Appendix C: Waste Analysis Plan

List of Tables

C-1 Chemical and Physical Analysis

Refer to **Table C1: Chemical and Physical Analysis of Waste Stored.**

C-1a Containerized Wastes

Containerized wastes are stored in areas with secondary containment systems, which meet or exceed requirements for secondary containment in 40 CFR 270.15 and 40 CFR 761.65. Containers unloaded onto the adjacent loading dock outside of working hours are moved to the designated storage area by the end of the next regular shift. Because all containers are stored in areas with secondary containment, testing containers for free liquids is not required. Combustible and flammable wastes are stored in steel containers and other wastes may be stored in steel, fiber, or plastic containers.

C-1b Wastes in Tanks

GMP operates an oil system as part its transformer evaluation, repair and disposal process at the Greens Hill Lane complex. Hazardous wastes are not stored in these tanks and the tank system is neither part of the TSDF nor its associated permit. The system is a series of tanks, pumps, valves, electronic controls and gages. The oil system is designed to collect, distribute, hold and otherwise manage new, used and filtered mineral oil dielectric fluid.

Three tanks each with 6,000-gallon capacities accumulate and hold used mineral oil dielectric fluid that may contain polychlorinated biphenyls. Two tanks each with 5,000-gallon capacities store new mineral oil dielectric fluid. Four additional tanks, each with capacities of 1,000 gallons or less, are holding tanks that are connected to the main tanks.

Since some used mineral oil contains polychlorinated biphenyls, 40 CFR Part 761 (polychlorinated biphenyls (PCBs) - manufacturing, processing, distribution in commerce and use prohibitions) governs certain portions of the oil system. As such, GMP is obligated to complete a comprehensive closure plan for the oil system once the company determines that it will retire the system. Closure of the oil system will likely overlap with the closure of the TSDF. GMP anticipates completing any such closure concurrently and will comply with all applicable regulations including but not limited to 40 CFR 761..

C-2 Waste Analysis Plan

The waste analysis plan contains all information necessary to ensure waste can be safely stored at the facility. Waste information contained in the plan is obtained from existing published or documented data, generator knowledge, or in some cases analytical testing.

The plan must be repeated as necessary to ensure its information is current. The plan is repeated when a waste-generating process has changed, or results of waste inspection reveal that the waste received does not match the waste description on the manifest.

Containers of waste received at the facility are opened for inspection to verify that the waste received matches the description on its accompanying manifest.

See **Table C1 - Chemical and Physical Analysis of Waste Stored** for a detailed chemical and physical analysis of waste received at the facility.

See **Table C2 - Plan Parameters and Rationale** for the Waste Management Plan's parameters, rationale for selecting parameters, test methods, sampling methods, and sampling frequency.

See **Table C3 - Regulatory Classification of Wastes Stored** at the Facility for a table delineating the various regulatory waste classifications of waste received at the facility.

C-2a Parameters and Rationale

Refer to **Table C2 - Plan Parameters and Rationale** for the plan's parameters and rationale for selecting parameters.

C-3 Regulatory Classification of Wastes Stored

GMP shall maintain all test results or a documented rationale, as applicable, for using Generator Knowledge to characterize all TSDF waste profiles. The characterization results will include test methods and dates, if applicable, plus any pertinent data to ensure accurate waste classification. This section shall include a discussion of any wastes that are subsequently rejected or reclassified.

The sampling method and frequency for each waste stream shall meet or exceed the requirements of **Table C2 - Plan Parameters and Rationale** and this Waste Analysis Plan.

Table C1. Chemical and Physical Analysis of Waste Stored:

Waste	Chemical Type	Off-site Process Generating Waste	Chemical and Physical Properties
Ethylene Glycol	Glycol Ethers	Vehicle Maintenance	Synonyms: ethylene alcohol, ethylene dihydrate, antifreeze. Used as an antifreeze for water-cooled engines. Physical properties: clear blue-green, thick liquid, mild odor, specific gravity 1.13, boiling point 335 degrees F; vapor density 1; completely soluble in water. Fire extinguishing agent: water fog, alcohol foam, dry chemical, or CO2. Health hazards: Ethylene glycol aerosol causes irritation of the upper respiratory tract; however inhalation is not usually a hazard because the low vapor pressure precludes excessive vapor exposure. The chief hazard of ethylene glycol is associated with ingestion of large quantities in a single dose.
Gasoline	Assorted hydrocarbons	Vehicle and UST maintenance	Synonyms: motor fuel, petrol. Physical properties: flash point -45 degrees F. Health hazards: Exposure is generally through inhalation and is an irritant of the eyes and mucous membranes and may cause dizziness at high exposure. On skin contact, gasoline vaporizes quickly and has little irritant effect; repeated exposure may cause defatting of the skin; no evidence exists for the carcinogenicity of gasoline in animals.
Acetone	Ketone	Solvent used for painting cleanup	Synonyms: 2-propane; dimethyl ketone; ketone propane; di-methylketal. Physical properties: colorless liquid with a characteristic pungent odor; sweetish taste; density 0.788 at 25 degrees C; boiling point 56.5 degrees C; soluble in water and alcohol; vapor pressure 180 torr at 20 degrees Celsius, flash point 0 degrees F, flash point -17.8 degrees C (0 degrees F). Health hazards: large doses may be moderately toxic. Inhalation can cause irritation to eyes, nose, and throat, short exposure to humans (5 minutes at 300-400 ppm) can be slightly irritating to humans, high exposures may cause dryness in the mouth, fatigue, headache, nausea, dizziness, muscle weakness, drowsiness. No mutagenic or carcinogenic effects have been reported.
Toluene	Aromatic hydrocarbon	Solvent used for painting cleanup	Synonyms: methylbenzene, phenylmethane, toluol, methlbenzol. Derived from coal tar and petroleum, present in gasoline and other petroleum products, used as an industrial solvent for paints, coatings, and oils. Physical properties: colorless liquid with a characteristic aromatic odor, density 0.866 at 20 degrees C, boils at 110.7 degrees C, slightly soluble in water, miscible with organic solvents, vapor pressure 28 torr at 25 degrees C, vapor density 3.17, flash point 4.4 degrees C (40 degrees F), LFL 1.4 -6.7. Fire extinguishing agent: dry chemical, foam, or CO2, use water spray to keep fire-exposed container cool. Health hazards:
Xylene	Aromatic hydrocarbon	Solvent used for painting cleanup	Xylene occurs in petroleum solvents and gasoline; the widest applications of xylene are as solvents in paints and coatings. Physical properties: Vapor density 3.7, vapor pressure 7-9 torr at 20 degrees C, flash point 27 degrees C (81 degrees F), LFL 1-7 %. Fire extinguishing agent: dry chemical, CO2, foam, use water spray to keep fire exposed containers cool. Health hazards: The major route of absorption of xylene is through inhalation, another significant route is through the skin, Ingestion of a high dose can cause depression of the central nervous system, dizziness, nausea, vomiting, and abdominal pains.

Waste	Chemical Type	Off-site Process Generating Waste	Chemical and Physical Properties
Petroleum Distillate Solvent	Aliphatic Hydrocarbon	Cold parts solvent used for degreasing	Synonyms: cold parts washer. Used for general degreasing, particularly for maintenance operations such as auto repair. Physical properties: Boiling point 355 degrees F, vapor pressure .5 mmHg at 68 degrees F, vapor density 5.5, specific gravity .790 at 60 degrees F, percent volatile 100%, flash point 135 - 150 degrees F, LFL 1%. Fire extinguishing agent: dry chemical, CO2, foam. Health hazards: Primary exposure is through the skin. Exposure may cause skin irritation and prolonged exposure may dry the skin. Symptoms may include redness, burning, drying or cracking. This material is not listed as a carcinogen.
Polychlorinated Biphenyl	Polychlorinated Biphenyl	Maintenance of electrical distribution system	Synonyms: PCBs, Askarel, Aroclor 1254. Because of their high thermal and chemical stability and high dielectric constant, boiling point, and flame resistance, PCBs were widely used in transformer oils, capacitors, hydraulic fluids, and lubricating oils. Physical properties: stable, flame resistant, viscous fluid, flash point none, density 12.82 lb/gal, specific gravity 1.5 at 60 degrees F, LFL none. Health hazards: PCBs can be absorbed through skin contact and under some conditions, inhalation; prolonged exposure of the skin may cause chloroacne. Animal experiments show that exposure cause liver injury. PCBs are not listed as a carcinogen.
Lead-based paint	Lead	Building maintenance and equipment retirement	Synonyms: Paint or other surface coatings that contain lead in excess of 1.0 mg/cm2 or 0.5 percent by weight, Physical properties: stable solid. Health hazards: lead poisoning through ingestion and elevated lead levels in blood cause a variety of hazards especially in children.
Mercury devices (non-UVW)	Mercury	Switches, manometers, thermometers – small spills.	Equipment and devices that contain Mercury.
Water miscible cutting fluid	Oil	Lubricant for metal cutting saw	Synonyms: Cutting fluid. Physical properties: dark colored oil with additive odor. Emulsifies at 5%. Specific gravity 0.97 and the evaporation rate is<0.01. Hazardous component is oil mist in air which does not occur under normal use.

Table C2. Waste Analysis Plan Parameters and Rationale

Waste	Parameters	Parameter Selection Rationale	Test Method	Sampling Method	Frequency
Antifreeze	Lead, Benzene	Antifreeze that is characteristic for lead or benzene may not be managed as Vermont recycled waste or solely as a VT08 waste.	Lead: method 1311/6020A source SW-846 Benzene: method 1311/8260B source SW-846	E-300-73	One time upon each renewal of ten-year permit
Gasoline	Flash Point, Benzene	Extremely low flash point makes storage dangerous.	Generator Supplied Knowledge	None	
Paint Related Waste	Acetone, Toluene, Xylene, Flash Point	Low flash points make storage dangerous.	Generator Supplied Knowledge based on manufacturers MSDS Flash Point: ASTM D–93–79 or D–93–80, Standard Test Methods for Flash Point by Pensky-Martens Closed Cup Tester	None	
Petroleum distillate solvent	lead, benzene	Petroleum distillate solvent characteristic for lead or benzene may not be managed as a VT02 petroleum distillate waste. This solvent is a cold parts washer and may have lead or benzene introduced during maintenance work.	Lead: method 1311/6020A source SW-846 Benzene: method 1311/8260B source SW-846 Flash Point: ASTM D–93–79 or D–93–80, Standard Test Methods for Flash Point by Pensky-Martens Closed Cup Tester	E-300-73	One time upon each renewal of ten-year permit
PCBs	PCBs	PCB contaminated absorbents of media must be segregated from other oily media for waste classification purposes.	Generator Supplied Knowledge	None	
Cutting fluid	Oil	Spent water miscible cutting fluid	Generator Supplied Knowledge	None	
Lead based paint waste	Lead	Lead based paint chips and waste	Generator Supplied Knowledge	None	
Mercury devices (non-UVW) and small spill debris	Mercury	Mercury	Generator Supplied Knowledge	None	

Table C3. Regulatory Classification of Wastes Stored at the Facility

Waste	Hazard Determination	RCRA/VT Possible Haz Waste Codes	TSCA PCB Waste	General Exemption from VT Haz. Waste Regs?	Used Oil	Universal Waste
Antifreeze	Glycol antifreeze is a State listed waste. It may also be characteristic for lead from radiator cores and characteristic for benzene from gasoline contamination	VT08 D008 D018	NO	YES - May be managed as a recycled waste	NO	NO
Gasoline	Characteristic for ignitability and toxicity	D001 D018	NO	NO	NO	NO
Paint-related wastes	Solvents used primarily to clean painting equipment are listed wastes and characteristic for ignitability. Paint may be characteristic for toxicity.	D001,D018, D035 F001,F002, F003, F005	NO	NO	NO	NO
Petroleum distillate solvent	A State-listed petroleum distillate waste.	VT02 D001	NO	NO	NO	NO
PCB oily rags, filters, soil, debris	Maintenance or spill cleanup PCB-contaminated media.	VT01	YES	NO	NO	NO
Oily rags, filters, soil, debris	Maintenance or spill cleanup oily media.	VT02	NO	NO	NO	NO
Lead-based paint	Building maintenance and equipment retirement.	D008	NO	NO	NO	NO
Mercury devices and debris	Non-UVW devices, broken devices and cleanup debris from small spills.	D009	NO	NO	NO	NO
Water-miscible cutting fluid	Lubricant for metal cutting saw.	VT03 RCRA 8 metals D004-D011	NO	NO	NO	NO
Waste #2 fuel oil	Fuel from adjacent turbine facility	VT02, D001	NO	YES – May be managed as recycled waste	NO	NO