CleanHarbors

ENVIRONMENTAL SERVICES, INC.

Generator's Waste Material Profile Sheet

PROFILE INSTRUCTIONS

This form asks for information which allows Clean Harbors to transport and dispose of waste in a legal, safe, and environmentally sound manner. The information supplied to Clean Harbors will be kept strictly confidential. Please note that this form is three different pages, with a pressure sensitive copy for each page. Care should be taken when completing this form that only one pressure sensitive page is being written on at a time. Questions about completing this form can be directed to your sales or customer service representative, or can be phoned in to 1-617-PROFILE.

SECTION A. GENERAL INFORMATION

GENERATOR INFORMATION - List the name and address of the facility that will be listed on the manifest.
CUSTOMER INFORMATION – List the name and address of the company which Clean Harbors should invoice. If you have never done business with Clean Harbors, please contact your local sales representative.

SECTION B. WASTE DESCRIPTION

COMMON NAME OF WASTE – This is the name with which the generator refers to the waste. Note that this name will be referenced on quotations and invoices.
PROCESS GENERATING WASTE – Describe the specific steps that resulted in the production of the waste. This information is necessary to ensure that the proper EPA hazardous waste code number(s) have been applied. After describing the process in words, check off the boxes as instructed.

SECTION C. PHYSICAL PROPERTIES

PHASES/LAYERS - If waste is a liquid: indicate the number of liquid layers, and the approximate percentage of each layer. For a 50/50 oil and water mixture, the line would appear as follows:

NUMBER OF PHASES/LAYERS:
1 X 2 ___ 3 ___
% BY VOLUME:
TOP 50 ___ MIDDLE ___ BOTTOM 50 ___

VISCOSITY – Viscosity measures the resistance to flow of a liquid (i.e. how thick the liquid is). Examples are given.
BOILING POINT – If the waste is a liquid, indicate whether the boiling point is above or below 95 degrees Fahrenheit. This threshold is part of the criteria for determining DOT packing groups. References such as *The Condensed Chemical Dictionary*, or *The Handbook of Chemistry and Physics* can be helpful in estimating the Boiling point. Boiling points of some common materials are:

Water	212F
Methanol	146.1F
Gasoline	greater than 100F

MELTING POINTS – If the waste is a solid, indicate the melting point range. Most solids have melting points above 200 degrees Fahrenheit. Melting points of some common materials are:

Sodium hydroxide	604 F
Copper	1981 F

FLASH POINT – Flash point is the temperature at which a material gives off a vapor sufficient to form an ignitable mixture with air. The flash point can be determined by testing, but often can be estimated based on the constituents. Flash points of some common materials are:

Acetone	15 F
Gasoline	less than 73 F
Kerosene	100 F - 150 F

pH – pH is a measure of acid or alkaline strength. 7 is a neutral pH. Stronger acids have lower pH's, and stronger alkalines have higher pH's. If a material is a solid, the pH should be measured after preparing a 10% solution in water.
SPECIFIC GRAVITY – Specific gravity is related to the density. The more dense the material, the higher the specific gravity. Examples of some common specific gravities are given.
TOTAL ORGANIC CARBON
Total organic carbon (or TOC) is a measure of the organic content of a material. A waste stream can be tested for the organic carbon content or in most cases, it can be estimated. The TOC is necessary for liquids to determine if the waste is: (1) a wastewater or nonwastewater per EPA definition (2) a high or low TOC subcategory for land disposal restrictions. Examples of the three categories:

TOC less than 1% .....water with metals and no organics
TOC 1% -9% .....water with 5% alcohol
TOC greater than 10% .....gasoline or oil

BTU/LB - A BTU measures the heating value of a fuel. Some BTU/lb values for common materials would be:

Gasoline	18,000
Diesel fuel	18,700
Methanol	8600
Paper	7700
1,1,1- Trichloroethane	3100
Water	0

VAPOR PRESSURE – Vapor pressure is a measure of a liquid's volatility. Some examples of common vapor pressures at 25C are:

Water	23.8 mmHg	Ethyl acetate	95 mmHg
MEK	100 mmHg	Motor Oil	< 10 mmHg
Methylene Chloride	465 mmHg	Hexane	148 mmHg
p-Dichlorobenzene	< 1 mmHg	Toluene	29 mmHg

WASTE MATERIAL PROFILE SHEET

Clean Harbors Profile No. H8763

A. GENERAL INFORMATION

GENERATOR EPA ID #/REGISTRATION # ***COD991300484*** GENERATOR NAME: ***Clean Harbors Deer Trail LLC***

GENERATOR CODE (Assigned by Clean Harbors) ***DR*** CITY ***Deer Trail*** STATE/PROVINCE ***CO*** ZIP/POSTAL CODE ***80105***

ADDRESS ***108555 East Highway 36*** PHONE:

CUSTOMER CODE (Assigned by Clean Harbors) ***DR*** CUSTOMER NAME: ***Clean Harbors Deer Trail LLC***

ADDRESS ***108555 East Highway 36*** CITY ***Deer Trail*** STATE/PROVINCE ***CO*** ZIP/POSTAL CODE ***80105***

B. WASTE DESCRIPTION

WASTE DESCRIPTION: ***Monitored Liquids Nonhazardous (DR in house profile only)***

PROCESS GENERATING WASTE (Please provide detailed description of process generating waste):

Cell 1 and 2 leak detection systems, cell 1 and 2 permanant sumps, and treatment building leak detection system liquids

C. PHYSICAL PROPERTIES (at 25C or 77F)

PHYSICAL STATE
- SOLID WITHOUT FREE LIQUID
- POWDER
- MONOLITHIC SOLID
- ✔ LIQUID WITH NO SOLIDS
- LIQUID/SOLID MIXTURE
  - % FREE LIQUID
  - % SETTLED SOLID
  - % TOTAL SUSPENDED SOLID
- SLUDGE
- GAS/AEROSOL

NUMBER OF PHASES/LAYERS

✔ 1 2 3

% BY VOLUME (Approx.)

TOP	***0.00***
MIDDLE	***0.00***
BOTTOM	***0.00***

VISCOSITY (If liquid present)
- ✔ 1 - 100 (e.g. Water)
- 101 - 500 (e.g. Motor Oil)
- 501 - 10,000 (e.g. Molasses)
- > 10,000

COLOR

colorless

ODOR
- ✔ NONE
- MILD
- STRONG

Describe:

BOILING POINT °F (°C)
- <= 95 (<=35)
- 95 - 100 (35-38)
- 101 - 129 (38-54)
- ✔ >= 130 (>54)

MELTING POINT °F (°C)
- < 140 (<60)
- 140-200 (60-93)
- > 200 (>93)

TOTAL ORGANIC CARBON
- ✔ <= 1%
- 1-9%
- >= 10%

FLASH POINT °F (°C)
- < 73 (<23)
- 73 - 100 (23-38)
- 101 -140 (38-60)
- 141 -200 (60-93)
- ✔ > 200 (>93)

pH
- <= 2
- 2.1 - 6.9
- 7 (Neutral)
- 7.1 - 12.4
- >= 12.5

SPECIFIC GRAVITY
- < 0.8 (e.g. Gasoline)
- 0.8-1.0 (e.g. Ethanol)
- ✔ 1.0 (e.g. Water)
- 1.0-1.2 (e.g. Antifreeze)
- > 1.2 (e.g. Methylene Chloride)

ASH
- < 0.1
- 0.1 - 1.0
- 1.1 - 5.0
- 5.1 - 20.0
- > 20
- ✔ Unknown

BTU/LB (MJ/kg)
- ✔ < 2,000 (<4.6)
- 2,000-5,000 (4.6-11.6)
- 5,000-10,000 (11.6-23.2)
- > 10,000 (>23.2)

Actual:

D. COMPOSITION (List the complete composition of the waste, include any inert components and/or debris. Ranges for individual components are acceptable. If a trade name is used, please supply an MSDS. Please do not use abbreviations.)

CHEMICAL	MIN	--	MAX	UOM
SALTS (DISSOLVED).	0.5000000	--	1.0000000	%
WATER	99.0000000	--	99.5000000	%

DOES THIS WASTE CONTAIN ANY HEAVY GAUGE METAL DEBRIS OR OTHER LARGE OBJECTS (EX., METAL PLATE OR PIPING >1/4" THICK OR >12" LONG, METAL REINFORCED HOSE >12" LONG, METAL WIRE >12" LONG, METAL VALVES, PIPE FITTINGS, CONCRETE REINFORCING BAR OR PIECES OF CONCRETE >3")? YES ✔ NO

If yes, describe, including dimensions:

DOES THIS WASTE CONTAIN ANY METALS IN POWDERED OR OTHER FINELY DIVIDED FORM? YES NO

DOES THIS WASTE CONTAIN OR HAS IT CONTACTED ANY OF THE FOLLOWING; ANIMAL WASTES, HUMAN BLOOD, BLOOD PRODUCTS, BODY FLUIDS, MICROBIOLOGICAL WASTE, PATHOLOGICAL WASTE, HUMAN OR ANIMAL DERIVED SERUMS OR PROTEINS OR ANY OTHER POTENTIALLY INFECTIOUS MATERIAL? YES NO

I acknowledge that this waste material is neither infectious nor does it contain any organism known to be a threat to human health. This certification is based on my knowledge of the material. Select the answer below that applies:

The waste was never exposed to potentially infectious material. YES NO

Chemical disinfection or some other form of sterilization has been applied to the waste. YES NO

I ACKNOWLEDGE THAT THIS PROFILE MEETS THE CLEAN HARBORS BATTERY PACKAGING REQUIREMENTS. YES NO

I ACKNOWLEDGE THAT MY FRIABLE ASBESTOS WASTE IS DOUBLE BAGGED AND WETTED. YES NO

SPECIFY THE SOURCE CODE ASSOCIATED WITH THE WASTE. ***G26*** SPECIFY THE FORM CODE ASSOCIATED WITH THE WASTE. ***W101***

E. CONSTITUENTS

* Are these values based on testing or knowledge? ✔ Knowledge Testing

If based on knowledge, please describe the rationale applied to identify and characterize the waste material (ex., include reference to Material Safety Data Sheets, process considerations, operating procedures).

Please indicate which constituents below apply. Concentrations must be entered when applicable to assist in accurate review and expedited approval of your waste profile. Please note that the total regulated metals and other constituents sections require answers.

RCRA	REGULATED METALS	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL	UOM	NOT APPLICABLE
D004	ARSENIC	5.0				
D005	BARIUM	100.0				
D006	CADMIUM	1.0				
D007	CHROMIUM	5.0				
D008	LEAD	5.0				
D009	MERCURY	0.2				
D010	SELENIUM	1.0				
D011	SILVER	5.0				
	VOLATILE COMPOUNDS					
D018	BENZENE	0.5				
D019	CARBON TETRACHLORIDE	0.5				
D021	CHLOROBENZENE	100.0				
D022	CHLOROFORM	6.0				
D028	1,2-DICHLOROETHANE	0.5				
D029	1,1-DICHLOROETHYLENE	0.7				
D035	METHYL ETHYL KETONE	200.0				
D039	TETRACHLOROETHYLENE	0.7				
D040	TRICHLOROETHYLENE	0.5				
D043	VINYL CHLORIDE	0.2				
	SEMI-VOLATILE COMPOUNDS					
D023	o-CRESOL	200.0				
D024	m-CRESOL	200.0				
D025	p-CRESOL	200.0				
D026	CRESOL (TOTAL)	200.0				
D027	1,4-DICHLOROBENZENE	7.5				
D030	2,4-DINITROTOLUENE	0.13				
D032	HEXACHLOROBENZENE	0.13				
D033	HEXACHLOROBUTADIENE	0.5				
D034	HEXACHLOROETHANE	3.0				
D036	NITROBENZENE	2.0				
D037	PENTACHLOROPHENOL	100.0				
D038	PYRIDINE	5.0				
D041	2,4,5-TRICHLOROPHENOL	400.0				
D042	2,4,6-TRICHLOROPHENOL	2.0				
	PESTICIDES AND HERBICIDES					
D012	ENDRIN	0.02				
D013	LINDANE	0.4				
D014	METHOXYCHLOR	10.0				
D015	TOXAPHENE	0.5				
D016	2,4-D	10.0				
D017	2,4,5-TP (SILVEX)	1.0				
D020	CHLORDANE	0.03				
D031	HEPTACHLOR (AND ITS EPOXIDE)	0.008				

OTHER CONSTITUENTS	MAX	UOM	NOT APPLICABLE
BROMINE	0	PPM	
CHLORINE	2500.0000	PPM	
FLUORINE	0	PPM	
IODINE	0	PPM	
SULFUR	0	PPM	
POTASSIUM	1000.0000	PPM	
SODIUM	5000.0000	PPM	
AMMONIA	0	PPM	
CYANIDE AMENABLE	0	PPM	
CYANIDE REACTIVE	0	PPM	
CYANIDE TOTAL	0	PPM	
SULFIDE REACTIVE	0	PPM	

HOCs

✔ NONE
< 1000 PPM
>= 1000 PPM

PCBs

✔ NONE
< 50 PPM
>=50 PPM

IF PCBS ARE PRESENT, IS THE WASTE REGULATED BY TSCA 40 CFR 761?

YES ✔ NO

ADDITIONAL HAZARDS

DOES THIS WASTE HAVE ANY UNDISCLOSED HAZARDS OR PRIOR INCIDENTS ASSOCIATED WITH IT, WHICH COULD AFFECT THE WAY IT SHOULD BE HANDLED?

YES ✔ NO (If yes, explain)

CHOOSE ALL THAT APPLY

DEA REGULATED SUBSTANCE	EXPLOSIVE	FUMING	OSHA REGULATED CARCINOGENS
POLYMERIZABLE	RADIOACTIVE	REACTIVE MATERIAL	NONE OF THE ABOVE

F. REGULATORY STATUS

YES ✔ NO USEPA HAZARDOUS WASTE?

YES ✔ NO DO ANY STATE WASTE CODES APPLY?

Texas Waste Code

YES ✔ NO DO ANY CANADIAN PROVINCIAL WASTE CODES APPLY?

YES ✔ NO IS THIS WASTE PROHIBITED FROM LAND DISPOSAL WITHOUT FURTHER TREATMENT PER 40 CFR PART 268?

LDR CATEGORY: ***Not subject to LDR***
VARIANCE INFO:

YES ✔ NO IS THIS A UNIVERSAL WASTE?

YES NO IS THE GENERATOR OF THE WASTE CLASSIFIED AS CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR (CESQG)?

YES NO IS THIS MATERIAL GOING TO BE MANAGED AS A RCRA EXEMPT COMMERCIAL PRODUCT, WHICH IS FUEL (40 CFR 261.2 (C)(2)(II))?

YES ✔ NO DOES TREATMENT OF THIS WASTE GENERATE A F006 OR F019 SLUDGE?

YES NO IS THIS WASTE STREAM SUBJECT TO THE INORGANIC METAL BEARING WASTE PROHIBITION FOUND AT 40 CFR 268.3(C)?

YES ✔ NO DOES THIS WASTE CONTAIN VOC'S IN CONCENTRATIONS >=500 PPM?

YES ✔ NO DOES THE WASTE CONTAIN GREATER THAN 20% OF ORGANIC CONSTITUENTS WITH A VAPOR PRESSURE >= .3KPA (.044 PSIA)?

YES ✔ NO DOES THIS WASTE CONTAIN AN ORGANIC CONSTITUENT WHICH IN ITS PURE FORM HAS A VAPOR PRESSURE > 77 KPA (11.2 PSIA)?

YES ✔ NO IS THIS CERCLA REGULATED (SUPERFUND) WASTE ?

YES NO IS THE WASTE SUBJECT TO ONE OF THE FOLLOWING NESHAP RULES?

Hazardous Organic NESHAP (HON) rule (subpart G) Pharmaceuticals production (subpart GGG)

YES NO IF THIS IS A US EPA HAZARDOUS WASTE, DOES THIS WASTE STREAM CONTAIN BENZENE?

YES NO Does the waste stream come from a facility with one of the SIC codes listed under benzene NESHAP or is this waste regulated under the benzene NESHAP rules because the original source of the waste is from a chemical manufacturing, coke by-product recovery, or petroleum refinery process?

YES NO Is the generating source of this waste stream a facility with Total Annual Benzene (TAB) >10 Mg/year?

What is the TAB quantity for your facility? Megagram/year (1 Mg = 2,200 lbs)

The basis for this determination is: Knowledge of the Waste Or Test Data Knowledge Testing

Describe the knowledge :

G. DOT/TDG INFORMATION

DOT/TDG PROPER SHIPPING NAME:

N/A, NON D.O.T. REGULATED, N/A

H. TRANSPORTATION REQUIREMENTS

ESTIMATED SHIPMENT FREQUENCY ONE TIME WEEKLY MONTHLY QUARTERLY YEARLY ✔ OTHER ***Normally managed on***

CONTAINERIZED	✔ BULK LIQUID	BULK SOLID
0-0 CONTAINERS/SHIPMENT	GALLONS/SHIPMENT: ***5000.00 Min -6000.00 Max*** GAL.	SHIPMENT UOM: TON YARD
STORAGE CAPACITY:		TONS/YARDS/SHIPMENT: ***0 Min - 0 Max***
CONTAINER TYPE:		
CUBIC YARD BOX PALLET		
TOTE TANK DRUM		
OTHER: DRUM SIZE:		

I. SPECIAL REQUEST

COMMENTS OR REQUESTS:

GENERATOR'S CERTIFICATION

I hereby certify that all information submitted in this and attached documents is correct to the best of my knowledge. I also certify that any samples submitted are representative of the actual waste. If Clean Harbors discovers a discrepancy during the approval process, Generator grants Clean Harbors the authority to amend the profile, as Clean Harbors deems necessary, to reflect the discrepancy.

AUTHORIZED SIGNATURE	NAME (PRINT)	TITLE	DATE
	John H. (Jack) Kehoe	General Manager	12/22/2004

CleanHarbors
ENVIRONMENTAL SERVICES, INC.

Clean Harbors Deer Trail, LLC

Pretreatment and Disposal Recommendation

Profile # CH295940B **Generator**
Waste Name Glycol/ Water/ Radiator Dirt

Profile Review:

Documentation is complete?	Y	N
The site has the capabilities to manage the waste?	Y	N
Physical and chemical characteristics reviewed?	Y	N
Waste is compatible with HDPE landfill liner system?	Y	N
Waste management byproducts reviewed?	Y	N
Waste is not prohibited?	Y	N
LDR status and documentation complete?	Y	N

Required LDR documentation: None
Waste Management Method: Stabilization, solidification, TCLP analysis, landfill
CH Process Final Code CCSS Process Type Stabsolids 1
EPA Waste Codes D008

EPA Handling Codes: H132
Incompatability and special handling:

Physical Properties:

Physical State: Liquid Color varies
Density: 1 pH 7
% Solids: 0 %Aqueous Liquids: 100.00 % Organic Liquids 0
Other:

Safety Precautions:

Required PPE: Level C Liquids
Respiratory Protection: Full face respirator with combination cartridge
Monitoring: Monitor according to individual treatment batch requirements
Fire Fighting: Use Water
Equipment Needed: haul truck
Washout Requirements: Wheel wash after delivering to treatment building
Other Comments:

Laboratory and Treatment Instructions

Incoming Lab Analysis Fingerprint analysis

Annual Verification Testing None
Post Treatment Analysis TCLP Lead

Treatment Formula and Instructions Use BRSolid-Analyze

Treatment Rationale Stabilization using CKD will render the hazardous constituents non-leachable through pH buffering and pozzolanic mechanisms and will make the waste meet load bearing strength and free liquid landfil requirements.

Approvals:

General Manager or Designee: Date:

Health and Safety Date:

Environmental Date:

Waste Receiving Report

FC'd 7-8-10 SH

Plant Received Date: 6/25/2010 10:06 AM
Work Order #: **652884456-001** **Load # 00063D**
Receiving Facility: Deer Trail, CO Facility (DR)
Equipment:

Generator:
Customer:
Manifest: Unit: 1
Generator EPA ID: State EPA ID:

Line Item	Shipping Name / US DOT Description	UN/NA Number	Cont. No Type	Total Quantity	Unit Wgt/vol	CHI Pre Code	Scnd Wst	Profile Number	Pkg Grp	Hazard Class	Hzrd Zone
3	HAZARDOUS WASTE, SOLID, N.O.S. (LEAD)	NA3077	9 DM	900	P	CCS		AK1-H009	III	9 Miscellaneous Hazardous Material	

Profile Constuents (Ordered by Max %)	Min	Max		Min	Max		Min	Max
INSULATION	0.0	70.0	DUST	5.0	30.0	BRICK	1.0	7.0
Metal	1.0	3.0	PLASTIC	1.0	2.0	LEAD	0.0	1.0

Safety, Handling, or Special Instructions: **PPE Waste Safety Data Sheet: T-2** **Level C**

** THE MANIFEST INDICATES THAT THIS WASTE CONTAINS AN OSHA REGULATED SUBSTANCE, CONTACT HEALTH & SAFETY PRIOR TO HANDING.

** THE PROFILE INDICATES THAT THIS WASTE CONTAINS AN OSHA REGULATED SUBSTANCE, CONTACT HEALTH & SAFETY PRIOR TO HANDING.

Waste Codes: D008

Billing Requirements:

Container Y/N	Weight Y/N
	N

Special Instructions: Stab 1

Drum No.	Final Code	Cont. Size	Cont. Type	H20 Mix (+/-)	PH (Value)	Ign (+/-)	CN (+/-)	Sulfide (+/-)	PCB Value	Rad (+/-)	Oxid (+/-)	CC Insp	CHL (+/-)	Weight	Weight UOM	Comments Insulation/PPE/Debris
21227499	CCS	55	DM											87	LBS	AK1-H009 ARM188
21227500	CCS	55	DM											148	LBS	AK1-H009 ARM188
21227501	CCS	55	DM											148	LBS	AK1-H009 ARM188
21227502	CCS	55	DM											148	LBS	AK1-H009 ARM188
21227503	CCS	55	DM											148	LBS	AK1-H009 ARM188
21227504	CCS	55	DM											91	LBS	AK1-H009 ARM188
21227505	CCS	55	DM											91	LBS	AK1-H009 ARM188
21227506	CCS	55	DM											91	LBS	AK1-H009 ARM188
21227507	CCS	55	DM											91	LBS	AK1-H009 ARM188

Stabilization Work Order

Load #

Campaign #

From: To:

Container Information

Box Number(s):

# of Containers: Total Weight: Pounds

Total Volume ESTIMATED WEIGHT:

Container Type(s): Container Size:

Drum Numbers:

Waste Information

Waste Name:

Profile #(s)

EPA Codes:

Radioactive? NO State/NRC Licensed Waste? No

Radionuclides Present NONE

Safety Information

PPE Requirements: Level C, T3, D1 Special Handling: NONE

Monitoring: NONE Spill Response: CONTAIN

Known Hazards: Cell Exit Req.: None

Fire Fighting: N/A Non combustible Washout Req.: Wheel Wash and Bed Wash

Treatment Information

Treatment Formula

Special Handling

Equipment Required

Instructions

Created by: DAN OBRIEN Date:

Authorized by: Date:

Transfer Tech: Date:

WASTE ANALYSIS PLAN WASTE

SAMPLING GUIDELINES

APPENDIX B

I. INTRODUCTION

An important consideration in the development of a waste-specific characterization program is the methodologies employed with waste sampling. It is imperative that the sample be as representative of the waste stream as possible, since the reliability of all subsequent analytical and evaluation efforts will be limited by this factor. Procedures and general guidelines for obtaining representative samples of wastes from drums, bulk loads, tanks, and impoundments are discussed in the following sections.

A Sampling Log Book will be used as a tool by samplers to document the waste sampling. The Sample Log Book shall be maintained as part of the Operating Record.

Sampling devises are schematically illustrated in SW-846.

Prior to taking a sample, the Waste Profile Sheet and the PDR forms will be reviewed and safety procedures will be implemented.

II. DRUM SAMPLING

Drums or other approved waste containers are likely to contain materials of varying in form and consistency, such as liquids, sludges, or dry solids, all generated either separately and/or in mixtures. The sampling methodologies employed will generally depend upon the specific form and type of waste contained in a drum. Sampling must be representative of the material in the drums and account for any layering or stratification that may occur for any wastes having various liquid/liquid or liquid/solid phases. Containers will be sampled in such a manner as to obtain a vertical profile of the material, unless the physical properties prohibit penetration of the sampling devises.

II.A. Sampling Liquids in Drums:

Liquids should be sampled using a clean glass or plastic "thief'. A thief is a hollow glass or plastic tube approximately 3/8" internal diameter and greater than a drum in Length. After the sample is obtained, replace the bung on the drum and tighten. The use of a dedicated thief for each drum sampled eliminates the need for cleaning and the possibility of cross-contamination and/or incompatible mixing of wastes.

Many references (including EPA 600/2-80-018, January 1980, Samplers and Sampling Procedures for Hazardous Waste streams) cite the use of a composite liquid waste sampler or Coliwasa. This device may be of some use in some situations, but there are drawbacks to its use. The device is very difficult to clean between samples, and this may result in cross-contamination. Additionally, the Coliwasa will not obtain a representative sample of the drum contents if a sludge layer is present on the drum bottom.

II.B. Sampling Sludges in Drums:

Sludges in drums range in consistency from slurries to near-solid materials. The sampling device employed will be dependent upon the consistency of the sludge material. Loose slurry material will be sampled using a thief. A material which will not enter the thief will need to be sampled by other means. If the sludge contains a large amount of coarse or compacted material,

it will be sampled with a core sampler. Semi-solids in open-top drums containing a low concentration of moisture will be sampled as a solid.

II.B.1. Core Samplers:

Samples of sludges in drums can be collected using various types of core samplers, such as sampling triers or soil augers. A typical sampling trier is long tube with an open slot extending nearly the entire length. The tip and edges of the slot are sharp and allow the trier to cut a core of waste material to be sampled when inserted and rotated in the material. Sampling triers usually have a stainless steel tube and a wooden handle. They are usually 24 to 40 inches in length and 1/2 to 1 inch in diameter. The sampling trier can be used to obtain soft or loosened soil samples to a depth of
40 inches.

II.B.2. Sampling Solids in Drums:

Solids generally arrive in open-top drums. Waste solids can easily be sampled with a core sampler (i.e. sampling trier or soil auger) through the open top. Sampling trowels can be used in some cases when sampling dry, granular or powdered materials from drums. A sampling trowel (ordinarily zinc-plated) is small tool with a pointed, scoop-shaped blade having a plastic or wooden handle. The sharp-tipped blade measures approximately 3" X 5”. Disposable plastic scoops will also be used to obtain solid samples. Use of disposable samplers eliminates chances for cross contamination of samples.

III. SAMPLING OF TANKS

III.A. Contaminated Water Storage Tanks

The contents of the contaminated water storage tanks will typically be sampled from sample valves. Alternatively, samples may be taken from the top of the tanks using a Coliwasa, weighted bottle, or sampling bailer.

III.B. Sumps/Wastewater Treatment System/Scrubber System

These units will be sampled from sample ports. In addition, a sample may be collected from the manway entrance using a Coliwasa, weighted bottle, or dipper.

IV. SAMPLING SOILS AND SEDIMENTS

Samples of contaminated soil/sediment may be collected using trowels, shovels or soil augers. Specific locations will be sampled by taking surface and subsurface grab samples. If an area is to be systematically investigated to determine the extent of contamination, or to map a contaminant plume, a formal sampling plan will be prepared.

V. SAMPLING OF BULK SOLID WASTES

Bulk solid wastes generally arrive in end-dump or roll-off boxes. End-dump and roll-off boxes containing solids and sludges will be sampled with trowels, shovels or other sampling devices with extended handles. Specific locations will be sampled by taking surface and subsurface grab samples. At least one grab sample location per 10 yd^3 of waste is required. The grab samples will be composited in order to provide a representative sample of the shipment.

VI. BULK TANKERS

Each tanker will be sampled via the manhole entrance port on the top of the tankers or through a sampling valve located on the bottom-rear of the tanker.

The tanker contents will be sampled using a pond sampler or dipper. If necessary, a weighted bottle or equivalent sampling device will be utilized.

In the process of collecting a sample from the sample valve, one to two gallons of the liquid will first be permitted to flow through the valve and properly disposed of before collecting the representative sample. This is done to ensure the valve orifice is free of particulates and/or contaminants that may have accumulated during transportation. This procedure also applies to oil/solvent wastes containing variable concentrations of settleable/suspended solids.

VII. DECONTAMINATION OF SAMPLING EQUIPMENT

When practical, disposable sampling equipment will be used and disposed of in the same container from which the sample was taken. All reuseable equipment will be washed, rinsed, and visually inspected for residues prior to the reuse of such equipment.

VIII. SELECTION OF SAMPLE CONTAINERS

The factors to consider when choosing containers for hazardous waste samples are compatibility, resistance to breakage, volume, cost and analytical requirements. Containers must not distort, rupture, or leak as a result of chemical reactions with the constituents of waste samples. It is therefore important to have some knowledge of the properties and composition of the waste being sampled. Containers must have adequate wall thickness to withstand handling during sample collection and storage. Containers with wide mouths are desirable to facilitate transfer of samples from sampling devices to containers. The containers must also be thoroughly clean to prevent contamination, and large enough to contain the necessary sample volumes.

The following table will assist the sampler in choosing the appropriate sample container and sample preservation appropriate for the analytical requirements:

The following table lists the approved waste codes for storage in containers in Container Management Building A and Container Storage Areas A and B:

D Codes	F Codes	K Codes	P Codes	U Codes
D001 D002- Corrosive characteristic D003 - Reactive Sulfides D003 - Other Reactives D003 - Water Reactives D003- Reactive Cyanides D004 - Arsenic D005 - Barium D006 - Cadmium D006 - Cadmium Batteries D007 - Chromium D008 - Lead D008 - Lead Acid Batteries D009 - Non ww, low Hg, organics D009 - Non ww, low Hg, inorganics D009 - Non ww, low Hg D009 - All ww D010 - Selenium D011 - Silver D012 thru D043	F001 thru F012 F019 F020 thru F023 - Container Management Building Only F024 F025 F026 & F027- Container Management Building Only F028 F032 F034, F035 F037 thru F038 F039	K001 thru K043 K044-K045 non-explosive K046 K047 – non-explosive K048 thru K052 K060 thru K062 K069, K071 K073 K083 thru K088 K090, K091 K093 thru K118 K123 thru K126 K131, K132 K136, K140 K141 thru K145 K147 thru K151 K156 thru K161 K169 – K172 K176 – K178 State Codes K901-K902 – meeting demilitarization standards	P001 thru P018 P020 thru P031 P033 thru P051 P054 P056 thru P060 P062 thru P064 P065 – non-explosive P066 thru P078 P081 – non-explosive P082 P084, P085 P087 thru P089 P092 thru P099 P101 thru P116 P118 thru P123 P127, P128 P185 P188 thru P192 P194 P196 thru P199 P201 thru P205 State Codes P909 - P911 – meeting demilitarization standards	U001 thru U012 U014 thru U223 U225 thru U249 U271 U277 thru U280 U328, U353, U359 U364 thru U367 U372, U373 U381 thru U387 U389 thru U396 U400 thru U404 U409, U410, U411

Specific prohibitions for Tank Storage:

Wastes or wastes and materials which are incompatible shall not be placed in the same tank. Wastes or materials are incompatible if upon or after mixing they generate extreme heat or pressure, cause fire or explosion, cause violent reactions, produce uncontrolled toxic mists, fumes, dusts, or gases, produce uncontrolled flammable fumes or gases, or damage the integrity of the tank.

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Liquid radioactive wastes from off-site shall not be placed in any of the storage tanks.

Approved Waste Storage for Specific Tanks

Contaminated Water Tanks

- Leachate collected from Leachate Collection Systems
- Liquids collected from Leak Detection Systems
- Liquids collected from the Permanent Sumps
- Contaminated rainwater from a Secure Cell
- Contaminated water from the Operations Accumulation Tank, and the Maintenance Accumulation Tank
- Aqueous materials generated from fire or spill response actions
- Aqueous materials collected from the floor trenches/sumps in the Container Management Building A, Container Storage Areas A and B, and unloading areas
- Aqueous materials generated from the on-site Wastewater Treatment System
- Accumulated water from ground water monitor well purging and sampling activities
- Wash water from wastewater treatment and treatment process area
- Aqueous materials collected from the 90 day storage areas
- Aqueous materials generated from on-site decontamination activities during operational and closure periods

The Permittee shall not store waste or other materials in the tanks which after mixing, have a specific gravity greater than 1.2.

The Permittee shall not place ignitable or reactive wastes into the Contaminated Water Tanks.

The Permittee shall not place any waste in the Contaminated Water Tanks which has an average volatile organic concentration at the point of waste origination of greater than 500 parts per million by weight (ppmw). The average VO concentration shall be determined using the procedures specified in 6 CCR 1007-3 §264.1083(a).

Operations and Maintenance Accumulation Tanks

In the Operations Accumulation Tank, the Permittee is allowed to store dilute concentrations of wastewaters generated from the washing and cleaning of laboratory equipment and glassware and overspills from sampling. Waste samples or laboratory reagents shall not be disposed of in the tank.

In the Maintenance Accumulation Tank, the Permittee is allowed to store dilute concentrations of waste generated on-site from the maintenance, servicing and cleaning of on-site or off-site vehicles.

The Permittee shall not store ignitable or reactive wastes in the Accumulation Tanks.

The Permittee shall not place any waste in the Accumulation Tanks which has an average volatile organic concentration at the point of waste origination of greater than 500 parts per million by weight (ppmw). The average VO concentration shall be determined using the procedures specified in 6 CCR 1007-3 §264.1083(a).

The following table lists the approved waste codes for treatment and/or storage in the Treatment Building:

D Codes	F Codes	K Codes	P Codes	U Codes
D001- low TOC D002 - Corrosive characteristic D003 - Reactive sulfides D003 Other Reactives D003 - water reactives D003 Reactive Cyanides D004 - Arsenic D005 - Barium D006 - Cadmium D007 - Chromium D008 - Lead D009 - low Hg D009 - all ww D010 - Selenium D011 - Silver D012 thru D043	F001 thru F004 F005 - Carbon disulfide, cyclohexanone, and/or methanol F006 thru F012 F019 F020 thru F023 F025 thru F028 F032 F034, F035 F037 thru F039	K001 thru K011 K013 thru K024 K025 thru K027 - debris only K028 thru K038 K039 - debris only K040 - K043 K044 & K045 - deactivation only K046 K047 - deactivation only K048 thru K052 K060 thru K062 K069 - low lead K071 K073 K083 thru K088 K093 thru K105 K106 - low Hg K111 K115 - Nickel only K117 - K118 K131, K132 K136, K140 K141 thru K145 K147 thru K151 K156 thru K161 K169 thru K172 K176 thru K178 State Codes K901-meeting demilitarization standards K902 –meeting demilitarization standards.	P003 - ww only P004 P010 thru P013 P020 thru P022 P024 P029, P030 P036 P039 P047 - 4,6 dinitro-o-creosol P048 P050, P051 P056 - ww only P059, P060' P063 P065 - low Hg residues P065 - ww P071 P073, P074 P077 P082 P089 P092 - low Hg residues P092 - ww P094 P097 thru P099 P101 P103, P104 P106 P110 P113 - ww P114 P115 -ww P119 thru P121 P123 P127, P128 P185 P188 thru P192 P194 P196 thru P199 P201 thru P205 State Codes P909-911-meeting demilitarization standards	U002, U003 U005,U009, U012 U018, U019 ,U022 U024, U025 U027 thru U032 U036, U037 U038 - ww, U039 U042 - ww U043 thru U045 U047, U048, U050 U052, U057 U060, U061, U063 U066 thru U072 U075 thru U084 U088 U093 - ww U101, U102 U105 thru U107 U108 - non ww U109 - ww U111, U112 U115 - ww U117, U118, U120, U121 U127 thru U129 U130, U131 U134 - ww U136 thru U142 U144 thru U146 U151 - low Hg U151 - ww U152, U154, U155 U157 thru U159 U161, U162, U165 U168 thru U170 U172, U174 U179 thru U181 U183 thru U185 U187, U188, U190 U192, U196 U203 thru U205 U207 thru U211 U214 - U217 - ww U220 U225 thtu U228 U235, U239 U240 - 2,4D U243, U247, U271 U278 thru U280 U364, U367, U372 U373, U387, U389 U394, U395, U404, U 411

The following table lists the approved waste codes for disposal in the secure landfill cells, provided the waste meets the applicable Land Disposal Restrictions specified in 6 CCR 1007-3 §268:

D Codes	F Codes	K Codes	P Codes	U Codes
D001 thru D043	F001 thru F012 F019 thru F028 F032 F034, F035 F037 thru F039	K001 thru K052 K060 thru K062 K064 thru K066 K069, K071 K073 K083 thru K088 K090, K091 K093 thru K118 K123 thru K126 K131, K132 K136, K140 K141 thru K145 K147 thru K151 K156 thru K161 K169 thru K172 K176 thru K178 State Codes K901-meeting demilitarization standards K902 –meeting demilitarization standards.	P001 thru P018 P020 thru P031 P033 thru P051 P054 P056 thru P060 P062 thru P078 P081, P082 P084, P085 P087 thru P089 P092 thru P099 P101 thru P116 P118 - P123 P127, P128 P185 P188 thru P192 P194 P196 thru P199 P201 thru P205 State Codes P909-911-meeting demilitarization standards	U001 thru U012 U014 thru U223 U225 thru U249 U271 U277 thru U280 U328, U353, U359 U364 thru U367 U372, U373 U381 thru U387 U389 thru U396 U400 thru U404 U409, U410, U411

STANDARD OPERATING PROCEDURE 8.58
REACTIVE CYANIDE AND SULFIDE
WASTE ANALYSIS PLAN – APPENDIX G

1.0 OBJECTIVE

To quickly and effectively analyze wastes for reactive cyanide and sulfide that may be released upon a change in pH to ensure compliance with permit limits and worker safety protocols.

2.0 SCOPE AND APPLICATION

This test method is used by the CHDT Laboratory to quickly screen waste samples for the amount of hydrogen cyanide and hydrogen sulfide released when the pH is lowered to ≤ 2. This screening will be performed during the physical characterization of pre-acceptance, on-site acceptance and treatment verification samples in order to ensure that landfill operations meet the requirements of Permit Section 6, Landfill in Secure Cells. This method is not suitable for debris-type wastes.

2.1 Application: If concentrations found using this method are below 10ppm for hydrogen cyanide and below 20ppm for hydrogen sulfide waste may be disposed of without further testing for these parameters. Wastes that evolve a concentration of greater than 10ppm but less than 250ppm for hydrogen cyanide and greater than 20ppm but less than 500ppm for hydrogen sulfide may be disposed of by direct landfill provided they are segregated from acidic wastes in the landfill. If cyanide or sulfide levels are found to be greater than these limits, the waste must be either be treated prior to disposal or additional test methods EPA 9012B and/or EPA 9030B/EPA9034 will be used to quantify the reactivity.

2.2 Other Acid Gases: Other acid gas reactivity will be determined when using this method as interferences with the method. Other gas reactivity will be used to determine treatment and disposal methods and to ensure that proper procedures and PPE are used to address any hazards of the waste.

3.0 HEALTH, SAFETY AND COMPLIANCE

3.1 Training: All persons performing this method must be trained in the method.

3.2 Health and Safety Requirements: Lab coat, gloves and safety glasses with side shields are to be worn by all personnel when handling samples, reagents and generated waste. All work will be performed in a ventilated laboratory hood.

3.3 Waste Disposal: All residual waste should be collected in the appropriate waste satellite container according to the pH of the sample or placed back in the container from which the original sample was collected.

4.0 SUMMARY OF METHOD

Waste samples are acidified with a 5.5% sulfuric acid solution or a commercially available pH 2.0 buffered solution. Released gas is sampled using specific gas detection tubes in a gas collection device. Three tubes are normally used in the screening: SO_2, H_2S, and HCN. SO_2 is released fastest so this tube is used first. An H_2S tube is then used. If H_2S is detected, lead acetate solution is added to precipitate sulfide as lead sulfide. Removal of sulfide prevents it from interfering with the HCN test. An HCN tube is then used to determine cyanide reactivity.

5.0 INTERFERENCES

Screening methods are adequate for most wastes, but have shown false positive results due to interfering compounds. SO_2, CO_2, Cl_2, CLO_2, NO, HCl, HN_3 and SO_3, all can cause interferences with this method and can cause false positive test results. Additional methods EPA 9012 and/or EPA 9030B/EPA9034 will aid in separating wastes with true cyanide and sulfide hazards from those showing false positive cyanide and sulfide hazards. In this method, the SO_2 tubes are the most sensitive toward interferences and have the fastest reaction time. Discoloration of the SO_2 tubes rapidly indicates the presence of interfering compounds.

6.0 APPARATUS AND MATERIALS

Suggested equipment or equivalent:

6.1 Beaker, plastic, disposable, 250 ml.
6.2 Funnel, 8 cm., plastic
6.3 Jack stand
6.4 Ring stand and clamps
6.5 Gas detector pump, 0-100 cc, (Gastec® Detector Tube System & Scientific Industries Model)
6.6 Gas detector tubes (Matheson-Kitagawa or Gastec®)
   a. H_2S – Gastec® No. 4L (1-240 ppm)
      M-K, No, 120 Sb (1-150 ppm)
   b. HCN – Gastec® Bendix, No. 12L
      (2.5-120 ppm) M-K, No.
      112Sb (0.5-100 ppm)
   c. SO_2 – Gastec® No. 5La 2-30ppm
6.7 Magnetic stirrer apparatus
6.8 Magnetic stirring bar

7.0 REAGENTS

7.1 Cyanide/Sulfide Releasing Solution (5.5% sulfuric acid solution) – Carefully mix 110 ml concentrated sulfuric acid with de-ionized water to a final volume of 2 L. Alternatively, commercially available pH 2 buffered solution may be used.
7.2 Saturated Lead Acetate Solution – With stirring, add lead acetate to a volume of room temperature de-ionized water until no more can be dissolved.

8.0 SAMPLE COLLECTION, PRESERVATION AND HANDLING

All samples must be collected according to the sampling procedures specified in the Waste Analysis Plan (WAP) Appendix B and facility SOPs. No sample preservation is needed for this method.

9.0 ANALYTICAL PROCEDURE

In order to reduce the likelihood of interferences, first test for sulfur dioxide, then test for reactive sulfide (hydrogen sulfide). If a positive reactive sulfide result is observed, perform the reactive cyanide screen using 1 to 2 mL of a saturated lead acetate solution added to the sample. If a positive sulfide result is not observed, the cyanide screen will be performed without using the lead acetate solution. (An SO_2 tube is used first. An H_2S tube is then used. An HCN tube is then used.)

10.1 In a laboratory fume hood, using a ring stand, assemble the testing apparatus by supporting an inverted powder funnel over the mouth of a disposable beaker on a stir plate. Above the funnel, clamp another support for the Gastec® pump.

10.2 Insert an SO_2 tube into a small one hole rubber stopper and break off the sealed ends. Insert the tube/stopper into the end of the funnel with the tip of the tube near the center of the expanded portion of the funnel. Attach the pump to the end of the gas detector tube.

10.3 Place approximately 20 g of sample into a 250 mL disposable beaker. If the sample is a solid, a particle size of <9.5 mm should be used if possible (3/8 inch mesh).

10.4 Add about 50 mL of the Cyanide/Sulfide releasing solution to the beaker and insert a stir bar.

10.5 Quickly place the beaker on the magnetic stir plate so that the funnel fits tightly over the mouth of the beaker. Start the magnetic stirrer and allow the mixture to stir briskly.

10.6 Activate the pump by pulling out the handle one full stroke (2 clicks). Wait 5-10 seconds after activating the pump before removing the detector tube from the apparatus.

10.7 A yellow discoloration of the tube indicates sulfur dioxide. Read the discoloration of the detector tube against the concentration scale printed on the tube in ppm. Write the amount of SO_2 on the sample form. A blue or white discoloration of the tube indicates interference nitric oxides or chlorine. These will also interfere with hydrogen cyanide determination. If these interferences occur test with appropriate tubes for nitrogen oxides or chlorine. Check waste constituents for the presence of nitrates, nitrites, hypochlorites and other chlorine oxidizers. These will all generate interference with the tests. If these interferences occur, evaluate the waste for additional treatment requirements and more stringent safety protocols.

10.8 Insert a hydrogen sulfide (H_2S) tube into the detection apparatus and return the sample to the magnetic stir plate. Start the magnetic stirrer and allow the mixture to stir briskly.

10.9 Activate the pump by pulling out the handle one full stroke (2 clicks). Wait approx. 2 minutes after activating the pump before removing the detector tube from the apparatus.

10.10 A brown discoloration of the tube indicates hydrogen sulfide (H_2S). Read the discoloration of the detector tube against the concentration scale printed on the tube in ppm and write the amount on the sample form.

10.11 If a positive sulfide result is observed, add 1 to 2 mL of a saturated lead acetate solution added to the sample/acid releasing mixture before using the hydrogen cyanide (HCN) tube. If a hydrogen sulfide is not observed, the cyanide screen will be performed without adding lead acetate solution.

10.12 Insert a hydrogen cyanide (HCN) tube into the detection apparatus and return the sample to the magnetic stir plate. Start the magnetic stirrer and allow the mixture to stir briskly.

10.13 Activate the pump by pulling out the handle one full stroke (2 clicks). Wait approx. 2 minutes after activating the pump before removing the detector tube from the apparatus.

10.14 A pink discoloration of the tube indicates hydrogen cyanide. Read the discoloration of the detector tube against the concentration scale printed on the tube in ppm and write the amount on the sample form.

10.15 For all of the tests, if the discoloration extends the length of the tube, repeat the procedure using a higher range detector tube.

10.0 MAINTENANCE PROCEDURE

10.1 Inspect the Gastec® pump periodically, and clean as necessary. The pump should reach equilibrium with ambient pressure when pulled one full stroke (two clicks) with no tube inserted into the end, within one minute. If the pump seems to take longer to fill, remove both screw-on ends from the barrel, and clean the inside of the barrel. Clean all seals and be sure the inlet port is not clogged. Re-grease the inside of the barrel and the plunger with compatible lubricant and reassemble the unit. If the pump still does not work properly, consult the manufacturer.

10.2 Inspect all glassware for defects and cleanliness, and replace if chipped or broken. Clean dirty glassware with detergent or equivalent, followed by thoroughly rinsing with de-ionized water.

11.0 QUALITY ASSESSMENT AND QUALITY CONTROL

11.1 Cyanide/Sulfide Releasing Solution (5.5% Sulfuric Acid Solution) should be checked periodically to ensure that the pH is less than 2.

11.2 Gastec detector tubes must be used within the manufacturer's specification date-range.

12.0 METHOD PERFORMANCE

Not applicable.

13.0 REFERENCES

Waste Analysis Plan, Gastec® instructions

14.0 RECORD KEEPING

14.1 For on-site acceptance and treatment verification samples, enter results on the sample form.

14.2 For pre-acceptance samples enter results on the sample form.

WASTE ANALYSIS PLAN
LOAD BEARING CAPACITY DETERMINATION
FOR SECURE LANDFILL OPERATIONS
Appendix G

This Permit requires the load bearing capacity (unconfined compressive strength) of solidified wastes prior to transfer to a secure cell to be at least 0.33 tons per square foot (TSF). A fairly accurate estimation of the load bearing capacity can be obtained with either a Pocket Penetrometer or a Torvane Shear Device.

The undrained, shear strength is equal to one half the unconfined compressive strength. The Pocket Penetrometer measures directly the unconfined compressive strength whereas the Torvane Shear Device measures the undrained shear strength from which the unconfined compressive strength can be calculated.

POCKET PENETROMETER

1. Obtain a representative sample of the material to be tested. Approximately 100 gm is required
2. Place the sample into a 100 ml or 500 ml beaker and tamp the sample down so the top is smooth. DO NOT compact the sample any further
3. Move the indicator sleeve on the penetrometer handle to the lowest reading on the scale. When the indicator sleeve is properly located, it should rest against the lower edge of the instrument handle.
4. Grip the handle of the penetrometer and, with steady pressure, push the piston into the sample up to the calibration groove on the piston located ¼" from the end.
5. Read and record the unconfined compressive strength in TSF directly from the low-load side of the indicator sleeve. The indicator sleeve holds its position after the piston is released.
6. Obtain four separate readings spaced evenly over the surface of the sample by repeating steps 3, 4, and 5 above.
7. Record the average of the four separate readings. An average value greater than or equal to 0.33 TSD concludes that the sample material has sufficient load bearing capacity to be transferred to a secure cell.

TORVANE SHEAR DEVICE TEST PROCEDURE

1. Obtain a representative sample of the material to be tested. Approximately 500 ml is required.

2. Divide the sample evenly into four separate 500 ml or larger beakers and tamp the sample down in each so the top is smooth. DO NOT compact the sample any further. The beakers used should have a minimum diameter of two inches.
3. Select the standard size vane (1 inch diameter) and fit it to the vane driver
4. Make sure the zero on the dial is aligned with the index mark on the knob. A counter-clockwise rotation of the dial face brings the zero back to the index mark.
5. Carefully press the torvane into the test sample to the depth of the blades. Maintain a constant vertical load using finger pressure and slowly turn the knob at a constant rate. A rate of rotation such that failure develops in five to ten seconds is recommended.
6. After failure develops, release the remaining spring tension slowly and the index mark on the knob will indicate the maximum shear value in kg/cm^2. Record this value
7. Repeat steps 4, 5, and 6 for the sample portions placed in the other three beakers.
8. Calculate the average shear value in kg/cm^2 for the four test samples
9. Multiply the average shear value in kg/cm^2 by 1.0243 to convert the average shear value to TSF
10. Multiply the average shear value in TSF by 2 to obtain the average unconfined compressive strength
11. Record the average unconfined compressive strength. An average value greater than or equal to 0.33 TSD concludes that the sample material has sufficient load bearing capacity to be transferred to a secure cell.

WASTE ANALYSIS PLAN
ANALYTICAL METHODS
APPENDIX C

I. Test Method for Evaluating Solid Wastes Physical/Chemical Methods; SW-846 Online[1]

This list does not contain all parameters and test procedures in Third Edition of SW-846, as updated by Updates I, II, IIA, IIB, III, IIIA, IIIB, IVA. SW 846 Online should be referenced for a complete list of analytical methods and associated parameters.

A. 1000 Series Methods

1010A	Test Methods for Flash Point by Pensky-Martens Closed-Cup Tester
1020B	Standard Test Methods for Flash Point by Setaflash (Small Scale) Closed-Cup Apparatus
1110A	Corrosivity Toward Steel
1310B	Extraction Procedure (EP) Toxicity Test Method and Structural Integrity Test
1311	Toxicity Characteristic Leaching Procedure
1312	Synthetic Precipitation Leaching Procedure
1320	Multiple Extraction Procedure
1330A	Extraction Procedure for Oily Wastes

B. 3000 Series Methods

3005A	Acid Digestion of Waters for Total Recoverable or Dissolved Metals for Analysis by FLAA or ICP Spectroscopy
3010A	Acid Digestion of Aqueous Samples and Extracts for Total Metals for Analysis by FLAA or ICP Spectroscopy
3015	Microwave Assisted Acid Digestion of Aqueous Samples and Extracts
3020A	Acid Digestion of Aqueous Samples and Extracts for Total Metals for Analysis by GFAA Spectroscopy
3031	Acid Digestion of Oils for Metals Analysis by Atomic Absorption or ICP Spectrometry
3040A	Dissolution Procedure for Oils, Greases, or Waxes
3050B	Acid Digestion of Sediments, Sludges, and Soils
3051	Microwave Assisted Acid Digestion of Sediments, Sludges, Soils, and Oils
3052	Microwave Assisted Acid Digestion of Siliceous and Organically Based Matrices
3060A	Alkaline Digestion for Hexavalent Chromium
3500B	Organic Extraction and Sample Preparation
3510C	Separatory Funnel Liquid-Liquid Extraction
3520C	Continuous Liquid-Liquid Extraction
3535	Solid-Phase Extraction (SPE)
3540C	Soxhlet Extraction
3541	Automated Soxhlet Extraction
3545	Pressurized Fluid Extraction (PFE)
3550B	Ultrasonic Extraction
3580A	Waste Dilution
3600C	Cleanup
3610B	Alumina Cleanup
3611B	Alumina Column Cleanup and Separation of Petroleum Wastes
3620B	Florisil Cleanup
3630C	Silica Gel Cleanup

3640A Gel-Permeation Cleanup
3650B Acid-Base Partition Cleanup
3660B Sulfur Cleanup
3665A Sulfuric Acid/Permanganate Cleanup
3820 Hexadecane Extraction and Screening of Purgeable Organics

C. 5000 Series Methods

5021 Volatile Organic Compounds in Soils and Other Solid Matrices Using Equilibrium Headspace Analysis
5030B Purge-and-Trap for Aqueous Samples
5035 Closed-System Purge-and-Trap and Extraction for Volatile Organics in Soil and Waste Samples

D. 6000 Series Methods

6010B Inductively Coupled Plasma-Atomic Emission Spectrometry
6020 Inductively Coupled Plasma-Mass Spectrometry

E. 7000 Series Methods

7000A Flame Atomic Absorption Spectrophotometry
7010 Graphite Furnace Atomic Absorption Spectrophotometry
7061A Arsenic (Atomic Absorption, Gaseous Hydride)
7195 Chromium, Hexavalent (Coprecipitation)
7196A Chromium, Hexavalent (Colorimetric)
7197 Chromium, Hexavalent (Chelation/Extraction)
7199 Determination of Hexavalent Chromium in Drinking Water, Groundwater and Industrial Wastewater Effluents by Ion Chromatography
7470A Mercury in Liquid Waste (Manual Cold-Vapor Technique)
7471A Mercury in Solid or Semisolid Waste (Manual Cold-Vapor Technique)
7741A Selenium (Atomic Absorption, Gaseous Hydride)

F. 8000 Series Methods

8000B Determinative Chromatographic Separations
8015B Nonhalogenated Organics by Gas Chromatography
8021B Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors
8031 Acrylonitrile by Gas Chromatography
8032A Acrylamide by Gas Chromatography
8061A Phthalate Esters by Gas Chromatography with Electron Capture Detection (GC/ECD)
8070A Nitrosamines by Gas Chromatography
8081A Organochlorine Pesticides by Gas Chromatography
8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography
8100 Polynuclear Aromatic Hydrocarbons
8121 Chlorinated Hydrocarbons by Gas Chromatography: Capillary Column Technique
8141A Organophosphorus Compounds by Gas Chromatography

8151A	Chlorinated Herbicides by GC Using Methylation or Pentafluorobenzylation Derivatization
8260B	Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)
8270C	Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)
8275A	Semivolatile Organic Compounds (PAHs and PCBs) in Soils/Sludges and Solid Wastes Using Thermal Extraction/Gas Chromatography/Mass Spectrometry (TE/GC/MS)
8280A	Polychlorinated Dibenzo-p-Dioxins (PCDDs) and Polychlorinated Dibenzofurans
8290	Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS)
8315A	Determination of Carbonyl Compounds by High Performance Liquid Chromatography (HPLC)
8316	Acrylamide, Acrylonitrile and Acrolein by High Performance Liquid Chromatography (HPLC)
8318	N-Methylcarbamates by High Performance Liquid Chromatography (HPLC)
8330	Nitroaromatics and Nitramines by High Performance Liquid Chromatography (HPLC)
8331	Tetrazene by Reverse Phase High Performance Liquid Chromatography (HPLC)

G. 9000 Series Methods

9010C	Total and Amenable Cyanide: Distillation
9012B	Total and Amenable Cyanide (Automated Colorimetric, with Off-Line Distillation)
9013	Cyanide Extraction Procedure for Solids and Oils
9014	Titrimetric and Manual Spectrophotometric Determinative Methods for Cyanide
9020B	Total Organic Halides (TOX)
9021	Purgeable Organic Halides (POX)
9022	Total Organic Halides (TOX) by Neutron Activation Analysis
9023	Extractable Organic Halides (EOX) in Solids
9030B	Acid-Soluble and Acid-Insoluble Sulfides: Distillation
9034	Titrimetric Procedure for Acid-Soluble and Acid-Insoluble Sulfides
9035	Sulfate (Colorimetric, Automated, Chloranilate)
9036	Sulfate (Colorimetric, Automated, Methylthymol Blue, AA II)
9038	Sulfate (Turbidimetric)
9040C	pH Electrometric Measurement
9041A	pH Paper Method
9045D	Soil and Waste pH
9050A	Specific Conductance
9056	Determination of Inorganic Anions by Ion Chromatography
9060A	Total Organic Carbon
9065	Phenolics (Spectrophotometric, Manual 4-AAP with Distillation)
9066	Phenolics (Colorimetric, Automated 4-AAP with Distillation)
9070	n-Hexane Extractable Material (HEM) for Aqueous Samples
9071B	n-Hexane Extractable Material (HEM) for Sludge, Sediment, and Solid Samples
9078	Screening Test Method for Polychlorinated Biphenyls in Soil
9079	Screening Test Method for Polychlorinated Biphenyls in Transformer Oil
9080	Cation-Exchange Capacity of Soils (Ammonium Acetate)
9081	Cation-Exchange Capacity of Soils (Sodium Acetate)
9090A	Compatibility Test for Wastes and Membrane Liners

9095B Paint Filter Liquids Test
9100 Saturated Hydraulic Conductivity, Saturated Leachate Conductivity, and Intrinsic Permeability
9131 Total Coliform: Multiple Tube Fermentation Technique
9132 Total Coliform: Membrane-Filter Technique
9212 Potentiometric Determination of Chloride in Aqueous Samples with Ion-Selective Electrode
9213 Potentiometric Determination of Cyanide in Aqueous Samples and Distillates with Ion-Selective Electrode
9214 Potentiometric Determination of Fluoride in Aqueous Samples with Ion-Selective Electrode
9215 Potentiometric Determination of Sulfide in Aqueous Samples and Distillates with Ion-Selective Electrode
9250 Chloride (Colorimetric, Automated Ferricyanide AAI)
9251 Chloride (Colorimetric, Automated Ferricyanide AAII)
9253 Chloride (Titrimetric, Silver Nitrate)
9310 Gross Alpha and Gross Beta
9315 Alpha-Emitting Radium Isotopes
9320 Radium-228

II. ASTM Methods; ASTM On-Line[2]

ASTM On-line should be referenced for the most recent updates of methods.

D4981-08 Standard Test Method for Screening of Oxidizers in Waste
E680-79(2011)e1 Standard Test Method for Drop Weight Impact Sensitivity of Solid-Phase Hazardous Materials
D240-09 Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter
D323-08 Standard Test Method for Vapor Pressure of Petroleum Products (Reid Method)
D2709-96(2011)e1 Standard Test Method for Water and Sediment in Middle Distillate Fuels by Centrifuge
D4978-95(2007) Standard Test Methods for Screening of Reactive Sulfides in Waste
D4982-95(2007) Standard Test Methods for Flammability Potential Screening Analysis of Waste
D3987-06 Standard Test Method for Shake Extraction of Solid Waste with Water

III. Water Methods; 40 CFR Part 136.3

The Methods listed in Section III maybe be used to for any waste waters received at the facility if SW 846 does not have a method. The list that follows does not contain all the Parameters and Test procedures in 40 CFR Part 136.3. 40 CFR Part 136.3, current revision, should be referenced for a complete list of Parameters and Approved Test Procedures.

A. Table IB- List of approved Inorganic Test Procedures

Alkalinity, AS $CACO_3$, mg/L

EPA 310.2 Ed. Rev. 1974	Alkalinity (Colorimetric, Automated, Methyl Orange)
Std Method 2320 B-97	Alkalinity (Titrimetric pH 4.5)
ASTM D1067-92, 02	Standard Test Methods for Acidity or Alkalinity of Water

Ammonia (as Nitrogen) mg/L

EPA 350.1 Rev 2.0	Nitrogen, Ammonia (Colorimetric, Automated Phenate)
Std Method	Nitrogen (Ammonia)
4500-NH_3 B-97	Preliminary Distillation Step
4500-NH_3 D-97	Ammonia-Selective Electrode Method
4500-NH_3 E-97	Ammonia-Selective Electrode Method Using Known Addition
ASTM D1426-98, 03 (B)	Standard Test Methods for Ammonia Nitrogen In Water Test Method B—Ion Selective Electrode

Anions, mg/L *(Bromide, Bromate, Chloride, Chlorate, Fluoride, Nitrate, Nitrite, Ortho-Phosphate-P, Sulfate)*

EPA 300.0 Rev 2.1	Determination of Inorganic Anions by Ion Chromatography
EPA 300.1 Rev 1.0	Determination of Inorganic Anions in Drinking Water by Ion Chromatography

Biochemical Oxygen Demand

Std. Method 5210 B-01	Biochemical Oxygen Demand (BOD) 5-Day BOD Test

Calcium-Total, mg/L

Std. Method 3111 B-97	Ca-Calcium EDTA Titrimetric Method

Chloride, mg/L

Std. Method 4500-Cl^- E-97	Chloride (Colorimetric, Automated Ferricyanide AII)

Chromium VI Dissolved, mg/L

EPA 218.6	Determination of Dissolved Hexavalent Chromium in Drinking Water, Groundwater, and Industrial Wastewater Effluents by Ion Chromatography
Std. Method 3111 C-99	Metals by Flame Atomic Absorption Spectrometry Extraction/Air-Acetylene Flame Method (Cr^{6+}, Cr total)

Cyanide Total, mg/L

EPA 335.4 Rev. 1.0	Determination of Total Cyanide by Semi-Automated Colorimetry

Std. Method Cyanides—Total, mg/L
4500-CN^- D-99 Titrimetric Method
4500-CN^- E-99 Colormetric Method
ASTM Standard Test Methods for Cyanides in Water
D2036 (A) Test Method A—Total Cyanides after Distillation

Cyanide Available, mg/L
Std. Method Available Cyanide, mg/L
4500-CN^-G-99 Amenable to Chlorination (Titrimetric; Spectrophotometric)
ASTM Standard Test Methods for Cyanides in Water
D2036 (B) Test Method B—Cyanides Amenable to Chlorination by Difference

Fluoride-Total, mg/L
Std. Method Determination of Fluoride
4500-F^- B-97 Preliminary Distillation Step
4500-F^- C-97 Ion Selective Electrode
4500-F^- E-97 Complexone Method
ASTM Standard Test Methods for Fluoride Ion in Water
D1179-93-99B

Elements and Metals Preparation and Analytical Procedures
EPA 200.2 Rev 2.8 Sample Preparation Procedure for Spectrochemical Determination of Total Recoverable Elements
EPA 200.7 Rev 4.4 Determination of Metals and Trace Elements in Water and Wastes by Inductively Coupled Plasma-Atomic Emission Spectrometry
EPA 200.8 Rev 5.4 Determination of Trace Elements in Water and Wastes by Inductively Coupled Plasma – Mass Spectrometry
EPA 200.9 Determination of Trace Elements by Stabilized Temperature Graphite Furnace Atomic Absorption

Hardness, Total, as CaCO3, mg/L
EPA 130.1 Hardness, Total (mg/L as $CaCO_3$) (Colorimetric, Automated EDTA)
Std Method 2340 C-97 Hardness, Total (mg/L as $CaCO_3$) (Titrimetric, EDTA)
ASTM Standard Test Method for Hardness in Water
D1126-86 (92), 02

Hydrogen ion (pH), Ph units
EPA 150.2 pH, Automated Electrode
Std Method 4500 H+ B-00 pH, Electrometric Method
ASTM Standard Test Methods for pH of Water
D1293-84 (90), 99(A or B)

Kjeldahl Nitrogen- Total (as N), mg/L
EPA 351.1 Nitrogen, Kjeldahl Total (Colorimetric, Automated Phenate)
EPA 351.2 Determination of Total Kjeldahl Nitrogen by semi-automated colorimetry
Std. Method C Nitrogen (Organic) (Method B or C are followed by 4500-NH_3 D or E-97

4500-N_{org} B-97 Macro-Kjeldahl Method
4500-N_{org} C-97 Semi-Micro-Kjeldahl Method
4500-NH_3 D-97 Ammonia-Selective Electrode Method
4500-NH_3 E-97 Ammonia-Selective Electrode Method Using Known Addition

Mercury-Total, mg/L
EPA 245.1 Rev 3.0 Mercury (Manual Cold Vapor Technique)
EPA 245.2 Mercury (Automated Cold-Vapor Technique)
EPA 245.7 Rev 2.0 Mercury in Water by Cold Vapor Atomic Fluorescence Spectrometry

Nitrate (as N), mg/L
EPA 352.1 Nitrogen, Nitrate (Colorimetric, Brucine)

Nitrate-nitrite (as N), mg/L
EPA 353.2 Nitrogen, Nitrate-Nitrite (Colorimetric, Automated, Cadmium Reduction)
Std Method Nitrogen (Nitrate)
4500-NO_3^- E-00 Cadmium Reduction Method
ASTM Standard Test Methods for Nitrite-Nitrate in Water
D3867-99(B) Test Method B—Manual Cadmium Reduction

Nitrite (as N), mg/L
Std Method Nitrogen (Nitrite)
4500-NO_2^- B-00 Colorimetric Method

Organic Carbon-Total (TOC), mg/L
Std. Method Total Organic Carbon (TOC)
5310 B-00 High-Temperature Combustion Method
5310 C-00 Persulfate-Ultraviolet or Heated-Persulfate Oxidation Method
5310 D-00 Wet-Oxidation Method

Oxygen, dissolved, mg/L
Std. Method Oxygen (Dissolved)
4500-O C-01 Azide Modification (Winkler or Iodometric methods)
4500-O G-01 Membrane Electrode Method (Electrometric Method)
ASTM Standard Test Methods for Dissolved Oxygen in Water
D888-92, 03(A) Test Method A; Titrimetric Procedure–High Level
D888-92, 03(B) Test Method B; Instrumental Probe Procedure Electrochemical

Phenols, mg/L
EPA 420.1 Rev 1978 Phenolics (Spectrophotometric, Manual 4-AAP With Distillation)
EPA 420.4 Rev 1.0 Determination of Total Recoverable Phenolics by Semi-Automated Colorimetry (Distillation in EPA 420.1)

Residue; Total, Filterable, Non-filterable (TSS), Settable, Volatile- mg/L
Std. Method
2540 B-97 Total Solids Dried at 103-105°C (Gravimetric)

2540 C-97	Total Dissolved Solids Dried at 180°C (Gravimetric)
2540 D-97	Total Suspended Solids Dried at 103-105°C (Gravimetric)
2540 F-97	Settleable Solids (Volumetric, (Imhoff Cone), or gravimetric)
EPA 160.4	Residue, Volatile (Gravimetric, Ignition at 550 °C)

Specific Conductance, micromhos/cm at 25°C

EPA 120.1	Conductance (Specific Conductance, *u*mhos at 25°C)

Sulfate (as SO_4), mg/L

EPA 375.2 Rev 2.0	Sulfate (Colorimetric, Automated Methylthymol Blue, AA II)
ASTM D516-90, 02	Standard Test Method for Sulfate Ion in Water Turbidimetric Test Method

Sulfide, mg/L

Std. Method	Sulfide (as S), mg/L
4500-S^{2-} F-00	Iodometric Method
4500-S^{2-} D-00	Methylene Blue Method

B. Table IC-List of Approved Test Procedures for Non-Pesticide Organic Compounds

EPA 613	2,3,7,8-Tetrachlorodibenzo-p-dioxin (Qualitative confirmation and Quantification of 2,3,7,8-TCDD via GC/MS after a screen using Method 625)
EPA 624	Purgeables (Purgeable Organic Compounds via GC/MS)
EPA 625	Base/Neutrals and Acids (Base/Neutral and Acid Organics in Wastewater)

C. Table ID-List of Approved Test Procedures for Pesticides

EPA 608	Organochlorine Pesticides and PCBs (Organochlorine Pesticides and PCBs via GC with Electron Capture Detector (ECD)

REFERENCES

SW-846: www.epa.gov/osw/hazard/testmethods/**sw846/online**/

1. Status Tables for SW-846, Third Edition; Final Updates I, II, IIA, IIB, III, IIIA, IIIB, and IV Plus Other New and Revised SW-846 Methods at the OSW Methods Web Site; Revised March 2009.
2. Chapters and the 1000 through 9000 Series.

40 CFR: http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?tpl=/ecfrbrowse/Title40/40tab_02.tpl

1. Part 136, Guidelines for Establishing Test Procedures for the Analysis of Pollutants; Section 136.3 Identification of Test Procedures.
   a. Table IB-List of Approved Inorganic Test Procedures
   b. Table IC- List of Approved Test Procedures for Non-Pesticide Organic Compounds
   c. Table ID-List of Approved Test Procedures for Pesticides
   d. Table II-Required Containers, Preservation Techniques, and Holding Times.

ASTM International – Standards Worldwide (online): http://www.astm.org/

1. Search using the test number.

Standard Methods For the Examination of Water and Wastewater (Online)

http://www.standardmethods.org/Store/index.cfm

1. Browse Standard Methods

The following references may be used as reference for HDPE incompatible constituents:

1. Poly-Flex, Inc. *"An Engineering Approach to Groundwater Monitoring"* Reference Manual

2. HDPE Liner Manufacturer Product Manuals

The following references may be used to define and characterize air or water reactive, explosive, and shock sensitive materials:

1. Material Safety Data Sheet (MSDS)

2. 49 CFR (Code of Federal Register), § 172. 101 Hazardous Materials Table.

3. Hawley's Condensed Chemical Dictionary, 7" Edition, Revised by N. Irving Sax and Richard J. Lewis, Sr., Van Nostrand Reinhold Company.

4. Hazardous Chemicals Desk Reference, 2nd Edition, Richard J. Lewis, Sr., Van Nostrand Reinhold Company.

5. The Merck Index, 11th Edition, Merck & CO Inc.

WASTE ANALYSIS PLAN
DISCREPANCY CRITERIA FOR ON-SITE
WASTE ACCEPTANCE EVALUATION
APPENDIX F

The criteria itemized below define respective discrepancies with regard to a comparison of analytical data from either Department requested sampling and/or on-site analysis with the information listed on a Waste Profile.

<u>On Site Acceptance Discrepancies</u>

I. Any determination which identifies or characterizes the material as:

- Pyrophoric/air reactive
- Explosive
- Shock Sensitive
- PCB (in excess of 50 mg/Kg), if not PCB remediation waste
- Dioxin/furan constituent in excess of Part 268.40 treatment standards
- Radioactive, exhibiting a radiation reading greater than the limits in Radioactive Materials License 1102-01
- Infectious Wastes
- Compressed Gas

II. Any analytical result which leads to a change of characterization for the following parameters:

- Reaction with change in pH resulting in release of gas
- Ignitability
- Free Liquids
- Load Bearing
- Treatment Reagent Compatibility

III. Any analytical result which deviates from the values specified on the Waste Profile by an amount or percentage greater than the limits set below will be considered a discrepancy.

IV. Any analytical result which indicates the presence of a hazardous waste constituent not previously specified on the Waste Profile at a concentration 1,000 mg/L or greater will be considered a discrepancy. Any analytical result from a Department requested sample which indicates the presence of a new compound not previously specified on the Waste Profile at a concentration greater than 500

mg/L and less than 1000 mg/L will be reported to the Department, but will not be considered a discrepancy.

V. Any analytical result which indicates waste constituent concentrations for Land Disposal Restricted wastes which would indicate inconsistencies with Generator's certifications made in accordance with 40 CFR or 6 CCR 1007-3, Part 268.7

VI. Hazardous constituent concentration: Differences of twenty-five percent (25 %) or greater of specified value (differences must be at least 1,000 mg/L to be considered a discrepancy.

VII. pH $\geq$ 2.0 units (negative log of Hydrogen ion concentration difference).

VIII. Specific gravity of liquids: Differences of ten percent (10%) or greater of specified value.

IX. Flashpoint Differences of ten percent (10%) or more from specified value measured in degrees Fahrenheit.

X. Any distinctly different characteristic for each of the following parameters:

- Color
- Number of Phases
- Physical State
- Volume percent sediment, aqueous liquid and organic liquid having a difference in excess of twenty-five percent (25 %)
- Odor.

WASTE ANALYSIS PLAN
POTENTIAL INCOMPATIBLE GROUP DESIGNATIONS
Appendix H

Group 1-A	Group 1 -B
Acetylene sludge Alkaline caustic liquids Alkaline cleaner Alkaline corrosive liquids Alkaline corrosive battery fluid Caustic wastewater Lime sludge and other corrosive alkalies Lime wasteater Lime and water Spent caustic	Acid Sludge Acid and water Battery acid Chemical cleaners Electrolyte, acid Etching acid liquid or solvent Pickling liquor and other corrosive acids Spent acid Spent mixed acid Spent sulfuric acid
Potential consequences: Heat generation, violent reaction	

Group 2-A	Group 2-B
Aluminum Beryllium Calcium Lithium Magnesium Potassium Sodium Zinc Powder Other reactive metals and metal hydrides	Any Waste in Group I -A or I -B
Potential consequences: Fire or explosion; generations of flammable hydrogen gas	

Group 3-A	Group 3-B
Alcohols Water	Any concentrated waste in Groups 1-A or 1-B Calcium Lithium Metal hydrides Potassium SO_2Cl_2,, $SOCl_2$, PCl_3, CH_3SiCl_3 Other water-reactive waste
Potential consequences: Fire, explosion, or heat generations; generation of flammable or toxic gases.	

Group 4-A	Group 4-B
Alcohols Aldehydes Halogenated hydrocarbons Nitrated hydrocarbons Other reactive organic compounds and solvents	Concentrated Groups I-A or I-B wastes Group 2-A wastes
Potential consequences: Fire, explosion, or violent reaction.	

Group 5-A	Group 5-B
Spent cyanide and sulfide solutions	Group I-B wastes
Potential consequences: Generation of toxic hydrogen cyanide or hydrogen sulfide gas.	

Group 6-A	Group 6-B
Chlorates Chlorines Chlorites Chromic acid Hyprochlorites Nitrates Nitric acid, fuming Perchlorates Permanganates Peroxides Other strong oxidizers	Acetic acid and other organic acids Concentrated mineral acids Group 2-A wastes Group 4-A wastes Other flammable and combustible wastes
Potential consequences: Fire, explosion, or violent reaction.	

WASTE ANALYSIS PLAN
DIOXIN AND FURAN WASTE MANAGEMENT PLAN
APPENDIX I

This plan is to be implemented when managing wastes identified by the waste codes F020, F021, F022, F023, F026, F027, F028 and/or F032. The particulate dispersion control requirements of the plan will be implemented when managing any incinerator ash wastes. This plan is implemented per the requirements of 40 CFR and/or 6 CCR 1007-3, §264.317.

I. WASTE ANALYSIS REQUIREMENTS

A. PRE-ACCEPTANCE: The Permittee's pre-acceptance procedure, conducted pursuant to the WAP, will include dioxin and furan analyses to verify that the treatment standards applicable to F020, F021, F022, F023, F026, F027, F028 and/or F032 have been met. The Permittee shall not accept any of these wastes for management until such analyses demonstrate that the LDR treatment standards are met unless otherwise approved by the Division.

B. ON-SITE ACCEPTANCE: These wastes shall not be treated for other waste code constituents at the Facility until documentation provided by the generator verifies the treatment standards specified in 40 CFR and/or 6 CCR 1007-3, §268.40 for F020, F021, F022, F023, F026, F027, F028 and/or F032 wastes have been met prior to shipment to the Facility.

II. WASTE RECEIVING AND HANDLING

A. Waste containers will be kept closed or tarped except during the process of waste sampling and waste unloading into either the unloading area of the treatment basins or the landfill.

B. Dioxin and furan wastes may be treated to meet other treatment standards, such characteristic metals, load bearing, reduction of dust generations potential, free-liquids criteria or other treatment without approval by the Division.

C. For wastes which require treatment prior to secure cell disposal, the following unloading procedures at the Treatment Building will be followed to minimize particulate dispersion:

1. Untarping of bulk loads and/or opening of containers will occur only at the time of unloading. No load will be untarped or opened prior to positioning the truck and/or container inside the Treatment building.

2. Bulk loads will be checked prior to commencing unloading to determine if the addition of water is required to minimize dust generation. Water will be applied to dry waste material during unloading inside the Treatment Building to minimize dust.

D. Unloading at the secure cell will be in accordance with the following to minimize particulate dispersion:

1. Trucks or containers will not be uncovered until they are in the unloading position in the landfill.

2. Dioxin and furan waste placed in the landfill must be covered as soon as transfer and placement activities for that waste are completed. If a campaign or batch is only partially transferred and placed in the cell and a break in the transfer or placement process is necessary, then the waste must be covered.

III. CO-DISPOSAL COMPATIBILITY

The waste addressed by this management plan shall not be received at the Facility unless the residual dioxin and furan constituent concentrations meet the treatment standard established in 40 CFR and/or 6 CCR 1007-3, §268. This requirement combined with the waste compatibility review procedures outlined in the WAP will ensure these wastes are compatible with co-disposed waste in the cell.

IV. ENVIRONMENTAL MONITORING, AND SECURE DISPOSAL CELL INSPECTION

Secure Disposal Cell Operations include scheduled inspections to verify that the physical integrity of the cell liner systems is maintained. The inspection requirements are outlined in Inspection Plan, Attachment 3. The inspection, sampling and analysis of collected liquids from the Leachate Collection System and the Leak Detection System will be performed as described by the Inspection Plan.