0.0328	0.0006	0.0003
PM 2.5	0.25	0.053	2.0	9.47E-04	9	10500	0.0085	0.0050	0.0001	0.00005

OS6

Process: Loading of Media for Solidification in Mix Pit ^(a)

Pollutant	Moisture Content ^(h) (%)	k ^(c)	U ^(d) (mph)	Emission Factor ^(a) (lb/ton)	Maximum Hourly Throughput ^(e,f) (ton/hr)	Maximum Annual Throughput ^(e,f) (ton/yr)	Uncontrolled Hourly Emissions (lb/hr)	Uncontrolled Annual Emissions (ton/yr)	Controlled Hourly Emissions ^(g) (lb/hr)	Controlled Annual Emissions ^(g) (ton/yr)
PM	11	0.74	2.0	6.62E-05	30	18000	0.0020	0.0006	0.000002	0.000001
PM 10	11	0.35	2.0	3.13E-05	30	18000	0.0009	0.0003	0.00001	0.000003
PM 2.5	11	0.053	2.0	4.74E-06	30	18000	0.0001	0.0000	0.000001	0.0000004

Particulate Matter and Lead Emissions (Baghouse Control)

LIN Mix Pit Operations

Safety-Kleen Systems Inc., Linden NJ Facility

Table 2

OS7

Process: Mixing of Reagent/Media and Waste Material ^(k)

Pollutant ⁽ⁱ⁾	Uncontrolled Emission Factor (lb/ton) ^(k)	Maximum Hourly Throughput ^(e) (ton/hr)	Maximum Annual Throughput ^(e) (ton/yr)	Uncontrolled Hourly Emissions (lb/hr)	Uncontrolled Annual Emissions (ton/yr)	Controlled Hourly Emissions ^(l) (lb/hr)	Controlled Hourly Emissions ^(g) (lb/hr)	Controlled Annual Emissions ^(g) (ton/yr)
PM	0.572	60	140250	34.3200	40.1115	0.03432		0.04011
PM 10	0.156	60	140250	9.3600	10.9395	0.09360		0.10940
PM 2.5	0.156	60	140250	9.3600	10.9395	0.09360		0.10940
Arsenic	0.572	0.030	70.13	0.0172	0.0201	0.000017	0.040112	0.000020
Barium	0.572	0.600	1402.50	0.3432	0.4011	0.000343	0.802230	0.000401
Beryllium	0.572	0.060	140.25	0.0343	0.0401	0.000034	0.080223	0.000040
Cadmium	0.572	0.030	70.13	0.0172	0.0201	0.000017	0.040112	0.000020
Chromium	0.572	0.006	14.03	0.0034	0.0040	0.000003	0.008022	0.000004
Nickel	0.572	0.300	701.25	0.1716	0.2006	0.000172	0.401115	0.000201
Selenium	0.572	0.600	1402.50	0.3432	0.4011	0.000343	0.802230	0.000401
Silver	0.572	0.600	1402.50	0.3432	0.4011	0.000343	0.802230	0.000401
Lead	0.572	0.600	1403	0.3432	0.4011	0.00034	0.80223	0.00040

OS8

0.9301

0.0009

Process: Loading of Stabilized Waste Material to Trucks ^(m)

Pollutant	Uncontrolled Emission Factor (lb/ton) ^(m)	Maximum Hourly Throughput ^(e) (ton/hr)	Maximum Annual Throughput ^(e) (ton/yr)	Uncontrolled Hourly Emissions (lb/hr)	Uncontrolled Annual Emissions (ton/yr)	Controlled Hourly Emissions ^(g) (lb/hr)	Controlled Annual Emissions ^(g) (ton/yr)
PM	1.118	90	140250	100.6200	78.3998	0.1006	0.0784
PM 10	0.310	90	140250	27.9000	21.7388	0.2790	0.2174
PM 2.5	0.310	90	140250	27.9000	21.7388	0.2790	0.2174

Particulate Matter and Lead Emissions (Baghouse Control)
LIN Mix Pit Operations
Safety-Kleen Systems Inc., Linden NJ Facility

Table 2

Total Particulate Emissions

Total	Combined Uncontrolled Maximum Annual Emissions (ton/yr)	Combined Controlled Annual Emissions (ton/yr)	Combined Controlled Annual Emissions (lbs/yr)	Reporting Threshold ⁽ⁿ⁾ (lbs/yr)
PM	118.78	0.1188		
PM 10	32.81	0.3281		
PM 2.5	32.70	0.3270		
Arsenic	0.02006	0.000020	0.040138	0.01
Barium	0.40114	0.000401	0.802759	NA
Beryllium	0.04011	0.000040	0.080276	0.02
Cadmium	0.02006	0.000020	0.040138	0.01
Chromium	0.00401	0.000004	0.008028	1000
Nickel	0.20057	0.000201	0.401380	0.6
Selenium	0.40114	0.000401	0.802759	925
Silver	0.40114	0.000401	0.802759	NA
Lead	0.40114	0.000401	0.802283	2

Particulate Matter and Lead Emissions (Baghouse Control)

LIN Mix Pit Operations

Safety-Kleen Systems Inc., Linden NJ Facility

Table 2

Basis for Emissions:

- (a) Emission factor based on USEPA AP-42 Section 13.2.4 (Rev. 11/06) and the equation below.
- (b) Various reagents/media may be utilized for the stabilization and/or solidification of waste materials, in bagged form. For the purposes of this estimate, the moisture content for cement dust was selected as it represents the "worst case scenario" for particulate emissions due to low moisture content.
- (c) Assumed average particle size diameter for PM and metals < 30 microns for particle size multiplier (k)
- (d) Mean wind speed (U) estimated at 2 mph within the building (maximum).
- (e) Hourly, Daily, and Annual emissions based on the assumptions listed below.
- (f) Maximum hourly throughput based on the maximum amount of treatment reagent assuming rate of 15% by weight per hour for stabilization and 50% by weight per hour for solidification.
- (g) Controlled baghouse emissions based on the estimated particulate removal efficiency for the system: PM and metals = 99.9%, PM10 and PM2.5 = 99%.
- (h) Various media may be utilized for the solidification of waste materials, in bulk form. For the purposes of this estimate, the moisture content for "Miscellaneous materials" was selected and appeared to be an average of all materials represented in AP-42 Section 13.2.4.
- (i) Worst case metal-bearing concentration of RCRA hazardous waste:

	ppm	% by weight		ppm	% by weight
Arsenic	500	0.05%	Nickel	5000	0.50%
Barium	10000	1%	Selenium	10000	1%
Beryllium	1000	0.10%	Silver	10000	1%
Cadmium	500	0.05%	Lead	10000	1%
Chromium	100	0.01%			

- (j) Moisture content of waste material based on Waste Profile information % water.
- (k) Emissions created during the mixing of the waste material and the reagent are based on the emission factors for mixer loading, found in USEPA AP-42 Table 11.12-2 (Rev. 6/06, updated 2/11).
- (l) Controlled emissions based on the use of water spray to suppress the generation of fugitive dust during the mixing process, and controlled baghouse emissions based on the estimated particulate removal efficiency for the system: PM and Pb = 99.9%, PM10 and PM2.5 = 99%.
- (m) Emissions created during the loading of waste are based on the emission factors for truck loading, found in USEPA AP-42 Table 11.12-2 (Rev. 6/06, updated 2/11).
- (n) Reporting Threshold as indicated in NJAC 7:27-17.9 (b) Table 3A

Equation for Unloading of Waste Material and Reagents (a):

$$E = k (0.0032) \frac{(U/5)^{1.3}}{(M/2)^{1.4}}$$

where:

- E = emission factor
- k = particle size multiplier
- U = mean wind speed (mph)
- M = material moisture content (%)

Assumptions (e): RCRA Hazardous Waste

Daily Waste Throughput (Max)	200	Max Daily Operating Schedule	24 hrs/day
Hourly Waste Throughput (Max)	60	Annual Operating Schedule	365 days/yr
Reagent/Media rate	15%	Annual RCRA Hazardous Waste	70,000 tons/yr
Particulate Removal Efficiency (≤PM-10)	99%	Annual Non-Hazardous Waste	36,000 tons/yr
Particulate Removal Efficiency (>PM-10)	99.99%	Annual Lead Sludge Waste	5,000 tons/yr
		Total Annual Waste Processed	111,000 tons/year
		Total Annual Reagent Usage	29,250 tons/year
<u>Assumptions:</u> Non Hazardous Waste			
Daily Waste Throughput (Max)	60		
Hourly Waste Throughput (Max)	40		
Reagent rate	50%		
Particulate Removal Efficiency (≤PM-10)	99%		
Particulate Removal Efficiency (>PM-10)	99.99%		

Attachment E

RADIUS Permit Application

**New Jersey Department of Environmental Protection
Reason for Application**

Permit Being Modified

Permit Class: **Number:** 0

Description of Modifications: The purpose of the mix pit is processing of contaminated soil waste by the solidification and/or stabilization of inorganic characteristic hazardous (RCRA heavy metals) and/or non-hazardous wastes. Please refer to the attached mix pit process flow diagram (Attachment A). The mix pit consists of a steel-lined concrete in-ground pit of the proper design to contain liquids and detect leaks in the secondary containment system. Please refer to Attachment B for diagrams of the mix pit and associated building.

Treatment/stabilization is conducted in batches. Processing rate of 200 tons per day of hazardous waste or 99 tons per day of non-hazardous waste. Short term process rates could not exceed 60 tons per hour. Estimated annual rates would be ~70,000 tons of hazardous waste and ~36,000 tons of non-hazardous waste. Actual rates will be a combination of hazardous and non-hazardous wastes at lesser annual amounts each.

This single source, Equipment E2000 operations are conducted within an enclosed building designed to control potential air emissions from the process through a dust collector (baghouse Control Device CD2001) and carbon adsorption bed (Control Device CD2002). Refer to Attachment C for location of the mix pit building from the Site Diagram.

Emission Estimates for particulates, volatile organic compounds and hazardous air pollutants are included as Attachment D.

New Jersey Department of Environmental Protection
Facility Profile (General)

Facility Name (AIMS): Safety-Kleen Systems, Inc.

Facility ID (AIMS): 40097

Street 1200 SYLVAN ST
Address: LINDEN, NJ 07036

Mailing 1200 SYLVAN ST
Address: LINDEN, NJ 07036

County: Union
Location
Description:

State Plane Coordinates:
X-Coordinate: 560,897
Y-Coordinate: 648,593
Units: New Jersey State Plane 8
Datum: NAD83
Source Org.: DEP-GIS
Source Type: DEP Program Database

Industry:
Primary SIC:
Secondary SIC:
NAICS: 562211

**New Jersey Department of Environmental Protection
Facility Profile (General)**

Contact Type: Air Permit Information Contact

Organization: Clean Harbors Environmental Services **Org. Type:** Corporation
Name: Kim Shriner **NJ EIN:**
Title: Sr Environmental Compliance Manager
Phone: (908) 487-5240 x **Mailing Address:** 1200 Sylvan Street
Fax: () - x Linden, NJ 07036
Other: () - x
Type:
Email: shriner.kimberly@cleanharbors.com

Contact Type: Compliance Officer

Organization: Safety Kleen Systems Inc **Org. Type:**
Name: David Cornell **NJ EIN:**
Title: Sr Environmental Compliance Officer
Phone: (934) 777-1175 x **Mailing Address:** 1200 Sylvan Street
Fax: () - x Linden, NJ 07036
Other: () - x
Type:
Email: david.cornell@safety-kleen.com

Contact Type: Environmental Officer

Organization: Safety Kleen Systems Inc **Org. Type:**
Name: David Cornell **NJ EIN:**
Title: Sr Environmental Compliance Officer
Phone: (934) 777-1175 x **Mailing Address:** 1200 Sylvan Street
Fax: () - x Linden, NJ 07036
Other: () - x
Type:
Email: david.cornell@safety-kleen.com

**New Jersey Department of Environmental Protection
Facility Profile (General)**

Contact Type: Fees/Billing Contact

Organization: Safety-Kleen Systems, Inc.

Org. Type: Corporation

Name: William Greenlaw

NJ EIN: 27956300007

Title: Facility General Manager

Phone: (781) 636-6522 x

Mailing Address: 1200 Sylvan Street

Fax: (908) 862-2384 x

Linden, NJ 07036

Other: () - x

Type:

Email: greenlaw.william@cleanharbors.com

Contact Type: General Contact

Organization: Safety-Kleen Systems, Inc.

Org. Type: Corporation

Name: William Greenlaw

NJ EIN: 27956300007

Title: Facility General Manager

Phone: (781) 636-6522 x

Mailing Address: 1200 Sylvan Street

Fax: (908) 862-2384 x

Linden, NJ 07036

Other: () - x

Type:

Email: greenlaw.william@cleanharbors.com

Contact Type: On-Site Manager

Organization: Safety-Kleen Systems, Inc.

Org. Type: Corporation

Name: William Greenlaw

NJ EIN: 27956300007

Title: Facility General Manager

Phone: (781) 636-6522 x

Mailing Address: 1200 Sylvan Street

Fax: (908) 862-2384 x

Linden, NJ 07036

Other: () - x

Type:

Email: greenlaw.william@cleanharbors.com

**New Jersey Department of Environmental Protection
Facility Profile (General)**

Contact Type: Responsible Official

Organization: Safety-Kleen Systems, Inc.

Org. Type: Corporation

Name: William Greenlaw

NJ EIN: 27956300007

Title: Facility General Manager

Phone: (781) 636-6522 x

Mailing Address: 1200 Sylvan Street

Fax: (908) 862-2384 x

Linden, NJ 07036

Other: () - x

Type:

Email: greenlaw.william@cleanharbors.com

**New Jersey Department of Environmental Protection
Facility Profile (Permitting)**

- | | |
|---|-----|
| 1. Is this facility classified as a small business by the USEPA? | No |
| 2. Is this facility subject to N.J.A.C. 7:27-22? | No |
| 3. Are you voluntarily subjecting this facility to the requirements of Subchapter 22? | No |
| 4. Has a copy of this application been sent to the USEPA? | No |
| 5. If not, has the EPA waived the requirement? | Yes |
| 6. Are you claiming any portion of this application to be confidential? | No |
| 7. Is the facility an existing major facility? | No |
| 8. Have you submitted a netting analysis? | No |
| 9. Are emissions of any pollutant above the SOTA threshold? | No |
| 10. Have you submitted a SOTA analysis? | No |
| 11. If you answered "Yes" to Question 9 and "No" to Question 10, explain why a SOTA analysis was not required | |
| 12. Have you provided, or are you planning to provide air contaminant modeling? | No |

**New Jersey Department of Environmental Protection
Equipment Inventory**

Equip. NJID	Facility's Designation	Equipment Description	Equipment Type	Certificate Number	Install Date	Grand-Fathered	Last Mod. (Since 1968)	Equip. Set ID
E2000	Mix Pit	Waste Stabilization	Manufacturing and Materials Handling Equipment			No		

000000 E2000 (Manufacturing and Materials Handling Equipment)
Print Date: 9/8/2023

Make:	<input type="text"/>
Manufacturer:	<input type="text"/>
Model:	<input type="text"/>
Type of Manufacturing and Materials Handling Equipment:	<input type="text" value="Waste Stabilization"/>
Capacity:	<input type="text" value="2.00E+02"/>
Units:	<input type="text" value="other units"/>
Description (if other):	<input type="text" value="tons per day"/>
Have you attached a diagram showing the location and/or the configuration of this equipment?	<input type="text" value="Yes"/>
Have you attached any manuf.'s data or specifications to aid the Dept. in its review of this application?	<input type="text" value="No"/>
Comments:	

New Jersey Department of Environmental Protection
Emission Points Inventory

PT NJID	Facility's Designation	Description	Config.	Equiv. Diam. (in.)	Height (ft.)	Dist. to Prop. Line (ft)	Exhaust Temp. (deg. F)			Exhaust Vol. (acfm)			Discharge Direction	PT Set ID
							Avg.	Min.	Max.	Avg.	Min.	Max.		
PT2000	Mix Pit	Mix Pit Exhaust	Round	48	40	200	70.0	50.0	80.0	20,000.0	10,000.0	20,000.0	Up	

**New Jersey Department of Environmental Protection
Control Device Inventory**

CD NJID	Facility's Designation	Description	CD Type	Install Date	Grand-Fathered	Last Mod. (Since 1968)	CD Set ID
CD2001	Mix Pit BH	Mix Pit Baghouse	Particulate Filter (Baghouse)				
CD2002	Mix Pit CA	Mix Pit Carbon Bed	Adsorber				

New Jersey Department of Environmental Protection
Emission Unit/Batch Process Inventory

U 2000 Mix Pit Mix Pit Waste stabilization/solidification

UOS NJID	Facility's Designation	UOS Description	Operation Type	Signif. Equip.	Control Device(s)	Emission Point(s)	SCC(s)	Annual Oper. Hours		VOC Range	Flow (acfm)		Temp. (deg F)	
								Min.	Max.		Min.	Max.	Min.	Max.
OS1	Mix Pit	Loading of stabilization material into building	Normal - Steady State	E2000	CD2001 (P)	PT2000	A26-40-000-000	0.0	8,760.0		0.0	20,000.0	50.0	80.0
OS2	Mix Pit	Loading of solidification media into building	Normal - Steady State	E2000	CD2001 (P)	PT2000	A26-40-000-000	0.0	8,760.0		0.0	20,000.0	50.0	80.0
OS3	Mix Pit	Loading of RCRA hazardous waste material into mix pit	Normal - Steady State	E2000	CD2001 (P) CD2002 (S)	PT2000	A26-40-000-000	0.0	8,760.0		0.0	20,000.0	50.0	80.0
OS4	Mix Pit	Loading of non-hazardous waste material into mix pit	Normal - Steady State	E2000	CD2001 (P)	PT2000	A26-40-000-000	0.0	8,760.0		0.0	20,000.0	50.0	80.0
OS5	Mix Pit	Loading of stabilization/solidification media to waste	Normal - Steady State	E2000	CD2001 (P)	PT2000	A26-40-000-000	0.0	8,760.0		0.0	20,000.0	50.0	80.0
OS6	Mix Pit	Loading of stabilization/solidification media to waste	Normal - Steady State	E2000	CD2001 (P)	PT2000	A26-40-000-000	0.0	8,760.0		0.0	20,000.0	50.0	80.0
OS7	Mix Pit	Mixing of waste material for stabilization/solidification	Normal - Steady State	E2000	CD2001 (P) CD2002 (S)	PT2000	A26-40-000-000	0.0	8,760.0	A	0.0	20,000.0	50.0	80.0
OS8	Mix Pit	Loading of waste material for off-site disposal	Normal - Steady State	E2000	CD2001 (P)	PT2000	A26-40-000-000	0.0	8,760.0		0.0	20,000.0	50.0	80.0

000000 U2000 OS1 (Gas Flow)
Print Date: 9/8/2023

Volume of Gas Discharged from
this source (acfm):

20,000.00

000000 U2000 OS1 (Raw Materials)

Print Date: 9/8/2023

Raw Material	CAS Number	Physical State	Molecular Weight (lbs/lbs-mole)	Does the Material Contain VOC?	Weight Fraction (%)	Vapor Pressure @ 70 deg F (mmHg)	Organic Density	Units
Solidification/stabilization media		Solid		No				

000000 U2000 OS1 (Efficiency Table - CD2001)
Print Date: 9/8/2023

Pollutant Category	Capture Efficiency (%)	Removal Efficiency (%)	Overall Efficiency (%)
CO			
HAP (Total)			
NOx			
Other (Total)			
Pb			
PM-10	100.00	99.00	99.00
PM-2.5	100.00	99.00	99.00
SO2			
TSP	100.00	99.90	99.90
VOC (Total)			

000000 U2000 OS2 (Gas Flow)
Print Date: 9/8/2023

Volume of Gas Discharged from
this source (acfm):

20,000.00

000000 U2000 OS2 (Raw Materials)

Print Date: 9/8/2023

Raw Material	CAS Number	Physical State	Molecular Weight (lbs/lbs-mole)	Does the Material Contain VOC?	Weight Fraction (%)	Vapor Pressure @ 70 deg F (mmHg)	Organic Density	Units
Solidification media		Solid		No				

000000 U2000 OS2 (Efficiency Table - CD2001)

Print Date: 9/8/2023

Pollutant Category	Capture Efficiency (%)	Removal Efficiency (%)	Overall Efficiency (%)
CO			
HAP (Total)			
NOx			
Other (Total)			
Pb			
PM-10	100.00	99.00	99.00
PM-2.5	100.00	99.00	99.00
SO2			
TSP	100.00	99.90	99.90
VOC (Total)			

000000 U2000 OS3 (Gas Flow)
Print Date: 9/8/2023

Volume of Gas Discharged from
this source (acfm):

20,000.00

000000 U2000 OS3 (Raw Materials)

Print Date: 9/8/2023

Raw Material	CAS Number	Physical State	Molecular Weight (lbs/lbs-mole)	Does the Material Contain VOC?	Weight Fraction (%)	Vapor Pressure @ 70 deg F (mmHg)	Organic Density	Units
RCRA Hazardous Waste		Sludge		Yes	0.05			

000000 U2000 OS3 (Efficiency Table - CD2002)
Print Date: 9/8/2023

Pollutant Category	Capture Efficiency (%)	Removal Efficiency (%)	Overall Efficiency (%)
CO			
HAP (Total)			
NOx			
Other (Total)			
Pb			
PM-10			
PM-2.5			
SO2			
TSP			
VOC (Total)	100.00	95.00	95.00

000000 U2000 OS4 (Gas Flow)
Print Date: 9/8/2023

Volume of Gas Discharged from
this source (acfm):

20,000.00

000000 U2000 OS4 (Raw Materials)

Print Date: 9/8/2023

Raw Material	CAS Number	Physical State	Molecular Weight (lbs/lbs-mole)	Does the Material Contain VOC?	Weight Fraction (%)	Vapor Pressure @ 70 deg F (mmHg)	Organic Density	Units
Non hazardous waste		Sludge		No				

000000 U2000 OS4 (Efficiency Table - CD2001)
Print Date: 9/8/2023

Pollutant Category	Capture Efficiency (%)	Removal Efficiency (%)	Overall Efficiency (%)
CO			
HAP (Total)			
NOx			
Other (Total)			
Pb			
PM-10	100.00	99.00	99.00
PM-2.5	100.00	99.00	99.00
SO2			
TSP	100.00	99.90	99.90
VOC (Total)			

000000 U2000 OS5 (Gas Flow)
Print Date: 9/8/2023

Volume of Gas Discharged from
this source (acfm):

20,000.00

000000 U2000 OS5 (Raw Materials)

Print Date: 9/8/2023

Raw Material	CAS Number	Physical State	Molecular Weight (lbs/lbs-mole)	Does the Material Contain VOC?	Weight Fraction (%)	Vapor Pressure @ 70 deg F (mmHg)	Organic Density	Units
Stabilization/solidification media		Solid		No				

000000 U2000 OS5 (Efficiency Table - CD2001)
Print Date: 9/8/2023

Pollutant Category	Capture Efficiency (%)	Removal Efficiency (%)	Overall Efficiency (%)
CO			
HAP (Total)			
NOx			
Other (Total)			
Pb			
PM-10	100.00	99.00	99.00
PM-2.5	100.00	99.00	99.00
SO2			
TSP	100.00	99.90	99.90
VOC (Total)			

000000 U2000 OS6 (Gas Flow)
Print Date: 9/8/2023

Volume of Gas Discharged from
this source (acfm):

20,000.00

000000 U2000 OS6 (Raw Materials)

Print Date: 9/8/2023

Raw Material	CAS Number	Physical State	Molecular Weight (lbs/lbs-mole)	Does the Material Contain VOC?	Weight Fraction (%)	Vapor Pressure @ 70 deg F (mmHg)	Organic Density	Units
Stabilization/solidification media		Solid		No				

000000 U2000 OS6 (Efficiency Table - CD2001)
Print Date: 9/8/2023

Pollutant Category	Capture Efficiency (%)	Removal Efficiency (%)	Overall Efficiency (%)
CO			
HAP (Total)			
NOx			
Other (Total)			
Pb			
PM-10	100.00	99.00	99.00
PM-2.5	100.00	99.00	99.00
SO2			
TSP	100.00	99.90	99.90
VOC (Total)			

000000 U2000 OS7 (Gas Flow)
Print Date: 9/8/2023

Volume of Gas Discharged from
this source (acfm):

20,000.00

000000 U2000 OS7 (Raw Materials)

Print Date: 9/8/2023

Raw Material	CAS Number	Physical State	Molecular Weight (lbs/lbs-mole)	Does the Material Contain VOC?	Weight Fraction (%)	Vapor Pressure @ 70 deg F (mmHg)	Organic Density	Units
Solidification media		Solid		No	15.00			
Waste material		Sludge		Yes	0.05			

000000 U2000 OS7 (Efficiency Table - CD2002)

Print Date: 9/8/2023

Pollutant Category	Capture Efficiency (%)	Removal Efficiency (%)	Overall Efficiency (%)
CO			
HAP (Total)			
NOx			
Other (Total)			
Pb			
PM-10			
PM-2.5			
SO2			
TSP			
VOC (Total)	100.00	95.00	95.00

000000 U2000 OS8 (Gas Flow)
Print Date: 9/8/2023

Volume of Gas Discharged from
this source (acfm):

20,000.00

000000 U2000 OS8 (Raw Materials)

Print Date: 9/8/2023

Raw Material	CAS Number	Physical State	Molecular Weight (lbs/lbs-mole)	Does the Material Contain VOC?	Weight Fraction (%)	Vapor Pressure @ 70 deg F (mmHg)	Organic Density	Units
Non hazardous waste		Solid		No				

000000 U2000 OS8 (Efficiency Table - CD2001)

Print Date: 9/8/2023

Pollutant Category	Capture Efficiency (%)	Removal Efficiency (%)	Overall Efficiency (%)
CO			
HAP (Total)			
NOx			
Other (Total)			
Pb			
PM-10	100.00	99.00	99.00
PM-2.5	100.00	99.00	99.00
SO2			
TSP	100.00	99.90	99.90
VOC (Total)			

**New Jersey Department of Environmental Protection
Potential to Emit**

Subject Item: U2000 Mix Pit

Operating Scenario: OS0 Summary

Step:

Air Contaminant Category (HAPS)	Fugitive Emissions	Emissions Before Controls	Emissions After Controls	Total Emissions	Units	Alt. Em. Limit
Arsenic compounds		0.02006000	0.00002000	0.00002000	tons/yr	No
Benzene		0.06300000	0.00315000	0.00315000	tons/yr	No
Beryllium compounds		0.04011000	0.00004000	0.00004000	tons/yr	No
Cadmium compounds		0.02006000	0.00002000	0.00002000	tons/yr	No
Chlorobenzene		31.50000000	1.57500000	1.57500000	tons/yr	No
Cumene		31.50000000	1.57500000	1.57500000	tons/yr	No
Ethylene glycol		31.50000000	1.57500000	1.57500000	tons/yr	No
HAPs (Total)		33.38900000	1.57700000	1.57700000	tons/yr	No
Lead Emissions		0.40110000	0.00040000	0.00040000	tons/yr	No
Methyl alcohol (Methanol)		31.50000000	1.57500000	1.57500000	tons/yr	No
Methyl ethyl ketone (MEK)		31.50000000	1.57500000	1.57500000	tons/yr	No
Methyl isobutyl ketone (MIBK)		31.50000000	1.57500000	1.57500000	tons/yr	No
Methylene chloride (Dichloromethane)		31.50000000	1.57500000	1.57500000	tons/yr	No
Pb					tons/yr	No
Phenol		31.50000000	1.57500000	1.57500000	tons/yr	No
PM-10 (Total)		32.81000000	0.32810000	0.32810000	tons/yr	No
Polychlorinated biphenyls (PCBs)		0.02100000	0.00100000	0.00100000	tons/yr	No
Toluene		31.50000000	1.57500000	1.57500000	tons/yr	No
TSP		118.78000000	0.11880000	0.11880000	tons/yr	No
VOC (Total)		31.50000000	1.57500000	1.57500000	tons/yr	No
Xylene		31.50000000	1.57500000	1.57500000	tons/yr	No

**New Jersey Department of Environmental Protection
Potential to Emit**

Subject Item: U2000 Mix Pit

Operating Scenario: OS1

Step:

Air Contaminant Category (HAPS)	Fugitive Emissions	Emissions Before Controls	Emissions After Controls	Total Emissions	Units	Alt. Em. Limit
PM-10 (Total)	0.00000000	0.18800000	0.00190000	0.00190000	lb/hr	No
PM-2.5 (Total)	0.00000000	0.02800000	0.00030000	0.00030000	lb/hr	No
TSP	0.00000000	0.39700000	0.00040000	0.00040000	lb/hr	No

Subject Item: U2000 Mix Pit

Operating Scenario: OS2

Step:

Air Contaminant Category (HAPS)	Fugitive Emissions	Emissions Before Controls	Emissions After Controls	Total Emissions	Units	Alt. Em. Limit
CO					lb/hr	No
HAPs (Total)					lb/hr	No
NOx (Total)					lb/hr	No
Pb					lb/hr	No
PM-10 (Total)	0.00000000	D	D	0.00000000	lb/hr	No
PM-2.5 (Total)	0.00000000	D	D	0.00000000	lb/hr	No
SO2					lb/hr	No
TSP	0.00000000	D	D	0.00000000	lb/hr	No
VOC (Total)					lb/hr	No

**New Jersey Department of Environmental Protection
Potential to Emit**

Subject Item: U2000 Mix Pit

Operating Scenario: OS3

Step:

Air Contaminant Category (HAPS)	Fugitive Emissions	Emissions Before Controls	Emissions After Controls	Total Emissions	Units	Alt. Em. Limit
Arsenic Emissions	0.00000000	D	D	0.00000000	lb/hr	No
Beryllium compounds	0.00000000	D	D	0.00000000	lb/hr	No
Cadmium compounds	0.00000000	D	D	0.00000000	lb/hr	No
Chromium compounds	0.00000000	D	D	0.00000000	lb/hr	No
CO					lb/hr	No
HAPs (Total)	0.00000000	D	D	0.00000000	lb/hr	No
Lead compounds	0.00000000	D	D	0.00000000	lb/hr	No
Nickel compounds	0.00000000	D	D	0.00000000	lb/hr	No
NOx (Total)					lb/hr	No
Pb					lb/hr	No
PM-10 (Total)	0.00000000	D	D	0.00000000	lb/hr	No
PM-2.5 (Total)	0.00000000	D	D	0.00000000	lb/hr	No
Selenium compounds	0.00000000	D	D	0.00000000	lb/hr	No
SO2					lb/hr	No
TSP	0.00000000	D	D	0.00000000	lb/hr	No
VOC (Total)					lb/hr	No

Subject Item: U2000 Mix Pit

Operating Scenario: OS4

Step:

Air Contaminant Category (HAPS)	Fugitive Emissions	Emissions Before Controls	Emissions After Controls	Total Emissions	Units	Alt. Em. Limit
CO					lb/hr	No
HAPs (Total)					lb/hr	No

**New Jersey Department of Environmental Protection
Potential to Emit**

Subject Item: U2000 Mix Pit

Operating Scenario: OS4

Step:

Air Contaminant Category (HAPS)	Fugitive Emissions	Emissions Before Controls	Emissions After Controls	Total Emissions	Units	Alt. Em. Limit
NOx (Total)					lb/hr	No
Pb					lb/hr	No
PM-10 (Total)	0.00000000	D	D	0.00000000	lb/hr	No
PM-2.5 (Total)	0.00000000	D	D	0.00000000	lb/hr	No
SO2					lb/hr	No
TSP	0.00000000	D	D	0.00000000	lb/hr	No
VOC (Total)					lb/hr	No

Subject Item: U2000 Mix Pit

Operating Scenario: OS5

Step:

Air Contaminant Category (HAPS)	Fugitive Emissions	Emissions Before Controls	Emissions After Controls	Total Emissions	Units	Alt. Em. Limit
PM-10 (Total)	0.00000000	0.05630000	0.00060000	0.00060000	lb/hr	No
PM-2.5 (Total)	0.00000000	0.00850000	0.00010000	0.00010000	lb/hr	No
TSP	0.00000000	0.11900000	0.00012000	0.00012000	lb/hr	No

Subject Item: U2000 Mix Pit

Operating Scenario: OS6

Step:

Air Contaminant Category (HAPS)	Fugitive Emissions	Emissions Before Controls	Emissions After Controls	Total Emissions	Units	Alt. Em. Limit
CO					lb/hr	No
HAPs (Total)					lb/hr	No

**New Jersey Department of Environmental Protection
Potential to Emit**

Subject Item: U2000 Mix Pit

Operating Scenario: OS6

Step:

Air Contaminant Category (HAPS)	Fugitive Emissions	Emissions Before Controls	Emissions After Controls	Total Emissions	Units	Alt. Em. Limit
NOx (Total)					lb/hr	No
Pb					lb/hr	No
PM-10 (Total)	0.00000000	D	D	0.00000000	lb/hr	No
PM-2.5 (Total)	0.00000000	D	D	0.00000000	lb/hr	No
SO2					lb/hr	No
TSP	0.00000000	D	D	0.00000000	lb/hr	No
VOC (Total)					lb/hr	No

Subject Item: U2000 Mix Pit

Operating Scenario: OS7

Step:

Air Contaminant Category (HAPS)	Fugitive Emissions	Emissions Before Controls	Emissions After Controls	Total Emissions	Units	Alt. Em. Limit
Arsenic Emissions	0.00000000	0.01720000	0.00001700	0.00001700	lb/hr	No
Benzene	0.00000000	0.10800000	0.00540000	0.00540000	lb/hr	No
Beryllium compounds	0.00000000	0.03430000	0.00003400	0.00003400	lb/hr	No
Cadmium compounds	0.00000000	0.01720000	0.00001700	0.00001700	lb/hr	No
Chlorobenzene	0.00000000	54.00000000	2.70000000	2.70000000	lb/hr	No
Chromium compounds	0.00000000	0.00340000	D	0.00000000	lb/hr	No
CO					lb/hr	No
Cumene	0.00000000	54.00000000	2.70000000	2.70000000	lb/hr	No
Ethylene glycol	0.00000000	54.00000000	2.70000000	2.70000000	lb/hr	No
HAPs (Total)	0.00000000	0.93010000	0.00090000	0.00090000	lb/hr	No
Lead compounds	0.00000000	0.34320000	0.00034000	0.00034000	lb/hr	No

**New Jersey Department of Environmental Protection
Potential to Emit**

Subject Item: U2000 Mix Pit

Operating Scenario: OS7

Step:

Air Contaminant Category (HAPS)	Fugitive Emissions	Emissions Before Controls	Emissions After Controls	Total Emissions	Units	Alt. Em. Limit
Methyl alcohol (Methanol)	0.00000000	54.00000000	2.70000000	2.70000000	lb/hr	No
Methyl ethyl ketone (MEK)	0.00000000	54.00000000	2.70000000	2.70000000	lb/hr	No
Methyl isobutyl ketone (MIBK)	0.00000000	54.00000000	2.70000000	2.70000000	lb/hr	No
Methylene chloride (Dichloromethane)	0.00000000	54.00000000	2.70000000	2.70000000	lb/hr	No
Nickel compounds	0.00000000	0.17160000	D	0.00000000	lb/hr	No
NOx (Total)					lb/hr	No
Pb					lb/hr	No
Phenol	0.00000000	54.00000000	2.70000000	2.70000000	lb/hr	No
PM-10 (Total)	0.00000000	9.36000000	0.09360000	0.09360000	lb/hr	No
PM-2.5 (Total)	0.00000000	9.36000000	0.09360000	0.09360000	lb/hr	No
Polychlorinated biphenyls (PCBs)	0.00000000	3.52800000	0.17640000	0.17640000	lb/hr	No
Selenium compounds	0.00000000	0.34320000	D	0.00000000	lb/hr	No
SO2					lb/hr	No
Trichloroethylene	0.00000000	0.10800000	D	0.00000000	lb/hr	No
Tetrachloroethylene	0.00000000	0.30000000	D	0.00000000	lb/hr	No
Toluene	0.00000000	54.00000000	2.70000000	2.70000000	lb/hr	No
TSP	0.00000000	34.32000000	0.03432000	0.03432000	lb/hr	No
VOC (Total)	0.00000000	54.00000000	2.70000000	2.70000000	lb/hr	No
Xylene	0.00000000	54.00000000	2.70000000	2.70000000	lb/hr	No

**New Jersey Department of Environmental Protection
Potential to Emit**

Subject Item: U2000 Mix Pit

Operating Scenario: OS8

Step:

Air Contaminant Category (HAPS)	Fugitive Emissions	Emissions Before Controls	Emissions After Controls	Total Emissions	Units	Alt. Em. Limit
PM-10 (Total)	0.00000000	27.90000000	0.27900000	0.27900000	lb/hr	No
PM-2.5 (Total)	0.00000000	27.90000000	0.27900000	0.27900000	lb/hr	No
TSP	0.00000000	100.62000000	0.10060000	0.10060000	lb/hr	No