Statement of Basis

Tier I Operating Permit No. T1-2018.0035
Project ID 62089

Clay Peak Municipal Solid Waste Landfill
Payette, Idaho

Facility ID 075-00009

Proposed for EPA Review

April 26, 2019
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Permit Writer

The purpose of this Statement of Basis is to set forth the legal and factual basis for the Tier I operating permit terms and conditions, including references to the applicable statutory or regulatory provisions for the terms and conditions, as required by IDAPA 58.01.01.362

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1. ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE

ASTM	American Society for Testing and Materials
AECD	auxiliary emission control devices
BHP	brake horsepower
Btu	British thermal unit
CAA	Clean Air Act
CAM	Compliance Assurance Monitoring
CEMS	continuous emission monitoring systems
cfm	cubic feet per minute
CFR	Code of Federal Regulations
CI	compression ignition
Clay Peak	Clay Peak Municipal Solid Waste Landfill
CMS	continuous monitoring systems
CO	carbon monoxide
CO_2	carbon dioxide
COMS	continuous opacity monitoring systems
cyl	cylinder
CPMS	continuous parameter monitoring systems
DEQ	Department of Environmental Quality
EPA	U.S. Environmental Protection Agency
EPS	electronic permit system
HAP	hazardous air pollutants
HP	horsepower
hr	hour
ICE	internal combustion engines
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
lb	pounds
MACT	Maximum Achievable Control Technology
Mg	megagrams
MMBtu	million British thermal units
MRRR	Monitoring, Recordkeeping and Reporting Requirements
MSW	municipal solid waste
NESHAP	National Emission Standards for Hazardous Air Pollutants
NMOC	nonmethane organic compounds
NO_x	nitrogen oxides
NSPS	New Source Performance Standards
O&M	operation and maintenance
PM	particulate matter
$PM_{2.5}$	particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
ppm	parts per million by volume
ppmv	parts per million by volume
ppmvd	parts per million by volume dry air
PSD	Prevention of Significant Deterioration
PTC	permit to construct
PTE	potential to emit
RICE	reciprocating internal combustion engines
Rules	*Rules for the Control of Air Pollution in Idaho*

SIP	State Implementation Plan
SO_2	sulfur dioxide
T/yr	tons per consecutive 12-calendar-month period
T1	Tier I operating permit
ULSD	ultra-low sulfur diesel
U.S.C.	United States Code
VOC	volatile organic compound
yd^3	cubic yards

2. INTRODUCTION AND APPLICABILITY

The Clay Peak Municipal Solid Waste Landfill (Clay Peak) is owned and operated by Payette County. The landfill commenced operations in October 1993. The landfill is a portion of a rural 1,340 acre site of semi-arid mountainous terrain. The landfill has a proposed maximum design capacity of more than 3.2 megagrams (Mg) and more than 7.9 million cubic yards (yd^3). On average, the landfill receives 300 to 550 tons of garbage per day. At Clay Peak, it is estimated that approximately four acres of surface soil is disturbed at any one time during normal operations. This cumulative four acres involves three main activities at the landfill:

- Covering garbage with dirt at the working face of the landfill,
- Surface mining of dirt for use as cover, and
- Aerating compost rows and screening compost.

As a Tier I source, Clay Peak is required to apply for a Tier I operating permit pursuant to IDAPA 58.01.01.301. The application for a Tier I operating permit must contain a certification from Clay Peak as to its compliance status with all applicable requirements (IDAPA 58.01.01.314.09).

IDAPA 58.01.01.362 requires that as part of its review of the Tier I application, DEQ shall prepare a technical memorandum (i.e. statement of basis) that sets forth the legal and factual basis for the draft Tier I operating permit terms and conditions including reference to the applicable statutory provisions or the draft denial. This document provides the basis for the draft Tier I operating permit for Clay Peak.

The format of this Statement of Basis follows that of the permit. The Tier I Operating permit is organized into sections. They are as follows:

Section 1 – Acronyms, Units, and Chemical Nomenclature

The acronyms, units, and chemical nomenclature used in the permit are defined in this section.

Section 2 – Permit Scope

The scope describes this permitting action.

Section 3 – Facility-Wide Conditions

The Facility-Wide Conditions Section contains the applicable requirements (permit conditions) that apply facility-wide. Where required, monitoring, recordkeeping and reporting requirements (MRRR) sufficient to assure compliance with a permit condition follows the permit condition.

Section 4 – Landfill Gas Flares

The emissions unit-specific sections of the permit contain the applicable requirements that specifically apply to each regulated emissions unit. Some requirements that apply to an emissions unit (e.g. opacity limits) may be contained in the Facility-Wide Conditions Section. As with the facility-wide conditions, monitoring, recordkeeping and reporting requirements (MRRR) sufficient to assure compliance with an applicable requirement follows the applicable requirement.

Section 5 –Engines

The emissions unit-specific sections of the permit contain the applicable requirements that specifically apply to each regulated emissions unit. Some requirements that apply to an emissions unit (e.g. opacity limits) may be contained in the Facility-Wide Conditions Section. As with the facility-wide conditions, monitoring, recordkeeping and reporting requirements (MRRR) sufficient to assure compliance with an applicable requirement follows the applicable requirement.

Section 6 – Insignificant Activities

This section lists those requirements that the applicant has requested as non-applicable, and DEQ proposes to grant a permit shield in accordance with IDAPA 58.01.01.325.

This section contains a list of units or activities that are insignificant on the basis of size or production rate. Units and activities listed in this section must be listed in the permit application. The regulatory citation for units and activities that are insignificant on the basis of size or production rate is IDAPA 58.01.01.317.01.b.

Section 7 – General Provisions

The final section of the permit contains standard terms and conditions that apply to all major facilities subject to IDAPA 58.01.01.300. This section is the same for all Tier I facilities. The General Provisions have been reviewed by EPA and contain all terms and conditions required by IDAPA 58.01.01 et al as well as requirements from other air quality laws, rules and regulations. Each general provision has been paraphrased so it is more easily understood by the general public; however, there is no intent to alter the effect of the requirement. Should there be a discrepancy between a paraphrased general provision in this statement of basis and a rule or permit, the rule or permit shall govern.

3. FACILITY INFORMATION

3.1 Facility Description

The Clay Peak Municipal Solid Waste Landfill (Clay Peak) is owned and operated by Payette County. The landfill commenced operations in October 1993. The landfill is a portion of a rural 1,340 acre site of semi-arid mountainous terrain. The landfill has a proposed maximum design capacity of more than 3.2 megagrams (Mg) and more than 7.9 million cubic yards (yd^3). On average, the landfill receives 300 to 550 tons of garbage per day. At Clay Peak, it is estimated that approximately four acres of surface soil is disturbed at any one time during normal operations. This cumulative four acres involves three main activities at the landfill:

- Covering garbage with dirt at the working face of the landfill,
- Surface mining of dirt for use as cover, and
- Aerating compost rows and screening compost.

Water trucks are used to suppress fugitive dust emissions from vehicles driving on unpaved roads at the landfill.

Flares are used at Clay Peak to combust landfill gas. Flares are connected to passively-fed gas collection systems that consist of perforated PVC pipes running directly into the landfill.

Seven flares are located at Cell #1. Cell #1 reached its waste acceptance capacity at nearly one million tons and was closed in 2010, requiring construction of Cell #2. Six flares will be operated at Cell #2.

Each flare has a solar panel that charges a battery pack. The batteries are used to power an arc which continuously fires at the discharge of the flare. This system ensures that the flares continuously combust the collected landfill gas. The landfill gas flow rates are variable. When there is a sufficient gas flow rate, the arc ignites the gas within the flare.

The landfill gas is composed of approximately 55% methane (CH_4), 40 % carbon dioxide (CO_2), 5% nitrogen (N_2), and a small amount of non-methane organic compounds (NMOC). Within the NMOC are some hazardous air pollutants (HAP) and toxic air pollutants. A trace amount of hydrogen sulfide (H_2S) gas is also found in the landfill gas.

The facility is classified as a Tier I source, as defined by IDAPA 58.01.01.006.122.c, because it is subject to the 40 CFR 60 Subpart WWW requirement to obtain a Tier I operating permit. At the time of this permitting action, the facility is not a major source of criteria or HAP emissions as defined in IDAPA 58.01.01.008.

3.2 Facility Permitting History

Underlying Permit History - Includes every underlying permit issued to this facility

The following information is the comprehensive permitting history of all underlying applicable permits issued to this Tier I facility. This information was derived from a review of the permit files available to DEQ. Permit status is noted as active and in effect (A) or superseded (S).

August 24, 2018	P-2008.0078, modification to add six flares for Cell #2. (A)
December 16, 2008	P-2008.0078, modification to add three flares at Cell #1. (S)
February 27, 2004	P-020034, modification to add two flares and continue to operate two previously PTC-exempt flares at Cell #1. (S)

4. APPLICATION SCOPE AND APPLICATION CHRONOLOGY

4.1 Application Scope

This permit is the initial Tier I operating permit (T1) for this facility.

4.2 Application Chronology

July 18, 2018	DEQ received an application.
August 31, 2018	DEQ determined that the application was incomplete.
October 10, 2018	DEQ received supplemental information from the applicant.
November 9, 2018	DEQ determined that the application was complete.
December 7, 2018	DEQ made available the draft permit and statement of basis for peer and regional office review.
December 28, 2018	DEQ made available the draft permit and statement of basis for applicant review.
January 30 – March 1, 2019	DEQ provided a public comment period on the proposed action.
February 25, 2019	DEQ received a comment and updated O&M manual from the applicant.
March 8, 2019	DEQ provided the proposed permit and statement of basis for EPA review.
April 26, 2019	DEQ issued the final permit and statement of basis.

5. EMISSIONS UNITS, PROCESS DESCRIPTIONS, AND EMISSIONS INVENTORY

This section lists the emissions units, describes the production or manufacturing processes, and provides the emissions inventory for this facility. The information presented was provided by the applicant in its permit application. Also listed in this section are the insignificant activities based on size or production rate.

5.1 Process No. 1 – Landfill Gas Flares

Table 5.1 lists the emissions units and control devices associated with the landfill gas flares.

Table 5.1 EMISSIONS UNITS AND CONTROL DEVICES

Source	Control Equipment
Municipal Waste Landfill – Cell #1 Design capacity: 1.1 megagrams (1.2 million tons, 2.6 million yd^3) Status: Cell closed in 2010, constructed after 1992	NW 1.1 Landfill Gas Flare Manufacturer: Landfill Services Corp. Model: CF-5 Heat input capacity: 2.16 MMBtu/hr and 33 cfm Fuel: LFG Installation Date: 2001
	NW 1.2 Landfill Gas Flare Manufacturer: Landfill Services Corp. Model: CF-5 Heat input capacity: 2.16 MMBtu/hr and 33 cfm Fuel: LFG Installation Date: 2004
	NE 1.1 Landfill Gas Flare Manufacturer: Landfill Services Corp. Model: CF-5 Heat input capacity: 2.16 MMBtu/hr and 33 cfm Fuel: LFG Installation Date: 2001
	NE 1.2 Landfill Gas Flare Manufacturer: Landfill Services Corp. Model: CF-5 Heat input capacity: 2.16 MMBtu/hr and 33 cfm Fuel: LFG Manufacture Date: 2005
	SW 1.1 Landfill Gas Flare Manufacturer: Landfill Services Corp. Model: CF-5 Heat input capacity: 2.16 MMBtu/hr and 33 cfm Fuel: LFG Manufacture Date: 2007

Source	Control Equipment
Municipal Waste Landfill – Cell #1 Design capacity: 1.1 megagrams (1.2 million tons, 2.6 million yd3) Status: Cell closed in 2010, constructed after 1992	SE 1.1 Landfill Gas Flare Manufacturer: Landfill Services Corp. Model: CF-5 Heat input capacity: 2.16 MMBtu/hr and 33 cfm Fuel: LFG Manufacture Date: 2007
	SE 1.2 Landfill Gas Flare Manufacturer: Landfill Services Corp. Model: CF-5 Heat input capacity: 2.16 MMBtu/hr and 33 cfm Fuel: LFG Manufacture Date: 2008
Municipal Waste Landfill – Cell #2 Design capacity: 2.1 megagrams (2.3 million tons, 5.3 million yd^3) Status: Cell active and in operation	NW 2.1 Landfill Gas Flare Manufacturer: Landfill Services Corp. Model: CF-5 Heat input capacity: 2.16 MMBtu/hr and 33 cfm Fuel: LFG Installation Date: 2018
	NW 2.2 Landfill Gas Flare Manufacturer: Landfill Services Corp. Model: CF-5 Heat input capacity: 2.16 MMBtu/hr and 33 cfm Fuel: LFG Installation Date: 2019
	NW 2.3 Landfill Gas Flare Manufacturer: Landfill Services Corp. Model: CF-5 Heat input capacity: 2.16 MMBtu/hr and 33 cfm Fuel: LFG Installation Date: 2020
	NE 2.1 Landfill Gas Flare Manufacturer: Landfill Services Corp. Model: CF-5 Heat input capacity: 2.16 MMBtu/hr and 33 cfm Fuel: LFG Installation Date: 2018
	NE 2.2 Landfill Gas Flare Manufacturer: Landfill Services Corp. Model: CF-5 Heat input capacity: 2.16 MMBtu/hr and 33 cfm Fuel: LFG Installation Date: 2019
	NE 2.3 Landfill Gas Flare Manufacturer: Landfill Services Corp. Model: CF-5 Heat input capacity: 2.16 MMBtu/hr and 33 cfm Fuel: LFG Installation Date: 2020

5.2 Process No. 2 – Engines

Table 5.2 lists the emissions units and control devices associated with internal combustion engines (ICE).

Table 5.2 EMISSIONS UNITS, CONTROL DEVICE, AND DISCHARGE POINT INFORMATION

Source		Control Equipment
Tub Grinder Manufacturer / model: Manufacture date: Maximum capacity: Maximum operation: Fuel:	 Diamond Z 1248, Caterpillar C18 ACERT 2014 600 BHP 3.02 L/cyl <150 hr/month [(a)] ultra-low sulfur diesel (ULSD)	EPA Tier 4 technologies
Emergency Generator Engine Manufacturer / model: Manufacture date: Maximum capacity: Maximum operation: Fuel:	 Onan 30 SK, Chrysler H225 4SLB 1980s 145 BHP 0.62 L/cyl <450 hr/month [(a)] propane	None
Three (3) Infrared Gas Heaters Manufacturer: Model: Manufacture date: Maximum capacity: Fuel:	 Space Ray LTS 80 1993 80,000 Btu/hr natural gas/LPG	None
Space Heater Manufacturer: Model: Manufacture date: Maximum capacity: Fuel:	 Clean Burn CB 3250 1993 300,000 Btu/hr used oil	None

a) Engine monthly hours of operation are provided for informational purposes; these criteria are required for PTC permitting exemption in accordance with IDAPA 58.01.01.222.01.

5.3 Insignificant Emissions Units Based on Size or Production Rate

This section contains a list of units or activities that are insignificant on the basis of size or production rate. Units and activities listed in this section must be listed in the permit application. Table 5.3 lists the units and activities which have been determined to be insignificant on the basis of size or production rate. The regulatory authority for emissions units and activities that are insignificant on the basis of size or production rate is IDAPA 58.01.01.317.01.b.

Table 5.3 INSIGNIFICANT EMISSION UNITS AND REGULATORY AUTHORITY/JUSTIFICATION

Description	Regulatory Authority / Justification IDAPA 58.01.01.317.01.b.(i)
Operation, loading and unloading of gasoline storage tanks, 10,000 gallons capacity or less, with lids or other appropriate closure.	(3)
Operation, loading and unloading storage of butane, propane, or liquefied petroleum gas (LPG), storage tanks, vessel capacity under 40,000 gallons.	(4)
Combustion source, less than 5 MMBtu/hr, exclusively using natural gas, butane, propane, and/or LPG.	(5)
Combustion source, less than 500,000 Btu/hr, using any commercial fuel containing less than 0.4% by weight sulfur for coal or less than 1% by weight sulfur for other fuels.	(6)
Space heaters and hot water heaters using natural gas, propane or kerosene and generating less than 5 MMBtu/hr.	(18)

5.4 Emissions Inventory

Table 5.4 summarizes the emissions inventory for this major facility. All values are expressed in units of tons-per-year and represent the facility's potential to emit. Potential to emit (PTE) is defined as the maximum capacity of a facility or stationary source to emit an air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the facility or source to emit an air pollutant, including air pollution control equipment and restrictions on hour of operation or on the type or amount of material combusted, stored or processed shall be treated as part of its design if the limitation or the effect it would have on emission is state or federally enforceable.

Listed below Table 5.4 are the references for the emission factors used to estimate the emissions. The documentation provided by the applicant for the emissions inventory and emission factors is provided as Appendix A – Emissions Inventory to this statement of basis.

Table 5.4 EMISSIONS INVENTORY - POTENTIAL TO EMIT [a]

Emission source	$PM_{2.5}/PM_{10}$ T/yr	SO_2 T/yr	NO_x T/yr	CO T/yr	VOC T/yr	NMOC T/yr	Lead T/yr	HAP T/yr
NW 1.1 Flare	0.094	0.02	0.242	0.29	0.30	0.30	0	0.63
NW 1.2 Flare	0.094	0.02	0.242	0.29	0.30	0.30	0	0.63
NE 1.1 Flare	0.094	0.02	0.242	0.29	0.30	0.30	0	0.63
NE 1.2 Flare	0.094	0.02	0.242	0.29	0.30	0.30	0	0.63
SW 1.1 Flare	0.094	0.02	0.242	0.29	0.30	0.30	0	0.63
SE 1.1 Flare	0.094	0.02	0.242	0.29	0.30	0.30	0	0.63
SE 1.2 Flare	0.094	0.02	0.242	0.29	0.30	0.30	0	0.63
NW 2.1 Flare	0.147	0.02	0.382	0.45	0.47	0.47	0	0.63
NW 2.2 Flare	0.147	0.02	0.382	0.45	0.47	0.47	0	0.63
NW 2.3 Flare	0.147	0.02	0.382	0.45	0.47	0.47	0	0.63
NE 2.1 Flare	0.147	0.02	0.382	0.45	0.47	0.47	0	0.63
NE 2.2 Flare	0.147	0.02	0.382	0.45	0.47	0.47	0	0.63
NE 2.3 Flare	0.147	0.02	0.382	0.45	0.47	0.47	0	0.63
Cell #1 and Cell #2 combined [b]					2.4 [d]	2.4 [d]		0.4 [d]
Tub Grinder	0.052	0.049	0.735	0.158	0.059	0.059	0	0.059
Emergency Generator Engine [b]	0.004	0.001	0.07	0.04	0.01	0.01	2.0E-7	0.01
Three (3) Infrared Gas Heaters [b]	0.010	0.001	0.172	0.10	0.02	0.02	5.3E-7	0.02
Space Heater [b]	0.032	0.007	0.192	0.48	0.03	0.03	1.5E-5	0.001
PTE [c]	**1.61**	**0.31**	**5.0**	**5.0**	**7.4**	**7.4**	**0.00002**	**8.68**

a) Controlled average emission rates from flares in tons per consecutive 12-month period are annual averages, based on maximum projected annual landfill emissions in year 2011 for Cell #1 and in year 2039 for Cell #2.

b) Maximum projected emissions from Cell #1 and Cell #2 combined. Although projected emissions from Cell #1 peak in year 2009 (6.98 Mg), emissions from Cell #2 (11.81 Mg) and combined (15.78 Mg) peak in year 2039.

c) Emissions for PTC-exempt and insignificant emission units were estimated using AP-42 Sections 1.4, 1.5, 3.3, and 3.4 emission factors for diesel and propane combustion.

d) If landfill gas (LFG) is not routed to the flares for combustion, facility-wide uncontrolled PTE estimates are approximately 17.5 T/yr of NMOC and volatile organic compounds (VOC) and 3.2 T/yr of HAP.

6. EMISSION LIMITS AND MRRR

This section contains the applicable requirements for this T1 facility.

This section is divided into the following subsections.

- Facility-Wide Conditions;
- Landfill Gas Flare and Engine Emissions Limits; and
- General Provisions.

MRRR

Monitoring, recordkeeping and reporting requirements (MRRR) are the means with which compliance with an applicable requirement is demonstrated. In this section, the applicable requirement (permit condition) is provided first followed by the MRRR. Should an applicable requirement not include sufficient MRRR to satisfy IDAPA 58.01.01.322.06, 07, and 08, then the permit must establish adequate monitoring, recordkeeping and reporting sufficient to yield reliable data from the relevant time period that are representative of the source's compliance with the permit (i.e. gap filling). In addition to the specific MRRR provided for each applicable requirement, generally applicable facility-wide conditions and general provisions may also be provided, such as performance testing, reporting, and certification requirements.

The legal and factual basis for each permit condition is provided for in this document. If a permit condition was changed due to facility draft comments or public comments, an explanation of the changes is provided.

State Enforceability

An applicable requirement that is not required by the federal CAA and has not been approved by EPA as a SIP-approved requirement is identified as a "State Only" requirement and is enforceable only under state law. State-only requirements are not enforceable by the EPA or citizens under the CAA. State-only requirements are identified in the permit within the citation of the legal authority for the permit condition.

Federal Enforceability

Unless identified as "State Only", all applicable requirements, including MRRR, are state and federally enforceable. It should be noted that while a violation of a MRRR is a violation of the permit, it is not necessarily a violation of the underlying applicable requirement (e.g. emissions limit).

To minimize the length of this document, the following permit conditions and MRRR have been paraphrased. Refer to the permit for the complete requirements.

6.1 Facility-Wide Conditions

A summary description was included in Section 3 of the permit as requested by the applicant. Please refer to Appendix B – Facility Comments on Draft Permit for detailed information concerning this change.

Permit Condition 3.1 - Fugitive Dust

All reasonable precautions shall be taken to prevent PM from becoming airborne in accordance with IDAPA 58.01.01.650-651.

[IDAPA 58.01.01.650-651, 4/11/15]

MRRR (Permit Conditions 3.2 through 3.4)

- Monitor and maintain records of the frequency and the methods used to control fugitive dust emissions;
- Maintain records of all fugitive dust complaints received and the corrective action taken in response to the complaint; and

- Conduct facility-wide inspections of all sources of fugitive emissions. If any of the sources of fugitive dust are not being reasonably controlled, corrective action is required.

[IDAPA 58.01.01.322.06, 07, 5/1/1994]

Permit Condition 3.5 - Odors

The permittee shall not allow, suffer, cause, or permit the emission of odorous gases, liquids, or solids to the atmosphere in such quantities as to cause air pollution.

[IDAPA 58.01.01.775-776 (State Only), 5/1/94]

MRRR (Permit Condition 3.6)

- Maintain records of all odor complaints received and the corrective action taken in response to the complaint; and
- Take appropriate corrective action if the complaint has merit, and log the date and corrective action taken.

[IDAPA 58.01.01.322.06, 07 (State Only), 5/1/94]

Permit Condition 3.7 - Visible Emissions

The permittee shall not discharge any air pollutant to the atmosphere from any point of emission for a period or periods aggregating more than three minutes in any 60-minute period which is greater than 20% opacity as determined by procedures contained in IDAPA 58.01.01.625. These provisions shall not apply when the presence of uncombined water, nitrogen oxides, and/or chlorine gas is the only reason for the failure of the emission to comply with the requirements of this section.

[IDAPA 58.01.01.625, 5/8/09]

MRRR (Permit Condition 3.8 through 3.9)

- Conduct facility-wide inspections of all emissions units subject to the visible emissions standards (or rely on continuous opacity monitoring);
- If visible emissions are observed, take appropriate corrective action and/or perform a Method 9 opacity test; and
- Maintain records of the results of each visible emissions inspection.

[IDAPA 58.01.01.322.06, 07, 5/1/94]

Permit Conditions 3.10 through 3.14 - Excess Emissions

The permittee shall comply with the procedures and requirements of IDAPA 58.01.01.130-136 for excess emissions. The provisions of IDAPA 58.01.01.130-136 shall govern in the event of conflicts between the excess emissions facility wide conditions and the regulations of IDAPA 58.01.01.130-136.

[IDAPA 58.01.01.130-136, 4/11/06]

MRRR (Permit Conditions 3.11 through 3.14)

Monitoring, recordkeeping and reporting requirements for excess emissions are provided in Sections 131 through 136.

- Take appropriate action to correct, reduce, and minimize emissions from excess emissions events;
- Prohibit excess emissions during any DEQ Atmospheric Stagnation Advisory or Wood Stove Curtailment Advisory; and
- Notify DEQ of each excess emissions events as soon as possible, including information regarding upset, breakdown, or safety events.
- Submit a report for each excess emissions event to DEQ; and
- Maintain records of each excess emissions event.

[IDAPA 58.01.01.130-136, 4/11/06]

Permit Condition 3.15 - Sulfur Content Limits

The permittee shall not sell, distribute, use, or make available for use any of the following:

- Distillate fuel oil containing more than the following percentages of sulfur:
  - ASTM Grade 1 fuel oil, 0.3% by weight.
  - ASTM Grade 2 fuel oil, 0.5% by weight.
- Coal containing greater than 1.0% sulfur by weight.
- DEQ may approve an exemption from these fuel sulfur content requirements (IDAPA 58.01.01.725.01 725.04) if the permittee demonstrates that, through control measures or other means, SO_2 emissions are equal to or less than those resulting from the combustion of fuels complying with these limitations.

[IDAPA 58.01.01.725, 4/11/15]

MRRR - (Permit Condition 3.16)

The permittee shall maintain documentation of supplier verification of fuel sulfur content on an as received basis.

[IDAPA 58.01.01.322.06, 5/1/94]

Permit Condition 3.17 - Open Burning

The permittee shall comply with the *Rules for Control of Open Burning*, IDAPA 58.01.01.600-624.

[IDAPA 58.01.01.600-624, 3/28/18]

MRRR

No specific monitoring is required for this facility-wide condition. As with all permit conditions, the permittee must certify compliance with this condition annually, which includes making a reasonable inquiry to determine if this requirement was met during the reporting period.

Permit Condition 3.18 - Asbestos

The permittee shall comply with all applicable requirements of 40 CFR 61, Subpart M—"National Emission Standard for Asbestos."

[40 CFR 61, Subpart M]

MRRR

No specific monitoring is required for this facility-wide condition. As with all permit conditions, the permittee must certify compliance with this condition annually, which includes making a reasonable inquiry to determine if this requirement was met during the reporting period.

Permit Condition 3.19 - Accidental Release Prevention

An owner or operator of a stationary source that has more than a threshold quantity of a regulated substance in a process, as determined under 40 CFR 68.115, shall comply with the requirements of the Chemical Accident Prevention Provisions at 40 CFR 68 no later than the latest of the following dates:

- Three years after the date on which a regulated substance present above a threshold quantity is first listed under 40 CFR 68.130.
- The date on which a regulated substance is first present above a threshold quantity in a process.

[40 CFR 68.10 (a)]

MRRR

No specific monitoring is required for this facility-wide condition. As with all permit conditions, the permittee must certify compliance with this condition annually, which includes making a reasonable inquiry to determine if this requirement was met during the reporting period.

Permit Condition 3.20 - Recycling and Emissions Reductions

The permittee shall comply with applicable standards for recycling and emissions reduction of refrigerants and their substitutes pursuant to 40 CFR 82, Subpart F, Recycling and Emissions Reduction.

[40 CFR 82, Subpart F]

MRRR

No specific monitoring is required for this facility-wide condition. As with all permit conditions, the permittee must certify compliance with this condition annually, which includes making a reasonable inquiry to determine if this requirement was met during the reporting period.

Permit Condition 3.21 - Monitoring and Recordkeeping

The permittee shall maintain sufficient records to assure compliance with all of the terms and conditions of this operating permit. Records of monitoring information shall include, but not be limited to, the following: (a) the date, place, and times of sampling or measurements; (b) the date analyses were performed; (c) the company or entity that performed the analyses; (d) the analytical techniques or methods used; (e) the results of such analyses; and (f) the operating conditions existing at the time of sampling or measurement. All monitoring records and support information shall be retained for a period of at least five years from the date of the monitoring sample, measurement, report, or application. Supporting information includes, but is not limited to, all calibration and maintenance records, all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. All records required to be maintained by this permit shall be made available in either hard copy or electronic format to DEQ representatives upon request.

[IDAPA 58.01.01.322.06, 07, 5/1/94]

MRRR

No specific monitoring is required for this facility-wide condition. As with all permit conditions, the permittee must certify compliance with this condition annually, which includes making a reasonable inquiry to determine if this requirement was met during the reporting period.

Permit Conditions 3.22 through 3.25 - Performance Testing

If performance testing is required, the permittee shall provide notice of intent to test to DEQ at least 15 days prior to the scheduled test or shorter time period as provided in a permit, order, consent decree, or by DEQ approval. DEQ may, at its option, have an observer present at any emissions tests conducted on a source. DEQ requests such testing not be performed on weekends or state holidays.

All testing shall be conducted in accordance with the procedures in IDAPA 58.01.01.157. Without prior DEQ approval, any alternative testing is conducted solely at the permittee's risk. If the permittee fails to obtain prior written approval by DEQ for any testing deviations, DEQ may determine that the testing does not satisfy the testing requirements. Therefore, prior to conducting any performance test, the permittee is encouraged to submit in writing to DEQ, at least 30 days in advance, the following for approval:

- The type of method to be used;
- Any extenuating or unusual circumstances regarding the proposed test; and
- The proposed schedule for conducting and reporting the test.

[IDAPA 58.01.01.157, 4/11/15; IDAPA 58.01.01.322.06, 08.a, 09, 4/5/00]

MRRR (Permit Conditions 3.23 through 3.25)

The permittee shall submit compliance test report(s) to DEQ following testing.

[IDAPA 58.01.01.157, 4/5/00; IDAPA 58.01.01.322.06, 08.a, 09, 4/5/00]

Permit Condition 3.26 - Reports and Certifications

This permit condition establishes generally applicable MRRR for submittal of reports, certifications, and notifications to DEQ and/or EPA as specified.

[IDAPA 58.01.01.322.08, 11, 4/5/00]

MRRR

No specific monitoring is required for this facility-wide condition. As with all permit conditions, the permittee must certify compliance with this condition annually, which includes making a reasonable inquiry to determine if this requirement was met during the reporting period.

Permit Condition 3.27 through 3.28 - NSPS/NESHAP General Provisions

This facility is subject to NSPS Subparts WWW and IIII and NESHAP Subpart ZZZZ, and is therefore required to comply with applicable General Provisions.

Clarifications related to non-applicability of NSPS requirements to the flares at the time of permit issuance were included in Table 3.2 of Permit Condition 3.27. Please refer to Appendix B – Facility Comments on Draft Permit for detailed information concerning this change.

[40 CFR 60/63, Subparts A]

MRRR

No specific MRRR is required beyond that required in the Subpart. As with all permit conditions, the permittee must certify compliance with this condition annually, which includes making a reasonable inquiry to determine if this requirement was met during the reporting period.

Permit Condition 3.29 - Incorporation of Federal Requirements by Reference

Unless expressly provided otherwise, any reference in this permit to any document identified in IDAPA 58.01.01.107.03 shall constitute the full incorporation into this permit of that document for the purposes of the reference, including any notes and appendices therein.

[IDAPA 58.01.01.107, 8/24/18]

MRRR

No specific monitoring is required for this facility-wide condition. As with all permit conditions, the permittee must certify compliance with this condition annually, which includes making a reasonable inquiry to determine if this requirement was met during the reporting period.

6.2 Emissions Unit-Specific Emissions Limits and MRRR

A summary description was included in Section 4 of the permit as requested by the applicant. Please refer to Appendix B – Facility Comments on Draft Permit for detailed information concerning this change.

Landfill Gas Flares

Permit Condition 4.1

This permit condition incorporates operation and maintenance (O&M) monitoring requirements to ensure proper operation of control equipment in accordance with the PTC general compliance provision.

Permit Conditions 4.2 – 4.5

These permit conditions incorporate applicable standards, calculation methodology, and reporting requirements for landfills in accordance with NSPS Subpart WWW.

MRRR - (Permit Conditions 4.2 – 4.5)

No specific MRRR is required beyond that required in the Subpart. As with all permit conditions, the permittee must certify compliance with this condition annually, which includes making a reasonable inquiry to determine if this requirement was met during the reporting period.

Permit Conditions 4.6 – 4.29

These permit conditions incorporate potentially-applicable standards, operating, compliance, calculation and test methodology, monitoring, recordkeeping, notification, and reporting requirements for landfills in accordance with NSPS Subpart WWW.

MRRR - (Permit Conditions 4.6 – 4.29)

No specific MRRR is required beyond that required in the Subpart. As with all permit conditions, the permittee must certify compliance with this condition annually, which includes making a reasonable inquiry to determine if this requirement was met during the reporting period.

Permit Condition 4.30

This permit condition incorporates potentially-applicable standards, operating, compliance, calculation and test methodology, monitoring, recordkeeping, notification, and reporting requirements for landfills in accordance with NESHAP Subpart AAAA.

MRRR - (Permit Condition 4.30)

No specific MRRR is required beyond that required in the Subpart. As with all permit conditions, the permittee must certify compliance with this condition annually, which includes making a reasonable inquiry to determine if this requirement was met during the reporting period.

Permit Conditions 5.1 – 5.6

These permit conditions incorporate standards, fuel requirements, monitoring, compliance, methods and procedures, and reporting requirements applicable to generator engines in accordance with NSPS Subpart IIII.

MRRR - (Permit Conditions 5.1 – 5.6)

No specific MRRR is required beyond that required in the Subpart. As with all permit conditions, the permittee must certify compliance with this condition annually, which includes making a reasonable inquiry to determine if this requirement was met during the reporting period.

Permit Conditions 5.7 – 5.15

These permit conditions incorporate definitions, standards, fuel requirements, monitoring, compliance, methods and procedures, and reporting requirements applicable to generator engines in accordance with NESHAP Subpart ZZZZ.

MRRR - (Permit Conditions 5.7 – 5.15)

No specific MRRR is required beyond that required in the Subpart. As with all permit conditions, the permittee must certify compliance with this condition annually, which includes making a reasonable inquiry to determine if this requirement was met during the reporting period.

6.3 General Provisions

Unless expressly stated, there are no MRRR for the general provisions.

General Compliance, Duty to Comply

The permittee must comply with the terms and conditions of the permit.

[IDAPA 58.01.01.322.15.a, 5/1/94; 40 CFR 70.6(a)(6)(i)]

General Compliance, Need to Halt or Reduce Activity Not a Defense

The permittee cannot use the fact that it would have been necessary to halt or reduce an activity as a defense in an enforcement action.

[IDAPA 58.01.01.322.15.b, 5/1/94; 40 CFR 70.6(a)(6)(ii)]

General Compliance, Duty to Supplement or Correct Application

The permittee must promptly submit such supplementary facts or corrected information upon becoming aware that any relevant facts were omitted or incorrect information was submitted in the permit application. The permittee must also provide information as necessary to address any new requirements that become applicable after the date a complete application has been filed but prior to the release of a draft permit.

[IDAPA 58.01.01.315.01, 5/1/94; 40 CFR 70.5(b)]

Reopening, Additional Requirements, Material Mistakes, Etc.

This term lists the instances when the permit must be reopened and revised, including times when additional requirements become applicable, when the permit contains mistakes, or when revision or revocation is necessary to assure compliance with applicable requirements.

[IDAPA 58.01.01.322.15.c, 5/1/94; IDAPA 58.01.01.386, 3/19/99; 40 CFR 70.7(f)(1), (2); 40 CFR 70.6(a)(6)(iii)]

Reopening, Permitting Actions

This term discusses modification, revocation, reopening, and/or reissuance of the permit for cause. If the permittee files a request to modify, revoke, reissue, or terminate the permit, the request does not stay any permit condition, nor does notification of planned changes or anticipated noncompliance.

[IDAPA 58.01.01.322.15.d, 5/1/94; 40 CFR 70.6(a)(6)(iii)]

Property Rights

This permit does not convey any property rights of any sort, or any exclusive privilege.

[IDAPA 58.01.01.322.15.e, 5/1/94; 40 CFR 70.6(a)(6)(iv)]

Information Requests

The permittee must furnish, within a reasonable time to DEQ, any information, including records required by the permit, that is requested in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit or to determine compliance with the permit.

[Idaho Code §39-108; IDAPA 58.01.01.122, 4/5/00; IDAPA 58.01.01.322.15.f, 4/5/00; 40 CFR 70.6(a)(6)(v)]

Information Requests, Confidential Business Information

Upon request, the permittee must furnish to DEQ copies of records required to be kept by this permit. For information claimed to be confidential, the permittee may furnish such records along with a claim of confidentiality in accordance with Idaho Code §9-342A and applicable implementing regulations including IDAPA 58.01.01.128.

[IDAPA 58.01.01.322.15.g, 5/1/94; IDAPA 58.01.01.128, 4/5/00; 40 CFR 70.6(a)(6)(v)]

Severability

If any provision of the permit is held to be invalid, all unaffected provisions of the permit will remain in effect and enforceable.

[IDAPA 58.01.01.322.15.h, 5/1/94; 40 CFR 70.6(a)(5)]

Changes Requiring Permit Revision or Notice

The permittee may not commence construction or modification of any stationary source, facility, major facility, or major modification without first obtaining all necessary permits to construct or an approval under IDAPA 58.01.01.213, or complying with IDAPA 58.01.01.220 through 223. The permittee must comply with IDAPA 58.01.01.380 through 386 as applicable.

[IDAPA 58.01.01.200-223, 4/2/08; IDAPA 58.01.01.322.15.i, 3/19/99; IDAPA 58.01.01.380-386, 7/1/02; 40 CFR 70.4(b)(12), (14), (15), and 70.7(d), (e)]

Changes that are not addressed or prohibited by the Tier I operating permit require a Tier I operating permit revision if such changes are subject to any requirement under Title IV of the CAA, 42 U.S.C. Section 7651 through 7651c, or are modifications under Title I of the CAA, 42 U.S.C. Section 7401 through 7515. Administrative amendments (IDAPA 58.01.01.381), minor permit modifications (IDAPA 58.01.01. 383), and significant permit modifications (IDAPA 58.01.01.382) require a revision to the Tier I operating permit. IDAPA 58.01.01.502(b)(10) changes are authorized in accordance with IDAPA 58.01.01.384. Off permit changes and required notice are authorized in accordance with IDAPA 58.01.01.385.

[IDAPA 58.01.01.381-385, 7/1/02; IDAPA 58.01.01.209.05, 4/11/06; 40 CFR 70.4(b)(14) and (15)]

Federal and State Enforceability

All permit conditions are federally enforceable unless specified in the permit as a state or local only requirement. State and local only requirements are not required under the CAA and are not enforceable by EPA or by citizens.

[IDAPA 58.01.01.322.15.j, 5/1/94; IDAPA 58.01.01.322.15.k, 3/23/98; Idaho Code §39-108; 40 CFR 70.6(b)(1), (2)]

Inspection and Entry

Upon presentation of credentials, the facility shall allow DEQ or an authorized representative of DEQ to do the following:

- Enter upon the permittee's premises where a Tier I source is located or emissions related activity is conducted, or where records are kept under conditions of this permit;
- Have access to and copy, at reasonable times, any records that are kept under the conditions of this permit;
- Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit; and
- As authorized by the Idaho Environmental Protection and Health Act, sample or monitor, at reasonable times, substances or parameters for the purpose of determining or ensuring compliance with this permit or applicable requirements.

[Idaho Code §39-108; IDAPA 58.01.01.322.15.l, 5/1/94; 40 CFR 70.6(c)(2)]

New Applicable Requirements

The permittee must continue to comply with all applicable requirements and must comply with new requirements on a timely basis.

[IDAPA 58.01.01.322.10, 4/5/00; IDAPA 58.01.01.314.10.a.ii, 5/1/94; 40 CFR 70.6(c)(3) citing 70.5(c)(8)]

Fees

The owner or operator of a Tier I source shall pay annual registration fees to DEQ in accordance with IDAPA 58.01.01.387 through IDAPA 58.01.01.397.

[IDAPA 58.01.01.387, 4/2/03; 40 CFR 70.6(a)(7)]

Certification

All documents submitted to DEQ shall be certified in accordance with IDAPA 58.01.01.123 and comply with IDAPA 58.01.01.124.

[IDAPA 58.01.01.322.15.o, 5/1/94; 40 CFR 70.6(a)(3)(iii)(A); 40 CFR 70.5(d)]

Renewal

The permittee shall submit an application to DEQ for a renewal of this permit at least six months before, but no earlier than 18 months before, the expiration date of this operating permit. To ensure that the term of the operating permit does not expire before the permit is renewed, the owner or operator is encouraged to submit a renewal application nine months prior to the date of expiration.

[IDAPA 58.01.01.313.03, 4/5/00; 40 CFR 70.5(a)(1)(iii)]

If a timely and complete application for a Tier I operating permit renewal is submitted, but DEQ fails to issue or deny the renewal permit before the end of the term of this permit, then all the terms and conditions of this permit including any permit shield that may have been granted pursuant to IDAPA 58.01.01.325 shall remain in effect until the renewal permit has been issued or denied.

[IDAPA 58.01.01.322.15.p, 5/1/94; 40 CFR 70.7(b)]

Permit Shield

Compliance with the terms and conditions of the Tier I operating permit, including those applicable to all alternative operating scenarios and trading scenarios, shall be deemed compliance with any applicable requirements as of the date of permit issuance, provided that:

- Such applicable requirements are included and are specifically identified in the Tier I operating permit; or
- DEQ has determined that other requirements specifically identified are not applicable and all of the criteria set forth in IDAPA 58.01.01.325.01(b) have been met.
- The permit shield shall apply to permit revisions made in accordance with IDAPA 58.01.01.381.04 (administrative amendments incorporating the terms of a permit to construct), IDAPA 58.01.01.382.04 (significant modifications), and IDAPA 58.01.01.384.03 (trading under an emissions cap).
- Nothing in this permit shall alter or affect the following:
  - Any administrative authority or judicial remedy available to prevent or terminate emergencies or imminent and substantial dangers;
  - The liability of an owner or operator of a source for any violation of applicable requirements prior to or at the time of permit issuance;
  - The applicable requirements of the acid rain program, consistent with 42 U.S.C. Section 7651(g)(a); and
  - The ability of EPA to obtain information from a source pursuant to Section 114 of the CAA; or the ability of DEQ to obtain information from a source pursuant to Idaho Code §39-108 and IDAPA 58.01.01.122.

[Idaho Code §39-108 and 112; IDAPA 58.01.01.122, 4/5/00; IDAPA 58.01.01.322.15.m, 325.01, 5/1/94; IDAPA 58.01.01.325.02, 3/19/99; IDAPA 58.01.01.381.04, 382.04, 383.05, 384.03, 385.03, 3/19/99; 40 CFR 70.6(f)]

Compliance Schedule and Progress Reports

- For each applicable requirement for which the source is not in compliance, the permittee shall comply with the compliance schedule incorporated in this permit.
- For each applicable requirement that will become effective during the term of this permit and that provides a detailed compliance schedule, the permittee shall comply with such requirements in accordance with the detailed schedule.
- For each applicable requirement that will become effective during the term of this permit that does not contain a more detailed schedule, the permittee shall meet such requirements on a timely basis.
- For each applicable requirement with which the permittee is in compliance, the permittee shall continue to comply with such requirements.

[IDAPA 58.01.01.322.10, 4/5/00; IDAPA 58.01.01.314.9, 5/1/94; IDAPA 58.01.01.314.10, 4/5/00; 40 CFR 70.6(c)(3) and (4)]

Periodic Compliance Certification

The permittee shall submit compliance certifications during the term of the permit for each emissions unit to DEQ and the EPA as specified.

- Compliance certifications for all emissions units shall be submitted annually unless otherwise specified; and
- All original compliance certifications shall be submitted to DEQ and a copy of all compliance certifications shall be submitted to the EPA.

[IDAPA 58.01.01.322.11, 4/6/05; 40 CFR 70.6(c)(5)(iii) as amended, 62 Fed. Reg. 54900, 54946 (10/22/97); 40 CFR 70.6(c)(5)(iv)]

False Statements

The permittee may not make any false statement, representation, or certification in any form, notice, or report required under this permit, or any applicable rule or order in force pursuant thereto.

[IDAPA 58.01.01.125, 3/23/98]

No Tampering

The permittee may not render inaccurate any monitoring device or method required under this permit or any applicable rule or order in force pursuant thereto.

[IDAPA 58.01.01.126, 3/23/98]

Semiannual Monitoring Reports.

In addition to all applicable reporting requirements identified in this permit, the permittee shall submit reports of any required monitoring at least every six months as specified.

[IDAPA 58.01.01.322.15.q, 3/23/98; IDAPA 58.01.01.322.08.c, 4/5/00; 40 CFR 70.6(a)(3)(iii)]

Reporting Deviations and Excess Emissions

Each and every applicable requirement, including MRRR, is subject to prompt deviation reporting. Deviations due to excess emissions must be reported in accordance Sections 130-136. All instances of deviation from Tier I operating permit requirements must be included in the deviation reports. The reports must describe the probable cause of the deviation and any corrective action or preventative measures taken. Deviation reports must be submitted at least every six months unless the permit specifies a different time period as required by IDAPA 58.01.01.322.08.c. Examples of deviations include, but are not limited to, the following:

- Any situation in which an emissions unit fails to meet a permit term or condition;
- Emission control device does not meet a required operating condition;
- Observations or collected data that demonstrate noncompliance with an emissions standard; and
- Failure to comply with a permit term that requires a report.

[IDAPA 58.01.01.322.15.q, 3/23/98; IDAPA 58.01.01.135, 4/11/06; 40 CFR 70.6(a)(3)(iii)]

Permit Revision Not Required, Emissions Trading

No permit revision will be required, under any approved, economic incentives, marketable permits, emissions trading, and other similar programs or processes, for changes that are provided for in the permit.

[IDAPA 58.01.01.322.05.b, 4/5/00; 40 CFR 70.6(a)(8)]

Emergency

In accordance with IDAPA 58.01.01.332, an "emergency" as defined in IDAPA 58.01.01.008, constitutes an affirmative defense to an action brought for noncompliance with such technology-based emissions limitation if the conditions of IDAPA 58.01.01.332.02 are met.

[IDAPA 58.01.01.332.01, 4/5/00; 40 CFR 70.6(g)]

7. REGULATORY REVIEW

7.1 Attainment Designation (40 CFR 81.313)

The facility is located in Payette County (AQCR 63) which is designated as attainment or unclassifiable for $PM_{2.5}$, PM_{10}, SO_2, NO_x, CO, and ozone for federal and state criteria air pollutants. Reference 40 CFR 81.313.

7.2 Title V Classification (IDAPA 58.01.01.300, 40 CFR Part 70)

The facility is classified as a Tier I source, as defined by IDAPA 58.01.01.006.122.c, because it is subject to the 40 CFR 60 Subpart WWW requirement to obtain a Tier I operating permit. At the time of this permitting action, the facility is not a major source of criteria or HAP emissions as defined in IDAPA 58.01.01.008. It should be noted that commencement of construction of Cell #3 is not planned within the next five years, and potential emissions from this future expansion have therefore not been addressed for regulatory purposes within this permit action (e.g., including with respect to Title V classification and federal regulatory applicability – specifically NSPS Subparts WWW and XXX, and NESHAP Subpart AAAA).

Title V of the Clean Air Act (CAA) requires landfills to obtain a Tier I operating permit. As required by IDAPA 58.01.01.313.01.b and 40 CFR 60.752(b), application for an initial Tier I operating permit was required within 12 months of becoming a Tier I source subject to 40 CFR 60 Subpart WWW.

7.3 PSD Classification (40 CFR 52.21)

The facility is not a major stationary source as defined in 40 CFR 52.21(b)(1), nor is it undergoing any physical change at a stationary source, not otherwise qualifying under paragraph 40 CFR 52.21(b)(1) as a major stationary source, that would constitute a major stationary source by itself as defined in 40 CFR 52. Therefore, in accordance with 40 CFR 52.21(a)(2), the PSD requirements do not apply.

7.4 NSPS Applicability (40 CFR 60)

Because the facility has a municipal solid waste landfill that is an area source constructed and/or modified after May 30, 1991 and has a stationary portable Tub Grinder engine constructed in 2014 that powered a chipper at a single location for more than two years, the facility is subject to the following NSPS:

- 40 CFR 60, Subpart WWW – Standards of Performance for Municipal Solid Waste Landfills. DEQ is delegated this Subpart.
- 40 CFR 60, Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. DEQ is delegated this Subpart.

It should be noted that commencement of construction of Cell #3 is not planned within the next five years, and potential emissions from this future expansion have therefore not been addressed for regulatory purposes within this permit action (e.g., including with respect to Title V classification and federal regulatory applicability – specifically NSPS Subparts WWW and XXX, and NESHAP Subpart AAAA).

<u>NSPS Subpart WWW</u>[1]

40 CFR 60, Subpart WWW..... Standards of Performance for Municipal Solid Waste Landfills

40 CFR 60.750..... Applicability, designation of affected facility, and delegation of authority

(a) The provisions of this subpart apply to each municipal solid waste landfill that commenced construction, reconstruction or modification on or after May 30, 1991. Physical or operational changes made to an existing

[1] Subpart WWW – Standards of Performance for Municipal Solid Waste Landfills, initially promulgated March 12, 1996 and as later amended.

MSW landfill solely to comply with subpart Cc of this part are not considered construction, reconstruction, or modification for the purposes of this section.

(b) The following authorities shall be retained by the Administrator and not transferred to the State: §60.754(a)(5).

(c) Activities required by or conducted pursuant to a CERCLA, RCRA, or State remedial action are not considered construction, reconstruction, or modification for purposes of this subpart.

Because the entire disposal facility includes the Cell No. 2 expansion project constructed after closure of Cell No. 1 in 2010, Clay Peak (i.e., both cells) is subject to Subpart WWW.

40 CFR 60.751 ..... Definitions

As used in this subpart, all terms not defined herein shall have the meaning given them in the Act or in subpart A of this part.

Active collection system *means a gas collection system that uses gas mover equipment.*

Active landfill *means a landfill in which solid waste is being placed or a landfill that is planned to accept waste in the future.*

Closed landfill *means a landfill in which solid waste is no longer being placed, and in which no additional solid wastes will be placed without first filing a notification of modification as prescribed under §60.7(a)(4). Once a notification of modification has been filed, and additional solid waste is placed in the landfill, the landfill is no longer closed.*

Closure *means that point in time when a landfill becomes a closed landfill.*

Commercial solid waste *means all types of solid waste generated by stores, offices, restaurants, warehouses, and other nonmanufacturing activities, excluding residential and industrial wastes.*

Controlled landfill *means any landfill at which collection and control systems are required under this subpart as a result of the nonmethane organic compounds emission rate. The landfill is considered controlled at the time a collection and control system design plan is submitted in compliance with §60.752(b)(2)(i).*

Design capacity *means the maximum amount of solid waste a landfill can accept, as indicated in terms of volume or mass in the most recent permit issued by the State, local, or Tribal agency responsible for regulating the landfill, plus any in-place waste not accounted for in the most recent permit. If the owner or operator chooses to convert the design capacity from volume to mass or from mass to volume to demonstrate its design capacity is less than 2.5 million megagrams or 2.5 million cubic meters, the calculation must include a site specific density, which must be recalculated annually.*

Disposal facility *means all contiguous land and structures, other appurtenances, and improvements on the land used for the disposal of solid waste.*

Emission rate cutoff *means the threshold annual emission rate to which a landfill compares its estimated emission rate to determine if control under the regulation is required.*

Enclosed combustor *means an enclosed firebox which maintains a relatively constant limited peak temperature generally using a limited supply of combustion air. An enclosed flare is considered an enclosed combustor.*

Flare *means an open combustor without enclosure or shroud.*

Gas mover equipment *means the equipment (i.e., fan, blower, compressor) used to transport landfill gas through the header system.*

Household waste *means any solid waste (including garbage, trash, and sanitary waste in septic tanks) derived from households (including, but not limited to, single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, and day-use recreation areas).*

Industrial solid waste *means solid waste generated by manufacturing or industrial processes that is not a hazardous waste regulated under Subtitle C of the Resource Conservation and Recovery Act, parts 264 and 265 of this title. Such waste may include, but is not limited to, waste resulting from the following manufacturing processes: electric power generation; fertilizer/agricultural chemicals; food and related products/by-products; inorganic chemicals; iron and steel manufacturing; leather and leather products; nonferrous metals manufacturing/foundries; organic chemicals; plastics and resins manufacturing; pulp and paper industry; rubber and miscellaneous plastic products; stone, glass, clay, and concrete products; textile manufacturing; transportation equipment; and water treatment. This term does not include mining waste or oil and gas waste.*

Interior well *means any well or similar collection component located inside the perimeter of the landfill waste. A perimeter well located outside the landfilled waste is not an interior well.*

Landfill *means an area of land or an excavation in which wastes are placed for permanent disposal, and that is not a land application unit, surface impoundment, injection well, or waste pile as those terms are defined under §257.2 of this title.*

Lateral expansion *means a horizontal expansion of the waste boundaries of an existing MSW landfill. A lateral expansion is not a modification unless it results in an increase in the design capacity of the landfill.*

Modification *means an increase in the permitted volume design capacity of the landfill by either horizontal or vertical expansion based on its permitted design capacity as of May 30, 1991. Modification does not occur until the owner or operator commences construction on the horizontal or vertical expansion.*

Municipal solid waste landfill *or* MSW landfill *means an entire disposal facility in a contiguous geographical space where household waste is placed in or on land. An MSW landfill may also receive other types of RCRA Subtitle D wastes (§257.2 of this title) such as commercial solid waste, nonhazardous sludge, conditionally exempt small quantity generator waste, and industrial solid waste. Portions of an MSW landfill may be separated by access roads. An MSW landfill may be publicly or privately owned. An MSW landfill may be a new MSW landfill, an existing MSW landfill, or a lateral expansion.*

Municipal solid waste landfill emissions *or* MSW landfill emissions *means gas generated by the decomposition of organic waste deposited in an MSW landfill or derived from the evolution of organic compounds in the waste.*

NMOC *means nonmethane organic compounds, as measured according to the provisions of §60.754.*

Nondegradable waste *means any waste that does not decompose through chemical breakdown or microbiological activity. Examples are, but are not limited to, concrete, municipal waste combustor ash, and metals.*

Passive collection system *means a gas collection system that solely uses positive pressure within the landfill to move the gas rather than using gas mover equipment.*

Sludge *means any solid, semisolid, or liquid waste generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility, exclusive of the treated effluent from a wastewater treatment plant.*

Solid waste *means any garbage, sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges that are point sources subject to permits under 33 U.S.C. 1342, or source, special nuclear, or by-product material as defined by the Atomic Energy Act of 1954, as amended (42 U.S.C 2011 et seq.).*

Sufficient density *means any number, spacing, and combination of collection system components, including vertical wells, horizontal collectors, and surface collectors, necessary to maintain emission and migration control as determined by measures of performance set forth in this part.*

Sufficient extraction rate *means a rate sufficient to maintain a negative pressure at all wellheads in the collection system without causing air infiltration, including any wellheads connected to the system as a result of expansion or excess surface emissions, for the life of the blower.*

40 CFR 60.752 ..... Standards for air emissions from municipal solid waste landfills

(a) Each owner or operator of an MSW landfill having a design capacity less than 2.5 million megagrams by mass or 2.5 million cubic meters by volume shall submit an initial design capacity report to the Administrator as provided in §60.757(a). The landfill may calculate design capacity in either megagrams or cubic meters for comparison with the exemption values. Any density conversions shall be documented and submitted with the report. Submittal of the initial design capacity report shall fulfill the requirements of this subpart except as provided for in paragraphs (a)(1) and (a)(2) of this section.

(1) The owner or operator shall submit to the Administrator an amended design capacity report, as provided for in §60.757(a)(3).

(2) When an increase in the maximum design capacity of a landfill exempted from the provisions of §60.752(b) through §60.759 of this subpart on the basis of the design capacity exemption in paragraph (a) of this section results in a revised maximum design capacity equal to or greater than 2.5 million megagrams and

2.5 million cubic meters, the owner or operator shall comply with the provision of paragraph (b) of this section.

(b) Each owner or operator of an MSW landfill having a design capacity equal to or greater than 2.5 million megagrams and 2.5 million cubic meters, shall either comply with paragraph (b)(2) of this section or calculate an NMOC emission rate for the landfill using the procedures specified in §60.754. The NMOC emission rate shall be recalculated annually, except as provided in §60.757(b)(1)(ii) of this subpart. The owner or operator of an MSW landfill subject to this subpart with a design capacity greater than or equal to 2.5 million megagrams and 2.5 million cubic meters is subject to part 70 or 71 permitting requirements.

(1) If the calculated NMOC emission rate is less than 50 megagrams per year, the owner or operator shall:

(i) Submit an annual emission report to the Administrator, except as provided for in §60.757(b)(1)(ii); and

(ii) Recalculate the NMOC emission rate annually using the procedures specified in §60.754(a)(1) until such time as the calculated NMOC emission rate is equal to or greater than 50 megagrams per year, or the landfill is closed.

(A) If the NMOC emission rate, upon recalculation required in paragraph (b)(1)(ii) of this section, is equal to or greater than 50 megagrams per year, the owner or operator shall install a collection and control system in compliance with paragraph (b)(2) of this section.

(B) If the landfill is permanently closed, a closure notification shall be submitted to the Administrator as provided for in §60.757(d).

(2) If the calculated NMOC emission rate is equal to or greater than 50 megagrams per year, the owner or operator shall:

(i) Submit a collection and control system design plan prepared by a professional engineer to the Administrator within 1 year:

(A) The collection and control system as described in the plan shall meet the design requirements of paragraph (b)(2)(ii) of this section.

(B) The collection and control system design plan shall include any alternatives to the operational standards, test methods, procedures, compliance measures, monitoring, recordkeeping or reporting provisions of §§60.753 through 60.758 proposed by the owner or operator.

(C) The collection and control system design plan shall either conform with specifications for active collection systems in §60.759 or include a demonstration to the Administrator's satisfaction of the sufficiency of the alternative provisions to §60.759.

(D) The Administrator shall review the information submitted under paragraphs (b)(2)(i) (A),(B) and (C) of this section and either approve it, disapprove it, or request that additional information be submitted. Because of the many site-specific factors involved with landfill gas system design, alternative systems may be necessary. A wide variety of system designs are possible, such as vertical wells, combination horizontal and vertical collection systems, or horizontal trenches only, leachate collection components, and passive systems.

(ii) Install a collection and control system that captures the gas generated within the landfill as required by paragraphs (b)(2)(ii)(A) or (B) and (b)(2)(iii) of this section within 30 months after the first annual report in which the emission rate equals or exceeds 50 megagrams per year, unless Tier 2 or Tier 3 sampling demonstrates that the emission rate is less than 50 megagrams per year, as specified in §60.757(c)(1) or (2).

(A) An active collection system shall:

(1) Be designed to handle the maximum expected gas flow rate from the entire area of the landfill that warrants control over the intended use period of the gas control or treatment system equipment;

(2) Collect gas from each area, cell, or group of cells in the landfill in which the initial solid waste has been placed for a period of:

(i) 5 years or more if active; or

(ii) 2 years or more if closed or at final grade.

(3) Collect gas at a sufficient extraction rate;

(4) Be designed to minimize off-site migration of subsurface gas.

(B) A passive collection system shall:

(1) Comply with the provisions specified in paragraphs (b)(2)(ii)(A)(1), (2), and (2)(ii)(A)(4) of this section.

(2) Be installed with liners on the bottom and all sides in all areas in which gas is to be collected. The liners shall be installed as required under §258.40.

(iii) Route all the collected gas to a control system that complies with the requirements in either paragraph (b)(2)(iii) (A), (B) or (C) of this section.

(A) An open flare designed and operated in accordance with §60.18 except as noted in §60.754(e);

(B) A control system designed and operated to reduce NMOC by 98 weight-percent, or, when an enclosed combustion device is used for control, to either reduce NMOC by 98 weight percent or reduce the outlet NMOC concentration to less than 20 parts per million by volume, dry basis as hexane at 3 percent oxygen. The reduction efficiency or parts per million by volume shall be established by an initial performance test to be completed no later than 180 days after the initial startup of the approved control system using the test methods specified in §60.754(d).

(1) If a boiler or process heater is used as the control device, the landfill gas stream shall be introduced into the flame zone.

(2) The control device shall be operated within the parameter ranges established during the initial or most recent performance test. The operating parameters to be monitored are specified in §60.756;

(C) Route the collected gas to a treatment system that processes the collected gas for subsequent sale or use. All emissions from any atmospheric vent from the gas treatment system shall be subject to the requirements of paragraph (b)(2)(iii) (A) or (B) of this section.

(iv) Operate the collection and control device installed to comply with this subpart in accordance with the provisions of §§60.753, 60.755 and 60.756.

(v) The collection and control system may be capped or removed provided that all the conditions of paragraphs (b)(2)(v) (A), (B), and (C) of this section are met:

(A) The landfill shall be a closed landfill as defined in §60.751 of this subpart. A closure report shall be submitted to the Administrator as provided in §60.757(d);

(B) The collection and control system shall have been in operation a minimum of 15 years; and

(C) Following the procedures specified in §60.754(b) of this subpart, the calculated NMOC gas produced by the landfill shall be less than 50 megagrams per year on three successive test dates. The test dates shall be no less than 90 days apart, and no more than 180 days apart.

(c) For purposes of obtaining an operating permit under title V of the Act, the owner or operator of a MSW landfill subject to this subpart with a design capacity less than 2.5 million megagrams or 2.5 million cubic meters is not subject to the requirement to obtain an operating permit for the landfill under part 70 or 71 of this chapter, unless the landfill is otherwise subject to either part 70 or 71. For purposes of submitting a timely application for an operating permit under part 70 or 71, the owner or operator of a MSW landfill subject to this subpart with a design capacity greater than or equal to 2.5 million megagrams and 2.5 million cubic meters, and not otherwise subject to either part 70 or 71, becomes subject to the requirements of §§70.5(a)(1)(i) or 71.5(a)(1)(i) of this chapter, regardless of when the design capacity report is actually submitted, no later than:

(1) June 10, 1996 for MSW landfills that commenced construction, modification, or reconstruction on or after May 30, 1991 but before March 12, 1996;

(2) Ninety days after the date of commenced construction, modification, or reconstruction for MSW landfills that commence construction, modification, or reconstruction on or after March 12, 1996.

(d) When a MSW landfill subject to this subpart is closed, the owner or operator is no longer subject to the requirement to maintain an operating permit under part 70 or 71 of this chapter for the landfill if the landfill is

not otherwise subject to the requirements of either part 70 or 71 and if either of the following conditions are met:

(1) The landfill was never subject to the requirement for a control system under paragraph (b)(2) of this section; or

(2) The owner or operator meets the conditions for control system removal specified in paragraph (b)(2)(v) of this section.

Because the proposed maximum design capacity (3.2 Mg and 7.9 million yd^3) is greater than 2.5 million Mg and 2.5 million yd^3, Clay Peak is subject to Tier I operating permit requirements. Because projected annual NMOC emissions are less than 50 Mg/yr (less than 19 Mg/yr of facility-wide NMOC emissions – with a maximum projected output of 11.81 Mg/yr in 2039 for Cell #2 and 6.981 Mg/yr in 2009 for Cell #2), Clay Peak is required to comply with annual recalculation of NMOC emissions according to the procedures in 40 CFR 60.754 in accordance with 40 CFR 60.752(b). This requirement is in incorporated as Permit Condition 4.3.

Potentially-applicable requirements for control systems and addressing closure were included as Permit Conditions 4.6 and 4.7.

40 CFR 60.753 ..... Operational standards for collection and control systems

Each owner or operator of an MSW landfill with a gas collection and control system used to comply with the provisions of §60.752(b)(2)(ii) of this subpart shall:

(a) Operate the collection system such that gas is collected from each area, cell, or group of cells in the MSW landfill in which solid waste has been in place for:

(1) 5 years or more if active; or

(2) 2 years or more if closed or at final grade;

(b) Operate the collection system with negative pressure at each wellhead except under the following conditions:

(1) A fire or increased well temperature. The owner or operator shall record instances when positive pressure occurs in efforts to avoid a fire. These records shall be submitted with the annual reports as provided in §60.757(f)(1);

(2) Use of a geomembrane or synthetic cover. The owner or operator shall develop acceptable pressure limits in the design plan;

(3) A decommissioned well. A well may experience a static positive pressure after shut down to accommodate for declining flows. All design changes shall be approved by the Administrator;

(c) Operate each interior wellhead in the collection system with a landfill gas temperature less than 55 °C and with either a nitrogen level less than 20 percent or an oxygen level less than 5 percent. The owner or operator may establish a higher operating temperature, nitrogen, or oxygen value at a particular well. A higher operating value demonstration shall show supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens.

(1) The nitrogen level shall be determined using Method 3C, unless an alternative test method is established as allowed by §60.752(b)(2)(i) of this subpart.

(2) Unless an alternative test method is established as allowed by §60.752(b)(2)(i) of this subpart, the oxygen shall be determined by an oxygen meter using Method 3A or 3C except that:

(i) The span shall be set so that the regulatory limit is between 20 and 50 percent of the span;

(ii) A data recorder is not required;

(iii) Only two calibration gases are required, a zero and span, and ambient air may be used as the span;

(iv) A calibration error check is not required;

(v) The allowable sample bias, zero drift, and calibration drift are ±10 percent.

(d) Operate the collection system so that the methane concentration is less than 500 parts per million above background at the surface of the landfill. To determine if this level is exceeded, the owner or operator shall conduct surface testing around the perimeter of the collection area and along a pattern that traverses the

landfill at 30 meter intervals and where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover. The owner or operator may establish an alternative traversing pattern that ensures equivalent coverage. A surface monitoring design plan shall be developed that includes a topographical map with the monitoring route and the rationale for any site-specific deviations from the 30 meter intervals. Areas with steep slopes or other dangerous areas may be excluded from the surface testing.

(e) Operate the system such that all collected gases are vented to a control system designed and operated in compliance with §60.752(b)(2)(iii). In the event the collection or control system is inoperable, the gas mover system shall be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere shall be closed within 1 hour; and

(f) Operate the control or treatment system at all times when the collected gas is routed to the system.

(g) If monitoring demonstrates that the operational requirements in paragraphs (b), (c), or (d) of this section are not met, corrective action shall be taken as specified in §60.755(a)(3) through (5) or §60.755(c) of this subpart. If corrective actions are taken as specified in §60.755, the monitored exceedance is not a violation of the operational requirements in this section.

Because projected annual NMOC emissions are estimated at less than 50 Mg/yr, requirements related to collection and control are not yet applicable.

Potentially-applicable requirements for control systems were included in Permit Condition 4.8.

40 CFR 60.754 ..... Test methods and procedures

(a)(1) The landfill owner or operator shall calculate the NMOC emission rate using either the equation provided in paragraph (a)(1)(i) of this section or the equation provided in paragraph (a)(1)(ii) of this section. Both equations may be used if the actual year-to-year solid waste acceptance rate is known, as specified in paragraph (a)(1)(i), for part of the life of the landfill and the actual year-to-year solid waste acceptance rate is unknown, as specified in paragraph (a)(1)(ii), for part of the life of the landfill. The values to be used in both equations are 0.05 per year for k, 170 cubic meters per megagram for L_O, and 4,000 parts per million by volume as hexane for the C_{NMOC}. For landfills located in geographical areas with a thirty year annual average precipitation of less than 25 inches, as measured at the nearest representative official meteorologic site, the k value to be used is 0.02 per year.

(i) The following equation shall be used if the actual year-to-year solid waste acceptance rate is known.

$$M_{NMOC} = \sum_{i=1}^{n} 2\,k\,L_o M_i \left(e^{-kt_i}\right)\left(C_{NMOC}\right)\left(3.6\times10^{-9}\right)$$

where,

M_{NMOC} = *Total NMOC emission rate from the landfill, megagrams per year*

k = *methane generation rate constant, year^{-1}*

L_o = *methane generation potential, cubic meters per megagram solid waste*

M_i = *mass of solid waste in the ith section, megagrams*

t_i = *age of the ith section, years*

C_{NMOC} = *concentration of NMOC, parts per million by volume as hexane*

3.6×10^{-9} = *conversion factor*

The mass of nondegradable solid waste may be subtracted from the total mass of solid waste in a particular section of the landfill when calculating the value for M_i if documentation of the nature and amount of such wastes is maintained

(ii) The following equation shall be used if the actual year-to-year solid waste acceptance rate is unknown.

$$M_{NMOC} = 2L_o R\,(e^{-kc} - e^{-kt})\,C_{NMOC}\,(3.6 \times 10^{-9})$$

Where:

M_{NMOC} = *mass emission rate of NMOC, megagrams per year*

L_o = methane generation potential, cubic meters per megagram solid waste

R = average annual acceptance rate, megagrams per year

k = methane generation rate constant, year [1]

t = age of landfill, years

C_{NMOC} = concentration of NMOC, parts per million by volume as hexane

c = time since closure, years; for active landfill c = O and e [kc] *1*

3.6 × 10−9 = conversion factor

The mass of nondegradable solid waste may be subtracted from the total mass of solid waste in a particular section of the landfill when calculating the value of R, if documentation of the nature and amount of such wastes is maintained.

(2) Tier 1. *The owner or operator shall compare the calculated NMOC mass emission rate to the standard of 50 megagrams per year.*

(i) If the NMOC emission rate calculated in paragraph (a)(1) of this section is less than 50 megagrams per year, then the landfill owner shall submit an emission rate report as provided in §60.757(b)(1), and shall recalculate the NMOC mass emission rate annually as required under §60.752(b)(1).

(ii) If the calculated NMOC emission rate is equal to or greater than 50 megagrams per year, then the landfill owner shall either comply with §60.752(b)(2), or determine a site-specific NMOC concentration and recalculate the NMOC emission rate using the procedures provided in paragraph (a)(3) of this section.

(3) Tier 2. *The landfill owner or operator shall determine the NMOC concentration using the following sampling procedure. The landfill owner or operator shall install at least two sample probes per hectare of landfill surface that has retained waste for at least 2 years. If the landfill is larger than 25 hectares in area, only 50 samples are required. The sample probes should be located to avoid known areas of nondegradable solid waste. The owner or operator shall collect and analyze one sample of landfill gas from each probe to determine the NMOC concentration using Method 25 or 25C of appendix A of this part. Method 18 of appendix A of this part may be used to analyze the samples collected by the Method 25 or 25C sampling procedure. Taking composite samples from different probes into a single cylinder is allowed; however, equal sample volumes must be taken from each probe. For each composite, the sampling rate, collection times, beginning and ending cylinder vacuums, or alternative volume measurements must be recorded to verify that composite volumes are equal. Composite sample volumes should not be less than one liter unless evidence can be provided to substantiate the accuracy of smaller volumes. Terminate compositing before the cylinder approaches ambient pressure where measurement accuracy diminishes. If using Method 18, the owner or operator must identify all compounds in the sample and, as a minimum, test for those compounds published in the most recent Compilation of Air Pollutant Emission Factors (AP-42), minus carbon monoxide, hydrogen sulfide, and mercury. As a minimum, the instrument must be calibrated for each of the compounds on the list. Convert the concentration of each Method 18 compound to C_{NMOC} as hexane by multiplying by the ratio of its carbon atoms divided by six. If more than the required number of samples are taken, all samples must be used in the analysis. The landfill owner or operator must divide the NMOC concentration from Method 25 or 25C of appendix A of this part by six to convert from C_{NMOC} as carbon to C_{NMOC} as hexane. If the landfill has an active or passive gas removal system in place, Method 25 or 25C samples may be collected from these systems instead of surface probes provided the removal system can be shown to provide sampling as representative as the two sampling probe per hectare requirement. For active collection systems, samples may be collected from the common header pipe before the gas moving or condensate removal equipment. For these systems, a minimum of three samples must be collected from the header pipe.*

(i) The landfill owner or operator shall recalculate the NMOC mass emission rate using the equations provided in paragraph (a)(1)(i) or (a)(1)(ii) of this section and using the average NMOC concentration from the collected samples instead of the default value in the equation provided in paragraph (a)(1) of this section.

(ii) If the resulting mass emission rate calculated using the site-specific NMOC concentration is equal to or greater than 50 megagrams per year, then the landfill owner or operator shall either comply with §60.752(b)(2), or determine the site-specific methane generation rate constant and recalculate the

NMOC emission rate using the site-specific methane generation rate using the procedure specified in paragraph (a)(4) of this section.

(iii) If the resulting NMOC mass emission rate is less than 50 megagrams per year, the owner or operator shall submit a periodic estimate of the emission rate report as provided in §60.757(b)(1) and retest the site-specific NMOC concentration every 5 years using the methods specified in this section.

(4) Tier 3. *The site-specific methane generation rate constant shall be determined using the procedures provided in Method 2E of appendix A of this part. The landfill owner or operator shall estimate the NMOC mass emission rate using equations in paragraph (a)(1)(i) or (a)(1)(ii) of this section and using a site-specific methane generation rate constant k, and the site-specific NMOC concentration as determined in paragraph (a)(3) of this section instead of the default values provided in paragraph (a)(1) of this section. The landfill owner or operator shall compare the resulting NMOC mass emission rate to the standard of 50 megagrams per year.*

(i) If the NMOC mass emission rate as calculated using the site-specific methane generation rate and concentration of NMOC is equal to or greater than 50 megagrams per year, the owner or operator shall comply with §60.752(b)(2).

(ii) If the NMOC mass emission rate is less than 50 megagrams per year, then the owner or operator shall submit a periodic emission rate report as provided in §60.757(b)(1) and shall recalculate the NMOC mass emission rate annually, as provided in §60.757(b)(1) using the equations in paragraph (a)(1) of this section and using the site-specific methane generation rate constant and NMOC concentration obtained in paragraph (a)(3) of this section. The calculation of the methane generation rate constant is performed only once, and the value obtained from this test shall be used in all subsequent annual NMOC emission rate calculations.

(5) The owner or operator may use other methods to determine the NMOC concentration or a site-specific k as an alternative to the methods required in paragraphs (a)(3) and (a)(4) of this section if the method has been approved by the Administrator.

(b) After the installation of a collection and control system in compliance with §60.755, the owner or operator shall calculate the NMOC emission rate for purposes of determining when the system can be removed as provided in §60.752(b)(2)(v), using the following equation:

$$M_{NMOC} = 1.89 \times 10^{-3}\, Q_{LFG}\, C_{NMOC}$$

where,

M_{NMOC} = *mass emission rate of NMOC, megagrams per year*

Q_{LFG} = *flow rate of landfill gas, cubic meters per minute*

C_{NMOC} = *NMOC concentration, parts per million by volume as hexane*

(1) The flow rate of landfill gas, Q_{LFG}, shall be determined by measuring the total landfill gas flow rate at the common header pipe that leads to the control device using a gas flow measuring device calibrated according to the provisions of section 4 of Method 2E of appendix A of this part.

(2) The average NMOC concentration, C_{NMOC}, shall be determined by collecting and analyzing landfill gas sampled from the common header pipe before the gas moving or condensate removal equipment using the procedures in Method 25C or Method 18 of appendix A of this part. If using Method 18 of appendix A of this part, the minimum list of compounds to be tested shall be those published in the most recent Compilation of Air Pollutant Emission Factors (AP-42). The sample location on the common header pipe shall be before any condensate removal or other gas refining units. The landfill owner or operator shall divide the NMOC concentration from Method 25C of appendix A of this part by six to convert from C_{NMOC} as carbon to C_{NMOC} as hexane.

(3) The owner or operator may use another method to determine landfill gas flow rate and NMOC concentration if the method has been approved by the Administrator.

(c) When calculating emissions for PSD purposes, the owner or operator of each MSW landfill subject to the provisions of this subpart shall estimate the NMOC emission rate for comparison to the PSD major source and significance levels in §§51.166 or 52.21 of this chapter using AP-42 or other approved measurement procedures.

(d) For the performance test required in §60.752(b)(2)(iii)(B), Method 25, 25C, or Method 18 of appendix A of this part must be used to determine compliance with the 98 weight-percent efficiency or the 20 ppmv outlet concentration level, unless another method to demonstrate compliance has been approved by the Administrator as provided by §60.752(b)(2)(i)(B). Method 3 or 3A shall be used to determine oxygen for correcting the NMOC concentration as hexane to 3 percent. In cases where the outlet concentration is less than 50 ppm NMOC as carbon (8 ppm NMOC as hexane), Method 25A should be used in place of Method 25. If using Method 18 of appendix A of this part, the minimum list of compounds to be tested shall be those published in the most recent Compilation of Air Pollutant Emission Factors (AP-42). The following equation shall be used to calculate efficiency:

Control Efficiency $= (NMOC_{in} - NMOC_{out})/(NMOC_{in})$

where,

$NMOC_{in}$ = *mass of NMOC entering control device*

$NMOC_{out}$ = *mass of NMOC exiting control device*

(e) For the performance test required in §60.752(b)(2)(iii)(A), the net heating value of the combusted landfill gas as determined in §60.18(f)(3) is calculated from the concentration of methane in the landfill gas as measured by Method 3C. A minimum of three 30-minute Method 3C samples are determined. The measurement of other organic components, hydrogen, and carbon monoxide is not applicable. Method 3C may be used to determine the landfill gas molecular weight for calculating the flare gas exit velocity under §60.18(f)(4).

§60.754 contains applicable and alternative NMOC estimation procedures which were referenced (Permit Condition 4.3) but not incorporated as permit conditions.

Potentially-applicable requirements for control systems were included in Permit Condition 4.9.

40 CFR 60.755 ..... Compliance provisions

(a) Except as provided in §60.752(b)(2)(i)(B), the specified methods in paragraphs (a)(1) through (a)(6) of this section shall be used to determine whether the gas collection system is in compliance with §60.752(b)(2)(ii).

(1) For the purposes of calculating the maximum expected gas generation flow rate from the landfill to determine compliance with §60.752(b)(2)(ii)(A)(1), one of the following equations shall be used. The k and L_o kinetic factors should be those published in the most recent Compilation of Air Pollutant Emission Factors (AP-42) or other site specific values demonstrated to be appropriate and approved by the Administrator. If k has been determined as specified in §60.754(a)(4), the value of k determined from the test shall be used. A value of no more than 15 years shall be used for the intended use period of the gas mover equipment. The active life of the landfill is the age of the landfill plus the estimated number of years until closure.

(i) For sites with unknown year-to-year solid waste acceptance rate:

$Q_m = 2L_o R (e^{-kc} - e^{-kt})$

where,

Q_m = *maximum expected gas generation flow rate, cubic meters per year*

L_o = *methane generation potential, cubic meters per megagram solid waste*

R = *average annual acceptance rate, megagrams per year*

k = *methane generation rate constant, year* $^{-1}$

t = *age of the landfill at equipment installation plus the time the owner or operator intends to use the gas mover equipment or active life of the landfill, whichever is less. If the equipment is installed after closure, t is the age of the landfill at installation, years*

c = *time since closure, years (for an active landfill c = O and* $e^{-kc} = 1$*)*

(ii) For sites with known year-to-year solid waste acceptance rate:

$$Q_M = \sum_{i=1}^{n} 2\,k\,L_o\,M_i\left(e^{-kt_i}\right)$$

where,

Q_M = *maximum expected gas generation flow rate, cubic meters per year*

k = *methane generation rate constant, year* $^{-1}$

L_o = *methane generation potential, cubic meters per megagram solid waste*

M_i = *mass of solid waste in the* i^{th} *section, megagrams*

t_i = *age of the* i^{th} *section, years*

(iii) *If a collection and control system has been installed, actual flow data may be used to project the maximum expected gas generation flow rate instead of, or in conjunction with, the equations in paragraphs (a)(1) (i) and (ii) of this section. If the landfill is still accepting waste, the actual measured flow data will not equal the maximum expected gas generation rate, so calculations using the equations in paragraphs (a)(1) (i) or (ii) or other methods shall be used to predict the maximum expected gas generation rate over the intended period of use of the gas control system equipment.*

(2) *For the purposes of determining sufficient density of gas collectors for compliance with §60.752(b)(2)(ii)(A)(2), the owner or operator shall design a system of vertical wells, horizontal collectors, or other collection devices, satisfactory to the Administrator, capable of controlling and extracting gas from all portions of the landfill sufficient to meet all operational and performance standards.*

(3) *For the purpose of demonstrating whether the gas collection system flow rate is sufficient to determine compliance with §60.752(b)(2)(ii)(A)(3), the owner or operator shall measure gauge pressure in the gas collection header at each individual well, monthly. If a positive pressure exists, action shall be initiated to correct the exceedance within 5 calendar days, except for the three conditions allowed under §60.753(b). If negative pressure cannot be achieved without excess air infiltration within 15 calendar days of the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial measurement of positive pressure. Any attempted corrective measure shall not cause exceedances of other operational or performance standards. An alternative timeline for correcting the exceedance may be submitted to the Administrator for approval.*

(4) *Owners or operators are not required to expand the system as required in paragraph (a)(3) of this section during the first 180 days after gas collection system startup.*

(5) *For the purpose of identifying whether excess air infiltration into the landfill is occurring, the owner or operator shall monitor each well monthly for temperature and nitrogen or oxygen as provided in §60.753(c). If a well exceeds one of these operating parameters, action shall be initiated to correct the exceedance within 5 calendar days. If correction of the exceedance cannot be achieved within 15 calendar days of the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial exceedance. Any attempted corrective measure shall not cause exceedances of other operational or performance standards. An alternative timeline for correcting the exceedance may be submitted to the Administrator for approval.*

(6) *An owner or operator seeking to demonstrate compliance with §60.752(b)(2)(ii)(A)(4) through the use of a collection system not conforming to the specifications provided in §60.759 shall provide information satisfactory to the Administrator as specified in §60.752(b)(2)(i)(C) demonstrating that off-site migration is being controlled.*

(b) *For purposes of compliance with §60.753(a), each owner or operator of a controlled landfill shall place each well or design component as specified in the approved design plan as provided in §60.752(b)(2)(i). Each well shall be installed no later than 60 days after the date on which the initial solid waste has been in place for a period of:*

(1) *5 years or more if active; or*

(2) *2 years or more if closed or at final grade.*

(c) *The following procedures shall be used for compliance with the surface methane operational standard as provided in §60.753(d).*

(1) *After installation of the collection system, the owner or operator shall monitor surface concentrations of methane along the entire perimeter of the collection area and along a pattern that traverses the landfill at 30 meter intervals (or a site-specific established spacing) for each collection area on a quarterly basis*

using an organic vapor analyzer, flame ionization detector, or other portable monitor meeting the specifications provided in paragraph (d) of this section.

(2) The background concentration shall be determined by moving the probe inlet upwind and downwind outside the boundary of the landfill at a distance of at least 30 meters from the perimeter wells.

(3) Surface emission monitoring shall be performed in accordance with section 4.3.1 of Method 21 of appendix A of this part, except that the probe inlet shall be placed within 5 to 10 centimeters of the ground. Monitoring shall be performed during typical meteorological conditions.

(4) Any reading of 500 parts per million or more above background at any location shall be recorded as a monitored exceedance and the actions specified in paragraphs (c)(4) (i) through (v) of this section shall be taken. As long as the specified actions are taken, the exceedance is not a violation of the operational requirements of §60.753(d).

(i) The location of each monitored exceedance shall be marked and the location recorded.

(ii) Cover maintenance or adjustments to the vacuum of the adjacent wells to increase the gas collection in the vicinity of each exceedance shall be made and the location shall be re-monitored within 10 calendar days of detecting the exceedance.

(iii) If the re-monitoring of the location shows a second exceedance, additional corrective action shall be taken and the location shall be monitored again within 10 days of the second exceedance. If the re-monitoring shows a third exceedance for the same location, the action specified in paragraph (c)(4)(v) of this section shall be taken, and no further monitoring of that location is required until the action specified in paragraph (c)(4)(v) has been taken.

(iv) Any location that initially showed an exceedance but has a methane concentration less than 500 ppm methane above background at the 10-day re-monitoring specified in paragraph (c)(4) (ii) or (iii) of this section shall be re-monitored 1 month from the initial exceedance. If the 1-month remonitoring shows a concentration less than 500 parts per million above background, no further monitoring of that location is required until the next quarterly monitoring period. If the 1-month remonitoring shows an exceedance, the actions specified in paragraph (c)(4) (iii) or (v) shall be taken.

(v) For any location where monitored methane concentration equals or exceeds 500 parts per million above background three times within a quarterly period, a new well or other collection device shall be installed within 120 calendar days of the initial exceedance. An alternative remedy to the exceedance, such as upgrading the blower, header pipes or control device, and a corresponding timeline for installation may be submitted to the Administrator for approval.

(5) The owner or operator shall implement a program to monitor for cover integrity and implement cover repairs as necessary on a monthly basis.

(d) Each owner or operator seeking to comply with the provisions in paragraph (c) of this section shall comply with the following instrumentation specifications and procedures for surface emission monitoring devices:

(1) The portable analyzer shall meet the instrument specifications provided in section 3 of Method 21 of appendix A of this part, except that "methane" shall replace all references to VOC.

(2) The calibration gas shall be methane, diluted to a nominal concentration of 500 parts per million in air.

(3) To meet the performance evaluation requirements in section 3.1.3 of Method 21 of appendix A of this part, the instrument evaluation procedures of section 4.4 of Method 21 of appendix A of this part shall be used.

(4) The calibration procedures provided in section 4.2 of Method 21 of appendix A of this part shall be followed immediately before commencing a surface monitoring survey.

(e) The provisions of this subpart apply at all times, except during periods of start-up, shutdown, or malfunction, provided that the duration of start-up, shutdown, or malfunction shall not exceed 5 days for collection systems and shall not exceed 1 hour for treatment or control devices.

Because projected annual NMOC emissions are estimated at less than 50 Mg/yr, requirements related to collection and control are not yet applicable.

Potentially-applicable requirements for control systems were included in Permit Conditions 4.10 through 4.14.

40 CFR 60.756 ..... Monitoring of operations.

Except as provided in §60.752(b)(2)(i)(B),

(a) Each owner or operator seeking to comply with §60.752(b)(2)(ii)(A) for an active gas collection system shall install a sampling port and a thermometer, other temperature measuring device, or an access port for temperature measurements at each wellhead and:

(1) Measure the gauge pressure in the gas collection header on a monthly basis as provided in §60.755(a)(3); and

(2) Monitor nitrogen or oxygen concentration in the landfill gas on a monthly basis as provided in §60.755(a)(5); and

(3) Monitor temperature of the landfill gas on a monthly basis as provided in §60.755(a)(5).

(b) Each owner or operator seeking to comply with §60.752(b)(2)(iii) using an enclosed combustor shall calibrate, maintain, and operate according to the manufacturer's specifications, the following equipment.

(1) A temperature monitoring device equipped with a continuous recorder and having a minimum accuracy of ±1 percent of the temperature being measured expressed in degrees Celsius or ±0.5 degrees Celsius, whichever is greater. A temperature monitoring device is not required for boilers or process heaters with design heat input capacity equal to or greater than 44 megawatts.

(2) A device that records flow to or bypass of the control device. The owner or operator shall either:

(i) Install, calibrate, and maintain a gas flow rate measuring device that shall record the flow to the control device at least every 15 minutes; or

(ii) Secure the bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure mechanism shall be performed at least once every month to ensure that the valve is maintained in the closed position and that the gas flow is not diverted through the bypass line.

(c) Each owner or operator seeking to comply with §60.752(b)(2)(iii) using an open flare shall install, calibrate, maintain, and operate according to the manufacturer's specifications the following equipment:

(1) A heat sensing device, such as an ultraviolet beam sensor or thermocouple, at the pilot light or the flame itself to indicate the continuous presence of a flame.

(2) A device that records flow to or bypass of the flare. The owner or operator shall either:

(i) Install, calibrate, and maintain a gas flow rate measuring device that shall record the flow to the control device at least every 15 minutes; or

(ii) Secure the bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure mechanism shall be performed at least once every month to ensure that the valve is maintained in the closed position and that the gas flow is not diverted through the bypass line.

(d) Each owner or operator seeking to demonstrate compliance with §60.752(b)(2)(iii) using a device other than an open flare or an enclosed combustor shall provide information satisfactory to the Administrator as provided in §60.752(b)(2)(i)(B) describing the operation of the control device, the operating parameters that would indicate proper performance, and appropriate monitoring procedures. The Administrator shall review the information and either approve it, or request that additional information be submitted. The Administrator may specify additional appropriate monitoring procedures.

(e) Each owner or operator seeking to install a collection system that does not meet the specifications in §60.759 or seeking to monitor alternative parameters to those required by §§60.753 through 60.756 shall provide information satisfactory to the Administrator as provided in §60.752(b)(2)(i) (B) and (C) describing the design and operation of the collection system, the operating parameters that would indicate proper performance, and appropriate monitoring procedures. The Administrator may specify additional appropriate monitoring procedures.

(f) Each owner or operator seeking to demonstrate compliance with §60.755(c), shall monitor surface concentrations of methane according to the instrument specifications and procedures provided in §60.755(d). Any closed landfill that has no monitored exceedances of the operational standard in three consecutive quarterly monitoring periods may skip to annual monitoring. Any methane reading of 500 ppm or more above

background detected during the annual monitoring returns the frequency for that landfill to quarterly monitoring.

Because projected annual NMOC emissions are estimated at less than 50 Mg/yr, requirements related to collection and control are not yet applicable.

Potentially-applicable requirements for control systems were included in Permit Conditions 4.15 through 4.18.

40 CFR 60.757 ..... Reporting requirements

Except as provided in §60.752(b)(2)(i)(B),

(a) Each owner or operator subject to the requirements of this subpart shall submit an initial design capacity report to the Administrator.

(1) The initial design capacity report shall fulfill the requirements of the notification of the date construction is commenced as required by §60.7(a)(1) and shall be submitted no later than:

(i) June 10, 1996, for landfills that commenced construction, modification, or reconstruction on or after May 30, 1991 but before March 12, 1996 or

(ii) Ninety days after the date of commenced construction, modification, or reconstruction for landfills that commence construction, modification, or reconstruction on or after March 12, 1996.

(2) The initial design capacity report shall contain the following information:

(i) A map or plot of the landfill, providing the size and location of the landfill, and identifying all areas where solid waste may be landfilled according to the permit issued by the State, local, or tribal agency responsible for regulating the landfill.

(ii) The maximum design capacity of the landfill. Where the maximum design capacity is specified in the permit issued by the State, local, or tribal agency responsible for regulating the landfill, a copy of the permit specifying the maximum design capacity may be submitted as part of the report. If the maximum design capacity of the landfill is not specified in the permit, the maximum design capacity shall be calculated using good engineering practices. The calculations shall be provided, along with the relevant parameters as part of the report. The State, Tribal, local agency or Administrator may request other reasonable information as may be necessary to verify the maximum design capacity of the landfill.

(3) An amended design capacity report shall be submitted to the Administrator providing notification of an increase in the design capacity of the landfill, within 90 days of an increase in the maximum design capacity of the landfill to or above 2.5 million megagrams and 2.5 million cubic meters. This increase in design capacity may result from an increase in the permitted volume of the landfill or an increase in the density as documented in the annual recalculation required in §60.758(f).

(b) Each owner or operator subject to the requirements of this subpart shall submit an NMOC emission rate report to the Administrator initially and annually thereafter, except as provided for in paragraphs (b)(1)(ii) or (b)(3) of this section. The Administrator may request such additional information as may be necessary to verify the reported NMOC emission rate.

(1) The NMOC emission rate report shall contain an annual or 5-year estimate of the NMOC emission rate calculated using the formula and procedures provided in §60.754(a) or (b), as applicable.

(i) The initial NMOC emission rate report may be combined with the initial design capacity report required in paragraph (a) of this section and shall be submitted no later than indicated in paragraphs (b)(1)(i)(A) and (B) of this section. Subsequent NMOC emission rate reports shall be submitted annually thereafter, except as provided for in paragraphs (b)(1)(ii) and (b)(3) of this section.

(A) June 10, 1996, for landfills that commenced construction, modification, or reconstruction on or after May 30, 1991, but before March 12, 1996, or

(B) Ninety days after the date of commenced construction, modification, or reconstruction for landfills that commence construction, modification, or reconstruction on or after March 12, 1996.

(ii) If the estimated NMOC emission rate as reported in the annual report to the Administrator is less than 50 megagrams per year in each of the next 5 consecutive years, the owner or operator may elect to

submit an estimate of the NMOC emission rate for the next 5-year period in lieu of the annual report. This estimate shall include the current amount of solid waste-in-place and the estimated waste acceptance rate for each year of the 5 years for which an NMOC emission rate is estimated. All data and calculations upon which this estimate is based shall be provided to the Administrator. This estimate shall be revised at least once every 5 years. If the actual waste acceptance rate exceeds the estimated waste acceptance rate in any year reported in the 5-year estimate, a revised 5-year estimate shall be submitted to the Administrator. The revised estimate shall cover the 5-year period beginning with the year in which the actual waste acceptance rate exceeded the estimated waste acceptance rate.

(2) The NMOC emission rate report shall include all the data, calculations, sample reports and measurements used to estimate the annual or 5-year emissions.

(3) Each owner or operator subject to the requirements of this subpart is exempted from the requirements of paragraphs (b)(1) and (2) of this section, after the installation of a collection and control system in compliance with §60.752(b)(2), during such time as the collection and control system is in operation and in compliance with §§60.753 and 60.755.

(c) Each owner or operator subject to the provisions of §60.752(b)(2)(i) shall submit a collection and control system design plan to the Administrator within 1 year of the first report required under paragraph (b) of this section in which the emission rate equals or exceeds 50 megagrams per year, except as follows:

(1) If the owner or operator elects to recalculate the NMOC emission rate after Tier 2 NMOC sampling and analysis as provided in §60.754(a)(3) and the resulting rate is less than 50 megagrams per year, annual periodic reporting shall be resumed, using the Tier 2 determined site-specific NMOC concentration, until the calculated emission rate is equal to or greater than 50 megagrams per year or the landfill is closed. The revised NMOC emission rate report, with the recalculated emission rate based on NMOC sampling and analysis, shall be submitted within 180 days of the first calculated exceedance of 50 megagrams per year.

(2) If the owner or operator elects to recalculate the NMOC emission rate after determining a site-specific methane generation rate constant (k), as provided in Tier 3 in §60.754(a)(4), and the resulting NMOC emission rate is less than 50 Mg/yr, annual periodic reporting shall be resumed. The resulting site-specific methane generation rate constant (k) shall be used in the emission rate calculation until such time as the emissions rate calculation results in an exceedance. The revised NMOC emission rate report based on the provisions of §60.754(a)(4) and the resulting site-specific methane generation rate constant (k) shall be submitted to the Administrator within 1 year of the first calculated emission rate exceeding 50 megagrams per year.

(d) Each owner or operator of a controlled landfill shall submit a closure report to the Administrator within 30 days of waste acceptance cessation. The Administrator may request additional information as may be necessary to verify that permanent closure has taken place in accordance with the requirements of 40 CFR 258.60. If a closure report has been submitted to the Administrator, no additional wastes may be placed into the landfill without filing a notification of modification as described under §60.7(a)(4).

(e) Each owner or operator of a controlled landfill shall submit an equipment removal report to the Administrator 30 days prior to removal or cessation of operation of the control equipment.

(1) The equipment removal report shall contain all of the following items:

(i) A copy of the closure report submitted in accordance with paragraph (d) of this section;

(ii) A copy of the initial performance test report demonstrating that the 15 year minimum control period has expired; and

(iii) Dated copies of three successive NMOC emission rate reports demonstrating that the landfill is no longer producing 50 megagrams or greater of NMOC per year.

(2) The Administrator may request such additional information as may be necessary to verify that all of the conditions for removal in §60.752(b)(2)(v) have been met.

(f) Each owner or operator of a landfill seeking to comply with §60.752(b)(2) using an active collection system designed in accordance with §60.752(b)(2)(ii) shall submit to the Administrator annual reports of the recorded information in (f)(1) through (f)(6) of this paragraph. The initial annual report shall be submitted within 180 days of installation and start-up of the collection and control system, and shall include the initial performance

test report required under §60.8. For enclosed combustion devices and flares, reportable exceedances are defined under §60.758(c).

(1) Value and length of time for exceedance of applicable parameters monitored under §60.756(a), (b), (c), and (d).

(2) Description and duration of all periods when the gas stream is diverted from the control device through a bypass line or the indication of bypass flow as specified under §60.756.

(3) Description and duration of all periods when the control device was not operating for a period exceeding 1 hour and length of time the control device was not operating.

(4) All periods when the collection system was not operating in excess of 5 days.

(5) The location of each exceedance of the 500 parts per million methane concentration as provided in §60.753(d) and the concentration recorded at each location for which an exceedance was recorded in the previous month.

(6) The date of installation and the location of each well or collection system expansion added pursuant to paragraphs (a)(3), (b), and (c)(4) of §60.755.

(g) Each owner or operator seeking to comply with §60.752(b)(2)(iii) shall include the following information with the initial performance test report required under §60.8:

(1) A diagram of the collection system showing collection system positioning including all wells, horizontal collectors, surface collectors, or other gas extraction devices, including the locations of any areas excluded from collection and the proposed sites for the future collection system expansion;

(2) The data upon which the sufficient density of wells, horizontal collectors, surface collectors, or other gas extraction devices and the gas mover equipment sizing are based;

(3) The documentation of the presence of asbestos or nondegradable material for each area from which collection wells have been excluded based on the presence of asbestos or nondegradable material;

(4) The sum of the gas generation flow rates for all areas from which collection wells have been excluded based on nonproductivity and the calculations of gas generation flow rate for each excluded area; and

(5) The provisions for increasing gas mover equipment capacity with increased gas generation flow rate, if the present gas mover equipment is inadequate to move the maximum flow rate expected over the life of the landfill; and

(6) The provisions for the control of off-site migration.

Information required in the initial design report was submitted during processing of the PTC application for P-2008.0078 issued August 24, 2018. Because projected annual NMOC emissions are estimated at less than 50 Mg/yr, requirements related to collection and control are not yet applicable. Applicable requirements for reporting NMOC calculations were incorporated as Permit Condition 4.4.

Potentially-applicable requirements for control systems were included in Permit Conditions 4.19 through 4.22.

40 CFR 60.758 ..... Recordkeeping requirements

(a) Except as provided in §60.752(b)(2)(i)(B), each owner or operator of an MSW landfill subject to the provisions of §60.752(b) shall keep for at least 5 years up-to-date, readily accessible, on-site records of the design capacity report which triggered §60.752(b), the current amount of solid waste in-place, and the year-by-year waste acceptance rate. Off-site records may be maintained if they are retrievable within 4 hours. Either paper copy or electronic formats are acceptable.

(b) Except as provided in §60.752(b)(2)(i)(B), each owner or operator of a controlled landfill shall keep up-to-date, readily accessible records for the life of the control equipment of the data listed in paragraphs (b)(1) through (b)(4) of this section as measured during the initial performance test or compliance determination. Records of subsequent tests or monitoring shall be maintained for a minimum of 5 years. Records of the control device vendor specifications shall be maintained until removal.

(1) Where an owner or operator subject to the provisions of this subpart seeks to demonstrate compliance with §60.752(b)(2)(ii):

(i) The maximum expected gas generation flow rate as calculated in §60.755(a)(1). The owner or operator may use another method to determine the maximum gas generation flow rate, if the method has been approved by the Administrator.

(ii) The density of wells, horizontal collectors, surface collectors, or other gas extraction devices determined using the procedures specified in §60.759(a)(1).

(2) Where an owner or operator subject to the provisions of this subpart seeks to demonstrate compliance with §60.752(b)(2)(iii) through use of an enclosed combustion device other than a boiler or process heater with a design heat input capacity equal to or greater than 44 megawatts:

(i) The average combustion temperature measured at least every 15 minutes and averaged over the same time period of the performance test.

(ii) The percent reduction of NMOC determined as specified in §60.752(b)(2)(iii)(B) achieved by the control device.

(3) Where an owner or operator subject to the provisions of this subpart seeks to demonstrate compliance with §60.752(b)(2)(iii)(B)(1) through use of a boiler or process heater of any size: a description of the location at which the collected gas vent stream is introduced into the boiler or process heater over the same time period of the performance testing.

(4) Where an owner or operator subject to the provisions of this subpart seeks to demonstrate compliance with §60.752(b)(2)(iii)(A) through use of an open flare, the flare type (i.e., steam-assisted, air-assisted, or nonassisted), all visible emission readings, heat content determination, flow rate or bypass flow rate measurements, and exit velocity determinations made during the performance test as specified in §60.18; continuous records of the flare pilot flame or flare flame monitoring and records of all periods of operations during which the pilot flame of the flare flame is absent.

(c) Except as provided in §60.752(b)(2)(i)(B), each owner or operator of a controlled landfill subject to the provisions of this subpart shall keep for 5 years up-to-date, readily accessible continuous records of the equipment operating parameters specified to be monitored in §60.756 as well as up-to-date, readily accessible records for periods of operation during which the parameter boundaries established during the most recent performance test are exceeded.

(1) The following constitute exceedances that shall be recorded and reported under §60.757(f):

(i) For enclosed combustors except for boilers and process heaters with design heat input capacity of 44 megawatts (150 million British thermal unit per hour) or greater, all 3-hour periods of operation during which the average combustion temperature was more than 28 °C below the average combustion temperature during the most recent performance test at which compliance with §60.752(b)(2)(iii) was determined.

(ii) For boilers or process heaters, whenever there is a change in the location at which the vent stream is introduced into the flame zone as required under paragraph (b)(3) of this section.

(2) Each owner or operator subject to the provisions of this subpart shall keep up-to-date, readily accessible continuous records of the indication of flow to the control device or the indication of bypass flow or records of monthly inspections of car-seals or lock-and-key configurations used to seal bypass lines, specified under §60.756.

(3) Each owner or operator subject to the provisions of this subpart who uses a boiler or process heater with a design heat input capacity of 44 megawatts or greater to comply with §60.752(b)(2)(iii) shall keep an up-to-date, readily accessible record of all periods of operation of the boiler or process heater. (Examples of such records could include records of steam use, fuel use, or monitoring data collected pursuant to other State, local, Tribal, or Federal regulatory requirements.)

(4) Each owner or operator seeking to comply with the provisions of this subpart by use of an open flare shall keep up-to-date, readily accessible continuous records of the flame or flare pilot flame monitoring specified under §60.756(c), and up-to-date, readily accessible records of all periods of operation in which the flame or flare pilot flame is absent.

(d) Except as provided in §60.752(b)(2)(i)(B), each owner or operator subject to the provisions of this subpart shall keep for the life of the collection system an up-to-date, readily accessible plot map showing each existing and planned collector in the system and providing a unique identification location label for each collector.

(1) Each owner or operator subject to the provisions of this subpart shall keep up-to-date, readily accessible records of the installation date and location of all newly installed collectors as specified under §60.755(b).

(2) Each owner or operator subject to the provisions of this subpart shall keep readily accessible documentation of the nature, date of deposition, amount, and location of asbestos-containing or nondegradable waste excluded from collection as provided in §60.759(a)(3)(i) as well as any nonproductive areas excluded from collection as provided in §60.759(a)(3)(ii).

(e) Except as provided in §60.752(b)(2)(i)(B), each owner or operator subject to the provisions of this subpart shall keep for at least 5 years up-to-date, readily accessible records of all collection and control system exceedances of the operational standards in §60.753, the reading in the subsequent month whether or not the second reading is an exceedance, and the location of each exceedance.

(f) Landfill owners or operators who convert design capacity from volume to mass or mass to volume to demonstrate that landfill design capacity is less than 2.5 million megagrams or 2.5 million cubic meters, as provided in the definition of "design capacity", shall keep readily accessible, on-site records of the annual recalculation of site-specific density, design capacity, and the supporting documentation. Off-site records may be maintained if they are retrievable within 4 hours. Either paper copy or electronic formats are acceptable.

Because the proposed maximum design capacity (3.2 Mg and 7.9 million yd^3) is greater than 2.5 million Mg and 2.5 million yd^3, requirements related to design capacity conversion calculations were not incorporated in this initial T1. Because projected annual NMOC emissions are estimated at less than 50 Mg/yr, requirements related to collection and control are not yet applicable. Applicable recordkeeping requirements were incorporated as Permit Condition 4.5.

Potentially-applicable requirements for control systems were included in Permit Conditions 4.23 through 4.26.

40 CFR 60.759 ..... Specifications for active collection systems

(a) Each owner or operator seeking to comply with §60.752(b)(2)(i) shall site active collection wells, horizontal collectors, surface collectors, or other extraction devices at a sufficient density throughout all gas producing areas using the following procedures unless alternative procedures have been approved by the Administrator as provided in §60.752(b)(2)(i)(C) and (D):

(1) The collection devices within the interior and along the perimeter areas shall be certified to achieve comprehensive control of surface gas emissions by a professional engineer. The following issues shall be addressed in the design: depths of refuse, refuse gas generation rates and flow characteristics, cover properties, gas system expandibility, leachate and condensate management, accessibility, compatibility with filling operations, integration with closure end use, air intrusion control, corrosion resistance, fill settlement, and resistance to the refuse decomposition heat.

(2) The sufficient density of gas collection devices determined in paragraph (a)(1) of this section shall address landfill gas migration issues and augmentation of the collection system through the use of active or passive systems at the landfill perimeter or exterior.

(3) The placement of gas collection devices determined in paragraph (a)(1) of this section shall control all gas producing areas, except as provided by paragraphs (a)(3)(i) and (a)(3)(ii) of this section.

(i) Any segregated area of asbestos or nondegradable material may be excluded from collection if documented as provided under §60.758(d). The documentation shall provide the nature, date of deposition, location and amount of asbestos or nondegradable material deposited in the area, and shall be provided to the Administrator upon request.

(ii) Any nonproductive area of the landfill may be excluded from control, provided that the total of all excluded areas can be shown to contribute less than 1 percent of the total amount of NMOC emissions from the landfill. The amount, location, and age of the material shall be documented and provided to the Administrator upon request. A separate NMOC emissions estimate shall be made for each section proposed for exclusion, and the sum of all such sections shall be compared to the NMOC emissions estimate for the entire landfill. Emissions from each section shall be computed using the following equation:

$$Q_i = 2\ k\ L_o\ M_i\ (e^{-kt}\ i)\ (C_{NMOC})\ (3.6 \times 10^{-9})$$

where,

Q_i = NMOC emission rate from the ith section, megagrams per year

k = methane generation rate constant, year^{-1}

L_o = methane generation potential, cubic meters per megagram solid waste

M_i = mass of the degradable solid waste in the ith section, megagram

t_i = age of the solid waste in the ith section, years

C_{NMOC} = concentration of nonmethane organic compounds, parts per million by volume

3.6×10^{-9} = conversion factor

(iii) The values for k and C_{NMOC} determined in field testing shall be used if field testing has been performed in determining the NMOC emission rate or the radii of influence (this distance from the well center to a point in the landfill where the pressure gradient applied by the blower or compressor approaches zero). If field testing has not been performed, the default values for k, L_O and C_{NMOC} provided in §60.754(a)(1) or the alternative values from §60.754(a)(5) shall be used. The mass of nondegradable solid waste contained within the given section may be subtracted from the total mass of the section when estimating emissions provided the nature, location, age, and amount of the nondegradable material is documented as provided in paragraph (a)(3)(i) of this section.

(b) Each owner or operator seeking to comply with §60.752(b)(2)(i)(A) shall construct the gas collection devices using the following equipment or procedures:

(1) The landfill gas extraction components shall be constructed of polyvinyl chloride (PVC), high density polyethylene (HDPE) pipe, fiberglass, stainless steel, or other nonporous corrosion resistant material of suitable dimensions to: convey projected amounts of gases; withstand installation, static, and settlement forces; and withstand planned overburden or traffic loads. The collection system shall extend as necessary to comply with emission and migration standards. Collection devices such as wells and horizontal collectors shall be perforated to allow gas entry without head loss sufficient to impair performance across the intended extent of control. Perforations shall be situated with regard to the need to prevent excessive air infiltration.

(2) Vertical wells shall be placed so as not to endanger underlying liners and shall address the occurrence of water within the landfill. Holes and trenches constructed for piped wells and horizontal collectors shall be of sufficient cross-section so as to allow for their proper construction and completion including, for example, centering of pipes and placement of gravel backfill. Collection devices shall be designed so as not to allow indirect short circuiting of air into the cover or refuse into the collection system or gas into the air. Any gravel used around pipe perforations should be of a dimension so as not to penetrate or block perforations.

(3) Collection devices may be connected to the collection header pipes below or above the landfill surface. The connector assembly shall include a positive closing throttle valve, any necessary seals and couplings, access couplings and at least one sampling port. The collection devices shall be constructed of PVC, HDPE, fiberglass, stainless steel, or other nonporous material of suitable thickness.

(c) Each owner or operator seeking to comply with §60.752(b)(2)(i)(A) shall convey the landfill gas to a control system in compliance with §60.752(b)(2)(iii) through the collection header pipe(s). The gas mover equipment shall be sized to handle the maximum gas generation flow rate expected over the intended use period of the gas moving equipment using the following procedures:

(1) For existing collection systems, the flow data shall be used to project the maximum flow rate. If no flow data exists, the procedures in paragraph (c)(2) of this section shall be used.

(2) For new collection systems, the maximum flow rate shall be in accordance with §60.755(a)(1).

Because projected annual NMOC emissions are estimated at less than 50 Mg/yr, requirements related to collection and control are not yet applicable.

Potentially-applicable requirements for control systems were included in Permit Conditions 4.27 through 4.29.

NSPS Subpart IIII

40 CFR 60, Subpart IIII ..... Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

40 CFR 60.4200 ..... Am I subject to this subpart?

(a) The provisions of this subpart are applicable to manufacturers, owners, and operators of stationary compression ignition (CI) internal combustion engines (ICE) as specified in paragraphs (a)(1) through (4) of this section. For the purposes of this subpart, the date that construction commences is the date the engine is ordered by the owner or operator.

(1) Manufacturers of stationary CI ICE with a displacement of less than 30 liters per cylinder where the model year is:

(i) 2007 or later, for engines that are not fire pump engines,

(ii) The model year listed in table 3 to this subpart or later model year, for fire pump engines.

(2) Owners and operators of stationary CI ICE that commence construction after July 11, 2005 where the stationary CI ICE are:

(i) Manufactured after April 1, 2006 and are not fire pump engines, or

(ii) Manufactured as a certified National Fire Protection Association (NFPA) fire pump engine after July 1, 2006.

(3) Owners and operators of any stationary CI ICE that are modified or reconstructed after July 11, 2005 and any person that modifies or reconstructs any stationary CI ICE after July 11, 2005.

(4) The provisions of §60.4208 of this subpart are applicable to all owners and operators of stationary CI ICE that commence construction after July 11, 2005.

Because the date of commencement of construction and manufacture of the tub grinder was after July 11, 2005, the requirements of this subpart are applicable to the permittee.

(b) The provisions of this subpart are not applicable to stationary CI ICE being tested at a stationary CI ICE test cell/stand.

(c) If you are an owner or operator of an area source subject to this subpart, you are exempt from the obligation to obtain a permit under 40 CFR part 70 or 40 CFR part 71, provided you are not required to obtain a permit under 40 CFR 70.3(a) or 40 CFR 71.3(a) for a reason other than your status as an area source under this subpart. Notwithstanding the previous sentence, you must continue to comply with the provisions of this subpart applicable to area sources.

(d) Stationary CI ICE may be eligible for exemption from the requirements of this subpart as described in 40 CFR part 1068, subpart C (or the exemptions described in 40 CFR part 89, subpart J and 40 CFR part 94, subpart J, for engines that would need to be certified to standards in those parts), except that owners and operators, as well as manufacturers, may be eligible to request an exemption for national security.

(e) Owners and operators of facilities with CI ICE that are acting as temporary replacement units and that are located at a stationary source for less than 1 year and that have been properly certified as meeting the standards that would be applicable to such engine under the appropriate nonroad engine provisions, are not required to meet any other provisions under this subpart with regard to such engines.

Because the tub grinder has not been proposed for operation at a stationary CI ICE test cell/stand, and because the permittee will be required to obtain a permit for a reason other than the area source status of the stationary CI ICE (refer to the Title V Classification (IDAPA 58.01.01.300, 40 CFR Part 70) regulatory review section for additional information), the exemptions in §60.4200(b) through (c) were not applicable.

§60.4200(d) contains elective compliance exemption options which require approval and which were not included as a permit condition. The permittee has not requested or qualified for exemption pursuant to any of the options provided.

40 CFR 60.4201 ..... *What emission standards must I meet for non-emergency engines if I am a stationary CI internal combustion engine manufacturer?*

Because the permittee has not proposed to manufacture stationary CI ICE, the requirements of §60.4201 are not applicable and were not included as a permit condition. However in accordance with §60.4204, as an owner or operator the permittee must comply with the applicable emission standards for new nonroad CI engines, as follows:

(a) Stationary CI internal combustion engine manufacturers must certify their 2007 model year and later non-emergency stationary CI ICE with a maximum engine power less than or equal to 2,237 kilowatt (KW) (3,000 horsepower (HP)) and a displacement of less than 10 liters per cylinder to the certification emission standards for new nonroad CI engines in 40 CFR 89.112, 40 CFR 89.113, 40 CFR 1039.101, 40 CFR 1039.102, 40 CFR 1039.104, 40 CFR 1039.105, 40 CFR 1039.107, and 40 CFR 1039.115, as applicable, for all pollutants, for the same model year and maximum engine power.

Applicable requirements were incorporated as Permit Condition 5.1.

40 CFR 60.4202 ..... *What emission standards must I meet for emergency engines if I am a stationary CI internal combustion engine manufacturer?*

Because the permittee has not proposed to manufacture stationary CI ICE, the requirements of §60.4202 are not applicable to the permittee as a manufacturer and were not included as a permit condition.

40 CFR 60.4203 ..... *How long must my engines meet the emission standards if I am a stationary CI internal combustion engine manufacturer?*

Engines manufactured by stationary CI internal combustion engine manufacturers must meet the emission standards as required in §§60.4201 and 60.4202 during the useful life of the engines.

Because the permittee has not proposed to manufacture stationary CI ICE, the requirements of §60.4203 were not applicable and were not included as a permit condition.

40 CFR 60.4204 ..... *What emission standards must I meet for non-emergency engines if I am an owner or operator of a stationary CI internal combustion engine?*

(a) Owners and operators of pre-2007 model year non-emergency stationary CI ICE with a displacement of less than 10 liters per cylinder must comply with the emission standards in table 1 to this subpart. Owners and operators of pre-2007 model year non-emergency stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder must comply with the emission standards in 40 CFR 94.8(a)(1).

(b) Owners and operators of 2007 model year and later non-emergency stationary CI ICE with a displacement of less than 30 liters per cylinder must comply with the emission standards for new CI engines in §60.4201 for their 2007 model year and later stationary CI ICE, as applicable.

(c) Owners and operators of non-emergency stationary CI engines with a displacement of greater than or equal to 30 liters per cylinder must meet the following requirements:

...

(d) Owners and operators of non-emergency stationary CI ICE with a displacement of less than 30 liters per cylinder who conduct performance tests in-use must meet the not-to-exceed (NTE) standards as indicated in §60.4212.

(e) Owners and operators of any modified or reconstructed non-emergency stationary CI ICE subject to this subpart must meet the emission standards applicable to the model year, maximum engine power, and displacement of the modified or reconstructed non-emergency stationary CI ICE that are specified in paragraphs (a) through (d) of this section.

(f) Owners and operators of stationary CI ICE certified to the standards in 40 CFR part 1039 and equipped with AECDs as specified in 40 CFR 1039.665 must meet the Tier 1 certification emission standards for new nonroad CI engines in 40 CFR 89.112 while the AECD is activated during a qualified emergency situation. A qualified emergency situation is defined in 40 CFR 1039.665. When the qualified emergency situation has ended and the AECD is deactivated, the engine must resume meeting the otherwise applicable emission standard specified in this section.

Applicable requirements were incorporated as Permit Conditions 5.1 and 5.5.

40 CFR 60.4205 ..... *What emission standards must I meet for emergency engines if I am an owner or operator of a stationary CI internal combustion engine?*

Because the permittee has not proposed the use of the Tub Grinder for emergency purposes, the requirements of §60.4205 were not applicable and were not included as a permit condition.

40 CFR 60.4206 ..... *How long must I meet the emission standards if I am an owner or operator of a stationary CI internal combustion engine?*

Owners and operators of stationary CI ICE must operate and maintain stationary CI ICE that achieve the emission standards as required in §§60.4204 and 60.4205 according to the manufacturer's written instructions or procedures developed by the owner or operator that are approved by the engine manufacturer, over the entire life of the engine.

Applicable requirements were incorporated as Permit Condition 5.3.

40 CFR 60.4207 ..... *What fuel requirements must I meet if I am an owner or operator of a stationary CI internal combustion engine subject to this subpart?*

(a) Beginning October 1, 2007, owners and operators of stationary CI ICE subject to this subpart that use diesel fuel must use diesel fuel that meets the requirements of 40 CFR 80.510(a).

(b) Beginning October 1, 2010, owners and operators of stationary CI ICE subject to this subpart with a displacement of less than 30 liters per cylinder that use diesel fuel must use diesel fuel that meets the requirements of 40 CFR 80.510(b) for nonroad diesel fuel, except that any existing diesel fuel purchased (or otherwise obtained) prior to October 1, 2010, may be used until depleted.

In accordance with 40 CFR 80.510(b), all NR and LM diesel fuel is subject to the following per-gallon standards:

(1) Sulfur content.

(i) 15 ppm maximum for NR diesel fuel.

(2) Cetane index or aromatic content, as follows:

(i) A minimum cetane index of 40; or

(ii) A maximum aromatic content of 35 volume percent.

(c) [Reserved]

(d) Beginning June 1, 2012, owners and operators of stationary CI ICE subject to this subpart with a displacement of greater than or equal to 30 liters per cylinder are no longer subject to the requirements of paragraph (a) of this section, and must use fuel that meets a maximum per-gallon sulfur content of 1,000 parts per million (ppm).

(e) Stationary CI ICE that have a national security exemption under §60.4200(d) are also exempt from the fuel requirements in this section.

Applicable requirements were incorporated as Permit Condition 5.4.

40 CFR 60.4208 ..... *What is the deadline for importing or installing stationary CI ICE produced in the previous model year?*

(a) After December 31, 2008, owners and operators may not install stationary CI ICE (excluding fire pump engines) that do not meet the applicable requirements for 2007 model year engines.

(b) After December 31, 2009, owners and operators may not install stationary CI ICE with a maximum engine power of less than 19 kW (25 HP) (excluding fire pump engines) that do not meet the applicable requirements for 2008 model year engines.

(c) After December 31, 2014, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power of greater than or equal to 19 kW (25 HP) and less than 56 kW (75 HP) that do not meet the applicable requirements for 2013 model year non-emergency engines.

(d) After December 31, 2013, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power of greater than or equal to 56 kW (75 HP) and less than 130 kW (175 HP) that do not meet the applicable requirements for 2012 model year non-emergency engines.

(e) After December 31, 2012, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power of greater than or equal to 130 kW (175 HP), including those above 560 kW (750 HP), that do not meet the applicable requirements for 2011 model year non-emergency engines.

(f) After December 31, 2016, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power of greater than or equal to 560 kW (750 HP) that do not meet the applicable requirements for 2015 model year non-emergency engines.

(g) After December 31, 2018, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power greater than or equal to 600 KW (804 HP) and less than 2,000 KW (2,680 HP) and a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder that do not meet the applicable requirements for 2017 model year non-emergency engines.

(h) In addition to the requirements specified in §§60.4201, 60.4202, 60.4204, and 60.4205, it is prohibited to import stationary CI ICE with a displacement of less than 30 liters per cylinder that do not meet the applicable requirements specified in paragraphs (a) through (g) of this section after the dates specified in paragraphs (a) through (g) of this section.

(i) The requirements of this section do not apply to owners or operators of stationary CI ICE that have been modified, reconstructed, and do not apply to engines that were removed from one existing location and reinstalled at a new location.

Because installation of stationary CI ICE which do not meet applicable requirements for the relevant model year has not been proposed, these requirements have not been included as a permit condition.

40 CFR 60.4209 ..... What are the monitoring requirements if I am an owner or operator of a stationary CI internal combustion engine?

If you are an owner or operator, you must meet the monitoring requirements of this section. In addition, you must also meet the monitoring requirements specified in §60.4211.

(a) If you are an owner or operator of an emergency stationary CI internal combustion engine that does not meet the standards applicable to non-emergency engines, you must install a non-resettable hour meter prior to startup of the engine.

(b) If you are an owner or operator of a stationary CI internal combustion engine equipped with a diesel particulate filter to comply with the emission standards in §60.4204, the diesel particulate filter must be installed with a backpressure monitor that notifies the owner or operator when the high backpressure limit of the engine is approached.

Because the permittee has not proposed the use of the Tub Grinder for emergency purposes, and because the permittee verified that the tub grinder does not have a diesel particulate filter, the requirements of §60.4209 were not applicable and were not included as a permit condition.

40 CFR 60.4210 ..... What are my compliance requirements if I am a stationary CI internal combustion engine manufacturer?

Because the permittee has not proposed to manufacture stationary CI ICE, the requirements of §60.4210 are not applicable and were not included as a permit condition.

40 CFR 60.4211 ..... What are my compliance requirements if I am an owner or operator of a stationary CI internal combustion engine?

(a) If you are an owner or operator and must comply with the emission standards specified in this subpart, you must do all of the following, except as permitted under paragraph (g) of this section:

(1) Operate and maintain the stationary CI internal combustion engine and control device according to the manufacturer's emission-related written instructions;

(2) Change only those emission-related settings that are permitted by the manufacturer; and

(3) Meet the requirements of 40 CFR parts 89, 94 and/or 1068, as they apply to you.

(b) If you are an owner or operator of a pre-2007 model year stationary CI internal combustion engine and must comply with the emission standards specified in §§60.4204(a) or 60.4205(a), or if you are an owner or operator of a CI fire pump engine that is manufactured prior to the model years in table 3 to this subpart and must

comply with the emission standards specified in §60.4205(c), you must demonstrate compliance according to one of the methods specified in paragraphs (b)(1) through (5) of this section.

...

(c) *If you are an owner or operator of a 2007 model year and later stationary CI internal combustion engine and must comply with the emission standards specified in §60.4204(b) or §60.4205(b), or if you are an owner or operator of a CI fire pump engine that is manufactured during or after the model year that applies to your fire pump engine power rating in table 3 to this subpart and must comply with the emission standards specified in §60.4205(c), you must comply by purchasing an engine certified to the emission standards in §60.4204(b), or §60.4205(b) or (c), as applicable, for the same model year and maximum (or in the case of fire pumps, NFPA nameplate) engine power. The engine must be installed and configured according to the manufacturer's specifications, except as permitted in paragraph (g) of this section.*

(d) *If you are an owner or operator and must comply with the emission standards specified in §60.4204(c) or §60.4205(d), you must demonstrate compliance according to the requirements specified in paragraphs (d)(1) through (3) of this section.*

...

(e) *If you are an owner or operator of a modified or reconstructed stationary CI internal combustion engine and must comply with the emission standards specified in §60.4204(e) or §60.4205(f), you must demonstrate compliance according to one of the methods specified in paragraphs (e)(1) or (2) of this section.*

(1) *Purchasing, or otherwise owning or operating, an engine certified to the emission standards in §60.4204(e) or §60.4205(f), as applicable.*

(2) *Conducting a performance test to demonstrate initial compliance with the emission standards according to the requirements specified in §60.4212 or §60.4213, as appropriate. The test must be conducted within 60 days after the engine commences operation after the modification or reconstruction.*

(f) *If you own or operate an emergency stationary ICE, you must operate the emergency stationary ICE according to the requirements in paragraphs (f)(1) through (3) of this section. In order for the engine to be considered an emergency stationary ICE under this subpart, any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in non-emergency situations for 50 hours per year, as described in paragraphs (f)(1) through (3) of this section, is prohibited. If you do not operate the engine according to the requirements in paragraphs (f)(1) through (3) of this section, the engine will not be considered an emergency engine under this subpart and must meet all requirements for non-emergency engines.*

...

(g) *If you do not install, configure, operate, and maintain your engine and control device according to the manufacturer's emission-related written instructions, or you change emission-related settings in a way that is not permitted by the manufacturer, you must demonstrate compliance as follows:*

(1) *If you are an owner or operator of a stationary CI internal combustion engine with maximum engine power less than 100 HP, you must keep a maintenance plan and records of conducted maintenance to demonstrate compliance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, if you do not install and configure the engine and control device according to the manufacturer's emission-related written instructions, or you change the emission-related settings in a way that is not permitted by the manufacturer, you must conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of such action.*

(2) *If you are an owner or operator of a stationary CI internal combustion engine greater than or equal to 100 HP and less than or equal to 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of startup, or within 1 year after an engine and control device is no longer installed, configured, operated, and maintained in accordance with the manufacturer's emission-related written instructions, or within 1 year after you change emission-related settings in a way that is not permitted by the manufacturer.*

(3) *If you are an owner or operator of a stationary CI internal combustion engine greater than 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable,*

maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of startup, or within 1 year after an engine and control device is no longer installed, configured, operated, and maintained in accordance with the manufacturer's emission-related written instructions, or within 1 year after you change emission-related settings in a way that is not permitted by the manufacturer. You must conduct subsequent performance testing every 8,760 hours of engine operation or 3 years, whichever comes first, thereafter to demonstrate compliance with the applicable emission standards.

(h) The requirements for operators and prohibited acts specified in 40 CFR 1039.665 apply to owners or operators of stationary CI ICE equipped with AECDs for qualified emergency situations as allowed by 40 CFR 1039.665.

Because the permittee verified that the Tub Grinder does not have an auxiliary emission control device (AECD), the requirements of §60.4211(h) were not applicable and were not included as a permit condition.

Applicable requirements were incorporated as Permit Conditions 5.2 and 5.5.

40 CFR 60.4212 ..... What test methods and other procedures must I use if I am an owner or operator of a stationary CI internal combustion engine with a displacement of less than 30 liters per cylinder?

Owners and operators of stationary CI ICE with a displacement of less than 30 liters per cylinder who conduct performance tests pursuant to this subpart must do so according to paragraphs (a) through (e) of this section.

(a) The performance test must be conducted according to the in-use testing procedures in 40 CFR part 1039, subpart F, for stationary CI ICE with a displacement of less than 10 liters per cylinder, and according to 40 CFR part 1042, subpart F, for stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder.

(b) Exhaust emissions from stationary CI ICE that are complying with the emission standards for new CI engines in 40 CFR part 1039 must not exceed the not-to-exceed (NTE) standards for the same model year and maximum engine power as required in 40 CFR 1039.101(e) and 40 CFR 1039.102(g)(1), except as specified in 40 CFR 1039.104(d). This requirement starts when NTE requirements take effect for nonroad diesel engines under 40 CFR part 1039.

(c) Exhaust emissions from stationary CI ICE that are complying with the emission standards for new CI engines in 40 CFR 89.112 or 40 CFR 94.8, as applicable, must not exceed the NTE numerical requirements, rounded to the same number of decimal places as the applicable standard in 40 CFR 89.112 or 40 CFR 94.8, as applicable, determined from the following equation:

NTE requirement for each pollutant = (1.25) x (STD) (Eq. 1)

Where:

STD = The standard specified for that pollutant in 40 CFR 89.112 or 40 CFR 94.8, as applicable.

Alternatively, stationary CI ICE that are complying with the emission standards for new CI engines in 40 CFR 89.112 or 40 CFR 94.8 may follow the testing procedures specified in §60.4213 of this subpart, as appropriate.

(d) Exhaust emissions from stationary CI ICE that are complying with the emission standards for pre-2007 model year engines in §60.4204(a), §60.4205(a), or §60.4205(c) must not exceed the NTE numerical requirements, rounded to the same number of decimal places as the applicable standard in §60.4204(a), §60.4205(a), or §60.4205(c), determined from the equation in paragraph (c) of this section.

Where:

STD = The standard specified for that pollutant in §60.4204(a), §60.4205(a), or §60.4205(c).

Alternatively, stationary CI ICE that are complying with the emission standards for pre-2007 model year engines in §60.4204(a), §60.4205(a), or §60.4205(c) may follow the testing procedures specified in §60.4213, as appropriate.

(e) Exhaust emissions from stationary CI ICE that are complying with the emission standards for new CI engines in 40 CFR part 1042 must not exceed the NTE standards for the same model year and maximum engine power as required in 40 CFR 1042.101(c).

§60.4212(a) through (e) contain applicable performance testing methodologies which were referenced but not explicitly included in the permit. In accordance with the permit general provisions, the permittee is encouraged to submit performance test protocol to DEQ for approval prior to any performance testing.

Applicable requirements were incorporated as Permit Condition 5.6.

40 CFR 60.4213 ..... *What test methods and other procedures must I use if I am an owner or operator of a stationary CI internal combustion engine with a displacement of greater than or equal to 30 liters per cylinder?*

Because the permittee has not proposed the use of a stationary CI ICE with a displacement of greater than or equal to 30 L/cylinder, the requirements of §60.4213 were not applicable and were not included as a permit condition.

40 CFR 60.4214 ..... *What are my notification, reporting, and recordkeeping requirements if I am an owner or operator of a stationary CI internal combustion engine?*

(a) Owners and operators of non-emergency stationary CI ICE that are greater than 2,237 kW (3,000 HP), or have a displacement of greater than or equal to 10 liters per cylinder, or are pre-2007 model year engines that are greater than 130 kW (175 HP) and not certified, must meet the requirements of paragraphs (a)(1) and (2) of this section.

...

(b) If the stationary CI internal combustion engine is an emergency stationary internal combustion engine, the owner or operator is not required to submit an initial notification. Starting with the model years in table 5 to this subpart, if the emergency engine does not meet the standards applicable to non-emergency engines in the applicable model year, the owner or operator must keep records of the operation of the engine in emergency and non-emergency service that are recorded through the non-resettable hour meter. The owner must record the time of operation of the engine and the reason the engine was in operation during that time.

(c) If the stationary CI internal combustion engine is equipped with a diesel particulate filter, the owner or operator must keep records of any corrective action taken after the backpressure monitor has notified the owner or operator that the high backpressure limit of the engine is approached.

(d) If you own or operate an emergency stationary CI ICE with a maximum engine power more than 100 HP that operates or is contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §60.4211(f)(2)(ii) and (iii) or that operates for the purposes specified in §60.4211(f)(3)(i), you must submit an annual report according to the requirements in paragraphs (d)(1) through (3) of this section.

...

(e) Owners or operators of stationary CI ICE equipped with AECDs pursuant to the requirements of 40 CFR 1039.665 must report the use of AECDs as required by 40 CFR 1039.665(e).

Because the permittee verified that the tub grinder does not have a diesel particulate filter, the requirements of §60.4209 were not applicable and were not included as a permit condition.

40 CFR 60.4215 ..... *What requirements must I meet for engines used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands?*

40 CFR 60.4216 ..... *What requirements must I meet for engines used in Alaska?*

Because the facility will not be located in the referenced locations, the requirements of §§60.4215 and 60.4216 were not applicable and were not included as a permit condition.

40 CFR 60.4217 ..... *What emission standards must I meet if I am an owner or operator of a stationary internal combustion engine using special fuels?*

Owners and operators of stationary CI ICE that do not use diesel fuel, or who have been given authority by the Administrator under §60.4207(d) of this subpart to use fuels that do not meet the fuel requirements of paragraphs (a) and (b) of §60.4207, may petition the Administrator for approval of alternative emission standards, if they can demonstrate that they use a fuel that is not the fuel on which the manufacturer of the engine certified the engine and that the engine cannot meet the applicable standards required in §60.4202 or §60.4203 using such fuels.

§60.4217 contains alternative compliance options for special fuels which require approval and which were not included as a permit condition.

40 CFR 60.4218 ..... What parts of the General Provisions apply to me?

Table 8 to this subpart shows which parts of the General Provisions in §§60.1 through 60.19 apply to you.

Table 8 to Subpart IIII of Part 60—Applicability of General Provisions to Subpart IIII

[As stated in §60.4218, you must comply with the following applicable General Provisions:]

General Provisions citation	*Subject of citation*	*Applies to subpart*	*Explanation*
§60.1	*General applicability of the General Provisions*	*Yes*	
§60.2	*Definitions*	*Yes*	*Additional terms defined in §60.4219.*
§60.3	*Units and abbreviations*	*Yes*	
§60.4	*Address*	*Yes*	
§60.5	*Determination of construction or modification*	*Yes*	
§60.6	*Review of plans*	*Yes*	
§60.7	*Notification and Recordkeeping*	*Yes*	*Except that §60.7 only applies as specified in §60.4214(a).*
§60.8	*Performance tests*	*Yes*	*Except that §60.8 only applies to stationary CI ICE with a displacement of (≥30 liters per cylinder and engines that are not certified.*
§60.9	*Availability of information*	*Yes*	
§60.10	*State Authority*	*Yes*	
§60.11	*Compliance with standards and maintenance requirements*	*No*	*Requirements are specified in subpart IIII.*
§60.12	*Circumvention*	*Yes*	
§60.13	*Monitoring requirements*	*Yes*	*Except that §60.13 only applies to stationary CI ICE with a displacement of ≥30 liters per cylinder.*
§60.14	*Modification*	*Yes*	
§60.15	*Reconstruction*	*Yes*	
§60.16	*Priority list*	*Yes*	
§60.17	*Incorporations by reference*	*Yes*	
§60.18	*General control device requirements*	*No*	
§60.19	*General notification and reporting requirements*	*Yes*	

A summary of applicable general provisions was incorporated as Permit Condition 3.27.

40 CFR 60.4219 ..... What definitions apply to this subpart?

As used in this subpart, all terms not defined herein shall have the meaning given them in the CAA and in subpart A of this part.

...

Certified emissions life *means the period during which the engine is designed to properly function in terms of reliability and fuel consumption, without being remanufactured, specified as a number of hours of operation or calendar years, whichever comes first. The values for certified emissions life for stationary CI ICE with a displacement of less than 10 liters per cylinder are given in 40 CFR 1039.101(g). The values for certified emissions life for stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder are given in 40 CFR 94.9(a).*

Combustion turbine *means all equipment, including but not limited to the turbine, the fuel, air, lubrication and exhaust gas systems, control systems (except emissions control equipment), and any ancillary components and sub-components comprising any simple cycle combustion turbine, any regenerative/recuperative cycle combustion turbine, the combustion turbine portion of any cogeneration cycle combustion system, or the combustion turbine portion of any combined cycle steam/electric generating system.*

Compression ignition *means relating to a type of stationary internal combustion engine that is not a spark ignition engine.*

Date of manufacture *means one of the following things:*

(1) For freshly manufactured engines and modified engines, date of manufacture means the date the engine is originally produced.

(2) For reconstructed engines, date of manufacture means the date the engine was originally produced, except as specified in paragraph (3) of this definition.

(3) Reconstructed engines are assigned a new date of manufacture if the fixed capital cost of the new and refurbished components exceeds 75 percent of the fixed capital cost of a comparable entirely new facility. An engine that is produced from a previously used engine block does not retain the date of manufacture of the engine in which the engine block was previously used if the engine is produced using all new components except for the engine block. In these cases, the date of manufacture is the date of reconstruction or the date the new engine is produced.

Diesel fuel *means any liquid obtained from the distillation of petroleum with a boiling point of approximately 150 to 360 degrees Celsius. One commonly used form is number 2 distillate oil.*

Diesel particulate filter *means an emission control technology that reduces PM emissions by trapping the particles in a flow filter substrate and periodically removes the collected particles by either physical action or by oxidizing (burning off) the particles in a process called regeneration.*

Emergency stationary internal combustion engine *means any stationary reciprocating internal combustion engine that meets all of the criteria in paragraphs (1) through (3) of this definition. All emergency stationary ICE must comply with the requirements specified in §60.4211(f) in order to be considered emergency stationary ICE. If the engine does not comply with the requirements specified in §60.4211(f), then it is not considered to be an emergency stationary ICE under this subpart.*

(1) The stationary ICE is operated to provide electrical power or mechanical work during an emergency situation. Examples include stationary ICE used to produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility (or the normal power source, if the facility runs on its own power production) is interrupted, or stationary ICE used to pump water in the case of fire or flood, etc.

(2) The stationary ICE is operated under limited circumstances for situations not included in paragraph (1) of this definition, as specified in §60.4211(f).

(3) The stationary ICE operates as part of a financial arrangement with another entity in situations not included in paragraph (1) of this definition only as allowed in §60.4211(f)(2)(ii) or (iii) and §60.4211(f)(3)(i).

Engine manufacturer *means the manufacturer of the engine. See the definition of "manufacturer" in this section.*

Fire pump engine *means an emergency stationary internal combustion engine certified to NFPA requirements that is used to provide power to pump water for fire suppression or protection.*

Freshly manufactured engine *means an engine that has not been placed into service. An engine becomes freshly manufactured when it is originally produced.*

Installed *means the engine is placed and secured at the location where it is intended to be operated.*

Manufacturer *has the meaning given in section 216(1) of the Act. In general, this term includes any person who manufactures a stationary engine for sale in the United States or otherwise introduces a new stationary engine into commerce in the United States. This includes importers who import stationary engines for sale or resale.*

Maximum engine power *means maximum engine power as defined in 40 CFR 1039.801.*

Model year *means the calendar year in which an engine is manufactured (see "date of manufacture"), except as follows:*

(1) Model year means the annual new model production period of the engine manufacturer in which an engine is manufactured (see "date of manufacture"), if the annual new model production period is different than the calendar year and includes January 1 of the calendar year for which the model year is named. It may not begin before January 2 of the previous calendar year and it must end by December 31 of the named calendar year.

(2) For an engine that is converted to a stationary engine after being placed into service as a nonroad or other non-stationary engine, model year means the calendar year or new model production period in which the engine was manufactured (see "date of manufacture").

Other internal combustion engine *means any internal combustion engine, except combustion turbines, which is not a reciprocating internal combustion engine or rotary internal combustion engine.*

Reciprocating internal combustion engine *means any internal combustion engine which uses reciprocating motion to convert heat energy into mechanical work.*

Remote areas of Alaska *means areas of Alaska that meet either paragraph (1) or (2) of this definition.*

(1) Areas of Alaska that are not accessible by the Federal Aid Highway System (FAHS).

(2) Areas of Alaska that meet all of the following criteria:

(i) The only connection to the FAHS is through the Alaska Marine Highway System, or the stationary CI ICE operation is within an isolated grid in Alaska that is not connected to the statewide electrical grid referred to as the Alaska Railbelt Grid.

(ii) At least 10 percent of the power generated by the stationary CI ICE on an annual basis is used for residential purposes.

(iii) The generating capacity of the source is less than 12 megawatts, or the stationary CI ICE is used exclusively for backup power for renewable energy.

Rotary internal combustion engine *means any internal combustion engine which uses rotary motion to convert heat energy into mechanical work.*

Spark ignition *means relating to a gasoline, natural gas, or liquefied petroleum gas fueled engine or any other type of engine with a spark plug (or other sparking device) and with operating characteristics significantly similar to the theoretical Otto combustion cycle. Spark ignition engines usually use a throttle to regulate intake air flow to control power during normal operation. Dual-fuel engines in which a liquid fuel (typically diesel fuel) is used for CI and gaseous fuel (typically natural gas) is used as the primary fuel at an annual average ratio of less than 2 parts diesel fuel to 100 parts total fuel on an energy equivalent basis are spark ignition engines.*

Stationary internal combustion engine *means any internal combustion engine, except combustion turbines, that converts heat energy into mechanical work and is not mobile. Stationary ICE differ from mobile ICE in that a stationary internal combustion engine is not a nonroad engine as defined at 40 CFR 1068.30 (excluding paragraph (2)(ii) of that definition), and is not used to propel a motor vehicle, aircraft, or a vehicle used solely for competition. Stationary ICE include reciprocating ICE, rotary ICE, and other ICE, except combustion turbines.*

Subpart *means 40 CFR part 60, subpart IIII.*

§60.4219 contains applicable definitions which were not included as a permit condition.

NSPS Subpart A

40 CFR 60, Subpart A ..... General Provisions

40 CFR 60.1 ..... Applicability.

(a) Except as provided in subparts B and C, the provisions of this part apply to the owner or operator of any stationary source which contains an affected facility, the construction or modification of which is commenced after the date of publication in this part of any standard (or, if earlier, the date of publication of any proposed standard) applicable to that facility.

(b) Any new or revised standard of performance promulgated pursuant to section 111(b) of the Act shall apply to the owner or operator of any stationary source which contains an affected facility, the construction or modification of which is commenced after the date of publication in this part of such new or revised standard (or, if earlier, the date of publication of any proposed standard) applicable to that facility.

Because the permittee has affected facilities, the general provisions in Subpart A are applicable.

A summary of applicable general provisions was incorporated as Permit Condition 3.27.

7.5 NESHAP Applicability (40 CFR 61)

The facility is not subject to any NESHAP requirements in 40 CFR 61.

7.6 MACT Applicability (40 CFR 63)

Because the facility has stationary reciprocating internal combustion engines, the facility is subject to the following area source NESHAP:

- 40 CFR 63, Subpart ZZZZ – National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines. DEQ is delegated this Subpart.

Because projected annual NMOC emissions are estimated at less than 50 Mg/yr, the landfill was not applicable to 40 CFR 63, Subpart AAAA – National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills requirements at the time of issuance.

It should be noted that commencement of construction of Cell #3 is not planned within the next five years, and potential emissions from this future expansion have therefore not been addressed for regulatory purposes within this permit action (e.g., including with respect to Title V classification and federal regulatory applicability – specifically NSPS Subparts WWW and XXX, and NESHAP Subpart AAAA).

NESHAP Subpart AAAA

40 CFR 63.1930 ..... What is the purpose of this subpart?

This subpart establishes national emission standards for hazardous air pollutants for existing and new municipal solid waste (MSW) landfills. This subpart requires all landfills described in §63.1935 to meet the requirements of 40 CFR part 60, subpart Cc or WWW and requires timely control of bioreactors. This subpart also requires such landfills to meet the startup, shutdown, and malfunction (SSM) requirements of the general provisions of this part and provides that compliance with the operating conditions shall be demonstrated by parameter monitoring results that are within the specified ranges. It also includes additional reporting requirements.

40 CFR 63.1935 ..... Am I subject to this subpart?

You are subject to this subpart if you meet the criteria in paragraph (a) or (b) of this section.

(a) You are subject to this subpart if you own or operate a MSW landfill that has accepted waste since November 8, 1987 or has additional capacity for waste deposition and meets any one of the three criteria in paragraphs (a)(1) through (3) of this section:

(1) Your MSW landfill is a major source as defined in 40 CFR 63.2 of subpart A.

(2) Your MSW landfill is collocated with a major source as defined in 40 CFR 63.2 of subpart A.

(3) Your MSW landfill is an area source landfill that has a design capacity equal to or greater than 2.5 million megagrams (Mg) and 2.5 million cubic meters (m^3) and has estimated uncontrolled emissions equal to or greater than 50 megagrams per year (Mg/yr) NMOC as calculated according to §60.754(a) of the MSW landfills new source performance standards in 40 CFR part 60, subpart WWW, the Federal plan, or an EPA approved and effective State or tribal plan that applies to your landfill.

(b) You are subject to this subpart if you own or operate a MSW landfill that has accepted waste since November 8, 1987 or has additional capacity for waste deposition, that includes a bioreactor, as defined in §63.1990, and that meets any one of the criteria in paragraphs (b)(1) through (3) of this section:

(1) Your MSW landfill is a major source as defined in 40 CFR 63.2 of subpart A.

(2) Your MSW landfill is collocated with a major source as defined in 40 CFR 63.2 of subpart A.

(3) Your MSW landfill is an area source landfill that has a design capacity equal to our greater than 2.5 million Mg and 2.5 million m^3 and that is not permanently closed as of January 16, 2003.

Although Clay Peak has accepted waste since November 8, 1987, because the facility is not classified as or collocated with a major source of HAP, does not include a bioreactor, and projected annual NMOC emissions are estimated at less than 50 Mg/yr, the landfill is not applicable to Subpart AAAA requirements.

Potentially-applicable requirements were referenced in Permit Condition 4.30.

NESHAP Subpart ZZZZ

40 CFR 63.6580 ..... What is the purpose of subpart ZZZZ?

Subpart ZZZZ establishes national emission limitations and operating limitations for hazardous air pollutants (HAP) emitted from stationary reciprocating internal combustion engines (RICE) located at major and area sources of HAP emissions. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations and operating limitations.

Because the Tub Grinder and Emergency Generator Engine are RICE located at an area source of HAP emissions, the permiteee is subject to NESHAP Subpart ZZZZ.

40 CFR 63.6585 Am I subject to this subpart?

You are subject to this subpart if you own or operate a stationary RICE at a major or area source of HAP emissions, except if the stationary RICE is being tested at a stationary RICE test cell/stand.

(a) A stationary RICE is any internal combustion engine which uses reciprocating motion to convert heat energy into mechanical work and which is not mobile. Stationary RICE differ from mobile RICE in that a stationary RICE is not a non-road engine as defined at 40 CFR 1068.30, and is not used to propel a motor vehicle or a vehicle used solely for competition.

(b) A major source of HAP emissions is a plant site that emits or has the potential to emit any single HAP at a rate of 10 tons (9.07 megagrams) or more per year or any combination of HAP at a rate of 25 tons (22.68 megagrams) or more per year, except that for oil and gas production facilities, a major source of HAP emissions is determined for each surface site.

(c) An area source of HAP emissions is a source that is not a major source.

(d) If you are an owner or operator of an area source subject to this subpart, your status as an entity subject to a standard or other requirements under this subpart does not subject you to the obligation to obtain a permit under 40 CFR part 70 or 71, provided you are not required to obtain a permit under 40 CFR 70.3(a) or 40 CFR 71.3(a) for a reason other than your status as an area source under this subpart. Notwithstanding the previous sentence, you must continue to comply with the provisions of this subpart as applicable.

(e) If you are an owner or operator of a stationary RICE used for national security purposes, you may be eligible to request an exemption from the requirements of this subpart as described in 40 CFR part 1068, subpart C.

(f) The emergency stationary RICE listed in paragraphs (f)(1) through (3) of this section are not subject to this subpart. The stationary RICE must meet the definition of an emergency stationary RICE in §63.6675, which includes operating according to the provisions specified in §63.6640(f).

(1) Existing residential emergency stationary RICE located at an area source of HAP emissions that do not operate or are not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii) and that do not operate for the purpose specified in §63.6640(f)(4)(ii).

(2) Existing commercial emergency stationary RICE located at an area source of HAP emissions that do not operate or are not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii) and that do not operate for the purpose specified in §63.6640(f)(4)(ii).

(3) Existing institutional emergency stationary RICE located at an area source of HAP emissions that do not operate or are not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii) and that do not operate for the purpose specified in §63.6640(f)(4)(ii).

Because the Tub Grinder and Emergency Generator Engine are RICE located at an area source of HAP emissions and will not be used for national security, residential, commercial, or institutional purposes, the permiteee is subject to NESHAP Subpart ZZZZ. §63.6585(e) contains elective compliance exemption options which may require approval and which were not included as a permit condition.

40 CFR 63.6590 ..... What parts of my plant does this subpart cover?

This subpart applies to each affected source.

(a) Affected source. *An affected source is any existing, new, or reconstructed stationary RICE located at a major or area source of HAP emissions, excluding stationary RICE being tested at a stationary RICE test cell/stand.*

(1) Existing stationary RICE.

(i) For stationary RICE with a site rating of more than 500 brake horsepower (HP) located at a major source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before December 19, 2002.

(ii) For stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before June 12, 2006.

(iii) For stationary RICE located at an area source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before June 12, 2006.

(iv) A change in ownership of an existing stationary RICE does not make that stationary RICE a new or reconstructed stationary RICE.

(2) New stationary RICE. *(i) A stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions is new if you commenced construction of the stationary RICE on or after December 19, 2002.*

(ii) A stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions is new if you commenced construction of the stationary RICE on or after June 12, 2006.

(iii) A stationary RICE located at an area source of HAP emissions is new if you commenced construction of the stationary RICE on or after June 12, 2006.

(3) Reconstructed stationary RICE. *(i) A stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions is reconstructed if you meet the definition of reconstruction in §63.2 and reconstruction is commenced on or after December 19, 2002.*

(ii) A stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions is reconstructed if you meet the definition of reconstruction in §63.2 and reconstruction is commenced on or after June 12, 2006.

(iii) A stationary RICE located at an area source of HAP emissions is reconstructed if you meet the definition of reconstruction in §63.2 and reconstruction is commenced on or after June 12, 2006.

(b) Stationary RICE subject to limited requirements. *(1) An affected source which meets either of the criteria in paragraph (b)(1)(i) through (ii) of this section does not have to meet the requirements of this subpart and of subpart A of this part except for the initial notification requirements of §63.6645(h).*

(i) The stationary RICE is a new or reconstructed emergency stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions; or

(ii) The stationary RICE is a new or reconstructed limited use stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions.

(2) A new or reconstructed stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis must meet the initial notification requirements of §63.6645(h) and the requirements of §§63.6625(c), 63.6650(g), and 63.6655(c). These stationary RICE do not have to meet the emission limitations and operating limitations of this subpart.

(3) The following stationary RICE do not have to meet the requirements of this subpart and of subpart A of this part, including initial notification requirements:

(i) Existing spark ignition 2 stroke lean burn (2SLB) stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions;

(ii) Existing spark ignition 4 stroke lean burn (4SLB) stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions;

(iii) Existing emergency stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions that does not operate or is not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii).

(iv) Existing limited use stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions;

(v) Existing stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis;

(c) Stationary RICE subject to Regulations under 40 CFR Part 60. *An affected source that meets any of the criteria in paragraphs (c)(1) through (7) of this section must meet the requirements of this part by meeting the requirements of 40 CFR part 60 subpart IIII, for compression ignition engines or 40 CFR part 60 subpart JJJJ, for spark ignition engines. No further requirements apply for such engines under this part.*

(1) A new or reconstructed stationary RICE located at an area source;

(2) A new or reconstructed 2SLB stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions;

(3) A new or reconstructed 4SLB stationary RICE with a site rating of less than 250 brake HP located at a major source of HAP emissions;

(4) A new or reconstructed spark ignition 4 stroke rich burn (4SRB) stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions;

(5) A new or reconstructed stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis;

(6) A new or reconstructed emergency or limited use stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions;

(7) A new or reconstructed compression ignition (CI) stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions.

Because the Emergency Generator Engine is an existing stationary RICE constructed before June 12, 2006, and because the Tub Grinder is a new stationary RICE constructed after December 19, 2002, these engines are affected sources. Because the Tub Grinder is subject to regulations under 40 CFR 60, Subpart IIII, no further requirements apply to this engine under 40 CFR 63, Subpart ZZZZ.

40 CFR 63.6595 ..... When do I have to comply with the subpart?

(a)(1) If you have an existing stationary RICE, excluding existing non-emergency CI stationary RICE, with a site rating of more than 500 brake HP located at a major source of HAP emissions, you must comply with the applicable emission limitations and operating limitations no later than June 15, 2007. If you have an existing non-emergency CI stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, an existing stationary CI RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions, or an existing stationary CI RICE located at an area source of HAP emissions, you must comply with the applicable emission limitations and operating limitations no later than May 3, 2013. If you have an existing stationary SI RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions, or an existing stationary SI RICE located at an area source of HAP emissions, you must comply with the applicable emission limitations and operating limitations no later than October 19, 2013.

(2) If you start up your new or reconstructed stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions after August 16, 2004, you must comply with the applicable emission limitations and operating limitations in this subpart no later than August 16, 2004.

(3) If you start up your new or reconstructed stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions after August 16, 2004, you must comply with the applicable emission limitations and operating limitations in this subpart upon startup of your affected source.

(4) *If you start up your new or reconstructed stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions before January 18, 2008, you must comply with the applicable emission limitations and operating limitations in this subpart no later than January 18, 2008.*

(5) *If you start up your new or reconstructed stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions after January 18, 2008, you must comply with the applicable emission limitations and operating limitations in this subpart upon startup of your affected source.*

(6) *If you start up your new or reconstructed stationary RICE located at an area source of HAP emissions before January 18, 2008, you must comply with the applicable emission limitations and operating limitations in this subpart no later than January 18, 2008.*

(7) *If you start up your new or reconstructed stationary RICE located at an area source of HAP emissions after January 18, 2008, you must comply with the applicable emission limitations and operating limitations in this subpart upon startup of your affected source.*

(b) Area sources that become major sources. *If you have an area source that increases its emissions or its potential to emit such that it becomes a major source of HAP, the compliance dates in paragraphs (b)(1) and (2) of this section apply to you.*

(1) *Any stationary RICE for which construction or reconstruction is commenced after the date when your area source becomes a major source of HAP must be in compliance with this subpart upon startup of your affected source.*

(2) *Any stationary RICE for which construction or reconstruction is commenced before your area source becomes a major source of HAP must be in compliance with the provisions of this subpart that are applicable to RICE located at major sources within 3 years after your area source becomes a major source of HAP.*

(c) *If you own or operate an affected source, you must meet the applicable notification requirements in §63.6645 and in 40 CFR part 63, subpart A.*

40 CFR 63.6600 ..... *What emission limitations and operating limitations must I meet if I own or operate a stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions?*

40 CFR 63.6601 ..... *What emission limitations must I meet if I own or operate a new or reconstructed 4SLB stationary RICE with a site rating of greater than or equal to 250 brake HP and less than or equal to 500 brake HP located at a major source of HAP emissions?*

40 CFR 63.6602 ..... *What emission limitations must I meet if I own or operate an existing stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions?*

Because the Emergency Generator Engine is not located at a major source of HAP emissions, these requirements were not applicable.

40 CFR 63.6603 ..... *What emission limitations, operating limitations, and other requirements must I meet if I own or operate an existing stationary RICE located at an area source of HAP emissions?*

Compliance with the numerical emission limitations established in this subpart is based on the results of testing the average of three 1-hour runs using the testing requirements and procedures in §63.6620 and Table 4 to this subpart.

(a) *If you own or operate an existing stationary RICE located at an area source of HAP emissions, you must comply with the requirements in Table 2d to this subpart and the operating limitations in Table 2b to this subpart that apply to you.*

(b) *If you own or operate an existing stationary non-emergency CI RICE with a site rating of more than 300 HP located at an area source of HAP that meets either paragraph (b)(1) or (2) of this section, you do not have to meet the numerical CO emission limitations specified in Table 2d of this subpart. Existing stationary non-emergency CI RICE with a site rating of more than 300 HP located at an area source of HAP that meet either paragraph (b)(1) or (2) of this section must meet the management practices that are shown for stationary non-emergency CI RICE with a site rating of less than or equal to 300 HP in Table 2d of this subpart.*

(1) The area source is located in an area of Alaska that is not accessible by the Federal Aid Highway System (FAHS).

(2) The stationary RICE is located at an area source that meets paragraphs (b)(2)(i), (ii), and (iii) of this section.

(i) The only connection to the FAHS is through the Alaska Marine Highway System (AMHS), or the stationary RICE operation is within an isolated grid in Alaska that is not connected to the statewide electrical grid referred to as the Alaska Railbelt Grid.

(ii) At least 10 percent of the power generated by the stationary RICE on an annual basis is used for residential purposes.

(iii) The generating capacity of the area source is less than 12 megawatts, or the stationary RICE is used exclusively for backup power for renewable energy.

(c) If you own or operate an existing stationary non-emergency CI RICE with a site rating of more than 300 HP located on an offshore vessel that is an area source of HAP and is a nonroad vehicle that is an Outer Continental Shelf (OCS) source as defined in 40 CFR 55.2, you do not have to meet the numerical CO emission limitations specified in Table 2d of this subpart. You must meet all of the following management practices:

(1) Change oil every 1,000 hours of operation or annually, whichever comes first. Sources have the option to utilize an oil analysis program as described in §63.6625(i) in order to extend the specified oil change requirement.

(2) Inspect and clean air filters every 750 hours of operation or annually, whichever comes first, and replace as necessary.

(3) Inspect fuel filters and belts, if installed, every 750 hours of operation or annually, whichever comes first, and replace as necessary.

(4) Inspect all flexible hoses every 1,000 hours of operation or annually, whichever comes first, and replace as necessary.

(d) If you own or operate an existing non-emergency CI RICE with a site rating of more than 300 HP located at an area source of HAP emissions that is certified to the Tier 1 or Tier 2 emission standards in Table 1 of 40 CFR 89.112 and that is subject to an enforceable state or local standard that requires the engine to be replaced no later than June 1, 2018, you may until January 1, 2015, or 12 years after the installation date of the engine (whichever is later), but not later than June 1, 2018, choose to comply with the management practices that are shown for stationary non-emergency CI RICE with a site rating of less than or equal to 300 HP in Table 2d of this subpart instead of the applicable emission limitations in Table 2d, operating limitations in Table 2b, and crankcase ventilation system requirements in §63.6625(g). You must comply with the emission limitations in Table 2d and operating limitations in Table 2b that apply for non-emergency CI RICE with a site rating of more than 300 HP located at an area source of HAP emissions by January 1, 2015, or 12 years after the installation date of the engine (whichever is later), but not later than June 1, 2018. You must also comply with the crankcase ventilation system requirements in §63.6625(g) by January 1, 2015, or 12 years after the installation date of the engine (whichever is later), but not later than June 1, 2018.

(e) If you own or operate an existing non-emergency CI RICE with a site rating of more than 300 HP located at an area source of HAP emissions that is certified to the Tier 3 (Tier 2 for engines above 560 kilowatt (kW)) emission standards in Table 1 of 40 CFR 89.112, you may comply with the requirements under this part by meeting the requirements for Tier 3 engines (Tier 2 for engines above 560 kW) in 40 CFR part 60 subpart IIII instead of the emission limitations and other requirements that would otherwise apply under this part for existing non-emergency CI RICE with a site rating of more than 300 HP located at an area source of HAP emissions.

(f) An existing non-emergency SI 4SLB and 4SRB stationary RICE with a site rating of more than 500 HP located at area sources of HAP must meet the definition of remote stationary RICE in §63.6675 on the initial compliance date for the engine, October 19, 2013, in order to be considered a remote stationary RICE under this subpart. Owners and operators of existing non-emergency SI 4SLB and 4SRB stationary RICE with a site rating of more than 500 HP located at area sources of HAP that meet the definition of remote stationary RICE in §63.6675 of this subpart as of October 19, 2013 must evaluate the status of their stationary RICE every 12 months. Owners and operators must keep records of the initial and annual evaluation of the status of the engine. If the evaluation indicates that the stationary RICE no longer meets the definition of remote stationary RICE in §63.6675 of this subpart, the owner or operator must comply with all of the requirements for existing

non-emergency SI 4SLB and 4SRB stationary RICE with a site rating of more than 500 HP located at area sources of HAP that are not remote stationary RICE within 1 year of the evaluation.

Because the Emergency Generator Engine is located at an area source of HAP emissions, the requirements of Table 2d and operating limits in Table 2b are applicable. Because the Emergency Generator Engine is an emergency stationary RICE, numerical limitations were not applicable.

Table 2d to Subpart ZZZZ of Part 63 **Requirements for Existing Stationary RICE Located at Area Sources of HAP Emissions**

As stated in §§63.6603 and 63.6640, you must comply with the following requirements for existing stationary RICE located at area sources of HAP emissions:

For each...	You must meet the following requirement, except during periods of startup...	During periods of startup you must...
1. Non-Emergency, non-black start CI stationary RICE ≤300 HP	a. Change oil and filter every 1,000 hours of operation or annually, whichever comes first;[1] b. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary; c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.	Minimize the engine's time spent at idle and minimize the engine's startup time at startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply.
2. Non-Emergency, non-black start CI stationary RICE 300<HP≤500	a. Limit concentration of CO in the stationary RICE exhaust to 49 ppmvd at 15 percent O_2; or	
	b. Reduce CO emissions by 70 percent or more.	
3. Non-Emergency, non-black start CI stationary RICE >500 HP	a. Limit concentration of CO in the stationary RICE exhaust to 23 ppmvd at 15 percent O_2; or	
	b. Reduce CO emissions by 70 percent or more.	
4. Emergency stationary CI RICE and black start stationary CI RICE.[2]	a. Change oil and filter every 500 hours of operation or annually, whichever comes first;[1]	
	b. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary; and	
	c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.	
5. Emergency stationary SI RICE; black start stationary SI RICE; non-emergency, non-black start 4SLB stationary RICE >500 HP that operate 24 hours or less per calendar year; non-emergency, non-black start 4SRB stationary RICE >500 HP that operate 24 hours or less per calendar year.[2]	a. Change oil and filter every 500 hours of operation or annually, whichever comes first;[1]; b. Inspect spark plugs every 1,000 hours of operation or annually, whichever comes first, and replace as necessary; and c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.	
6. Non-emergency, non-black start 2SLB stationary RICE	a. Change oil and filter every 4,320 hours of operation or annually, whichever comes first;[1]	
	b. Inspect spark plugs every 4,320 hours of operation or annually, whichever comes first, and replace as necessary; and	
	c. Inspect all hoses and belts every 4,320 hours of operation or annually, whichever comes first, and replace as necessary.	
7. Non-emergency, non-black start 4SLB stationary RICE ≤500 HP	a. Change oil and filter every 1,440 hours of operation or annually, whichever comes first;[1]	
	b. Inspect spark plugs every 1,440 hours of operation or annually, whichever comes first, and replace as necessary; and	
	c. Inspect all hoses and belts every 1,440 hours of operation or annually, whichever comes first, and replace as necessary.	
8. Non-emergency, non-black start 4SLB remote stationary RICE >500 HP	a. Change oil and filter every 2,160 hours of operation or annually, whichever comes first;[1]	
	b. Inspect spark plugs every 2,160 hours of operation or annually, whichever comes first, and replace as necessary; and	
	c. Inspect all hoses and belts every 2,160 hours of operation or annually, whichever comes first, and replace as necessary.	

Table 2d to Subpart ZZZZ of Part 63 **Requirements for Existing Stationary RICE Located at Area Sources of HAP Emissions**

As stated in §§63.6603 and 63.6640, you must comply with the following requirements for existing stationary RICE located at area sources of HAP emissions:

For each...	You must meet the following requirement, except during periods of startup...	During periods of startup you must...
9. Non-emergency, non-black start 4SLB stationary RICE >500 HP that are not remote stationary RICE and that operate more than 24 hours per calendar year	Install an oxidation catalyst to reduce HAP emissions from the stationary RICE.	
10. Non-emergency, non-black start 4SRB stationary RICE ≤500 HP	a. Change oil and filter every 1,440 hours of operation or annually, whichever comes first;[1]	
	b. Inspect spark plugs every 1,440 hours of operation or annually, whichever comes first, and replace as necessary; and	
	c. Inspect all hoses and belts every 1,440 hours of operation or annually, whichever comes first, and replace as necessary.	
11. Non-emergency, non-black start 4SRB remote stationary RICE >500 HP	a. Change oil and filter every 2,160 hours of operation or annually, whichever comes first;[1]	
	b. Inspect spark plugs every 2,160 hours of operation or annually, whichever comes first, and replace as necessary; and	
	c. Inspect all hoses and belts every 2,160 hours of operation or annually, whichever comes first, and replace as necessary.	
12. Non-emergency, non-black start 4SRB stationary RICE >500 HP that are not remote stationary RICE and that operate more than 24 hours per calendar year	Install NSCR to reduce HAP emissions from the stationary RICE.	
13. Non-emergency, non-black start stationary RICE which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis	a. Change oil and filter every 1,440 hours of operation or annually, whichever comes first;[1] b. Inspect spark plugs every 1,440 hours of operation or annually, whichever comes first, and replace as necessary; and	
	c. Inspect all hoses and belts every 1,440 hours of operation or annually, whichever comes first, and replace as necessary.	

1) Sources have the option to utilize an oil analysis program as described in §63.6625(i) or (j) in order to extend the specified oil change requirement in Table 2d of this subpart.

2) If an emergency engine is operating during an emergency and it is not possible to shut down the engine in order to perform the management practice requirements on the schedule required in Table 2d of this subpart, or if performing the management practice on the required schedule would otherwise pose an unacceptable risk under federal, state, or local law, the management practice can be delayed until the emergency is over or the unacceptable risk under federal, state, or local law has abated. The management practice should be performed as soon as practicable after the emergency has ended or the unacceptable risk under federal, state, or local law has abated. Sources must report any failure to perform the management practice on the schedule required and the federal, state or local law under which the risk was deemed unacceptable.

Table 2b to Subpart ZZZZ of Part 63 Operating Limitations for New and Reconstructed 2SLB and CI Stationary RICE >500 HP Located at a Major Source of HAP Emissions, New and Reconstructed 4SLB Stationary RICE ≥250 HP Located at a Major Source of HAP Emissions, Existing CI Stationary RICE >500 HP

As stated in §§63.6600, 63.6601, 63.6603, 63.6630, and 63.6640, you must comply with the following operating limitations for new and reconstructed 2SLB and CI stationary RICE >500 HP located at a major source of HAP emissions; new and reconstructed 4SLB stationary RICE ≥250 HP located at a major source of HAP emissions; and existing CI stationary RICE >500 HP:

For each...	You must meet the following operating limitation, except during periods of startup...
1. New and reconstructed 2SLB and CI stationary RICE >500 HP located at a major source of HAP emissions and new and reconstructed 4SLB stationary RICE ≥250 HP located at a major source of HAP emissions complying with the requirement to reduce CO emissions and using an oxidation catalyst; and New and reconstructed 2SLB and CI stationary RICE >500 HP located at a major source of HAP emissions and new and reconstructed 4SLB stationary RICE ≥250 HP located at a major source of HAP emissions complying with the requirement to limit the concentration of formaldehyde in the stationary RICE exhaust and using an oxidation catalyst.	a. maintain your catalyst so that the pressure drop across the catalyst does not change by more than 2 inches of water at 100 percent load plus or minus 10 percent from the pressure drop across the catalyst that was measured during the initial performance test; and b. maintain the temperature of your stationary RICE exhaust so that the catalyst inlet temperature is greater than or equal to 450 °F and less than or equal to 1350 °F.[(a)]
2. Existing CI stationary RICE >500 HP complying with the requirement to limit or reduce the concentration of CO in the stationary RICE exhaust and using an oxidation catalyst	a. maintain your catalyst so that the pressure drop across the catalyst does not change by more than 2 inches of water from the pressure drop across the catalyst that was measured during the initial performance test; and
	b. maintain the temperature of your stationary RICE exhaust so that the catalyst inlet temperature is greater than or equal to 450 °F and less than or equal to 1350 °F.[(a)]
3. New and reconstructed 2SLB and CI stationary RICE >500 HP located at a major source of HAP emissions and new and reconstructed 4SLB stationary RICE ≥250 HP located at a major source of HAP emissions complying with the requirement to reduce CO emissions and not using an oxidation catalyst; and	Comply with any operating limitations approved by the Administrator.
New and reconstructed 2SLB and CI stationary RICE >500 HP located at a major source of HAP emissions and new and reconstructed 4SLB stationary RICE ≥250 HP located at a major source of HAP emissions complying with the requirement to limit the concentration of formaldehyde in the stationary RICE exhaust and not using an oxidation catalyst; and	
existing CI stationary RICE >500 HP complying with the requirement to limit or reduce the concentration of CO in the stationary RICE exhaust and not using an oxidation catalyst.	

a) Sources can petition the Administrator pursuant to the requirements of 40 CFR 63.8(f) for a different temperature range.

Because the Emergency Generator Engine is less than 250 HP, there are no applicable requirements in Table 2b. Applicable requirements were incorporated as Permit Condition 5.9.

40 CFR 63.6604 ..... What fuel requirements must I meet if I own or operate a stationary CI RICE?

(a) If you own or operate an existing non-emergency, non-black start CI stationary RICE with a site rating of more than 300 brake HP with a displacement of less than 30 liters per cylinder that uses diesel fuel, you must use diesel fuel that meets the requirements in 40 CFR 80.510(b) for nonroad diesel fuel.

(b) Beginning January 1, 2015, if you own or operate an existing emergency CI stationary RICE with a site rating of more than 100 brake HP and a displacement of less than 30 liters per cylinder that uses diesel fuel and operates or is contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii) or that operates for the purpose specified in §63.6640(f)(4)(ii), you must use diesel fuel that meets the requirements in 40 CFR 80.510(b) for nonroad diesel fuel, except that any existing diesel fuel purchased (or otherwise obtained) prior to January 1, 2015, may be used until depleted.

(c) Beginning January 1, 2015, if you own or operate a new emergency CI stationary RICE with a site rating of more than 500 brake HP and a displacement of less than 30 liters per cylinder located at a major source of HAP that uses diesel fuel and operates or is contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii), you must use diesel fuel that meets the

requirements in 40 CFR 80.510(b) for nonroad diesel fuel, except that any existing diesel fuel purchased (or otherwise obtained) prior to January 1, 2015, may be used until depleted.

(d) Existing CI stationary RICE located in Guam, American Samoa, the Commonwealth of the Northern Mariana Islands, at area sources in areas of Alaska that meet either §63.6603(b)(1) or §63.6603(b)(2), or are on offshore vessels that meet §63.6603(c) are exempt from the requirements of this section.

Because the Emergency Generator Engine does not fire diesel fuel, these requirements were not applicable.

40 CFR 63.6605 ..... What are my general requirements for complying with this Subpart?

(a) You must be in compliance with the emission limitations and operating limitations in this Subpart that apply to you at all times.

(b) At all times you must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require you to make any further efforts to reduce emissions if levels required by this standard have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

Applicable requirements were incorporated as Permit Condition 5.10.

40 CFR 63.6610 ..... By what date must I conduct the initial performance tests or other initial compliance demonstrations if I own or operate a stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions?

40 CFR 63.6611 ..... By what date must I conduct the initial performance tests or other initial compliance demonstrations if I own or operate a new or reconstructed 4SLB SI stationary RICE with a site rating of greater than or equal to 250 and less than or equal to 500 brake HP located at a major source of HAP emissions?

Because the Emergency Generator Engine is not located at a major source of HAP emissions, these requirements were not applicable.

40 CFR 63.6612 ..... By what date must I conduct the initial performance tests or other initial compliance demonstrations if I own or operate a stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions?

40 CFR 63.6615 ..... When must I conduct subsequent performance tests?

40 CFR 63.6620 ..... What performance tests and other procedures must I use?

Because the Emergency Generator Engine is an emergency stationary RICE, numerical limitations were not applicable and these sections relevant to performance testing were not applicable.

40 CFR 63.6625 ..... What are my monitoring, installation, collection, operation, and maintenance requirements?

(a) If you elect to install a CEMS as specified in Table 5 of this subpart, you must install, operate, and maintain a CEMS to monitor CO and either O_2 or CO_2 according to the requirements in paragraphs (a)(1) through (4) of this section. If you are meeting a requirement to reduce CO emissions, the CEMS must be installed at both the inlet and outlet of the control device. If you are meeting a requirement to limit the concentration of CO, the CEMS must be installed at the outlet of the control device.

(1) Each CEMS must be installed, operated, and maintained according to the applicable performance specifications of 40 CFR part 60, appendix B.

(2) You must conduct an initial performance evaluation and an annual relative accuracy test audit (RATA) of each CEMS according to the requirements in §63.8 and according to the applicable performance

specifications of 40 CFR part 60, appendix B as well as daily and periodic data quality checks in accordance with 40 CFR part 60, appendix F, procedure 1.

(3) As specified in §63.8(c)(4)(ii), each CEMS must complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period. You must have at least two data points, with each representing a different 15-minute period, to have a valid hour of data.

(4) The CEMS data must be reduced as specified in §63.8(g)(2) and recorded in parts per million or parts per billion (as appropriate for the applicable limitation) at 15 percent oxygen or the equivalent CO_2 concentration.

(b) If you are required to install a continuous parameter monitoring system (CPMS) as specified in Table 5 of this subpart, you must install, operate, and maintain each CPMS according to the requirements in paragraphs (b)(1) through (6) of this section. For an affected source that is complying with the emission limitations and operating limitations on March 9, 2011, the requirements in paragraph (b) of this section are applicable September 6, 2011.

(1) You must prepare a site-specific monitoring plan that addresses the monitoring system design, data collection, and the quality assurance and quality control elements outlined in paragraphs (b)(1)(i) through (v) of this section and in §63.8(d). As specified in §63.8(f)(4), you may request approval of monitoring system quality assurance and quality control procedures alternative to those specified in paragraphs (b)(1) through (5) of this section in your site-specific monitoring plan.

(i) The performance criteria and design specifications for the monitoring system equipment, including the sample interface, detector signal analyzer, and data acquisition and calculations;

(ii) Sampling interface (e.g., thermocouple) location such that the monitoring system will provide representative measurements;

(iii) Equipment performance evaluations, system accuracy audits, or other audit procedures;

(iv) Ongoing operation and maintenance procedures in accordance with provisions in §63.8(c)(1)(ii) and (c)(3); and

(v) Ongoing reporting and recordkeeping procedures in accordance with provisions in §63.10(c), (e)(1), and (e)(2)(i).

(2) You must install, operate, and maintain each CPMS in continuous operation according to the procedures in your site-specific monitoring plan.

(3) The CPMS must collect data at least once every 15 minutes (see also §63.6635).

(4) For a CPMS for measuring temperature range, the temperature sensor must have a minimum tolerance of 2.8 degrees Celsius (5 degrees Fahrenheit) or 1 percent of the measurement range, whichever is larger.

(5) You must conduct the CPMS equipment performance evaluation, system accuracy audits, or other audit procedures specified in your site-specific monitoring plan at least annually.

(6) You must conduct a performance evaluation of each CPMS in accordance with your site-specific monitoring plan.

(c) If you are operating a new or reconstructed stationary RICE which fires landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, you must monitor and record your fuel usage daily with separate fuel meters to measure the volumetric flow rate of each fuel. In addition, you must operate your stationary RICE in a manner which reasonably minimizes HAP emissions.

(d) If you are operating a new or reconstructed emergency 4SLB stationary RICE with a site rating of greater than or equal to 250 and less than or equal to 500 brake HP located at a major source of HAP emissions, you must install a non-resettable hour meter prior to the startup of the engine.

(e) If you own or operate any of the following stationary RICE, you must operate and maintain the stationary RICE and after-treatment control device (if any) according to the manufacturer's emission-related written instructions or develop your own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions:

(1) An existing stationary RICE with a site rating of less than 100 HP located at a major source of HAP emissions;

(2) *An existing emergency or black start stationary RICE with a site rating of less than or equal to 500 HP located at a major source of HAP emissions;*

(3) *An existing emergency or black start stationary RICE located at an area source of HAP emissions;*

(4) *An existing non-emergency, non-black start stationary CI RICE with a site rating less than or equal to 300 HP located at an area source of HAP emissions;*

(5) *An existing non-emergency, non-black start 2SLB stationary RICE located at an area source of HAP emissions;*

(6) *An existing non-emergency, non-black start stationary RICE located at an area source of HAP emissions which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis.*

(7) *An existing non-emergency, non-black start 4SLB stationary RICE with a site rating less than or equal to 500 HP located at an area source of HAP emissions;*

(8) *An existing non-emergency, non-black start 4SRB stationary RICE with a site rating less than or equal to 500 HP located at an area source of HAP emissions;*

(9) *An existing, non-emergency, non-black start 4SLB stationary RICE with a site rating greater than 500 HP located at an area source of HAP emissions that is operated 24 hours or less per calendar year; and*

(10) *An existing, non-emergency, non-black start 4SRB stationary RICE with a site rating greater than 500 HP located at an area source of HAP emissions that is operated 24 hours or less per calendar year.*

(f) *If you own or operate an existing emergency stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions or an existing emergency stationary RICE located at an area source of HAP emissions, you must install a non-resettable hour meter if one is not already installed.*

(g) *If you own or operate an existing non-emergency, non-black start CI engine greater than or equal to 300 HP that is not equipped with a closed crankcase ventilation system, you must comply with either paragraph (g)(1) or paragraph (2) of this section. Owners and operators must follow the manufacturer's specified maintenance requirements for operating and maintaining the open or closed crankcase ventilation systems and replacing the crankcase filters, or can request the Administrator to approve different maintenance requirements that are as protective as manufacturer requirements. Existing CI engines located at area sources in areas of Alaska that meet either §63.6603(b)(1) or §63.6603(b)(2) do not have to meet the requirements of this paragraph (g). Existing CI engines located on offshore vessels that meet §63.6603(c) do not have to meet the requirements of this paragraph (g).*

(h) *If you operate a new, reconstructed, or existing stationary engine, you must minimize the engine's time spent at idle during startup and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the emission standards applicable to all times other than startup in Tables 1a, 2a, 2c, and 2d to this subpart apply.*

(i) *If you own or operate a stationary CI engine that is subject to the work, operation or management practices in items 1 or 2 of Table 2c to this subpart or in items 1 or 4 of Table 2d to this subpart, you have the option of utilizing an oil analysis program in order to extend the specified oil change requirement in Tables 2c and 2d to this subpart. The oil analysis must be performed at the same frequency specified for changing the oil in Table 2c or 2d to this subpart. The analysis program must at a minimum analyze the following three parameters: Total Base Number, viscosity, and percent water content. The condemning limits for these parameters are as follows: Total Base Number is less than 30 percent of the Total Base Number of the oil when new; viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new; or percent water content (by volume) is greater than 0.5. If all of these condemning limits are not exceeded, the engine owner or operator is not required to change the oil. If any of the limits are exceeded, the engine owner or operator must change the oil within 2 days of receiving the results of the analysis; if the engine is not in operation when the results of the analysis are received, the engine owner or operator must change the oil within 2 days or before commencing operation, whichever is later. The owner or operator must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine. The analysis program must be part of the maintenance plan for the engine.*

(j) *If you own or operate a stationary SI engine that is subject to the work, operation or management practices in items 6, 7, or 8 of Table 2c to this subpart or in items 5, 6, 7, 9, or 11 of Table 2d to this subpart, you have the option of utilizing an oil analysis program in order to extend the specified oil change requirement in Tables 2c*

and 2d to this subpart. The oil analysis must be performed at the same frequency specified for changing the oil in Table 2c or 2d to this subpart. The analysis program must at a minimum analyze the following three parameters: Total Acid Number, viscosity, and percent water content. The condemning limits for these parameters are as follows: Total Acid Number increases by more than 3.0 milligrams of potassium hydroxide (KOH) per gram from Total Acid Number of the oil when new; viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new; or percent water content (by volume) is greater than 0.5. If all of these condemning limits are not exceeded, the engine owner or operator is not required to change the oil. If any of the limits are exceeded, the engine owner or operator must change the oil within 2 business days of receiving the results of the analysis; if the engine is not in operation when the results of the analysis are received, the engine owner or operator must change the oil within 2 business days or before commencing operation, whichever is later. The owner or operator must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine. The analysis program must be part of the maintenance plan for the engine.

Because CEMS and CPMS were not required, because landfill and digester gas are not fired, because capacity is less than 250 BHP, and because the permittee has only proposed operation qualifying as emergency stationary RICE, related requirements were not applicable.

Applicable requirements were incorporated as Permit Conditions 5.11.

40 CFR 63.6630 ..... How do I demonstrate initial compliance with the emission limitations, operating limitations, and other requirements?

(a) You must demonstrate initial compliance with each emission limitation, operating limitation, and other requirement that applies to you according to Table 5 of this subpart.

Table 5 to Subpart ZZZZ of Part 63—Initial Compliance With Emission Limitations, Operating Limitations, and Other Requirements

As stated in §§63.6612, 63.6625 and 63.6630, you must initially comply with the emission and operating limitations as required by the following:

For each...	Complying with the requirement to...	You have demonstrated initial compliance if...
1. New or reconstructed non-emergency 2SLB stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE ≥250 HP located at a major source of HAP, non-emergency stationary CI RICE >500 HP located at a major source of HAP, and existing non-emergency stationary CI RICE >500 HP located at an area source of HAP	a. Reduce CO emissions and using oxidation catalyst, and using a CPMS	i. The average reduction of emissions of CO determined from the initial performance test achieves the required CO percent reduction; and ii. You have installed a CPMS to continuously monitor catalyst inlet temperature according to the requirements in §63.6625(b); and iii. You have recorded the catalyst pressure drop and catalyst inlet temperature during the initial performance test.
2. Non-emergency stationary CI RICE >500 HP located at a major source of HAP, and existing non-emergency stationary CI RICE >500 HP located at an area source of HAP	a. Limit the concentration of CO, using oxidation catalyst, and using a CPMS	i. The average CO concentration determined from the initial performance test is less than or equal to the CO emission limitation; and
		ii. You have installed a CPMS to continuously monitor catalyst inlet temperature according to the requirements in §63.6625(b); and
		iii. You have recorded the catalyst pressure drop and catalyst inlet temperature during the initial performance test.

Table 5 to Subpart ZZZZ of Part 63—Initial Compliance With Emission Limitations, Operating Limitations, and Other Requirements

As stated in §§63.6612, 63.6625 and 63.6630, you must initially comply with the emission and operating limitations as required by the following:

For each...	Complying with the requirement to...	You have demonstrated initial compliance if...
3. New or reconstructed non-emergency 2SLB stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE ≥250 HP located at a major source of HAP, non-emergency stationary CI RICE >500 HP located at a major source of HAP, and existing non-emergency stationary CI RICE >500 HP located at an area source of HAP	a. Reduce CO emissions and not using oxidation catalyst	i. The average reduction of emissions of CO determined from the initial performance test achieves the required CO percent reduction; and ii. You have installed a CPMS to continuously monitor operating parameters approved by the Administrator (if any) according to the requirements in §63.6625(b); and iii. You have recorded the approved operating parameters (if any) during the initial performance test.
4. Non-emergency stationary CI RICE >500 HP located at a major source of HAP, and existing non-emergency stationary CI RICE >500 HP located at an area source of HAP	a. Limit the concentration of CO, and not using oxidation catalyst	i. The average CO concentration determined from the initial performance test is less than or equal to the CO emission limitation; and ii. You have installed a CPMS to continuously monitor operating parameters approved by the Administrator (if any) according to the requirements in §63.6625(b); and
		iii. You have recorded the approved operating parameters (if any) during the initial performance test.
5. New or reconstructed non-emergency 2SLB stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE ≥250 HP located at a major source of HAP, non-emergency stationary CI RICE >500 HP located at a major source of HAP, and existing non-emergency stationary CI RICE >500 HP located at an area source of HAP	a. Reduce CO emissions, and using a CEMS	i. You have installed a CEMS to continuously monitor CO and either O_2 or CO_2 at both the inlet and outlet of the oxidation catalyst according to the requirements in §63.6625(a); and ii. You have conducted a performance evaluation of your CEMS using PS 3 and 4A of 40 CFR part 60, appendix B; and
		iii. The average reduction of CO calculated using §63.6620 equals or exceeds the required percent reduction. The initial test comprises the first 4-hour period after successful validation of the CEMS. Compliance is based on the average percent reduction achieved during the 4-hour period.
6. Non-emergency stationary CI RICE >500 HP located at a major source of HAP, and existing non-emergency stationary CI RICE >500 HP located at an area source of HAP	a. Limit the concentration of CO, and using a CEMS	i. You have installed a CEMS to continuously monitor CO and either O_2 or CO_2 at the outlet of the oxidation catalyst according to the requirements in §63.6625(a); and
		ii. You have conducted a performance evaluation of your CEMS using PS 3 and 4A of 40 CFR part 60, appendix B; and
		iii. The average concentration of CO calculated using §63.6620 is less than or equal to the CO emission limitation. The initial test comprises the first 4-hour period after successful validation of the CEMS. Compliance is based on the average concentration measured during the 4-hour period.

Table 5 to Subpart ZZZZ of Part 63—Initial Compliance With Emission Limitations, Operating Limitations, and Other Requirements

As stated in §§63.6612, 63.6625 and 63.6630, you must initially comply with the emission and operating limitations as required by the following:

For each...	Complying with the requirement to...	You have demonstrated initial compliance if...
7. Non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP	a. Reduce formaldehyde emissions and using NSCR	i. The average reduction of emissions of formaldehyde determined from the initial performance test is equal to or greater than the required formaldehyde percent reduction, or the average reduction of emissions of THC determined from the initial performance test is equal to or greater than 30 percent; and
		ii. You have installed a CPMS to continuously monitor catalyst inlet temperature according to the requirements in §63.6625(b); and
		iii. You have recorded the catalyst pressure drop and catalyst inlet temperature during the initial performance test.
8. Non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP	a. Reduce formaldehyde emissions and not using NSCR	i. The average reduction of emissions of formaldehyde determined from the initial performance test is equal to or greater than the required formaldehyde percent reduction or the average reduction of emissions of THC determined from the initial performance test is equal to or greater than 30 percent; and
		ii. You have installed a CPMS to continuously monitor operating parameters approved by the Administrator (if any) according to the requirements in §63.6625(b); and
		iii. You have recorded the approved operating parameters (if any) during the initial performance test.
9. New or reconstructed non-emergency stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE 250≤HP≤500 located at a major source of HAP, and existing non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP	a. Limit the concentration of formaldehyde in the stationary RICE exhaust and using oxidation catalyst or NSCR	i. The average formaldehyde concentration, corrected to 15 percent O_2, dry basis, from the three test runs is less than or equal to the formaldehyde emission limitation; and ii. You have installed a CPMS to continuously monitor catalyst inlet temperature according to the requirements in §63.6625(b); and
		iii. You have recorded the catalyst pressure drop and catalyst inlet temperature during the initial performance test.
10. New or reconstructed non-emergency stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE 250≤HP≤500 located at a major source of HAP, and existing non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP	a. Limit the concentration of formaldehyde in the stationary RICE exhaust and not using oxidation catalyst or NSCR	i. The average formaldehyde concentration, corrected to 15 percent O_2, dry basis, from the three test runs is less than or equal to the formaldehyde emission limitation; and ii. You have installed a CPMS to continuously monitor operating parameters approved by the Administrator (if any) according to the requirements in §63.6625(b); and
		iii. You have recorded the approved operating parameters (if any) during the initial performance test.

Table 5 to Subpart ZZZZ of Part 63—Initial Compliance With Emission Limitations, Operating Limitations, and Other Requirements

As stated in §§63.6612, 63.6625 and 63.6630, you must initially comply with the emission and operating limitations as required by the following:

For each...	Complying with the requirement to...	You have demonstrated initial compliance if...
11. Existing non-emergency stationary RICE 100≤HP≤500 located at a major source of HAP, and existing non-emergency stationary CI RICE 300<HP≤500 located at an area source of HAP	a. Reduce CO emissions	i. The average reduction of emissions of CO or formaldehyde, as applicable determined from the initial performance test is equal to or greater than the required CO or formaldehyde, as applicable, percent reduction.
12. Existing non-emergency stationary RICE 100≤HP≤500 located at a major source of HAP, and existing non-emergency stationary CI RICE 300<HP≤500 located at an area source of HAP	a. Limit the concentration of formaldehyde or CO in the stationary RICE exhaust	i. The average formaldehyde or CO concentration, as applicable, corrected to 15 percent O_2, dry basis, from the three test runs is less than or equal to the formaldehyde or CO emission limitation, as applicable.
13. Existing non-emergency 4SLB stationary RICE >500 HP located at an area source of HAP that are not remote stationary RICE and that are operated more than 24 hours per calendar year	a. Install an oxidation catalyst	i. You have conducted an initial compliance demonstration as specified in §63.6630(e) to show that the average reduction of emissions of CO is 93 percent or more, or the average CO concentration is less than or equal to 47 ppmvd at 15 percent O_2;
		ii. You have installed a CPMS to continuously monitor catalyst inlet temperature according to the requirements in §63.6625(b), or you have installed equipment to automatically shut down the engine if the catalyst inlet temperature exceeds 1350 °F.
14. Existing non-emergency 4SRB stationary RICE >500 HP located at an area source of HAP that are not remote stationary RICE and that are operated more than 24 hours per calendar year	a. Install NSCR	i. You have conducted an initial compliance demonstration as specified in §63.6630(e) to show that the average reduction of emissions of CO is 75 percent or more, the average CO concentration is less than or equal to 270 ppmvd at 15 percent O_2, or the average reduction of emissions of THC is 30 percent or more;
		ii. You have installed a CPMS to continuously monitor catalyst inlet temperature according to the requirements in §63.6625(b), or you have installed equipment to automatically shut down the engine if the catalyst inlet temperature exceeds 1250 °F

Because the permittee has only proposed operation qualifying as emergency stationary RICE, these requirements were not applicable.

40 CFR 63.6635 ..... How do I monitor and collect data to demonstrate continuous compliance?

(a) If you must comply with emission and operating limitations, you must monitor and collect data according to this section.

(b) Except for monitor malfunctions, associated repairs, required performance evaluations, and required quality assurance or control activities, you must monitor continuously at all times that the stationary RICE is operating. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.

(c) You may not use data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities in data averages and calculations used to report emission or operating levels. You must, however, use all the valid data collected during all other periods.

Because CEMS and CPMS were not required, these requirements were not applicable.

40 CFR 63.6640 ..... How do I demonstrate continuous compliance with the emission limitations and operating limitations?

(a) You must demonstrate continuous compliance with each emission limitation and operating limitation in Tables 1a and 1b, Tables 2a and 2b, Table 2c, and Table 2d to this subpart that apply to you according to methods specified in Table 6 to this subpart.

(b) You must report each instance in which you did not meet each emission limitation or operating limitation in Tables 1a and 1b, Tables 2a and 2b, Table 2c, and Table 2d to this subpart that apply to you. These instances are deviations from the emission and operating limitations in this subpart. These deviations must be reported according to the requirements in §63.6650. If you change your catalyst, you must reestablish the values of the operating parameters measured during the initial performance test. When you reestablish the values of your operating parameters, you must also conduct a performance test to demonstrate that you are meeting the required emission limitation applicable to your stationary RICE.

(c) The annual compliance demonstration required for existing non-emergency 4SLB and 4SRB stationary RICE with a site rating of more than 500 HP located at an area source of HAP that are not remote stationary RICE and that are operated more than 24 hours per calendar year must be conducted according to the following requirements:

(1) The compliance demonstration must consist of at least one test run.

(2) Each test run must be of at least 15 minute duration, except that each test conducted using the method in appendix A to this subpart must consist of at least one measurement cycle and include at least 2 minutes of test data phase measurement.

(3) If you are demonstrating compliance with the CO concentration or CO percent reduction requirement, you must measure CO emissions using one of the CO measurement methods specified in Table 4 of this subpart, or using appendix A to this subpart.

(4) If you are demonstrating compliance with the THC percent reduction requirement, you must measure THC emissions using Method 25A, reported as propane, of 40 CFR part 60, appendix A.

(5) You must measure O_2 using one of the O_2 measurement methods specified in Table 4 of this subpart. Measurements to determine O_2 concentration must be made at the same time as the measurements for CO or THC concentration.

(6) If you are demonstrating compliance with the CO or THC percent reduction requirement, you must measure CO or THC emissions and O_2 emissions simultaneously at the inlet and outlet of the control device.

(7) If the results of the annual compliance demonstration show that the emissions exceed the levels specified in Table 6 of this subpart, the stationary RICE must be shut down as soon as safely possible, and appropriate corrective action must be taken (e.g., repairs, catalyst cleaning, catalyst replacement). The stationary RICE must be retested within 7 days of being restarted and the emissions must meet the levels specified in Table 6 of this subpart. If the retest shows that the emissions continue to exceed the specified levels, the stationary RICE must again be shut down as soon as safely possible, and the stationary RICE may not operate, except for purposes of startup and testing, until the owner/operator demonstrates through testing that the emissions do not exceed the levels specified in Table 6 of this subpart.

(d) For new, reconstructed, and rebuilt stationary RICE, deviations from the emission or operating limitations that occur during the first 200 hours of operation from engine startup (engine burn-in period) are not violations. Rebuilt stationary RICE means a stationary RICE that has been rebuilt as that term is defined in 40 CFR 94.11(a).

(e) You must also report each instance in which you did not meet the requirements in Table 8 to this subpart that apply to you. If you own or operate a new or reconstructed stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions (except new or reconstructed 4SLB engines greater than or equal to 250 and less than or equal to 500 brake HP), a new or reconstructed stationary RICE located at an area source of HAP emissions, or any of the following RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you do not need to comply with the requirements in Table 8 to this subpart: An existing 2SLB stationary RICE, an existing 4SLB stationary RICE, an existing emergency stationary RICE, an existing limited use stationary RICE, or an existing stationary RICE which fires

landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis. If you own or operate any of the following RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you do not need to comply with the requirements in Table 8 to this subpart, except for the initial notification requirements: a new or reconstructed stationary RICE that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, a new or reconstructed emergency stationary RICE, or a new or reconstructed limited use stationary RICE.

(f) If you own or operate an emergency stationary RICE, you must operate the emergency stationary RICE according to the requirements in paragraphs (f)(1) through (4) of this section. In order for the engine to be considered an emergency stationary RICE under this subpart, any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in non-emergency situations for 50 hours per year, as described in paragraphs (f)(1) through (4) of this section, is prohibited. If you do not operate the engine according to the requirements in paragraphs (f)(1) through (4) of this section, the engine will not be considered an emergency engine under this subpart and must meet all requirements for non-emergency engines.

(1) There is no time limit on the use of emergency stationary RICE in emergency situations.

(2) You may operate your emergency stationary RICE for any combination of the purposes specified in paragraphs (f)(2)(i) through (iii) of this section for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by paragraphs (f)(3) and (4) of this section counts as part of the 100 hours per calendar year allowed by this paragraph (f)(2).

(i) Emergency stationary RICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency RICE beyond 100 hours per calendar year.

(ii) Emergency stationary RICE may be operated for emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3, Capacity and Energy Emergencies (incorporated by reference, see §63.14), or other authorized entity as determined by the Reliability Coordinator, has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3.

(iii) Emergency stationary RICE may be operated for periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.

(3) Emergency stationary RICE located at major sources of HAP may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in paragraph (f)(2) of this section. The 50 hours per year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

(4) Emergency stationary RICE located at area sources of HAP may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in paragraph (f)(2) of this section. Except as provided in paragraphs (f)(4)(i) and (ii) of this section, the 50 hours per year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

(i) Prior to May 3, 2014, the 50 hours per year for non-emergency situations can be used for peak shaving or non-emergency demand response to generate income for a facility, or to otherwise supply power as part of a financial arrangement with another entity if the engine is operated as part of a peak shaving (load management program) with the local distribution system operator and the power is provided only to the facility itself or to support the local distribution system.

(ii) The 50 hours per year for non-emergency situations can be used to supply power as part of a financial arrangement with another entity if all of the following conditions are met:

(A) The engine is dispatched by the local balancing authority or local transmission and distribution system operator.

(B) The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.

(C) The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines.

(D) The power is provided only to the facility itself or to support the local transmission and distribution system.

(E) The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner or operator.

Table 6 to Subpart ZZZZ of Part 63—Continuous Compliance With Emission Limitations, and Other Requirements

As stated in §63.6640, you must continuously comply with the emissions and operating limitations and work or management practices as required by the following:

For each...	Complying with the requirement to...	You must demonstrate continuous compliance by...
1. New or reconstructed non-emergency 2SLB stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE ≥250 HP located at a major source of HAP, and new or reconstructed non-emergency CI stationary RICE >500 HP located at a major source of HAP	a. Reduce CO emissions and using an oxidation catalyst, and using a CPMS	i. Conducting semiannual performance tests for CO to demonstrate that the required CO percent reduction is achieved[(a)]; and ii. Collecting the catalyst inlet temperature data according to §63.6625(b); and iii. Reducing these data to 4-hour rolling averages; and
		iv. Maintaining the 4-hour rolling averages within the operating limitations for the catalyst inlet temperature; and
		v. Measuring the pressure drop across the catalyst once per month and demonstrating that the pressure drop across the catalyst is within the operating limitation established during the performance test.
2. New or reconstructed non-emergency 2SLB stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE ≥250 HP located at a major source of HAP, and new or reconstructed non-emergency CI stationary RICE >500 HP located at a major source of HAP	a. Reduce CO emissions and not using an oxidation catalyst, and using a CPMS	i. Conducting semiannual performance tests for CO to demonstrate that the required CO percent reduction is achieved[(a)]; and ii. Collecting the approved operating parameter (if any) data according to §63.6625(b); and iii. Reducing these data to 4-hour rolling averages; and
		iv. Maintaining the 4-hour rolling averages within the operating limitations for the operating parameters established during the performance test.
3. New or reconstructed non-emergency 2SLB stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE ≥250 HP located at a major source of HAP, new or reconstructed non-emergency stationary CI RICE >500 HP located at a major source of HAP, and existing non-emergency stationary CI RICE >500 HP	a. Reduce CO emissions or limit the concentration of CO in the stationary RICE exhaust, and using a CEMS	i. Collecting the monitoring data according to §63.6625(a), reducing the measurements to 1-hour averages, calculating the percent reduction or concentration of CO emissions according to §63.6620; and ii. Demonstrating that the catalyst achieves the required percent reduction of CO emissions over the 4-hour averaging period, or that the emission remain at or below the CO concentration limit; and
		iii. Conducting an annual RATA of your CEMS using PS 3 and 4A of 40 CFR part 60, appendix B, as well as daily and periodic data quality checks in accordance with 40 CFR part 60, appendix F, procedure 1.
4. Non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP	a. Reduce formaldehyde emissions and using NSCR	i. Collecting the catalyst inlet temperature data according to §63.6625(b); and

Table 6 to Subpart ZZZZ of Part 63—Continuous Compliance With Emission Limitations, and Other Requirements

As stated in §63.6640, you must continuously comply with the emissions and operating limitations and work or management practices as required by the following:

For each...	Complying with the requirement to...	You must demonstrate continuous compliance by...
		ii. Reducing these data to 4-hour rolling averages; and
		iii. Maintaining the 4-hour rolling averages within the operating limitations for the catalyst inlet temperature; and
		iv. Measuring the pressure drop across the catalyst once per month and demonstrating that the pressure drop across the catalyst is within the operating limitation established during the performance test.
5. Non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP	a. Reduce formaldehyde emissions and not using NSCR	i. Collecting the approved operating parameter (if any) data according to §63.6625(b); and
		ii. Reducing these data to 4-hour rolling averages; and
		iii. Maintaining the 4-hour rolling averages within the operating limitations for the operating parameters established during the performance test.
6. Non-emergency 4SRB stationary RICE with a brake HP ≥5,000 located at a major source of HAP	a. Reduce formaldehyde emissions	Conducting semiannual performance tests for formaldehyde to demonstrate that the required formaldehyde percent reduction is achieved, or to demonstrate that the average reduction of emissions of THC determined from the performance test is equal to or greater than 30 percent.[(a)]
7. New or reconstructed non-emergency stationary RICE >500 HP located at a major source of HAP and new or reconstructed non-emergency 4SLB stationary RICE 250≤HP≤500 located at a major source of HAP	a. Limit the concentration of formaldehyde in the stationary RICE exhaust and using oxidation catalyst or NSCR	i. Conducting semiannual performance tests for formaldehyde to demonstrate that your emissions remain at or below the formaldehyde concentration limit[(a)]; and ii. Collecting the catalyst inlet temperature data according to §63.6625(b); and
		iii. Reducing these data to 4-hour rolling averages; and
		iv. Maintaining the 4-hour rolling averages within the operating limitations for the catalyst inlet temperature; and
		v. Measuring the pressure drop across the catalyst once per month and demonstrating that the pressure drop across the catalyst is within the operating limitation established during the performance test.
8. New or reconstructed non-emergency stationary RICE >500 HP located at a major source of HAP and new or reconstructed non-emergency 4SLB stationary RICE 250≤HP≤500 located at a major source of HAP	a. Limit the concentration of formaldehyde in the stationary RICE exhaust and not using oxidation catalyst or NSCR	i. Conducting semiannual performance tests for formaldehyde to demonstrate that your emissions remain at or below the formaldehyde concentration limit[(a)]; and ii. Collecting the approved operating parameter (if any) data according to §63.6625(b); and
		iii. Reducing these data to 4-hour rolling averages; and
		iv. Maintaining the 4-hour rolling averages within the operating limitations for the operating parameters established during the performance test.

Table 6 to Subpart ZZZZ of Part 63—Continuous Compliance With Emission Limitations, and Other Requirements

As stated in §63.6640, you must continuously comply with the emissions and operating limitations and work or management practices as required by the following:

For each...	Complying with the requirement to...	You must demonstrate continuous compliance by...
9. Existing emergency and black start stationary RICE ≤500 HP located at a major source of HAP, existing non-emergency stationary RICE <100 HP located at a major source of HAP, existing emergency and black start stationary RICE located at an area source of HAP, existing non-emergency stationary CI RICE ≤300 HP located at an area source of HAP, existing non-emergency 2SLB stationary RICE located at an area source of HAP, existing non-emergency stationary SI RICE located at an area source of HAP which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, existing non-emergency 4SLB and 4SRB stationary RICE ≤500 HP located at an area source of HAP, existing non-emergency 4SLB and 4SRB stationary RICE >500 HP located at an area source of HAP that operate 24 hours or less per calendar year, and existing non-emergency 4SLB and 4SRB stationary RICE >500 HP located at an area source of HAP that are remote stationary RICE	a. Work or Management practices	i. Operating and maintaining the stationary RICE according to the manufacturer's emission-related operation and maintenance instructions; or ii. Develop and follow your own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions.
10. Existing stationary CI RICE >500 HP that are not limited use stationary RICE	a. Reduce CO emissions, or limit the concentration of CO in the stationary RICE exhaust, and using oxidation catalyst	i. Conducting performance tests every 8,760 hours or 3 years, whichever comes first, for CO or formaldehyde, as appropriate, to demonstrate that the required CO or formaldehyde, as appropriate, percent reduction is achieved or that your emissions remain at or below the CO or formaldehyde concentration limit; and
		ii. Collecting the catalyst inlet temperature data according to §63.6625(b); and
		iii. Reducing these data to 4-hour rolling averages; and
		iv. Maintaining the 4-hour rolling averages within the operating limitations for the catalyst inlet temperature; and
		v. Measuring the pressure drop across the catalyst once per month and demonstrating that the pressure drop across the catalyst is within the operating limitation established during the performance test.
11. Existing stationary CI RICE >500 HP that are not limited use stationary RICE	a. Reduce CO emissions, or limit the concentration of CO in the stationary RICE exhaust, and not using oxidation catalyst	i. Conducting performance tests every 8,760 hours or 3 years, whichever comes first, for CO or formaldehyde, as appropriate, to demonstrate that the required CO or formaldehyde, as appropriate, percent reduction is achieved or that your emissions remain at or below the CO or formaldehyde concentration limit; and
		ii. Collecting the approved operating parameter (if any) data according to §63.6625(b); and
		iii. Reducing these data to 4-hour rolling averages; and
		iv. Maintaining the 4-hour rolling averages within the operating limitations for the operating parameters established during the performance test.
12. Existing limited use CI stationary RICE >500 HP	a. Reduce CO emissions or limit the concentration of CO in the stationary RICE exhaust, and using an oxidation catalyst	i. Conducting performance tests every 8,760 hours or 5 years, whichever comes first, for CO or formaldehyde, as appropriate, to demonstrate that the required CO or formaldehyde, as appropriate, percent reduction is achieved or that your emissions remain at or below the CO or formaldehyde concentration limit; and

Table 6 to Subpart ZZZZ of Part 63—Continuous Compliance With Emission Limitations, and Other Requirements

As stated in §63.6640, you must continuously comply with the emissions and operating limitations and work or management practices as required by the following:

For each...	Complying with the requirement to...	You must demonstrate continuous compliance by...
		ii. Collecting the catalyst inlet temperature data according to §63.6625(b); and
		iii. Reducing these data to 4-hour rolling averages; and
		iv. Maintaining the 4-hour rolling averages within the operating limitations for the catalyst inlet temperature; and
		v. Measuring the pressure drop across the catalyst once per month and demonstrating that the pressure drop across the catalyst is within the operating limitation established during the performance test.
13. Existing limited use CI stationary RICE >500 HP	a. Reduce CO emissions or limit the concentration of CO in the stationary RICE exhaust, and not using an oxidation catalyst	i. Conducting performance tests every 8,760 hours or 5 years, whichever comes first, for CO or formaldehyde, as appropriate, to demonstrate that the required CO or formaldehyde, as appropriate, percent reduction is achieved or that your emissions remain at or below the CO or formaldehyde concentration limit; and
		ii. Collecting the approved operating parameter (if any) data according to §63.6625(b); and
		iii. Reducing these data to 4-hour rolling averages; and
		iv. Maintaining the 4-hour rolling averages within the operating limitations for the operating parameters established during the performance test.
14. Existing non-emergency 4SLB stationary RICE >500 HP located at an area source of HAP that are not remote stationary RICE and that are operated more than 24 hours per calendar year	a. Install an oxidation catalyst	i. Conducting annual compliance demonstrations as specified in §63.6640(c) to show that the average reduction of emissions of CO is 93 percent or more, or the average CO concentration is less than or equal to 47 ppmvd at 15 percent O_2; and either ii. Collecting the catalyst inlet temperature data according to §63.6625(b), reducing these data to 4-hour rolling averages; and maintaining the 4-hour rolling averages within the limitation of greater than 450 °F and less than or equal to 1350 °F for the catalyst inlet temperature; or iii. Immediately shutting down the engine if the catalyst inlet temperature exceeds 1350 °F.
15. Existing non-emergency 4SRB stationary RICE >500 HP located at an area source of HAP that are not remote stationary RICE and that are operated more than 24 hours per calendar year	a. Install NSCR	i. Conducting annual compliance demonstrations as specified in §63.6640(c) to show that the average reduction of emissions of CO is 75 percent or more, the average CO concentration is less than or equal to 270 ppmvd at 15 percent O_2, or the average reduction of emissions of THC is 30 percent or more; and either ii. Collecting the catalyst inlet temperature data according to §63.6625(b), reducing these data to 4-hour rolling averages; and maintaining the 4-hour rolling averages within the limitation of greater than or equal to 750 °F and less than or equal to 1250 °F for the catalyst inlet temperature; or iii. Immediately shutting down the engine if the catalyst inlet temperature exceeds 1250 °F.

a) After you have demonstrated compliance for two consecutive tests, you may reduce the frequency of subsequent performance tests to annually. If the results of any subsequent annual performance test indicate the stationary RICE is not in compliance with the CO or formaldehyde emission limitation, or you deviate from any of your operating limitations, you must resume semiannual performance tests.

Because the permittee has not proposed peak-shaving or demand response operation, related requirements were not applicable. Applicable requirements were incorporated as Permit Conditions 5.12 and 5.13.

40 CFR 63.6645 ..... What notifications must I submit and when?

(a) You must submit all of the notifications in §§63.7(b) and (c), 63.8(e), (f)(4) and (f)(6), 63.9(b) through (e), and (g) and (h) that apply to you by the dates specified if you own or operate any of the following;

(1) An existing stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions.

(2) An existing stationary RICE located at an area source of HAP emissions.

(3) A stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions.

(4) A new or reconstructed 4SLB stationary RICE with a site rating of greater than or equal to 250 HP located at a major source of HAP emissions.

(5) This requirement does not apply if you own or operate an existing stationary RICE less than 100 HP, an existing stationary emergency RICE, or an existing stationary RICE that is not subject to any numerical emission standards.

(b) As specified in §63.9(b)(2), if you start up your stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions before the effective date of this subpart, you must submit an Initial Notification not later than December 13, 2004.

(c) If you start up your new or reconstructed stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions on or after August 16, 2004, you must submit an Initial Notification not later than 120 days after you become subject to this subpart.

(d) As specified in §63.9(b)(2), if you start up your stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions before the effective date of this subpart and you are required to submit an initial notification, you must submit an Initial Notification not later than July 16, 2008.

(e) If you start up your new or reconstructed stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions on or after March 18, 2008 and you are required to submit an initial notification, you must submit an Initial Notification not later than 120 days after you become subject to this subpart.

(f) If you are required to submit an Initial Notification but are otherwise not affected by the requirements of this subpart, in accordance with §63.6590(b), your notification should include the information in §63.9(b)(2)(i) through (v), and a statement that your stationary RICE has no additional requirements and explain the basis of the exclusion (for example, that it operates exclusively as an emergency stationary RICE if it has a site rating of more than 500 brake HP located at a major source of HAP emissions).

(g) If you are required to conduct a performance test, you must submit a Notification of Intent to conduct a performance test at least 60 days before the performance test is scheduled to begin as required in §63.7(b)(1).

(h) If you are required to conduct a performance test or other initial compliance demonstration as specified in Tables 4 and 5 to this subpart, you must submit a Notification of Compliance Status according to §63.9(h)(2)(ii).

(1) For each initial compliance demonstration required in Table 5 to this subpart that does not include a performance test, you must submit the Notification of Compliance Status before the close of business on the 30th day following the completion of the initial compliance demonstration.

(2) For each initial compliance demonstration required in Table 5 to this subpart that includes a performance test conducted according to the requirements in Table 3 to this subpart, you must submit the Notification of Compliance Status, including the performance test results, before the close of business on the 60th day following the completion of the performance test according to §63.10(d)(2).

(i) If you own or operate an existing non-emergency CI RICE with a site rating of more than 300 HP located at an area source of HAP emissions that is certified to the Tier 1 or Tier 2 emission standards in Table 1 of 40 CFR 89.112 and subject to an enforceable state or local standard requiring engine replacement and you intend to meet management practices rather than emission limits, as specified in §63.6603(d), you must submit a notification by March 3, 2013, stating that you intend to use the provision in §63.6603(d) and identifying the state or local regulation that the engine is subject to.

Because performance testing was not required, and because the permittee has only proposed operation qualifying as emergency stationary RICE, these requirements were not applicable.

40 CFR 63.6650 ..... What reports must I submit and when?

(a) You must submit each report in Table 7 of this subpart that applies to you.

(b) Unless the Administrator has approved a different schedule for submission of reports under §63.10(a), you must submit each report by the date in Table 7 of this Subpart and according to the requirements in paragraphs (b)(1) through (b)(9) of this section.

(1) For semiannual Compliance reports, the first Compliance report must cover the period beginning on the compliance date that is specified for your affected source in §63.6595 and ending on June 30 or December 31, whichever date is the first date following the end of the first calendar half after the compliance date that is specified for your source in §63.6595.

(2) For semiannual Compliance reports, the first Compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date follows the end of the first calendar half after the compliance date that is specified for your affected source in §63.6595.

(3) For semiannual Compliance reports, each subsequent Compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.

(4) For semiannual Compliance reports, each subsequent Compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date is the first date following the end of the semiannual reporting period.

(5) For each stationary RICE that is subject to permitting regulations pursuant to 40 CFR part 70 or 71, and if the permitting authority has established dates for submitting semiannual reports pursuant to 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6 (a)(3)(iii)(A), you may submit the first and subsequent Compliance reports according to the dates the permitting authority has established instead of according to the dates in paragraphs (b)(1) through (b)(4) of this section.

(6) For annual Compliance reports, the first Compliance report must cover the period beginning on the compliance date that is specified for your affected source in §63.6595 and ending on December 31.

(7) For annual Compliance reports, the first Compliance report must be postmarked or delivered no later than January 31 following the end of the first calendar year after the compliance date that is specified for your affected source in §63.6595.

(8) For annual Compliance reports, each subsequent Compliance report must cover the annual reporting period from January 1 through December 31.

(9) For annual Compliance reports, each subsequent Compliance report must be postmarked or delivered no later than January 31.

(c) The Compliance report must contain the information in paragraphs (c)(1) through (6) of this section.

(1) Company name and address.

(2) Statement by a responsible official, with that official's name, title, and signature, certifying the accuracy of the content of the report.

(3) Date of report and beginning and ending dates of the reporting period.

(4) If you had a malfunction during the reporting period, the compliance report must include the number, duration, and a brief description for each type of malfunction which occurred during the reporting period and which caused or may have caused any applicable emission limitation to be exceeded. The report must also include a description of actions taken by an owner or operator during a malfunction of an affected source to minimize emissions in accordance with §63.6605(b), including actions taken to correct a malfunction.

(5) If there are no deviations from any emission or operating limitations that apply to you, a statement that there were no deviations from the emission or operating limitations during the reporting period.

(6) If there were no periods during which the continuous monitoring system (CMS), including CEMS and CPMS, was out-of-control, as specified in §63.8(c)(7), a statement that there were no periods during which the CMS was out-of-control during the reporting period.

(d) For each deviation from an emission or operating limitation that occurs for a stationary RICE where you are not using a CMS to comply with the emission or operating limitations in this subpart, the Compliance report must contain the information in paragraphs (c)(1) through (4) of this section and the information in paragraphs (d)(1) and (2) of this section.

(1) The total operating time of the stationary RICE at which the deviation occurred during the reporting period.

(2) Information on the number, duration, and cause of deviations (including unknown cause, if applicable), as applicable, and the corrective action taken.

(e) For each deviation from an emission or operating limitation occurring for a stationary RICE where you are using a CMS to comply with the emission and operating limitations in this subpart, you must include information in paragraphs (c)(1) through (4) and (e)(1) through (12) of this section.

(1) The date and time that each malfunction started and stopped.

(2) The date, time, and duration that each CMS was inoperative, except for zero (low-level) and high-level checks.

(3) The date, time, and duration that each CMS was out-of-control, including the information in §63.8(c)(8).

(4) The date and time that each deviation started and stopped, and whether each deviation occurred during a period of malfunction or during another period.

(5) A summary of the total duration of the deviation during the reporting period, and the total duration as a percent of the total source operating time during that reporting period.

(6) A breakdown of the total duration of the deviations during the reporting period into those that are due to control equipment problems, process problems, other known causes, and other unknown causes.

(7) A summary of the total duration of CMS downtime during the reporting period, and the total duration of CMS downtime as a percent of the total operating time of the stationary RICE at which the CMS downtime occurred during that reporting period.

(8) An identification of each parameter and pollutant (CO or formaldehyde) that was monitored at the stationary RICE.

(9) A brief description of the stationary RICE.

(10) A brief description of the CMS.

(11) The date of the latest CMS certification or audit.

(12) A description of any changes in CMS, processes, or controls since the last reporting period.

(f) Each affected source that has obtained a title V operating permit pursuant to 40 CFR part 70 or 71 must report all deviations as defined in this subpart in the semiannual monitoring report required by 40 CFR 70.6 (a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A). If an affected source submits a Compliance report pursuant to Table 7 of this subpart along with, or as part of, the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), and the Compliance report includes all required information concerning deviations from any emission or operating limitation in this subpart, submission of the Compliance report shall be deemed to satisfy any obligation to report the same deviations in the semiannual monitoring report. However, submission of a Compliance report shall not otherwise affect any obligation the affected source may have to report deviations from permit requirements to the permit authority.

(g) If you are operating as a new or reconstructed stationary RICE which fires landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, you must submit an annual report according to Table 7 of this subpart by the date specified unless the Administrator has approved a different schedule, according to the information described in paragraphs (b)(1) through (b)(5) of this section. You must report the data specified in (g)(1) through (g)(3) of this section.

(1) Fuel flow rate of each fuel and the heating values that were used in your calculations. You must also demonstrate that the percentage of heat input provided by landfill gas or digester gas is equivalent to 10 percent or more of the total fuel consumption on an annual basis.

(2) The operating limits provided in your federally enforceable permit, and any deviations from these limits.

(3) Any problems or errors suspected with the meters.

(h) If you own or operate an emergency stationary RICE with a site rating of more than 100 brake HP that operates or is contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii) or that operates for the purpose specified in §63.6640(f)(4)(ii), you must submit an annual report according to the requirements in paragraphs (h)(1) through (3) of this section.

(1) The report must contain the following information:

(i) Company name and address where the engine is located.

(ii) Date of the report and beginning and ending dates of the reporting period.

(iii) Engine site rating and model year.

(iv) Latitude and longitude of the engine in decimal degrees reported to the fifth decimal place.

(v) Hours operated for the purposes specified in §63.6640(f)(2)(ii) and (iii), including the date, start time, and end time for engine operation for the purposes specified in §63.6640(f)(2)(ii) and (iii).

(vi) Number of hours the engine is contractually obligated to be available for the purposes specified in §63.6640(f)(2)(ii) and (iii).

(vii) Hours spent for operation for the purpose specified in §63.6640(f)(4)(ii), including the date, start time, and end time for engine operation for the purposes specified in §63.6640(f)(4)(ii). The report must also identify the entity that dispatched the engine and the situation that necessitated the dispatch of the engine.

(viii) If there were no deviations from the fuel requirements in §63.6604 that apply to the engine (if any), a statement that there were no deviations from the fuel requirements during the reporting period.

(ix) If there were deviations from the fuel requirements in §63.6604 that apply to the engine (if any), information on the number, duration, and cause of deviations, and the corrective action taken.

(2) The first annual report must cover the calendar year 2015 and must be submitted no later than March 31, 2016. Subsequent annual reports for each calendar year must be submitted no later than March 31 of the following calendar year.

(3) The annual report must be submitted electronically using the subpart specific reporting form in the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) (www.epa.gov/cdx). However, if the reporting form specific to this subpart is not available in CEDRI at the time that the report is due, the written report must be submitted to the Administrator at the appropriate address listed in §63.13.

Table 7 to Subpart ZZZZ of Part 63—Requirements for Reports

As stated in §63.6650, you must comply with the following requirements for reports:

For each...	You must submit a...	The report must contain...	You must submit the report...
1. Existing non-emergency, non-black start stationary RICE 100≤HP≤500 located at a major source of HAP; existing non-emergency, non-black start stationary CI RICE >500 HP located at a major source of HAP; existing non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP; existing non-emergency, non-black start stationary CI RICE >300 HP located at an area source of HAP; new or reconstructed non-emergency stationary RICE >500 HP located at a major source of HAP; and new or reconstructed non-emergency 4SLB stationary RICE 250≤HP≤500 located at a major source of HAP	Compliance report	a. If there are no deviations from any emission limitations or operating limitations that apply to you, a statement that there were no deviations from the emission limitations or operating limitations during the reporting period. If there were no periods during which the CMS, including CEMS and CPMS, was out-of-control, as specified in §63.8(c)(7), a statement that there were not periods during which the CMS was out-of-control during the reporting period; or	i. Semiannually according to the requirements in §63.6650(b)(1)-(5) for engines that are not limited use stationary RICE subject to numerical emission limitations; and ii. Annually according to the requirements in §63.6650(b)(6)-(9) for engines that are limited use stationary RICE subject to numerical emission limitations.
		b. If you had a deviation from any emission limitation or operating limitation during the reporting period, the information in §63.6650(d). If there were periods during which the CMS, including CEMS and CPMS, was out-of-control, as specified in §63.8(c)(7), the information in §63.6650(e); or	i. Semiannually according to the requirements in §63.6650(b).
		c. If you had a malfunction during the reporting period, the information in §63.6650(c)(4).	i. Semiannually according to the requirements in §63.6650(b).
2. New or reconstructed non-emergency stationary RICE that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis	Report	a. The fuel flow rate of each fuel and the heating values that were used in your calculations, and you must demonstrate that the percentage of heat input provided by landfill gas or digester gas, is equivalent to 10 percent or more of the gross heat input on an annual basis; and	i. Annually, according to the requirements in §63.6650.
		b. The operating limits provided in your federally enforceable permit, and any deviations from these limits; and	i. See item 2.a.i.
		c. Any problems or errors suspected with the meters.	i. See item 2.a.i.
3. Existing non-emergency, non-black start 4SLB and 4SRB stationary RICE >500 HP located at an area source of HAP that are not remote stationary RICE and that operate more than 24 hours per calendar year	Compliance report	a. The results of the annual compliance demonstration, if conducted during the reporting period.	i. Semiannually according to the requirements in §63.6650(b)(1)-(5).
4. Emergency stationary RICE that operate or are contractually obligated to be available for more than 15 hours per year for the purposes specified in §63.6640(f)(2)(ii) and (iii) or that operate for the purposes specified in §63.6640(f)(4)(ii)	Report	a. The information in §63.6650(h)(1)	i. annually according to the requirements in §63.6650(h)(2)-(3).

The permittee has only proposed operation qualifying as emergency stationary RICE and these requirements were not applicable at the time of permit issuance. Potentially-applicable requirements have been referenced in Permit Condition 5.15.

40 CFR 63.6655 ..... What records must I keep?

(a) If you must comply with the emission and operating limitations, you must keep the records described in paragraphs (a)(1) through (a)(5), (b)(1) through (b)(3) and (c) of this section.

(1) A copy of each notification and report that you submitted to comply with this subpart, including all documentation supporting any Initial Notification or Notification of Compliance Status that you submitted, according to the requirement in §63.10(b)(2)(xiv).

(2) Records of the occurrence and duration of each malfunction of operation (i.e., process equipment) or the air pollution control and monitoring equipment.

(3) Records of performance tests and performance evaluations as required in §63.10(b)(2)(viii).

(4) Records of all required maintenance performed on the air pollution control and monitoring equipment.

(5) Records of actions taken during periods of malfunction to minimize emissions in accordance with §63.6605(b), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation.

(b) For each CEMS or CPMS, you must keep the records listed in paragraphs (b)(1) through (3) of this section.

(1) Records described in §63.10(b)(2)(vi) through (xi).

(2) Previous (i.e., superseded) versions of the performance evaluation plan as required in §63.8(d)(3).

(3) Requests for alternatives to the relative accuracy test for CEMS or CPMS as required in §63.8(f)(6)(i), if applicable.

(c) If you are operating a new or reconstructed stationary RICE which fires landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, you must keep the records of your daily fuel usage monitors.

(d) You must keep the records required in Table 6 of this subpart to show continuous compliance with each emission or operating limitation that applies to you.

(e) You must keep records of the maintenance conducted on the stationary RICE in order to demonstrate that you operated and maintained the stationary RICE and after-treatment control device (if any) according to your own maintenance plan if you own or operate any of the following stationary RICE;

(1) An existing stationary RICE with a site rating of less than 100 brake HP located at a major source of HAP emissions.

(2) An existing stationary emergency RICE.

(3) An existing stationary RICE located at an area source of HAP emissions subject to management practices as shown in Table 2d to this subpart.

(f) If you own or operate any of the stationary RICE in paragraphs (f)(1) through (2) of this section, you must keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. The owner or operator must document how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation. If the engine is used for the purposes specified in §63.6640(f)(2)(ii) or (iii) or §63.6640(f)(4)(ii), the owner or operator must keep records of the notification of the emergency situation, and the date, start time, and end time of engine operation for these purposes.

(1) An existing emergency stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions that does not meet the standards applicable to non-emergency engines.

(2) An existing emergency stationary RICE located at an area source of HAP emissions that does not meet the standards applicable to non-emergency engines.

Because CEMS and CPMS were not required, related requirements were not applicable. Applicable requirements were incorporated as Permit Condition 5.14.

40 CFR 63.6660 ..... In what form and how long must I keep my records?

(a) Your records must be in a form suitable and readily available for expeditious review according to §63.10(b)(1).

(b) As specified in §63.10(b)(1), you must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

(c) You must keep each record readily accessible in hard copy or electronic form for at least 5 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to §63.10(b)(1).

Applicable requirements were incorporated as Permit Condition 5.14.

40 CFR 63.6665 ..... What parts of the General Provisions apply to me?

Table 8 to this subpart shows which parts of the General Provisions in §§63.1 through 63.15 apply to you. If you own or operate a new or reconstructed stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions (except new or reconstructed 4SLB engines greater than or equal to 250 and less than or equal to 500 brake HP), a new or reconstructed stationary RICE located at an area source of HAP emissions, or any of the following RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you do not need to comply with any of the requirements of the General Provisions specified in Table 8: An existing 2SLB stationary RICE, an existing 4SLB stationary RICE, an existing stationary RICE that combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, an existing emergency stationary RICE, or an existing limited use stationary RICE. If you own or operate any of the following RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you do not need to comply with the requirements in the General Provisions specified in Table 8 except for the initial notification requirements: A new stationary RICE that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, a new emergency stationary RICE, or a new limited use stationary RICE.

Table 8 to Subpart ZZZZ of Part 63—Applicability of General Provisions to Subpart ZZZZ.

As stated in §63.6665, you must comply with the following applicable general provisions.

General provisions citation	Subject of citation	Applies to subpart	Explanation
§63.1	General applicability of the General Provisions	Yes.	
§63.2	Definitions	Yes	Additional terms defined in §63.6675.
§63.3	Units and abbreviations	Yes.	
§63.4	Prohibited activities and circumvention	Yes.	
§63.5	Construction and reconstruction	Yes.	
§63.6(a)	Applicability	Yes.	
§63.6(b)(1)-(4)	Compliance dates for new and reconstructed sources	Yes.	
§63.6(b)(5)	Notification	Yes.	
§63.6(b)(6)	[Reserved]		
§63.6(b)(7)	Compliance dates for new and reconstructed area sources that become major sources	Yes.	
§63.6(c)(1)-(2)	Compliance dates for existing sources	Yes.	
§63.6(c)(3)-(4)	[Reserved]		
§63.6(c)(5)	Compliance dates for existing area sources that become major sources	Yes.	
§63.6(d)	[Reserved]		
§63.6(e)	Operation and maintenance	No.	
§63.6(f)(1)	Applicability of standards	No.	
§63.6(f)(2)	Methods for determining compliance	Yes.	
§63.6(f)(3)	Finding of compliance	Yes.	
§63.6(g)(1)-(3)	Use of alternate standard	Yes.	
§63.6(h)	Opacity and visible emission standards	No	Subpart ZZZZ does not contain opacity or visible emission standards.
§63.6(i)	Compliance extension procedures and criteria	Yes.	
§63.6(j)	Presidential compliance exemption	Yes.	

Table 8 to Subpart ZZZZ of Part 63—Applicability of General Provisions to Subpart ZZZZ.

As stated in §63.6665, you must comply with the following applicable general provisions.

General provisions citation	Subject of citation	Applies to subpart	Explanation
§63.7(a)(1)-(2)	Performance test dates	Yes	Subpart ZZZZ contains performance test dates at §§63.6610, 63.6611, and 63.6612.
§63.7(a)(3)	CAA section 114 authority	Yes.	
§63.7(b)(1)	Notification of performance test	Yes	Except that §63.7(b)(1) only applies as specified in §63.6645.
§63.7(b)(2)	Notification of rescheduling	Yes	Except that §63.7(b)(2) only applies as specified in §63.6645.
§63.7(c)	Quality assurance/test plan	Yes	Except that §63.7(c) only applies as specified in §63.6645.
§63.7(d)	Testing facilities	Yes.	
§63.7(e)(1)	Conditions for conducting performance tests	No.	Subpart ZZZZ specifies conditions for conducting performance tests at §63.6620.
§63.7(e)(2)	Conduct of performance tests and reduction of data	Yes	Subpart ZZZZ specifies test methods at §63.6620.
§63.7(e)(3)	Test run duration	Yes.	
§63.7(e)(4)	Administrator may require other testing under section 114 of the CAA	Yes.	
§63.7(f)	Alternative test method provisions	Yes.	
§63.7(g)	Performance test data analysis, recordkeeping, and reporting	Yes.	
§63.7(h)	Waiver of tests	Yes.	
§63.8(a)(1)	Applicability of monitoring requirements	Yes	Subpart ZZZZ contains specific requirements for monitoring at §63.6625.
§63.8(a)(2)	Performance specifications	Yes.	
§63.8(a)(3)	[Reserved]		
§63.8(a)(4)	Monitoring for control devices	No.	
§63.8(b)(1)	Monitoring	Yes.	
§63.8(b)(2)-(3)	Multiple effluents and multiple monitoring systems	Yes.	
§63.8(c)(1)	Monitoring system operation and maintenance	Yes.	
§63.8(c)(1)(i)	Routine and predictable SSM	No	
§63.8(c)(1)(ii)	SSM not in Startup Shutdown Malfunction Plan	Yes.	
§63.8(c)(1)(iii)	Compliance with operation and maintenance requirements	No	
§63.8(c)(2)-(3)	Monitoring system installation	Yes.	
§63.8(c)(4)	Continuous monitoring system (CMS) requirements	Yes	Except that subpart ZZZZ does not require Continuous Opacity Monitoring System (COMS).
§63.8(c)(5)	COMS minimum procedures	No	Subpart ZZZZ does not require COMS.
§63.8(c)(6)-(8)	CMS requirements	Yes	Except that subpart ZZZZ does not require COMS.
§63.8(d)	CMS quality control	Yes.	
§63.8(e)	CMS performance evaluation	Yes	Except for §63.8(e)(5)(ii), which applies to COMS.
		Except that §63.8(e) only applies as specified in §63.6645.	
§63.8(f)(1)-(5)	Alternative monitoring method	Yes	Except that §63.8(f)(4) only applies as specified in §63.6645.
§63.8(f)(6)	Alternative to relative accuracy test	Yes	Except that §63.8(f)(6) only applies as specified in §63.6645.

Table 8 to Subpart ZZZZ of Part 63—Applicability of General Provisions to Subpart ZZZZ.

As stated in §63.6665, you must comply with the following applicable general provisions.

General provisions citation	Subject of citation	Applies to subpart	Explanation
§63.8(g)	Data reduction	Yes	Except that provisions for COMS are not applicable. Averaging periods for demonstrating compliance are specified at §§63.6635 and 63.6640.
§63.9(a)	Applicability and State delegation of notification requirements	Yes.	
§63.9(b)(1)-(5)	Initial notifications	Yes	Except that §63.9(b)(3) is reserved.
		Except that §63.9(b) only applies as specified in §63.6645.	
§63.9(c)	Request for compliance extension	Yes	Except that §63.9(c) only applies as specified in §63.6645.
§63.9(d)	Notification of special compliance requirements for new sources	Yes	Except that §63.9(d) only applies as specified in §63.6645.
§63.9(e)	Notification of performance test	Yes	Except that §63.9(e) only applies as specified in §63.6645.
§63.9(f)	Notification of visible emission (VE)/opacity test	No	Subpart ZZZZ does not contain opacity or VE standards.
§63.9(g)(1)	Notification of performance evaluation	Yes	Except that §63.9(g) only applies as specified in §63.6645.
§63.9(g)(2)	Notification of use of COMS data	No	Subpart ZZZZ does not contain opacity or VE standards.
§63.9(g)(3)	Notification that criterion for alternative to RATA is exceeded	Yes	If alternative is in use.
		Except that §63.9(g) only applies as specified in §63.6645.	
§63.9(h)(1)-(6)	Notification of compliance status	Yes	Except that notifications for sources using a CEMS are due 30 days after completion of performance evaluations. §63.9(h)(4) is reserved.
			Except that §63.9(h) only applies as specified in §63.6645.
§63.9(i)	Adjustment of submittal deadlines	Yes.	
§63.9(j)	Change in previous information	Yes.	
§63.10(a)	Administrative provisions for recordkeeping/reporting	Yes.	
§63.10(b)(1)	Record retention	Yes	Except that the most recent 2 years of data do not have to be retained on site.
§63.10(b)(2)(i)-(v)	Records related to SSM	No.	
§63.10(b)(2)(vi)-(xi)	Records	Yes.	
§63.10(b)(2)(xii)	Record when under waiver	Yes.	
§63.10(b)(2)(xiii)	Records when using alternative to RATA	Yes	For CO standard if using RATA alternative.
§63.10(b)(2)(xiv)	Records of supporting documentation	Yes.	
§63.10(b)(3)	Records of applicability determination	Yes.	
§63.10(c)	Additional records for sources using CEMS	Yes	Except that §63.10(c)(2)-(4) and (9) are reserved.
§63.10(d)(1)	General reporting requirements	Yes.	
§63.10(d)(2)	Report of performance test results	Yes.	
§63.10(d)(3)	Reporting opacity or VE observations	No	Subpart ZZZZ does not contain opacity or VE standards.
§63.10(d)(4)	Progress reports	Yes.	

Table 8 to Subpart ZZZZ of Part 63—Applicability of General Provisions to Subpart ZZZZ.

As stated in §63.6665, you must comply with the following applicable general provisions.

General provisions citation	Subject of citation	Applies to subpart	Explanation
§63.10(d)(5)	Startup, shutdown, and malfunction reports	No.	
§63.10(e)(1) and (2)(i)	Additional CMS Reports	Yes.	
§63.10(e)(2)(ii)	COMS-related report	No	Subpart ZZZZ does not require COMS.
§63.10(e)(3)	Excess emission and parameter exceedances reports	Yes.	Except that §63.10(e)(3)(i) (C) is reserved.
§63.10(e)(4)	Reporting COMS data	No	Subpart ZZZZ does not require COMS.
§63.10(f)	Waiver for recordkeeping/reporting	Yes.	§63.10(f)
§63.11	Flares	No.	§63.11
§63.12	State authority and delegations	Yes.	§63.12
§63.13	Addresses	Yes.	§63.13
§63.14	Incorporation by reference	Yes.	§63.14
§63.15	Availability of information	Yes.	§63.15

A summary of applicable general provisions was incorporated as Permit Condition 3.27.

40 CFR 63.6675 ..... What definitions apply to this subpart?

Terms used in this subpart are defined in the Clean Air Act (CAA); in 40 CFR 63.2, the General Provisions of this part; and in this section as follows:

Alaska Railbelt Grid *means the service areas of the six regulated public utilities that extend from Fairbanks to Anchorage and the Kenai Peninsula. These utilities are Golden Valley Electric Association; Chugach Electric Association; Matanuska Electric Association; Homer Electric Association; Anchorage Municipal Light & Power; and the City of Seward Electric System.*

Area source *means any stationary source of HAP that is not a major source as defined in part 63.*

Associated equipment *as used in this subpart and as referred to in section 112(n)(4) of the CAA, means equipment associated with an oil or natural gas exploration or production well, and includes all equipment from the well bore to the point of custody transfer, except glycol dehydration units, storage vessels with potential for flash emissions, combustion turbines, and stationary RICE.*

Backup power for renewable energy *means an engine that provides backup power to a facility that generates electricity from renewable energy resources, as that term is defined in Alaska Statute 42.45.045(l)(5) (incorporated by reference, see §63.14).*

Black start engine *means an engine whose only purpose is to start up a combustion turbine.*

CAA *means the Clean Air Act (42 U.S.C. 7401 et seq., as amended by Public Law 101-549, 104 Stat. 2399).*

Commercial emergency stationary RICE *means an emergency stationary RICE used in commercial establishments such as office buildings, hotels, stores, telecommunications facilities, restaurants, financial institutions such as banks, doctor's offices, and sports and performing arts facilities.*

Compression ignition *means relating to a type of stationary internal combustion engine that is not a spark ignition engine.*

Custody transfer *means the transfer of hydrocarbon liquids or natural gas: After processing and/or treatment in the producing operations, or from storage vessels or automatic transfer facilities or other such equipment, including product loading racks, to pipelines or any other forms of transportation. For the purposes of this subpart, the point at which such liquids or natural gas enters a natural gas processing plant is a point of custody transfer.*

Deviation *means any instance in which an affected source subject to this subpart, or an owner or operator of such a source:*

(1) Fails to meet any requirement or obligation established by this subpart, including but not limited to any emission limitation or operating limitation;

(2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any affected source required to obtain such a permit; or

(3) Fails to meet any emission limitation or operating limitation in this subpart during malfunction, regardless or whether or not such failure is permitted by this subpart.

(4) Fails to satisfy the general duty to minimize emissions established by §63.6(e)(1)(i).

Diesel engine *means any stationary RICE in which a high boiling point liquid fuel injected into the combustion chamber ignites when the air charge has been compressed to a temperature sufficiently high for auto-ignition. This process is also known as compression ignition.*

Diesel fuel *means any liquid obtained from the distillation of petroleum with a boiling point of approximately 150 to 360 degrees Celsius. One commonly used form is fuel oil number 2. Diesel fuel also includes any non-distillate fuel with comparable physical and chemical properties (e.g. biodiesel) that is suitable for use in compression ignition engines.*

Digester gas *means any gaseous by-product of wastewater treatment typically formed through the anaerobic decomposition of organic waste materials and composed principally of methane and* CO_2.

Dual-fuel engine *means any stationary RICE in which a liquid fuel (typically diesel fuel) is used for compression ignition and gaseous fuel (typically natural gas) is used as the primary fuel.*

Emergency stationary RICE *means any stationary reciprocating internal combustion engine that meets all of the criteria in paragraphs (1) through (3) of this definition. All emergency stationary RICE must comply with the requirements specified in §63.6640(f) in order to be considered emergency stationary RICE. If the engine does not comply with the requirements specified in §63.6640(f), then it is not considered to be an emergency stationary RICE under this subpart.*

(1) The stationary RICE is operated to provide electrical power or mechanical work during an emergency situation. Examples include stationary RICE used to produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility (or the normal power source, if the facility runs on its own power production) is interrupted, or stationary RICE used to pump water in the case of fire or flood, etc.

(2) The stationary RICE is operated under limited circumstances for situations not included in paragraph (1) of this definition, as specified in §63.6640(f).

(3) The stationary RICE operates as part of a financial arrangement with another entity in situations not included in paragraph (1) of this definition only as allowed in §63.6640(f)(2)(ii) or (iii) and §63.6640(f)(4)(i) or (ii).

Engine startup *means the time from initial start until applied load and engine and associated equipment reaches steady state or normal operation. For stationary engine with catalytic controls, engine startup means the time from initial start until applied load and engine and associated equipment, including the catalyst, reaches steady state or normal operation.*

Four-stroke engine *means any type of engine which completes the power cycle in two crankshaft revolutions, with intake and compression strokes in the first revolution and power and exhaust strokes in the second revolution.*

Gaseous fuel *means a material used for combustion which is in the gaseous state at standard atmospheric temperature and pressure conditions.*

Gasoline *means any fuel sold in any State for use in motor vehicles and motor vehicle engines, or nonroad or stationary engines, and commonly or commercially known or sold as gasoline.*

Glycol dehydration unit *means a device in which a liquid glycol (including, but not limited to, ethylene glycol, diethylene glycol, or triethylene glycol) absorbent directly contacts a natural gas stream and absorbs water in a contact tower or absorption column (absorber). The glycol contacts and absorbs water vapor and other gas stream constituents from the natural gas and becomes "rich" glycol. This glycol is then regenerated in the glycol dehydration unit reboiler. The "lean" glycol is then recycled.*

Hazardous air pollutants (HAP) *means any air pollutants listed in or pursuant to section 112(b) of the CAA.*

Institutional emergency stationary RICE *means an emergency stationary RICE used in institutional establishments such as medical centers, nursing homes, research centers, institutions of higher education, correctional facilities, elementary and secondary schools, libraries, religious establishments, police stations, and fire stations.*

ISO standard day conditions *means 288 degrees Kelvin (15 degrees Celsius), 60 percent relative humidity and 101.3 kilopascals pressure.*

Landfill gas *means a gaseous by-product of the land application of municipal refuse typically formed through the anaerobic decomposition of waste materials and composed principally of methane and CO_2.*

Lean burn engine *means any two-stroke or four-stroke spark ignited engine that does not meet the definition of a rich burn engine.*

Limited use stationary RICE *means any stationary RICE that operates less than 100 hours per year.*

Liquefied petroleum gas *means any liquefied hydrocarbon gas obtained as a by-product in petroleum refining of natural gas production.*

Liquid fuel *means any fuel in liquid form at standard temperature and pressure, including but not limited to diesel, residual/crude oil, kerosene/naphtha (jet fuel), and gasoline.*

Major Source, *as used in this subpart, shall have the same meaning as in §63.2, except that:*

(1) Emissions from any oil or gas exploration or production well (with its associated equipment (as defined in this section)) and emissions from any pipeline compressor station or pump station shall not be aggregated with emissions from other similar units, to determine whether such emission points or stations are major sources, even when emission points are in a contiguous area or under common control;

(2) For oil and gas production facilities, emissions from processes, operations, or equipment that are not part of the same oil and gas production facility, as defined in §63.1271 of subpart HHH of this part, shall not be aggregated;

(3) For production field facilities, only HAP emissions from glycol dehydration units, storage vessel with the potential for flash emissions, combustion turbines and reciprocating internal combustion engines shall be aggregated for a major source determination; and

(4) Emissions from processes, operations, and equipment that are not part of the same natural gas transmission and storage facility, as defined in §63.1271 of subpart HHH of this part, shall not be aggregated.

Malfunction *means any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner which causes, or has the potential to cause, the emission limitations in an applicable standard to be exceeded. Failures that are caused in part by poor maintenance or careless operation are not malfunctions.*

Natural gas *means a naturally occurring mixture of hydrocarbon and non-hydrocarbon gases found in geologic formations beneath the Earth's surface, of which the principal constituent is methane. Natural gas may be field or pipeline quality.*

Non-selective catalytic reduction (NSCR) *means an add-on catalytic nitrogen oxides (NO_x) control device for rich burn engines that, in a two-step reaction, promotes the conversion of excess oxygen, NO_x, CO, and volatile organic compounds (VOC) into CO_2, nitrogen, and water.*

Oil and gas production facility *as used in this subpart means any grouping of equipment where hydrocarbon liquids are processed, upgraded (i.e., remove impurities or other constituents to meet contract specifications), or stored prior to the point of custody transfer; or where natural gas is processed, upgraded, or stored prior to entering the natural gas transmission and storage source category. For purposes of a major source determination, facility (including a building, structure, or installation) means oil and natural gas production and processing equipment that is located within the boundaries of an individual surface site as defined in this section. Equipment that is part of a facility will typically be located within close proximity to other equipment located at the same facility. Pieces of production equipment or groupings of equipment located on different oil and gas leases, mineral fee tracts, lease tracts, subsurface or surface unit areas, surface fee tracts, surface lease tracts, or separate surface sites, whether or not connected by a road, waterway, power line or pipeline, shall not be considered part of the same facility. Examples of facilities in the oil and natural gas production source category include, but are not limited to, well sites, satellite tank batteries, central tank batteries, a compressor station that transports natural gas to a natural gas processing plant, and natural gas processing plants.*

Oxidation catalyst *means an add-on catalytic control device that controls CO and VOC by oxidation.*

Peaking unit or engine *means any standby engine intended for use during periods of high demand that are not emergencies.*

Percent load *means the fractional power of an engine compared to its maximum manufacturer's design capacity at engine site conditions. Percent load may range between 0 percent to above 100 percent.*

Potential to emit *means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the stationary source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable. For oil and natural gas production facilities subject to subpart HH of this part, the potential to emit provisions in §63.760(a) may be used. For natural gas transmission and storage facilities subject to subpart HHH of this part, the maximum annual facility gas throughput for storage facilities may be determined according to §63.1270(a)(1) and the maximum annual throughput for transmission facilities may be determined according to §63.1270(a)(2).*

Production field facility *means those oil and gas production facilities located prior to the point of custody transfer.*

Production well *means any hole drilled in the earth from which crude oil, condensate, or field natural gas is extracted.*

Propane *means a colorless gas derived from petroleum and natural gas, with the molecular structure* C_3H_8.

Remote stationary RICE *means stationary RICE meeting any of the following criteria:*

(1) Stationary RICE located in an offshore area that is beyond the line of ordinary low water along that portion of the coast of the United States that is in direct contact with the open seas and beyond the line marking the seaward limit of inland waters.

(2) Stationary RICE located on a pipeline segment that meets both of the criteria in paragraphs (2)(i) and (ii) of this definition.

(i) A pipeline segment with 10 or fewer buildings intended for human occupancy and no buildings with four or more stories within 220 yards (200 meters) on either side of the centerline of any continuous 1-mile (1.6 kilometers) length of pipeline. Each separate dwelling unit in a multiple dwelling unit building is counted as a separate building intended for human occupancy.

(ii) The pipeline segment does not lie within 100 yards (91 meters) of either a building or a small, well-defined outside area (such as a playground, recreation area, outdoor theater, or other place of public assembly) that is occupied by 20 or more persons on at least 5 days a week for 10 weeks in any 12-month period. The days and weeks need not be consecutive. The building or area is considered occupied for a full day if it is occupied for any portion of the day.

(iii) For purposes of this paragraph (2), the term pipeline segment means all parts of those physical facilities through which gas moves in transportation, including but not limited to pipe, valves, and other appurtenance attached to pipe, compressor units, metering stations, regulator stations, delivery stations, holders, and fabricated assemblies. Stationary RICE located within 50 yards (46 meters) of the pipeline segment providing power for equipment on a pipeline segment are part of the pipeline segment. Transportation of gas means the gathering, transmission, or distribution of gas by pipeline, or the storage of gas. A building is intended for human occupancy if its primary use is for a purpose involving the presence of humans.

(3) Stationary RICE that are not located on gas pipelines and that have 5 or fewer buildings intended for human occupancy and no buildings with four or more stories within a 0.25 mile radius around the engine. A building is intended for human occupancy if its primary use is for a purpose involving the presence of humans.

Residential emergency stationary RICE *means an emergency stationary RICE used in residential establishments such as homes or apartment buildings.*

Responsible official *means responsible official as defined in 40 CFR 70.2.*

Rich burn engine *means any four-stroke spark ignited engine where the manufacturer's recommended operating air/fuel ratio divided by the stoichiometric air/fuel ratio at full load conditions is less than or equal to 1.1. Engines originally manufactured as rich burn engines, but modified prior to December 19, 2002 with passive emission control technology for* NO_x *(such as pre-combustion chambers) will be considered lean burn engines. Also, existing engines where there are no manufacturer's recommendations regarding air/fuel ratio will be considered a rich burn engine if the excess oxygen content of the exhaust at full load conditions is less than or equal to 2 percent.*

Site-rated HP *means the maximum manufacturer's design capacity at engine site conditions.*

Spark ignition *means relating to either: A gasoline-fueled engine; or any other type of engine with a spark plug (or other sparking device) and with operating characteristics significantly similar to the theoretical Otto combustion cycle. Spark ignition engines usually use a throttle to regulate intake air flow to control power during normal operation. Dual-fuel engines in which a liquid fuel (typically diesel fuel) is used for CI and gaseous fuel (typically natural gas) is used as the primary fuel at an annual average ratio of less than 2 parts diesel fuel to 100 parts total fuel on an energy equivalent basis are spark ignition engines.*

Stationary reciprocating internal combustion engine (RICE) *means any reciprocating internal combustion engine which uses reciprocating motion to convert heat energy into mechanical work and which is not mobile. Stationary RICE differ from mobile RICE in that a stationary RICE is not a non-road engine as defined at 40 CFR 1068.30, and is not used to propel a motor vehicle or a vehicle used solely for competition.*

Stationary RICE test cell/stand *means an engine test cell/stand, as defined in subpart PPPPP of this part, that tests stationary RICE.*

Stoichiometric *means the theoretical air-to-fuel ratio required for complete combustion.*

Storage vessel with the potential for flash emissions *means any storage vessel that contains a hydrocarbon liquid with a stock tank gas-to-oil ratio equal to or greater than 0.31 cubic meters per liter and an American Petroleum Institute gravity equal to or greater than 40 degrees and an actual annual average hydrocarbon liquid throughput equal to or greater than 79,500 liters per day. Flash emissions occur when dissolved hydrocarbons in the fluid evolve from solution when the fluid pressure is reduced.*

Subpart *means 40 CFR part 63, subpart ZZZZ.*

Surface site *means any combination of one or more graded pad sites, gravel pad sites, foundations, platforms, or the immediate physical location upon which equipment is physically affixed.*

Two-stroke engine *means a type of engine which completes the power cycle in single crankshaft revolution by combining the intake and compression operations into one stroke and the power and exhaust operations into a second stroke. This system requires auxiliary scavenging and inherently runs lean of stoichiometric.*

§63.6675 contains applicable definitions which were not included as a permit condition.

A summary of applicable definitions was incorporated as Permit Condition 5.7.

7.7 CAM Applicability (40 CFR 64)

Clay Peak is not a major facility subject to CAM requirements in 40 CFR 64.

7.8 Acid Rain Permit (40 CFR 72–75)

Clay Peak is not an affected source subject to the Acid Rain Permit program in 40 CFR 72–75.

8. PUBLIC COMMENT

As required by IDAPA 58.01.01.364, a public comment period was made available to the public. During this time, comments were submitted in response to DEQ's proposed action. Refer to the Application Scope and Application Chronology section for a listing of relevant dates. A response to public comments document has been crafted by DEQ based on comments submitted during the public comment period. That document is part of the final permit package for this permitting action.

9. EPA REVIEW OF PROPOSED PERMIT

As required by IDAPA 58.01.01.366, DEQ provided the proposed permit to EPA Region 10 for review and comment on March 8, 2019 via e-mail and electronic permit system (EPS) submittal, and comments were not received. Refer to the Application Scope and Application Chronology section for a listing of relevant dates.

Appendix A – Emissions Inventory

Table 3-1
Estimated Facility Emission Inventory

Emission Source[1]	NMOCs[2] (tons/yr)	HAPs[3] (tons/yr)	VOCs[4] (tons/yr)	PM[5] (tons/yr)	SO_2[6] (tons/yr)	NOx[7] (tons/yr)	CO[8] (tons/yr)
Solid Waste Burial Cells: Maximum landfill gas emissions will occur in 2039, as calculated for Landfill Cells #1 and #2.	17.4	3.5647	2.5357	PM_{10} = 1.961 $PM_{2.5}$=1.961	0.25921	5.099	6.014
Diamond Z Diesel Wood Chipper Exhaust [9]			0.059	PM 10 = 0.052	0.049	0.735	0.158
Diamond Z Diesel Wood Chipper, Organic Grinding [10]				PM = 0.037			
Paved Roads[11] (Unwetted)				PM_{10} = 1.746 $PM_{2.5}$=0.429			
Paved Roads[11] (Wetted)				PM_{10} = 0.873 $PM_{2.5}$= 0.214			
Unpaved Roads[11] (Unwetted)				PM_{10} = 16.938 $PM_{2.5}$= 1.694			
Unpaved Roads[11] (Wetted)				PM_{10} = 8.469 $PM_{2.5}$= 0.847			
Earthwork[11] Scraper, Dozer, and Compactor				$PM\text{-}_{10}$ = 2.3341 $PM_{2.5}$= 0.6139			

Note 1: Emissions reflect operations for 2018, except emissions for solid waste burial cells are estimated for 2039, when maximum landfill gas emissions are expected.
Note 2: Nonmethane organic compounds (NMOCs) per LandGEM Model inventory results for Cells 1 and 2 in 2039.
Note 3: Hazardous Air Pollutants (HAPs) per LandGEM Model inventory results for Cells #1 and #2 summarized in Table 3-2 below.
Note 4: Volatile Organic Compounds (VOCs) per LandGEM Model inventory results for Cells #1 and #2 summarized in Table 3-3 below.
Note 5: Particulate Matter (PM) where PM_{10} is particulate matter smaller than 10 microns and $PM_{2.5}$ is particulate matter smaller than 2.5 microns: According AP42 Section 2.4 as presented in the AP-42 update in 2008 Table 2.4-4 that reports typical rate of particulate matter is 15 lbs per 10^6 dscf CH_4, whereas this emission factor can be used to estimate PM-10 and PM-2.5 emissions.
Note 6: Sulfur calculated from AP-42, Section 2.4 as presented in the AP-42 update in 2008. See Appendix G-1, G-2 and G-3 for SOx calculations.
Note 7: Nitrogen Dioxide (NOx) emissions are calculated from AP-42, Section 2.4 as presented in the AP-42 update in 2008 Table 2.4-4 that reports typical rate of nitrogen dioxide is 39 lbs per 106 dscf CH4. See Appendix G-1, G-2 and G-3 for SOx calculations
Note 8: Carbon Monoxide (CO) emissions are calculated from AP-42, Section 2.4 as presented in the AP-42 update in 2008 Table 2.4-4 that reports typical rate of carbon monoxide is 46 lbs per 106 dscf CH4. See Appendix G-1, G-2 and G-3 for SOx calculations
Note 8: Emission rates developed from LandGEM modeling results, presented in Appendix E, F, G-1, G-2, and G-3.
Note 9: Wood Chipper engine emission rates developed from AP-42, Table 3.3.1.and IDEM VOC Emission Table. See Appendix G-4 for calculations.
Note 10: Wood Chipper emission developed from AP-42 Section 10.1, August 5, 1994 for log debarking: 0.024 lb PM per ton of wood. See Appendix G-4 for calculations. Note that West Virginia Department of Environmental Protection, Division of Air Quality, Charleston, WV reported this same condition in an Engineering Evaluation Fact Sheet dated March 2013 for Lowe Products Company's mulch processing facility that used a large tub grinder to grind bark and tree branches to produce shredded bark. Emission factor was 0.96 lb per hr for 40 tons per hour tub unit which equals 0.024 lb PM per ton of wood, whereas the PM_{10} / $PM_{2.5}$ is 0.46.
Note 11: Emission rates developed from AP-42, Section 13.2 and AP-42, Section 11.9. It should be understood that unwetted road conditions will not allow the landfill to operate; therefore, only wetted roadways will be encountered during landfill operations. See calculations in Appendix G-5.

Table 3-2
Summary of Listed Hazardous Air Pollutants[1] Reported by the LandGEM Model

No.	HAZARDOUS AIR POLLUTANTS Estimated for 2039	Cell #1 (short tons per year)	Cell #2 (short tons per year)	Total (short tons per year)
1	1,1,1-Trichloroethane (methyl chloroform)	0.005451	0.01622	0.021671
2	1,1,2,2-Tetrachloroethane	0.01572	0.04677	0.06249
3	1,1-Dichloroethane (ethylidene dichloride)	0.02022	0.06017	0.08039
4	1,1-Dichloroethene (vinylidene chloride)	0.00165	0.004912	0.006562
5	1,2-Dichloroethane (ethylene dichloride)	0.003454	0.01028	0.013734
6	1,2-Dichloropropane (propylene dichloride)	0.001731	0.005152	0.006883
7	Acrylonitrile C	0.02846	0.08468	0.11314
8	Benzene - Non Co-disposal[2]	0.01263	0.03760	0.05023
9	~~Benzene Co-disposal[2]~~	~~0.07314~~	~~0.2177~~	~~0.29084~~
10	Carbon disulfide	0.003759	0.01134	0.015099
11	Carbon tetrachloride	0.00005238	0.0001559	0.00020828
12	Carbonyl sulfide	0.002506	0.007457	0.009963
13	Chlorobenzene	0.002395	0.007129	0.009524
14	Chloroethane (ethyl chloride)	0.007140	0.02125	0.02839
15	Chloroform	0.0003049	0.0009074	0.0012123
16	Dichlorobenzene	0.002628	0.007820	0.010448
17	Dichloromethane (methylene chloride)	0.1012	0.3012	0.4024
18	Ethylbenzene	0.04157	0.1237	0.16527
19	Ethylene dibromide	0.00001599	0.00004760	0.00006359
20	Hexane	0.04842	0.1441	0.19252
21	Mercury (total)	0.00004952	0.00001474	0.00006426
22	Methyl ethyl ketone	0.04358	0.1297	0.17328
23	Methyl isobutyl ketone	0.01620	0.04821	0.06441
24	Perchloroethylene (tetrachloroethylene)	0.05223	0.1554	0.20763
25	Toluene Non Co-disposal[2]	0.3059	0.9102	1.2161
26	~~Toluene C0-disposal[2]~~	~~1.333~~	~~3.968~~	~~5.301~~
27	Trichloroethylene (trichloroethene)	0.03132	0.09321	0.12453
28	Vinyl chloride	0.03884	0.1156	0.15444
29	Xylenes	0.1084	0.3227	0.4311
	CORRECTED SUBTOTAL (Does not include co disposal parameters because construction debris is not included in municipal landfill disposal cell)	**0.8988**	**2.6659**	**3.5647**

Note 1: HAPs taken from LandGEM report as identified on the emission inventory for LandGEM presented in Appendices E & F.

Note 2: Co-disposal refers to disposal of municipal solid wastes and non-residential waste in the same disposal cell. Landfills known to contain only municipal solid wastes or have very little organic commercial/industrial wastes shall use non-co-disposal default values.

Table 3-3
Summary of Volatile Organic Compounds Reported by the LandGEM Model

No.	VOLATILE ORGANIC COMPOUNDS Estimated for 2039	Cell #1 (short tons per year)	Cell #2 (short tons per year)	Total (short tons per year)
1	1,1,2,2- Tetrachloroethane	0.01572	0.04677	0.06249
2	1,1-Dichloroethane (ethylidene dichloride)	0.02022	0.06017	0.08039
3	1,1-Dichloroethene (vinylidene chloride)	0.00165	0.004912	0.006562
4	1,2-Dichloroethane (ethylene dichloride)	0.003454	0.01028	0.013734
5	1,2-Dichloropropane (propylene dichloride)	0.001731	0.005152	0.006883
6	2 Propanol (isopropyl alcohol)	0.2558	0.7614	1.0172
7	Acrylonitrile	0.02846	0.08468	0.11314
8	Benzene - No Co-disposal	0.01263	0.03760	0.05023
9	~~Benzene - Co-disposal~~	~~0.07314~~	~~0.2177~~	~~0.29084~~
10	Bromodichloromethane	0.04323	0.1287	0.17193
11	Butane	0.0274	0.07362	0.10102
12	Carbon disulfide	0.003759	0.0119	0.015659
13	Carbon tetrachloride	0.00005238	0.0001559	0.00020828
14	Carbonyl sulfide	0.002506	0.007457	0.009963
15	Chlorobenzene	0.002395	0.007129	0.009524
16	Chloroethane (ethyl chloride)	0.007140	0.02125	0.02839
17	Chloroform	0.0003049	0.0009074	0.0012123
18	Chloromethane (methyl chloride)	0.005158	0.01535	0.020508
19	Dichlorobenzene	0.002628	0.007820	0.010448
20	Dichlorofluoromethane	0.0278	0.06779	0.09559
21	Dimethyl sulfide (methyl sulfide)	0.04125	0.1228	0.16405
22	Ethanol (ethyl alcohlol	0.1059	0.3152	0.4211
23	Ethyl mercaptan (ethanethiol)	0.01216	0.03620	0.04836
24	Ethylbenzene	0.04157	0.1237	0.16527
25	Ethylene dibromide	0.00001599	0.0000476	0.00006359
26	Fluorotrichloromethane	0.008888	0.02645	0.035338
27	Hexane	0.04842	0.14410	0.19252
28	Methyl ethyl ketone	0.04358	0.1297	0.17328
29	Methyl isobutyl ketone	0.01620	0.04821	0.06441
30	Methyl mercaptan	0.01024	0.03047	0.04071
31	Pentane	0.02027	0.06032	0.08059
32	Propane	0.04129	0.1229	0.16419
33	t-1,2-Dichloroethene	0.02311	0.06876	0.09187
34	Toluene No Co-disposal	0.3059	0.9102	1.2161
35	~~Toluene C0 disposal~~	~~1.333~~	~~3.968~~	~~5.301~~
36	Trichloroethylene (trichloroethene)	0.03132	0.09321	0.12453
37	Vinyl chloride	0.03884	0.1156	0.15444
38	Xylenes	0.1084	0.3227	0.4311
	UNCORRECTED SUBTOTAL	2.23035399	6.6385676	8.86892159
	CORRECTED SUBTOTAL (Does not include co disposal parameters because construction debris is not included in landfill disposal)	**0.0827**	**2.4529**	**2.5357**

Appendix B – Facility Comments on Draft Permit

The following comments were received from the facility on January 15, 2019:

Facility Comment #1: Clay Peak requested including descriptive information and information used to determine federal regulatory applicability in the permit for the landfill and engines (see below for comments and suggested text).

DEQ Response #1: A summary description section was added to Section 3 of the permit to include most of language requested. Because the combined NMOC emissions from all landfill cells are key to regulatory applicability, this value was substituted in lieu of only including Cell #2 emissions. Because NMOC and HAP emission projections are dependent upon actual waste volume accumulated, it was clarified that projected emissions and regulatory applicability were both determined at the time of permit issuance. Similarly, it was left open to the possibility that 50 Mg/yr of NMOC emissions could be exceeded in the future as landfill expansion occurs. It was also clarified that the emergency generator engine could be used on occasion to power an overhead crane, and specific information concerning the engines was relocated to the summary description in Section 5 of the permit.

Although estimates of projected emissions for Cell #3 were not provided nor evaluated for regulatory purposes in this permitting action, because this cell has been planned it was also included in the list of emission sources in Table 2.1 of the permit.

Facility Comment #2: Clay Peak requested clarification in the permit that requirements for open flares in Table 3.2 would only become applicable if required by Subpart WWW.

DEQ Response #2: Summary requirements pertaining to 40 CFR 60.18 in Table 3.2 of Permit Condition 3.27 were revised to include this clarification.

Facility Comment #3: Clay Peak requested including descriptive information and information used to determine federal regulatory applicability in the permit for the landfill gas flares (see below for comments and suggested text).

DEQ Response #3: The summary description in Section 4 of the permit was revised to include most of the language requested.

Facility Comment #4: Clay Peak requested removal of annual emission reporting requirements, since projections were provided through the planned closure date of Cell #2.

DEQ Response #4: No change was made to the permit. Actual waste volume accumulated may differ from projections, and these requirements have been incorporated directly from (and DEQ is not permitted to change) the cited federally-applicable regulation. Because emission estimates provided in the application are projected to be below 50 Mg/yr over the next five years, it is likely that NMOC emissions estimated in the initial NMOC Emission Rate Report that is required (e.g., using the formula and procedures required in 40 CFR 60.754(a)) would qualify for a reduced 5-year reporting frequency rather than annually, as provided for in Permit Condition 4.4. Ongoing monitoring and recordkeeping is still required to ensure that actual waste acceptance does not exceed projections, and to ensure that projected emission estimates are revisited if it does.

Facility Comment #5: Clay Peak requested clarification that Subpart IIII requirements incorporated in the permit are applicable to the Tub Grinder, while Subpart ZZZZ requirements incorporated in the permit are applicable to the Emergency Generator Engine.

DEQ Response #5: Table 5.2 was revised to separate regulatory citations for each subpart and for each engine as requested.

Facility Comment #6: Clay Peak requested clarification that recurring performance testing is only required when engine emission settings are altered.

DEQ Response #6: Permit Condition 5.5 was added and performance testing requirements were relocated from Permit Condition 5.2 into this condition to better distinguish these requirements. Permit Condition 5.5 addresses specific requirements for when engines are modified or reconstructed, or for when deviating from manufacturer's instructions related to installation, configuration, or operation of the engine. Although the requirements of Permit

Condition 5.5 are not applicable at the time of permit issuance, these are included to address the possibility of such circumstances arising in the future.

Facility Comment #7: Clay Peak requested clarification of semi-annual and annual reporting requirements, suggesting that semiannual reporting may not be required when there are no deviations.

DEQ Response #7: No change was made to the permit. Annual and semi-annual reporting are required of all Tier I facilities. Reports are required both annually and semiannually in Permit Conditions 7.22 and 7.26 as "compliance checkups," whether or not deviations have occurred during the reporting period. DEQ encourages prompt reporting of all deviations from any permit requirement, and deviations which could contribute to excess emissions are subject to additional recordkeeping and reporting requirements provided in Permit Conditions 3.10 through 3.14 and 7.27 (including a 15-day reporting deadline as specified in Permit Condition 3.13).

DEQ highly recommends that the permittee pursue scheduling a "permit handoff" meeting with DEQ after permit issuance to review all permit requirements, for the express purpose of ensuring that the permittee understands every permit condition and every compliance obligation.

Facility Comment #8: Clay Peak requested clarification regarding the submittal date for the first annual compliance period, and noted that the reporting periods specified may not comport with federally-recommended calendar-year reporting periods.

DEQ Response #8: The reporting periods in Permit Conditions 7.22 and 7.26 were revised for consistency with calendar-year annual and semi-annual reporting periods as requested. Applying these timeframes, the first semiannual report will be due after June 30, 2019 after completion of the first semiannual compliance monitoring period, and the first annual report will be due after December 31, 2019 after completion of the first annual compliance monitoring period.

Facility Comment #9: Clay Peak requested clarification regarding which DEQ forms are recommended or required to comply with permit reporting requirements.

DEQ Response #9: No change was made to the permit. Specifically for annual and semiannual reports, DEQ recommends the use of standardized forms developed and available for download at DEQ's Air Quality Permitting Forms webpage, including forms AQ-C1 through AQ-C5. Although not required by rule, these forms were developed to assist permittees in meeting reporting requirements. Because these forms require updating periodically, DEQ avoids explicitly referencing these forms within the permit and encourages permittees to download the latest version of these documents.

As mentioned previously, DEQ highly recommends that the permittee pursue scheduling a "permit handoff" meeting with DEQ after permit issuance to review all permit requirements, for the express purpose of ensuring that the permittee understands every permit condition and every compliance obligation.

OFFICE OF

The Board of Payette County Commissioners

DISTRICT 1 GEORGIA HANIGAN, CHAIRMAN
DISTRICT 2 MARC SHIGETA
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January 14, 2019

Mr. Morrie Lewis, Permit Writer
Air Quality Division
Idaho Department of Environmental Quality (DEQ)
1410 North Hilton
Boise, Idaho 83706

Subject: Payette County Comments to Draft Tier 1 Permit
Draft Tier 1 Operating Permit T1-2018.0035 Project 62089
Facility ID No. 075-00009, Clay Peak Municipal Solid Waste Landfill

Dear Mr. Lewis

Attached are concerns/comments from our engineer for the Draft Tier 1 Operating Permit. As noted in the engineer's comments, it is difficult to ascertain the final Tier 1 reporting requirements and their respective schedule. Therefore, detailed DEQ response(s) to the engineer comments are needed to help our staff implement and manage the final Tier 1 Operating Permit.

Based on the information and belief formed after reasonable inquiry, the statements and information in this document and its attachments are true, accurate, and complete, but please contact Basil Tupyi at 208.642.3304 or basilt@hecoengineers.com if you have any questions with this submittal.

Sincerely,

Georgia Hanigan, Chairman
Payette County Commissioners

Copies To:
Alan Scharbrough, Landfill Director
Basil Tupyi, PE, HECO Engineers

ENGINEER RESPONSES TO DRAFT TIER 1 OPERATING PERMIT # T1-2018.0035

The following engineering responses to the Draft Tier 1 Operating Permit # T1-2018.0035 for the Clay Peak Municipal Solid Waste Landfill have been prepared by the Payette County Engineer, Basil Tupyi, PE, HECO Engineers. Nine concerns or issues are presented below.

Issue 1: Insert the following text in the beginning of Section 3 to describe the facility and a summary of the applicable Tier 1 Operating Permit requirements.

The Clay Peak Municipal Solid Waste Landfill Facility (Clay Peak) is located east of Payette, Idaho that employed an arid landfill design for municipal solid waste burial, with provisions to segregate and keep construction debris and compostable organic matter from being disposed of in the burial cells. Clay Peak was regulatory approved as a solid waste landfill in 1993 and has three landfill burial cells with an estimated design capacity of:

- *Landfill Cell #1 ≈1.2 million US tons ≈ 1.1 million megagrams (burial cell closed in 2010)*
- *Landfill Cell #2 ≈ 2.3 million US tons ≈ 2.1 million megagrams (active and in operation)*
- *Landfill Cell #3 ≈ 8.6 million US tons ≈ 19.1 million megagrams (inactive and has not been constructed)*

The landfill employs dry arid landfill design requirements for landfill operations and final landfill cover construction that produces less landfill emissions than landfills using a bioreactor design.

The total Clay Peak design capacity is greater than 2.5 million megagrams and is subject to Tier 1 permitting requirements per 40 CFR Part 60 Subpart WWW (or 40 CFR 60.752 (b)). However, the maximum projected nonmethane organic carbon (NMOC) emission rate for the active Landfill Cell #2 (if Cell #2 closes in 2039) is approximately 11.8 megagrams (or13 US tons per year)[1]. Therefore, a landfill gas collection and treatment system for Landfill Cell #2 is not required for 40 CFR Part 60 Subpart WWW compliance because the NMOC emission rates will <u>never</u> exceed 50 megagrams per year (see 40 CFR 60.762 (b)(1)(ii)(A)) during the active life of Landfill Cell# 2[1].

Additionally, maximum annual hazardous air pollutant (HAP) emissions (if Cell #2 closes in 2039) is approximately 2.7 US tons of total combined HAPs and a maximum single HAP emission of 0.9 US tons for Toluene[1]. Therefore, Cell #2 is not a major emission source, per 40 CFR Part 63.2, because the combined HAP emissions and maximum single HAP emission are less than the regulatory action level of 25 US tons per year and 10 US tons per year, respectively.

Given the NMOC and HAP emissions discussed above, a landfill gas collection and treatment system will not be required for either 40 CFR Part 60 Subpart WWW and 40 CFR Part 63 Subpart AAAA compliance.

[1] Landfill Gas Emission Model (LandGEM), Version 3.02 USEPA

Two stationary engines are located at Clay Peak that includes 1) a diesel-fired tub grinder for mulching compost and 2) a propane-fired emergency generator used for site backup power during power outages. The diesel-tub grinder that historically operates less than 70 hours per year is subject to 40 CFR Part 60 Subpart IIII requirements and the propane-fired emergency generator that historically operates less than 25 hours per year is subject to 40 CFR Part 63 Subpart ZZZZ requirements.

Though not required for 40 CFR Part 60 Subpart WWW compliance, Clay Peak has been proactive and installed a landfill gas collection and treatment system using solar powered ignitors. This system does not fully meet the design and construction requirements outlined in 40 CFR 60.18 (b) however, the visible emission and excess emissions criteria discussed in Sections 3.10 through 3.14 in this permit will be followed. More detailed discussion of the gas flares installed by Clay Peak is discussed in Section 4.0 of this permit.

Issue 2: Revise Sectional Requirements for Section 60.18 in Table 3.2 NSPS 40 CFR 60, Subpart A to clarify that the requirements specified in the permit for landfill gas flares are applicable only if gas flares are required for NSPS Subpart WWW compliance.

Issue 3: Replace the first two paragraphs and beginning of the third paragraph in Section 4 Landfill Gas Flares to read:

Though not required for 40 CFR Part 60 Subpart WWW compliance, Clay Peak has been proactive and installed a landfill gas collection and treatment system using solar powered ignitor to combust landfill gas. This system does not fully meet the design and construction requirements outlined in 40 CFR 60.18 (b) however, the visible emission and excess emissions criteria discussed in Sections 3.10 through 3.14 in this permit will be followed.

Seven gas flares were installed and placed into operation in 2004 through 2008 for Cell #1, that was closed in 2010. These seven gas flares will cease operation on or about 2025, when the Tier 1 Operating Permit is renewed. Six gas flares are proposed for Cell #2 for installation in 2019 through 2020. Four additional gas flares may be installed/permitted on or about 2028, pending the waste volume accumulated in Cell #2.

The existing and proposed gas flares are connected to passively-fed gas collection systems that consist of perforated PVD pipes running directly into the landfill. Each flare has a solar panel (....follow with third paragraph.....)

Issue 4: Annual emission reporting requirements as stipulated in Sections 4.3 and 4.4 are redundant with the data submitted in the initial Tier 1 operating permit application because the NMOC emissions projected from the LandGEM for Cell #2 have been calculated for the life of Cell #2, whereas the maximum NMOC emission rate will occur in 2039 with an NMOC emission rate of less than 12 megagrams per year, which is 4 times less than the regulatory requirement of 50 megagrams per year when a gas collection and treatment system is mandated according to Subpart WWW. Therefore, the reporting requirements in Sections 4.3 and 4.4 are

non-productive because Cell #2 will never emit NMOC emissions subject to Subpart WWW requirements. The reporting requirements stipulated in Sections 4.3 and 4.4 should be eliminated.

Issue 5: For clarification, in the 'Parameter column' of Table 5.2 Applicable Requirements Summary, please specify that NSPS Subpart IIII applies to the Tub Grinder and that NESHAP Subpart ZZZZ applies to the Emergency Generator.

Issue 6: The fifth bullet in Section 5.2 states performance testing is required every three years for the Tub Grinder. According to 40 CFR 60.4211 (g), subsequent performance testing is only required if the engine emission settings have been altered. Therefore, if the engine is operated in accordance with the original manufacturer's specifications and operational requirements, no performance testing is required every three years, whereas Clay Peak needs to comply only with 40 CFR 60.4211(a). Clay Peak is very pleased with the Tub Grinder's performance and has no plans to alter its performance. Therefore, Section 5.2 should be revised to reflect no subsequent performance testing is required if no engine emission settings are changed.

Issue 7: Regulatory reporting requirements are difficult to ascertain in the Draft Tier 1 Operating Permit, but the Statement of Basis better explains those requirements. It appears that all reporting requirements are annual, except deviations are to be reported semiannually and may be included in the annual compliance report. This condition is rational for the second semiannual reporting period, but we would like this condition for the first semiannual reporting period if no deviations are noted during the first semiannual reporting period, because no negative environmental condition has occurred warranting the semiannual report. However, if deviations are noted during the first reporting period, a semiannual report will be submitted. Please advise.

Issue 8: If the final Tier 1 Operating Permit is finalized and issued before October 1, 2019, the Tier 1 Operating Permit should note the first annual compliance period ends on September 30, 2020. Furthermore, please confirm the annual reporting period is October 1st through September 30th and not January 1st through December 31st as detailed in federal regulations.

Issue 9: Are there any DEQ forms required when completing any Tier 1 Operating Permit reporting requirement. The Draft Tier 1 Operating Permit and Statement of Basis do not discuss the use of DEQ forms, but there are a number of DEQ forms such as Form AQ-C1 Tier 1 Annual Compliance Certification and Form AQ-C4 Semiannual Monitoring Report, please advise and should they not be referenced in the Tier 1 Operating Permit, if required?

Appendix C – Operations & Maintenance Manual

OFFICE OF
The Board of Payette County Commissioners

DISTRICT 1 GEORGIA HANIGAN, CHAIRMAN
DISTRICT 2 MARC SHIGETA
DISTRICT 3 REECE HRIZUK

1130 3RD AVENUE N., RM 104
PAYETTE, IDAHO 83661-2473
PHONE (208) 642-6000

February 25, 2019

Mr. Morrie Lewis, Permit Writer
Air Quality Division
Idaho Department of Environmental Quality (DEQ)
1410 North Hilton
Boise, Idaho 83706

Subject: Payette County Comments to Draft Tier 1 Operating Permit,
Issued January 30, 2019
Draft Tier 1 Operating Permit T1-2018.0035, Project 62089
Facility ID No. 075-00009, Clay Peak Municipal Solid Waste Landfill

Dear Mr. Lewis,

We thank the DEQ staff for considering and largely incorporating our January 19, 2019 Payette County comments into the Draft Tier 1 Operating Permit issued January 30th, 2019. We have two additional minor comments with this latest Draft Tier 1 Operating Permit.

1. The second row and second column on page 6 of the permit should read Municipal Waste Landfill – Cell 3 and not Cell 2.

2. The September 2007 Operations and Maintenance Manual for the Clay Peak Landfill that was included in the Statement of Basis was revised April 2015. Attached is the most recent regulatory approved Operations and Maintenance Manual, dated April 2015.

Based on the information and belief formed after reasonable inquiry, the comments stated above and attachments are true, accurate, and complete, but please contact Basil Tupyi at 208.642.3304 or basilt@hecoengineers.com if you have any questions with this submittal.

Sincerely,

Georgia K Hanigan

Georgia Hanigan, Chairman
Payette County Commissioners

Attachments: April 2015 Operations and Maintenance Manual for the Clay Peak Landfill

Copies To:

Alan Scharbrough, Landfill Director (less attachments)
Basil Tupyi, PE, HECO Engineers (less attachments)

CLAY PEAK LANDFILL

OPERATION & MAINTENANCE MANUAL

for

Municipal & Non-Municipal Waste Facilities

PAYETTE COUNTY, IDAHO

Revised April 27, 2015

PROFESSIONAL ENGINEER
REGISTERED
4017
STATE OF IDAHO
BASIL TUPYI
27 April 2015

Prepared by:

HOLLADAY ENGINEERING CO.

ENGINEERS • CONSULTANTS
32 N Main Street • PO Box 235 • Payette, ID 83661
208 642 3304 • 208 642 2159 Fax

Project No. PC 12-0325A

OPERATIONS AND MAINTENANCE MANUAL

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Dated December 30, 2013, Engineer Stamped on December 31, 2013 and IDEQ Approved on January 2, 2014
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ABBREVIATIONS and ACRONYMS

BSE ..... Bovine Spongiform Encephalopathy
C & D ..... Construction and Demolition
CESQG ..... Conditionally Exempt Small Quantity Generator
CFC ..... Chlorofluorocarbons
CFR ..... Code of Federal Regulations
CH_4 ..... Methane
COC ..... Chain of Custody
EPA ..... U.S. Environmental Protection Agency
ERG ..... Emergency Response Guidebook
FIFRA ..... Federal Insecticide, Fungicide and Rodenticide Act
IDAPA ..... Idaho Administrative Procedure Acts
IDEQ ..... Idaho Department of Environmental Quality
Kg ..... Kilogram
Lb ..... Pound
LEL ..... Lower Explosive Limit
MS4 ..... Municipal Separate Storm Sewer System
MSDS ..... Material Safety Data Sheets
MSW ..... Municipal Solid Waste
MSWLF ..... Municipal Solid Waste Landfill Facility
NESHAP ..... National Emission Standards for Hazardous Air Pollutants
NMOC ..... Non-Methane Organic Compounds
NMSW ..... Non-Municipal Solid Waste
NMSWL ..... Non-Municipal Solid Waste Landfill
NPDES ..... National Pollutant Discharge Elimination System
NSPS ..... New Source Performance Standards
O&M ..... Operations and Maintenance
PAH ..... Polycyclic Aromatic Hydrocarbons
PCB ..... Polychlorinated Biphenyls
PCS ..... Petroleum-contaminated Soil
P.E. ..... Professional Engineer
P.G. ..... Professional Geologist
ppm ..... Parts per Million
PTC ..... Permits to Construct Air Quality Emission Controls
PVC ..... Polyvinyl Chloride
RBCA ..... Idaho Risk-Based Corrective Action
RCRA ..... Resource Conservation and Recovery Act
SWDH ..... Southwest District Health Department
SWANA ..... Solid Waste Association of North America
TC ..... Toxicity Characteristics
TCLP ..... Toxicity Characteristic Leaching Procedure
TPH ..... Total Petroleum Hydrocarbon
TSCA ..... Toxic Substances Control Act
UST ..... Underground Storage Tank
VOC ..... Volatile Organic Compounds
WIF ..... Waste Inspection Form
WSR ..... Waste Shipment Record

ERRATA SHEET

CHANGES TO O & M MANUAL, Regulatory Approved September 2007:

1. Title Page, Updated 2014
2. Table of Contents, Revised Content and Pagination, Removed Exhibits and added Table of Figures, and Revised Appendices with Current Information
3. Old Page 1, Updated Statement of Purpose
4. Old Page 3, Updated Section 1 Emergency Contact Information
5. Old Page 7, Updated Landfill Description and Added Table of Yearly Waste Volumes
6. Old Page 8, Deleted Hazardous Waste Exclusion and replaced with Emphasis on Process Knowledge Statement with Waste Inspection and Screening for Regulated and Special Wastes
7. Old Page 11, Replaced Hazardous Waste Inspection form with Figure 2-1 Waste Inspection Form
8. Old Page 12, Removed Hazardous Waste Manifest
9. Old Page 13, Updated Hazardous Material Response Plan
10. Old Page 14, Revised Liquid Restriction Waste Requirement
11. Old Page 14 -25, Revised Special Wastes, Inserted Most Recently Regulatory Requirements for Disposal of Petroleum-Contaminated Soils, and Added Dead Animal Disposal
12. Old Page 28 – 29, Revised Gas Monitoring Requirements for Compliance with Permit to Construct, Issued December, 2008.
13. Old Page 30, Updated Air Quality conditions from Most Recent Permit To Construct, Issued December, 2008
14. Old Page 31 – 37, Revised Discussion to Focus On Active Area of Landfill Cell #2 Because Landfill Cell #1 Is Closed And Has No Active Area.
15. Old Page 43, Updated Discussion On Drainage System To Focus On Landfill Cell #2 Active Area.
16. Old Page 44, Updated Methane Gas Monitoring Requirements.
17. Old Page 46, Updated Groundwater Sampling To Reflect No Sampling.
18. Old Page 48, Updated Ambient Air Evaluations Based On Information Presented In Most Recent Permit To Construct, Dated December 2008.

19. Old Page 52, Revised To Reflect Landfill Cell #1 Closure Per Technical Approach, SWDH Approved June 2011 And Contained in this Document as Exhibit A In Appendix A.
20. Old Page 57, Clarified Discussion.
21. Old Page 58, Clarified Discussion.
22. Old Page 60, Clarified Policy For Prohibited Activities.
23. Old Page 61, Updated Waste Acceptance Procedures.
24. Old Page 65, Clarified NMSWLF Operations. Included Composting Food Wastes.
25. Old Page 68, Replaced Cull Onion Disposal with Discussion on Disposal of Agricultural Products.
26. Old Page 70, Revised Appendices

    Inserted Closure Report for Landfill Cell #1

    Inserted Most Recent Air Quality Permit to Construct, Dated December 2008

    Updated Landfill Rates

STATEMENT OF PURPOSE FOR THE O&M MANUAL

This Operation and Maintenance (O&M) manual has been developed to provide a management standard for Payette County Administrators and Clay Peak Landfill employees in properly managing municipal and non-municipal solid wastes as set forth by county and state solid waste management policies, rules, and regulations. The Clay Peak Landfill performs the functions of:

1. A Municipal Solid Waste Landfill Facility (MSWLF) as discussed in Section 2
2. A Non-Municipal Solid Waste Landfill (NMSWL) as discussed in Section 3, and
3. A biosolids surface disposal, culled onion and culled potato disposal, and septage storage facility as discussed in Section 4.

This O&M manual contains solid waste operations criteria and management policies for the Clay Peak Landfill, which adheres to requirements of applicable federal and state laws administered by the US Environmental Protection Agency (EPA) and the Idaho Department of Environmental Quality (IDEQ). IDEQ has delegated certain authorities of the solid waste management program to the Idaho Public Health Districts through a memorandum of understanding (MOU) that is administered by the Southwest District Health Department (SWDH). The principal sets of regulations that govern landfill operations are:

- EPA Title 40 CFR Parts 257 and 258 commonly known as Subtitle D of RCRA
- Idaho Code Title 39, Chapter 74 – Idaho Solid Waste Facilities Act
- Idaho Code 58.01.06 – Solid Waste Management Rules
- Federal Clean Air Act and the 1990 Amendments to the Clean Air Act

Other regulations that have either direct or indirect impacts on the operation of sanitary landfills have also been considered in the formulation of this O&M manual that includes EPA Title 40, Parts 261 Identification and Listing of Hazardous Wastes.

This O&M manual is part of the operating record for the municipal and non-municipal waste facilities at Clay Peak Landfill and is a dynamic document, which will evolve as the operation of the facilities grow or expand and as new regulatory requirements are mandated. The O&M manual and any completed forms as presented in the O&M manual are retained at the landfill site as part of the operating record. Regulatory correspondences with county officials are kept at the Payette County Clerk's office in the Payette County Courthouse, 1130 Third Avenue North, Payette, Idaho. Regulatory correspondences include correspondences with the SWDH, IDEQ, EPA, and other regulatory agencies. The O&M manual is designed for flexibility, in that; individual sections may be updated and replaced without reproduction of the entire manual; however, the O&M manual should be periodically revised and reissued to ensure the landfill staff are working from a current O&M manual. Idaho Code 39-7419 specifies the landfill operating procedures are to be recertified every three years.

Additionally, Idaho code 39-7419 requires MSWLF units be subject to routine inspections by the SWDH with DEQ and SWDHD jointly inspecting the MSWLF every 3 to 5 years.

Employment and safety policies for the Clay Peak Landfill are contained in the "Payette County Personnel Policy (as approved by Board of County Commissioners on January 3, 2011) and available on the Payette County website http://www.payettecounty.org/. In addition to the materials referenced and the procedures and policies described in this O&M manual, training will be provided by the County to landfill personnel in personal protection and in the recognition, identification, handling and disposal requirements for hazardous wastes and special wastes as discussed in Section 2.

RESPONSIBILITY FOR O&M MANUAL IMPLEMENTATION

The Clay Peak Landfill Director is to ensure the landfill's O&M program 1) closely follows the practices described in the O&M manual and 2) complies with current applicable federal, state and county regulations, policies and guidance documents as described in the O&M manual. Staff working at the Clay Peak Landfill shall review and be familiar with the content of the O&M manual to ensure regulatory compliance with landfill operations.

The Clay Peak Landfill Director will submit all proposed O&M manual changes to the Board of County Commissioners for Payette and to SWDH for their approval prior to implementation of the revised O&M manual. Though the SWDH serves as the regulatory approving agency for landfill operations; SWDH is expected to solicit O&M manual review comments from the IDEQ.

Final regulatory approved O&M manuals are controlled documents; therefore, the Landfill Director will maintain a list of holders that possess a copy of the final regulatory approved O&M manual and the Director will distribute O&M manual revisions or changes to those individuals reported on the list of holders.

Questions concerning this O&M manual should be referred to the Landfill Director or Landfill Foreman. As of 2014, the Landfill Director is Alan Scharbrough, at 208.642.6036 or alans@payettecounty.org. and the landfill foreman is Gary Kelly, 208.642.6036, gkelley@payettecounty.org.

Completed landfill waste acceptance forms and landfill disposal contracts should be coordinated with the landfill office administrator. As of 2014, the landfill office administrator is Tracy Schmidt, 208.642.6036, tschmidt@payettecounty.org.

SECTION 1 –
EMERGENCY CONTACT INFORMATION

Payette County
- Clay Peak Landfill.....(208) 642- 6036 (office)
  - Physical Address: 2560 Highway 52, Payette, Idaho
  - Mailing address: PO Box 777, Payette, Idaho 83661
- Landfill Director (Alan Scharbrough as of 2015).....(208) 741-1345 (cell)
- Landfill Foreman (Gary Kelley as of 2015).....(208) 741-1348 (cell)
- Landfill Office Manager (Tracy Schmidt as of 2015).....(208) 741-1719 (cell)
- Board of County Commissioners for Payette County .....(208) 642-6015 (office)
- Payette County Clerk (Betty Dressen as of 2015).....(208) 642-6000 (office)

General Emergency 911
- Payette County Sheriff (Emergency) .....(208) 642-6008
- (Other County Sheriff Business).....(208) 642-6006
- Idaho State Police .....(208) 334-2900
- Payette County Ambulance .....(208) 642-6006
- Fire Department .....(208) 642-6028

All regulatory reports submitted to the offices/agencies below shall be by the Landfill Director, or his designee.

Southwest District Health Department (SWDH) .....(208) 455-5300
- Director Environmental Health Services (Brian Crawford as of 2015)...(208) 455-5401
- 13307 Miami Lane, PO Box 850
- Caldwell, ID 83606

Idaho Department of Environmental Quality (IDEQ).....(208) 334-0550
- Boise Regional Office (Jack Gantz, PE as of 2015) .....(208) 373-0599
- 1445 North Orchard
- Boise, Idaho 83706
- State DEQ Office (Dean Ehlert, PE, as of 2015) .....(208) 373-0502
- 1410 North Hilton
- Boise, ID 83706

Idaho Statewide Emergency Communication Center 1-800-632-8000
- 1055 N. Curtis Road
- Boise, ID 83704

EPA Office of Solid Waste and Emergency Response .....(202) 382-4610

Toxic Substance Control Act (TSCA) and Asbestos Hotline .....(202) 554-1404
- 401 M Street, SW Lower East Tower
- Washington, DC 20460

U.S. Environmental Protection Agency (Asbestos Disposal Questions).....(208) 334-1450
EPA Idaho Operations
950 North Bannock Street, Suite 900
Boise, ID 83702

EPA Solid and Hazardous Waste (RCRA) And Superfund (CERCLA) Hotline.
401 M Street, SW, WH-52 1-800-424-9346
Washington, DC 20460 .....(202) 382-3000

National Pesticide Telecommunication Network 1-800-858-7378
3601 4th Street
Lubbock, TX 79430

Chemical Emergency Preparedness Program 1-800-535-2020
101 M. Street, SW
Washington, DC 20460

Envirosafe Services of Idaho Inc. (waste stabilization and landfill for regulated wastes)
PO Box 16217 .....(208) 384-1500
Boise, ID 83715

Safety Kleen Corp. (manage spent petroleum products and antifreeze) .....(208) 376-5421
6334 Supply Way
Boise, ID 83705

Summit Environmental, Inc. (complete waste manifest and manage regulated wastes).....(208) 377-2900
795 Orchard Street
Boise, Idaho 83705

Holladay Engineering Co. (complete waste manifest and provide training) .....(208) 642-3304
32 North Main Street, PO Box 235
Payette, Idaho 83661

Simco Road Regional Landfill, (commercially licensed, Federal Subtitle D landfill) .....(208) 796-2727
operated by Idaho Waste Systems, Inc
Physical Address: 16415 NW Waste Site Drive, Mayfield, Idaho 83716
Mailing Address: PO Box 1386, Mountain Home, Idaho 83647
Fax (208) 796-2729
http://www.idahowaste.com/

Landfill Facility Site Map is presented in Figure 1-1.

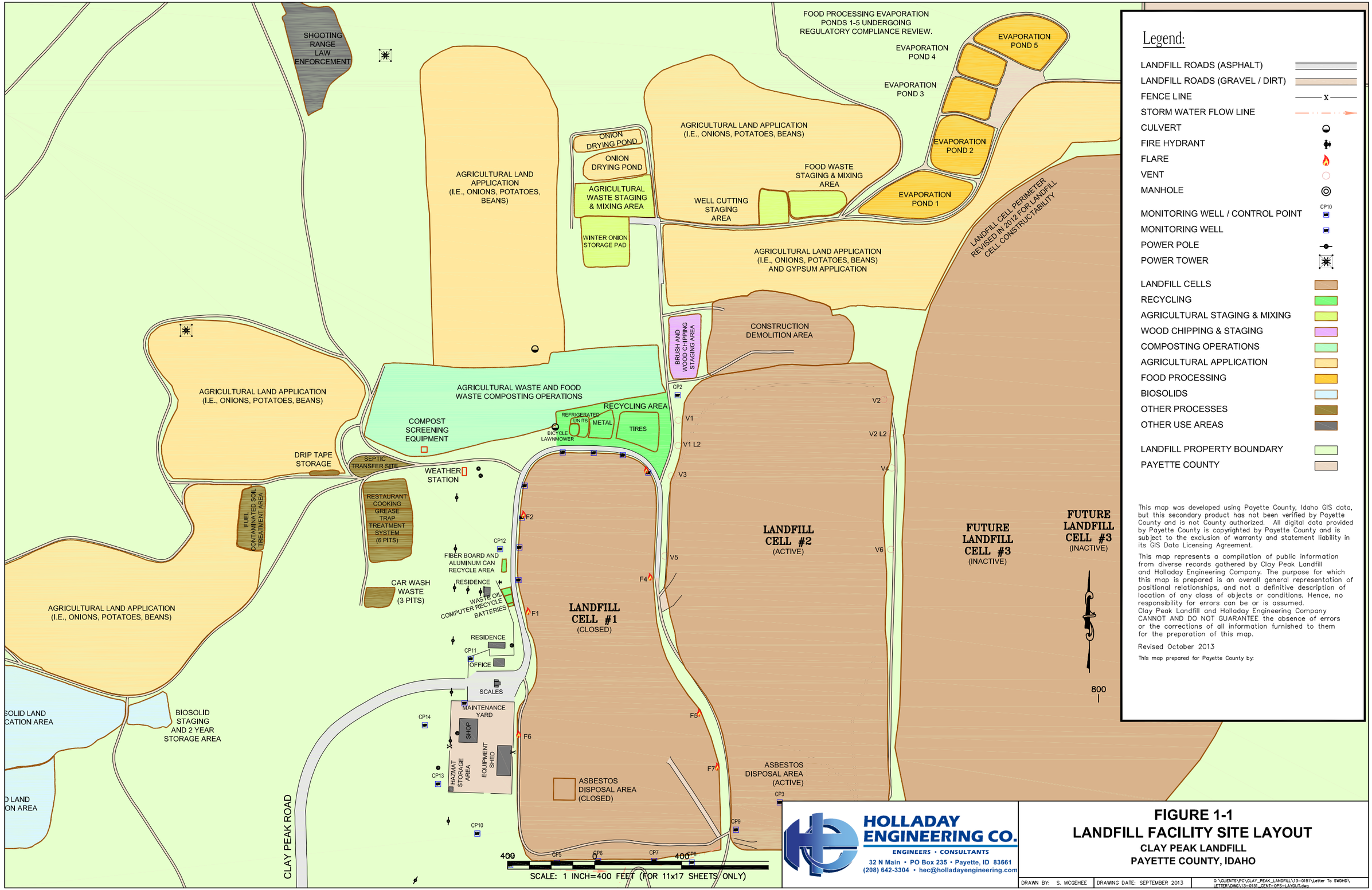

FIGURE 1-1
LANDFILL FACILITY SITE LAYOUT
CLAY PEAK LANDFILL
PAYETTE COUNTY, IDAHO

SECTION 2 –
MUNICIPAL SOLID WASTE

I. CLAY PEAK LANDFILL DESCRIPTION

The Clay Peak Landfill is owned and operated by Payette County that commenced landfill operations at its present site in October 1993, with a physical address of 2560 Highway 52, Payette, Idaho (located approximately 2½ miles southeast of Payette) and a mailing address of PO Box 777, Payette, Idaho 83661. The landfill services have since grown that now consists of multiple waste disposal and recycling unit processes in a portion of a rural 1,340-acre site of semi-arid hilly terrain. Site layout was presented in Figure 1-1 with large site maps presented in Appendix E. The landfill was designed as three landfill burial cells. The estimated landfill design capacity for each cell is as follows:

- Landfill cell #1 ≈2.6 mcy ≈1.2 million tons (constructed and closed in 2010)
- Landfill cell #2 ≈5.3 mcy ≈ 2.3 million tons (in operation)
- Landfill cell #3 ≈19.9 mcy ≈8.6 million tons.

Landfill cell #1 was closed in 2010 and only landfill cell #2 is presently accepting wastes for burial. The landfill typically receives 300 to 500 tons of wastes and recyclable materials per day whereas approximately 200 tons of wastes are buried each business day. Approximately 65,000 to 70,000 tons of wastes are buried in the landfill cell each year for ultimate disposal. Table 2.1 summarizes the wastes received and disposed of in the landfill cells from 1993 to 2013.

It is estimated that approximately 150 acres of surface soil is disturbed at any time during normal operations that include the following primary recycling and/or disposal activities:

- Weighing of all wastes and recyclable materials accepted at the landfill;
- Covering garbage with dirt at the working face of the landfill cell;
- Covering construction and demolition debris;
- Special handling and covering of asbestos containing materials;
- Special handling and covering of large dead animals;
- Grinding/chipping tree, wood, and brush waste compost and soil amendments;
- Preparing, screening, and aerating compost generated from various agricultural wastes and wood chips;
- Surface mining dirt and gravel for use as cover and site construction activity;
- Accepting and treating:
    - Cooking grease and grease trap wastes from restaurants and cafeterias,
    - Sand trap waste from car wash sumps or other silt collection devices,
    - Petroleum contaminated soils from petroleum storage tank facilities or remediation activities associated with petroleum releases.
    - Agricultural waste products from food processors (e.g. cull onions, onion processing wastes, potato processing wastes, cooking oils and batter from food processors and other ag waste products)
    - Food wastes from restaurants and grocery stores
- Surface disposal of biosolids from wastewater treatment facilities;
- Accepting and utilizing used automotive oils for onsite energy recovery; and
- Storage and transfer of:
    - Tires,
    - Septage,
    - Household hazardous wastes not acceptable for landfill disposal,

- Refrigerants removed from household appliances,
- Antifreeze,
- Appliances or white goods,
- Scrap metal, and
- Other recyclable materials

The landfill site is not at variance with any locally adopted land use plan, zoning requirement, or ordinance. The site is zoned Industrial, which is the appropriate zoning classification for landfills in Payette County. The landfill site presently has one closed landfill burial cell, one operating landfill burial cell, and a designated area for a future landfill burial cell, as discussed below:

- Landfill Cell #1 has been filled to capacity, final cover constructed, and its cell closure activities IDEQ approved on January 2, 2014. The regulatory approved cell closure report is presented in Appendix A.
- Landfill Cell #2 is presently being utilized and is accepting wastes for final landfill disposal, and
- Landfill Cell #3 will undergo construction when Cell #2 is approximately 75% constructed (at least 20 to 25 years).

Table 2-1
Summary of Solid Wastes and Asbestos Deposited in Landfill Cells #1 and #2

Year	Landfill Cell #1		Landfill Cell #2		Total Wastes	
	Solid Wastes (tons)	Asbestos (tons)	Solid Wastes (tons)	Asbestos (tons)	Solid Wastes (tons)	Asbestos (tons)
Oct 93 –Sept 98	350,000[a]	200[b]	0		350,000	200
Oct – Dec 1998	17,624	40	0		17,624	40
1999	76,773	40	0		76,773	40
2000	78,092	40	0		78,092	40
2001	78,530	40	0		78,530	40
2002	76,854[d & e]	17	1,569	0	78,423	17
2003	78,912[d & e]	29	1,610	0	80,522	29
2004	77,650[d & e]	30	1,585	0	79,235	30
2005	74,227[d & e]	40	1,514	0	75,741	40
2006	80,149[d & e]	35	1,697	0	81,846	35
2007	79,653[d & e]	42	1,626	0	81,279	42
2008	75,485[d & e]	6	1,541	0	77,026	6
2009	17,277[f]	0	51,830	35	69,107	35
2010	17,331[f]	0	51,994	46	69,325	46
2011	0	0	68,451	39	68,451	39
2012	0	0	66,649	18	66,649	18
2013	0	0	65,028	27	65,028	27
2014	0	0	66,585	21	66,585	21
Subtotal	1,178,560	559	381,679	186	1,560,236	745

Data provided by Landfill administrative staff as tonnages credited to ABS-0&P, AG-P, CMSW-O&P, NMSW-O&P

Notes
- a: waste tonnage not measured, assumed 70,000 tons per year based on Report: Final Hydrogeologic Investigation & Waste Cell Design, Lateral Expansion of Clay Peak Sanitary Landfill, prepared March 2001 and DEQ approved on March 12, 2001.
- b: asbestos not measured, assumed 40 tons per year
- c: tonnage measured but not reported yearly
- d: tonnage measured and reported yearly
- e: assumed 2% of yearly wastes sent to Cell #2 during poor landfill crest access to Cell #1
- f: assumed 75% of yearly wastes sent to Cell #2 and all asbestos sent to Cell #2

Operational landfill requirements reported in this O&M manual apply to all landfill burial cells and the landfill unit processes that include waste composting, recycle, energy recovery, land application, and temporary storage for offsite disposal.

As part of the original and subsequent IDEQ approvals of the landfill site and its facilities, two hydrogeologic studies were completed that concluded there is “no potential for migration” of contaminants to groundwater because of the natural clay layers at the Clay Peak Landfill site. Furthermore, the Idaho Solid Waste Facilities Act allows for an ‘arid design’ final cover if hydrogeologic assessments demonstrate groundwater protection as an alternative for a synthetic liner. The following two engineering studies or reports were completed that confirms this design condition is appropriate for the construction and operation of the Clay Peak Landfill.

1st Report: The initial landfill design for landfill Cell #1 was presented in the report: “Final Hydrogeologic Characterization Monitoring System and Facility Design of the Clay Peak Landfill, Payette County, dated March 1993 and IDEQ approved on June 11, 1993. Hereafter, this 1st Report is referred to as the 1993 Design Report.

2nd Report: A second landfill design for landfill Cells #2 and #3 was presented in the report: “Final Hydrogeologic Investigation and Waste Cell Design, Lateral Expansion of Clay Peak Sanitary Landfill, Payette County, Idaho”, dated March 2001 and IDEQ approved on March 12, 2001. Modifications to the final cover design reported in the March 2001 report were presented to the SWDH and IDEQ in a letter dated November 25, 2003 and approved by SWDH on June 15, 2004. Hereafter this 2nd Report is also referred to as the 2001 Design Report with 2003 Modifications.

Landfill cell construction, operations, and closure activities have closely followed the cell design and operational requirements described in the two aforementioned reports. Cell #1 has been constructed and final closure activities completed with stamped regulatory approval of landfill closure activities obtained on January 2, 2014. The Final Construction Quality Assurance Report, Prepared for the Closure of Landfill Cell #1, Clay Peak Landfill (hereafter referred to as the Cell #1 Closure Report) is presented in Appendix A that includes various regulatory correspondences clarifying closure activity requirements.

Final Cell #2 closure activities and certification will closely follow the regulatory approved cell closure procedures established for Cell #1 that are described in the Technical Approach approved by SWDH on June 6, 2011, contained as an Exhibit in the Cell #1 Closure Report presented in Appendix A.

II. OPERATING STANDARDS

A. Waste Inspection and Screening for Regulated and Special Wastes Not Designated for Landfill Disposal

Process knowledge statements are required from all waste generator(s) and/or transporters prior to or upon site entry for wastes acceptance. But, all wastes accepted by the Clay Peak Landfill for disposal, composting, recycling, land application, or temporary storage is subject to waste inspection and screening to ensure regulatory compliance.

Wastes such as tires, lead batteries, and other special wastes are not designated for landfill disposal and must be segregated from the waste stream and recycled or disposed of offsite, as discussed later in Section 2, II, D.

Title 39 Chapter 74 Idaho Code requires the county to implement a program for detecting and preventing the disposal of regulated hazardous wastes as provided in 40 CFR 258.20, Procedures for Excluding the Receipt of Hazardous Waste. Disposal of hazardous wastes as defined by 40 CFR Part 261 and disposal of polychlorinated biphenyls (PCB) wastes (a toxic substance) as defined by 40 CFR Part 761 are prohibited at a municipal solid waste landfill. Therefore, Clay Peak Landfill has designed and implemented a waste inspection and screening program to prevent the acceptance and disposal of regulated wastes into the landfill facility by performing the following activities:

- Require process knowledge statements from all waste generators and/or transporters prior to or upon site entry,
- Conduct random waste screening and inspection of incoming waste loads,
- Record and maintain records of waste screening and inspections,
- Train facility personnel to recognize and manage regulated wastes, and
- Notify IDEQ if a regulated waste is discovered and cannot be appropriately managed by landfill staff.

POLICY OF THE CLAY PEAK LANDFILL

Payette County will require a waste process knowledge statement from all waste generators or transporters for all wastes accepted at the Clay Peak Landfill. Process knowledge statements may be in the form of either:

1. Written process knowledge statements from the waste generator or their agent that details the waste generation process, petroleum products or other chemical additives reported in the waste generation or unit process with material safety data sheets (MSDSs) of all additives, estimated waste volumes, waste generator statement that “wastes are not characteristic or listed hazardous wastes or hazardous substances”, and provide analytical data necessary to satisfactorily characterize wastes as directed by the landfill staff. See Figure 2-1 for Waste Process Knowledge Statement requirements.

   or

2. Interview waste haulers or transporters, whereas they are questioned at the scale house during waste delivery to determine waste load content, waste quantity, and applicable disposal fees. Each waste hauler or transporter is questioned for waste content to ensure tires, batteries, other special wastes, and regulated wastes (i.e., hazardous wastes and toxic substances) are not directed to the landfill burial cells for final disposal.

Figure 2-1
Waste Process Knowledge Statement
(also known as Waste Profile)

1. Name, address, and contact information for waste generator and waste transporter (hauler).
2. Waste generator must describe unit process that generates the waste, how the waste is generated, and the expected volume of wastes. Schematic of unit process and/or unit process flow sheet is recommended.
3. Describe waste characteristics to include physical description of wastes, estimated water content, inorganic contents, organic contents, salts, metals, viscosity, odor, pH, flash point, and etcetera. Provide typical data if available. Landfill will not accept liquid wastes except for car-wash pit wastes or equivalent that will require silt dewatering **or** solidification before landfill disposal.
4. Are the wastes known or suspected "listed or characteristic hazardous wastes"? (yes/no) Landfill does not accept hazardous wastes. Wastes may be suspected hazardous waste if there is insufficient process knowledge to confirm the wastes are not hazardous wastes. Suspected hazardous wastes will require toxicity characteristic leaching procedure (TCLP) testing as directed by the Clay Peak Landfill to confirm the wastes are not hazardous.
5. Have the wastes come into contact with sanitary sewer wastes? (yes/no) Landfill provides temporary storage of septic tank wastes and cannot dispose of wastes that come into contact with sanitary sewer, except the landfill can dispose of Class B Biosolids generated from wastewater treatment facilities.
6. Describe any additives or chemicals that could have come into contact with the waste? Provide material safety data sheets for all chemical additives. If caustic or acidic chemicals are used in the unit process, testing for the eight Resource Conservation and Recovery Act (RCRA) heavy metals may be required as determined by the Clay Peak Landfill staff. Data collected from other typical sites may be considered with follow-up site specific data to confirm the non-hazardous waste condition.
7. Describe any petroleum hydrocarbons associated with this waste? If petroleum hydrocarbons are suspected, total petroleum hydrocarbon testing will be required. Other organic tests may be required, pending petroleum hydrocarbon released, such benzene, ethyl benzene, toluene, and xylene (BTEX). Landfill may accept petroleum hydrocarbon contaminated wastes if total petroleum hydrocarbon concentrations are less than 25,000 mg/kg.
8. Analytical requirements will be stipulated by Payette County after the waste process knowledge statement has been reviewed by Payette County staff and/or its environmental contractor. Acceptable regulatory analytical protocols for analyzing total petroleum hydrocarbons may include: EPA Method 418.1, Diesel Range Organics (DRO) option under USEPA Method 8015B, Oregon DEQ Northwest Total Petroleum Hydrocarbon Methods for diesel and gasoline (NWTPH-DX & NWTPH-Gx), EPA Method 1664 A if TPH contaminated wastewater, or other regulatory approved TPH testing method as reported in the State Summary of Soil and Groundwater Cleanup Standards for Hydrocarbons published by the EPA Office of Underground Storage Tanks. However, Payette County reserves the right to require other test methods if waste characterization data is suspect.
9. All waste disposal fees must be paid at the time of waste delivery, unless an account or contract has been pre-established with the Clay Peak Landfill. Contact Tracy Schmidt at 208.642.6036 to establish an account for waste disposal.

The waste generator and its agent are responsible for any wastes accepted that does not conform to the process knowledge statement, whereas subsequent waste removal, waste disposal, landfill cleanup, and landfill remediation costs will be the responsibility of the waste generator if the wastes accepted does not conform to the process knowledge statement

Waste loads directed to the landfill burial cell are visually inspected or screened on a random basis by landfill staff. Each waste load that is inspected will be dumped at a location near the working face of the landfill cell and inspected for the presence of special wastes and regulated wastes not designated or allowed for landfill burial cell disposal. It should be understood that household wastes are not regulated hazardous wastes, whereas household waste means any material (including

garbage, trash, and sanitary wastes) derived from households to include single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, and day use recreation areas (40 CFR 261.4.(b) (1)). Each waste load that is inspected will be recorded on a standard inspection form designed expressly for these inspections. The Waste Inspection Procedures and Inspection Form is illustrated on Figure 2-2. All waste inspection forms will be kept on file and will become part of the operating record of the landfill facility (see Recordkeeping Requirements in Section 2.II.M below). The County's goal is to inspect at least 5% of all waste loads delivered to the site; however, the County's inspection frequency during 2011 and 2012 has been greater than this goal, averaging nearly every 15th waste load being inspected or 7%.

All tires, lead acid batteries, and other special wastes as well as regulated hazardous wastes and hazardous substances discovered during either random waste load inspections or routine operations will be segregated from the waste stream. If ownership of the waste can be established, the owner will be required to remove all regulated hazardous or hazardous substances from the landfill at their cost and/or reimburse Payette County for all incurred costs associated with the proper disposal of the waste. Those wastes which ownership cannot be established or those wastes which the County has agreed to handle will be appropriately staged or stored for subsequent disposal or recycle. For example, regulated wastes will be temporarily stored at the hazardous materials (HAZMAT) storage facility located within the facility maintenance compound until proper disposal can be arranged. All hazardous wastes will be shipped offsite for proper disposal and will require a shippers manifest. The shipment of hazardous wastes and toxic substances for offsite disposal will require a hazardous waste manifest to be completed by US Department of Transportation (DOT) trained personnel. At this time, Payette County must contract the preparation and completion of hazardous waste manifests to qualified contractors, such as reported in Section 1. Copies of all hazardous waste manifests shall be appropriately distributed among the generator, transporter, and regulator with a copy kept in the facility operating record.

It is understood that even small quantities (parts per billion) of pesticides, herbicides, and some wood treatment (Wolberized) products can pose a significant environmental threat to soil, groundwater and surface water. To encourage local landfill customers to properly dispose of small quantities of waste chemicals regulated under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), the Clay Peak Landfill will accept small quantities of household and agricultural waste chemicals. These unused or waste chemicals will be temporarily stored in the fenced HAZMAT storage building located in the landfill's maintenance yard and the Landfill Director will make use of the free waste chemical disposal service offered periodically by the Idaho State Department of Agriculture and IDEQ.

Though federal regulations in Title 40 CFR Part 258.20 allows for disposal of hazardous wastes from conditionally exempt small quantity generators (CESQG) in municipal solid waste landfills, the Clay Peak Landfill will not accept hazardous wastes from CESQGs for landfill disposal, unless approved by the landfill director or his designee. CESQG as defined by 40 CFR Part 261.5 are those generators who generate no more than 100 kilograms (approximately 220 pounds) of hazardous waste in a calendar month except as provided for by 40 CFR Part 261.5 paragraphs e, f, g, and j. CESQGs are encouraged to pursue other alternative waste management options to include recycle, waste reduction, and alternative material uses.

CESQG wastes may be accepted at the landfill on a case-by-case basis at the discretion of the landfill director, who may seek approval from the Board of County Commissioners for Payette County. The CESQG shall provide a detailed process knowledge statement to include the process knowledge for waste generation and describe whether the waste is an unused manufactured product, excess, or product of a unit process. Additionally, material safety data sheets (MSDS) or product safety data sheets and analytical test results should be provided to help assess potential waste risk. It is the sole burden of the waste generator to provide complete documentation to the County prior

to waste acceptance and delivery of the waste to the landfill. The landfill director or Board of County Commissioners reserves the authority to reject any CESQG waste regardless of test results or other regulatory approvals.

As required by federal regulations, the County employs waste screeners whose primary job responsibility is to inspect waste loads for regulated wastes and special wastes not designated for landfill burial disposal. The County will ensure that landfill staff to include waste screeners are appropriately trained. Training includes:

- Familiarization with the content of the operations and maintenance manual,
- Familiarization with the DOT Emergency Response Guidebook (ERG), revised 2012,
- Recognition of regulated wastes and special wastes.
- Regulatory notification requirements, if any regulated wastes or special wastes are discovered during waste load inspection.

Figure 2-2
Waste Inspection Procedures and Inspection Form

The following inspection procedures are followed by waste inspectors/screeners; however, adjustments to these procedures may be allowed if the landfill foreman or his designee allows.

1. Randomly selected loads will be inspected at the active face of the landfill. The waste transporter will dump the waste in the area designated by the attendant waste screener.
2. The waste transporter will remain available at the inspection site until the inspection has been completed.
3. Transporter information will be recorded on the inspection form by the waste screener. A copy of this form is included with Continuation sheet of Figure 2-3.
4. The waste screener will separate the waste for visual inspection using a shovel, rake, pitch fork or other implement.
5. Materials of questionable composition which exceed 100 Kg (approximately 220 pounds) that may be classified as Ignitable, Corrosive, Reactive, Toxicity Characteristic and Toxic wastes, or 1 Kg (approximately 2.2 pounds) of acutely hazardous waste as defined by 40 CFR Part 261 will be segregated from the pile for further investigation.
6. Wastes which are determined to be household hazardous waste or CESQG may be separated from the pile at the discretion of the waste screener or left in the pile for incorporation into the landfill.
7. If hazardous waste is identified, the waste transporter will be required to identify the owner or waste generator to the waste screener. If the waste generator is unknown to the transporter then the transporter is considered to be the owner.
8. The owner of the waste is responsible for all additional costs incurred by the facility to properly handle and dispose of all segregated wastes that includes hazardous wastes and special wastes. The segregated hazardous wastes will be stored onsite in the Hazardous Waste Impoundment Building located in the landfill maintenance yard until proper identification and disposal can be arranged. A Hazardous Waste Manifest Form will be required for offsite shipment of all hazardous wastes.
9. Any material contaminated by the hazardous waste including, but not limited to soil, municipal solid waste, or protective ground cover is considered to be part of the hazardous waste and the owner is responsible for disposal of the contaminated materials.
10. The transporter may remove the waste from the facility, but is subject to EPA and Department of Transportation hazardous waste shipping requirements.
11. Completed waste inspection forms will be kept on file at the Clay Peak Landfill during the active life and post-closure periods of the landfill facility.
12. Inspected wastes, which do not contain hazardous wastes, will be incorporated into the working face of the landfill.

Continuation of Figure 2-2

WASTE INSPECTION FORM
(to be completed by the Waste Screener)

DATE:	**WASTE TRANSPORTER:**
TIME:	**TELEPHONE:**
VEHICLE LICENSE NUMBER:	**WASTE GENERATOR:**
WASTE WEIGHT:	**ESTIMATED WASTE VOLUME:**

WASTE DESCRIPTION (CHECKING ESTIMATED PERCENTAGE OF TOTAL WASTE)

	100%		50%		0%
MUNICIPAL					
COMPOSTABLE					
CONSTRUCTION/DEMOLITION					
COMMERCIAL/INDUSTRIAL					

HAZARDOUS MATERIAL: **US DOT DESCRIPTION**

	CONTAINER		TOTAL QUANTITY	UNIT	WASTE NO.
	NO.	TYPE			
A.					
B.					

WAS A HAZARDOUS WASTE MANIFEST COMPLETED? YES ☐ NO ☐

SPECIAL WASTE

	YES	NO		YES	NO
TIRES	☐	☐	PETROLEUM-CONTAMINATED SOIL	☐	☐
BATTERIES	☐	☐	IMPROPERLY PACKAGED ASBESTOS CONTAINING MATERIAL	☐	☐
USED OIL	☐	☐			
WHITE GOODS	☐	☐			
INDUSTRIAL WASTE	☐	☐	OTHER _____	☐	☐

IF ANY WASTE IS CHECKED YES, THE WASTE TRANSPORTER / GENERATOR IS NOTIFIED AND THE WASTE IS REMOVED FROM THE LANDFILL CELL, AS SOON AS PRACTICAL BY THE LANDFILL STAFF OR TRANSPORTER/GENERATOR. THE TRANSPORTER/GENERATOR IS RESPONSIBLE FOR ADDITIONAL WASTE HANDLING, TESTING, AND DISPOSAL REQUIREMENTS FOR IMPROPERLY PACKAGED AND/OR LABELED WASTES.

NAME AND SIGNATURE	NAME AND SIGNATURE
WASTE INSPECTION PERFORMED BY	**TRANSPORTER / GENERATOR** (Form Revised September 5, 2012)

B. Hazardous Material Incident Response Plan

In the event of a spill or release of a hazardous material (HAZMAT) at the Clay Peak Landfill site, the landfill staff shall follow the emergency response measures described in the DOT Emergency Response Guidebook (ERG) or equivalent. A hardcopy of the DOT ERG is found in all heavy equipment and vehicles operated and maintained by the Clay Peak Landfill. In summary, workers must identify the HAZMAT to the extent practical from placard, shipping document, or discussion with transporter and then proceed to the applicable ERG Guide No. to identify potential health and fire hazards, measures to protect public safety (e.g., protective clothing and evacuation), and emergency response measures (i.e., fires, spills and leaks, first aid)..[1] The three most likely scenarios for a HAZMAT incident are:

1. Loss of fuel during equipment refueling or maintenance.
2. Loss of fuel from a customer's vehicle or waste transporter while at the landfill.
3. Spillage of a hazardous substance into the working face of the landfill during unloading of supposedly non-hazardous waste. The hazard could be chemical, radiological or bio-hazard.

If a gasoline or diesel spill occurs, landfill staff will dike and contain the spill using clay, compost, dirt, or other absorbent material. All potential ignition sources within 100 feet will be immediately extinguished, removed, or turned off. The Payette Rural Fire Department will be notified (call 911) to provide potential fire suppression in the event of large fuel spills. Any fuel contaminated absorbent material used during a spill will be placed in the landfill section designated for Petroleum Contaminated Soils discussed in Section 2, II, D.3 below.

Landfill staff should be alert for the presence of DOT placards or labels mixed in the trash. If hazardous substances are inadvertently introduced into the working face of the landfill, construction debris area, or other landfill areas, the waste will be segregated from the surrounding non-hazardous waste. Use extreme caution. Landfill employees should follow the Emergency Response Guidebook and not risk contaminating themselves or spreading the hazardous substance.

Notify the Landfill Director or designee immediately in the event of a spill or release of hazardous materials or fuel. The Landfill Director or designee will notify regulatory agencies if environmental, health, or safety impacts are suspected. The Payette County Sheriff's Office at 642-6008 and Idaho STATECOM at 1-800-632-8000 should be immediately notified if the spill or release poses a threat to life and health.

If someone becomes extensively contaminated with a hazardous substance or other contaminant, take the following actions based on the severity of exposure:

1. Simply wash the affected area with soap and water. Watch the victim for signs of respiratory distress, elevated heart rate, or other symptoms.
2. Move the victim to the Maintenance Building locker room shower and allow them to decontaminate themselves with soap and water. Post an observer of the same sex near the victim to insure the consciousness and well-being of the victim.
3. Activate the 911-Emergency system. Describe the situation and request an ambulance equipped to transport a contaminated victim. Be sure that the receiving hospital is notified to standby to receive a contaminated patient. Apply First Aid and decontaminate the victim, particularly the eyes, nose and mouth, as much as possible. Take all steps to prevent contamination of the Landfill staff serving as First Responders.

1 - "Emergency Response Guidebook", U.S. Dept. of Transportation, 2012 Edition..

The waste generator or waste transporter will be held liable for all costs associated with its waste disposal or incidents involving its HAZMAT release.

C. Liquid Restrictions

Title 39 Chapter 74 Idaho Code prohibits "the disposal of non-containerized liquids or sludges containing free liquids in MSWLF units except as provided in 40 CFR 258.28." Waste is deemed a liquid waste if it contains "free liquids" as defined by federal test method 9095. Test method 9095 is known as the Paint Filter Test, which is described in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods" (EPA Pub. No. SW-846).

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Federal regulations prohibit the disposal of free liquids into the landfill cell, but the Clay Peak Landfill will accept the following liquid wastes consistent with federal regulations:

1. Liquid wastes in household quantities for disposal in the landfill burial cell.
2. At the discretion of the Landfill Director, small quantities of containerized liquid wastes which are not hazardous wastes or toxic substances and which can be solidified to satisfy the paint filter test. Containers containing liquids will be placed in a safe area where the volatile organic compounds (VOC) and water content will be allowed to evaporate. The dry solids and containers will then be placed in the landfill burial cell.
3. Car wash water sludges are accepted for dewatering, solidification, and treatment followed by disposal as petroleum-contaminated soil per Section 3.
4. Cooking or restaurant oil/grease wastes are accepted for composting as reported in Section 2. II. D. 9 and Section 3.
5. Agricultural waste products from onion and potato processors are accepted for dewatering, solidification, composting, and/or land application as reported in Section 4.
6. Biosolids from wastewater treatment facilities are accepted for surface disposal as reported in Section 4.
7. Septage wastes from septic tank pumpers are accepted for temporary storage and offsite disposal as reported in Section 4.

All liquid wastes are managed within their respective staging area and the liquids are not allowed to runoff from their respective staging area.

Liquid hazardous waste or toxic substances will not be accepted at the landfill for disposal or recycle.

The County encourages individual, commercial, or industrial bulk liquid waste generators to investigate and promote private treatment/disposal options to handle bulk liquid wastes.

Figure 2-3 presents the Liquid Waste Shipping Manifest that should be used for landfill acceptance of the liquid wastes pumped from restaurant grease traps and car wash sumps or equivalent.

Figure 2-3
Liquid Waste Shipping Manifest

LIQUID WASTE TRANSPORT MANIFEST
VALID FOR CLAY PEAK LANDFILL ONLY

DATE: _____

TRANSPORTER 1
NAME: _____ SIGNATURE: _____
ADDRESS: _____
TELEPHONE: _____
TYPE OF WASTE: _____
GALLONS: _____
NET. WEIGHT: _____

FEE FIGURED AT: $.10/GAL = $25.00/TON = 8¢ PER GALLON

GENERATOR 1
NAME: _____ SIGNATURE: _____
ADDRESS: _____
TELEPHONE: _____
TYPE OF WASTE: _____
GALLONS: _____

GENERATOR 2
NAME: _____ SIGNATURE: _____
ADDRESS: _____
TELEPHONE: _____
TYPE OF WASTE: _____
GALLONS: _____

GENERATOR 3
NAME: _____ SIGNATURE: _____
ADDRESS: _____
TELEPHONE: _____
TYPE OF WASTE: _____
GALLONS: _____

GENERATOR 4
NAME: _____ SIGNATURE: _____
ADDRESS: _____
TELEPHONE: _____
TYPE OF WASTE: _____
GALLONS: _____

PLEASE NOTE THAT ALL SIGNATURES ABOVE DO HEREBY DECLARE THAT THE CONTENTS OF THIS SHIPMENT RECORD ARE TRUE AND ACCURATE AND COMPLY WITH ALL GOVERNMENT REGULATIONS REGARDING THE TRANSPORTATION OF LIQUID WASTE.

NOTICE: INACCURATE INFORMATION ON GALLONS OR CONTENTS IS GROUND FOR IMMEDIATE REJECTION, SUSPENSION, OR TERMINATION OF ALL LANDFILL PRIVILEGES.

D. Special Wastes

1. TIRES

Idaho Code Title 39 Chapter 65 WASTE TIRE DISPOSAL was amended by the 2002 legislature to regulate the disposal of chipped waste tires in landfills, permitting by city/county officials, prohibition of on-site incineration, and promotion of recycling and reuse.

POLICY OF THE CLAY PEAK LANDFILL

This O&M Manual, since it is approved by the Payette County Commissioners, constitutes "permit or local authorization" as stated in Idaho Code §39-6502(2)(a) for waste tire storage. The waste tire activity at Clay Peak Landfill is considered integral with landfill operations. It is therefore covered under the financial assurance of the total landfill and meets the requirements of Idaho Code §39-6502 (2) (e).

Whole waste tires will not be deposited directly into the face of the landfill for final disposal. Following a demonstration to IDEQ, only tires that have been reduced or chipped in accordance with Idaho Code §39-6503(2) can be placed into the face of the landfill, though this is considered a less than optimal method of disposal. The Idaho State Legislature seeks to promote recycling or beneficial use of waste tires in accordance with Idaho Code §39-6506 and §39-6508. Although certainly an option, Clay Peak does not currently operate as a "Waste Tire Disposal Site" per Idaho Code §39-6501(19) because the Clay Peak Landfill does not currently place chipped tires, other than minor occasional scrap pieces, into the landfill. Clay Peak's tire holding operation meets the non-storage exemption of less than 1,500 tires as stipulated in Idaho Code §39-6502(13)(f). The tires are temporarily held for no more than two calendar quarters in a designated area of the landfill property until a hauler can take the tires to: (1) an approved tire recycler, or (2) a permitted combustion kiln for energy recovery. The County presently transports (in 2015) tires to Ash Grove Cement, Durkee, Oregon for energy recovery.

The County may use chips made from waste tires for access road bed construction during periods of the year that wet surface soil conditions must be amended to protect the safety of the public who utilize the site.

2. BATTERIES

The 1991 legislative session passed House of Representatives Bill No. 122 as amended by the Senate which created a new chapter in Title 39 Idaho Code designated as Chapter 70: Sale and Disposal of Batteries. The provisions of this chapter apply to any lead-acid battery with "a capacity of six or more volts which is suitable for use in farm equipment, construction equipment, a motor vehicle or a boat." Batteries for motorcycles, off-road recreation vehicles or lawn and garden equipment are exempt from the purchase fees but do not appear to be exempt from the disposal ban. The disposal ban effective date was July 1, 1991.

POLICY OF THE CLAY PEAK LANDFILL

All six volt or greater "lead-acid batteries" will be banned from disposal in the landfill and will not knowingly be accepted at the landfill from private or commercial enterprises. All six volt or greater "lead-acid batteries" discovered during random inspections of wastes loads as discussed in Section 2.II.A above will be segregated from the waste during routine operations and temporarily

stored at the used battery storage area, located north of the scale house. Batteries will be held until an approved recycler removes the batteries for offsite recycling.
Household quantities of alkaline batteries are accepted at the landfill but alkaline batteries exceeding household quantities may be accepted if the batteries are mercury free and packaged to prevent battery contact and inadvertent sparking (e.g., pack batteries individually in container with inert packing).

3. PETROLEUM-CONTAMINATED SOIL

Petroleum-contaminated soil (PCS) may result from the cleanup of fuel storage and distribution facilities or soil contaminated from petroleum spills or release sometimes associated with equipment maintenance or vehicle accidents. Petroleum-contaminated soil could potentially be classified as a hazardous waste under criteria of 40 CFR 261.24, Toxicity Characteristic (TC) Table 1; however, in 40 CFR Part 261.4 (b) (10) EPA has excluded petroleum-contaminated media and debris from being a hazardous waste if the petroleum-contaminated soil is subject to the corrective action regulations under 40 CFR Part 280, though it may fail the test for TC. The TC constituents which are not exempted from TC testing of fuel contaminated soils are presented in Table 2-2. TC testing requires EPA approved toxicity characteristic leachate procedures (TCLP).

POLICY OF THE CLAY PEAK LANDFILL

The County will accept, on a case-by-case basis, petroleum-contaminated soil from cleanup activities at fuel storage and distribution facilities, spill recovery areas, and construction sites with total petroleum hydrocarbon (TPH) concentrations <25,000 parts per million (ppm)[2], but it is subject to a technical review process performed by Clay Peak and/or its environmental contractor. Petroleum contaminated soils must qualify as a non-hazardous waste under the exemption of 40 CFR 261.4(b)(10) b. The following procedure has been designed to apply to most petroleum-contaminated soil disposal projects[3]. All requests seeking disposal of petroleum-contaminated soil shall submit a written process knowledge statement as described in Section 2,II,A above and will include at least: name and address of the Responsible Party (i.e., waste generator), location of spill or incident, description of process knowledge associated with incident or spill, volume and characteristics of soil to be disposed of, and analytical data describing the content of the petroleum contaminants released. The Responsible Party must be a representative of the property owner where the petroleum spill or incident took place. The Clay Peak Landfill staff and/or its environmental contractor will conduct a technical review of the process knowledge statement and associated data, and may solicit a regulatory review of the process knowledge statement to confirm regulatory compliance. It should be noted that procedures for handling and disposing petroleum contaminated soils may be subject to change, without public notice, if IDEQ and SWDH approval is first obtained.

The technical review must be completed and approved by the Clay Peak Landfill, before any petroleum-contaminated soils are shipped to the landfill for treatment and/or disposal. The technical review includes the following steps:

1. The Responsible Party notifies the Clay Peak Landfill of its intent to dispose of petroleum contaminated soils and provide a process knowledge statement that describes site

2 - Idaho Department of Environmental Quality, "Procedures for Land Treatment of Petroleum Contaminated Soils," Information Series #7, Petroleum Pollution Prevention & Remediation, May 2002. p.7.
3 - American Society for Testing and Materials (ASTM)*"Guide for Remediation by Natural Attenuation at Petroleum Release Sites (E1943-98)".* Copies of this standard may be purchased through ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, telephone 610 832-9585, Web site www.astm.org.

location, description of accident or event creating spill, and volume of soil intended for disposal. Responsible Parties are advised to immediately comply with EPA guidance[4] to prevent further cross-contamination and therefore limit clean-up project costs.

2. The Responsible Party shall provide soil and contaminant characterization information and data for technical review. A minimum of 1 soil sample analysis per 500 cubic yards up to 1000 cubic yards. Thereafter, one soil sample analysis for each 1000 cubic yards. Unacceptable petroleum-contaminated soils may be referred to the IDEQ for advice and disposal recommendations. These unacceptable conditions include, but are not limited to:
    a. The petroleum-contaminated soil contains a RCRA listed hazardous material not exempted by 40 CFR 261.4. See Table 2-2 for minimum contaminant concentrations that constitute hazardous waste toxicity characteristics. Of particular concern in diesel or gasoline contaminated soils is benzene. For example, composite soil TCLP samples containing more than 0.5 mg/L of benzene are considered a hazardous waste and cannot be accepted at the Clay Peak Landfill.
    b. The petroleum-contaminated soil poses a health and/or safety risk to Clay Peak personnel.
    c. The petroleum-contaminated soil contains free product or is in a slurry form.

3. The petroleum-contaminated soil with TPH concentrations greater than 25,000 ppm shall not be accepted at the Clay Peak Landfill unless approved by the landfill director.

4. TPH soil concentrations between 25,000 ppm and 3,750 ppm may be accepted for land farming at the Clay Peak Landfill.

5. TPH soil concentrations between 3,750 ppm and zero may be incorporated into the active face of the landfill cell at the Clay Peak Landfill.

6. Due to the health hazards associated with handling gasoline and diesel contaminated soils, all petroleum-contaminated soils will be analyzed for total petroleum hydrocarbons and all applicable constituents of the TCLP test reported in Table 2-2 below, prior to being accepted for final disposal at the Clay Peak Landfill.

4 - U.S. EPA, "Best Management Practices (BMPs) for Soils Treatment Technologies, Suggested Operational Guidelines to Prevent Cross-Media Transfer of Contaminants During Cleanup Activities", p.11. EPA530-R-97-007, May 1997.

Table 2-2 Minimum Contaminant Concentration for Hazardous Waste Toxicity Characteristic			
EPA HW No.[1]	**Contaminant**	**CAS No.[2]**	**TCLP Regulatory Level (mg/L)**
D004	Arsenic	7440–38–2	5.0
D005	Barium	7440–39–3	100.0
D018	Benzene	71–43–2	0.5
D006	Cadmium	7440–43–9	1.0
D019	Carbon tetrachloride	56–23–5	0.5
D020	Chlordane	57–74–9	0.03
D021	Chlorobenzene	108–90–7	100.0
D022	Chloroform	67–66–3	6.0
D007	Chromium	7440–47–3	5.0
D023	o-Cresol	95–48–7	[4]200.0
D024	m-Cresol	108–39–4	[4]200.0
D025	p-Cresol	106–44–5	[4]200.0
D026	Cresol		[4]200.0
D016	2,4-D	94–75–7	10.0
D027	1,4-Dichlorobenzene	106–46–7	7.5
D028	1,2-Dichloroethane	107–06–2	0.5
D029	1,1-Dichloroethylene	75–35–4	0.7
D030	2,4-Dinitrotoluene	121–14–2	[3]0.13
D012	Endrin	72–20–8	0.02
D031	Heptachlor (and its epoxide)	76–44–8	0.008
D032	Hexachlorobenzene	118–74–1	[3]0.13
D033	Hexachlorobutadiene	87–68–3	0.5
D034	Hexachloroethane	67–72–1	3.0
D008	Lead	7439–92–1	5.0
D013	Lindane	58–89–9	0.4
D009	Mercury	7439–97–6	0.2
D014	Methoxychlor	72–43–5	10.0
D035	Methyl ethyl ketone	78–93–3	200.0

Continuation of Table 2-2

EPA HW No.[1]	Contaminant	CAS No.[2]	TCLP Regulatory Level (mg/L)
D036	Nitrobenzene	98–95–3	2.0
D037	Pentrachlorophenol	87–86–5	100.0
D038	Pyridine	110–86–1	[3]5.0
D010	Selenium	7782–49–2	1.0
D011	Silver	7440–22–4	5.0
D039	Tetrachloroethylene	127–18–4	0.7
D015	Toxaphene	8001–35–2	0.5
D040	Trichloroethylene	79–01–6	0.5
D041	2,4,5-Trichlorophenol	95–95–4	400.0
D042	2,4,6-Trichlorophenol	88–06–2	2.0
D017	2,4,5-TP (Silvex)	93–72–1	1.0
D043	Vinyl chloride	75–01–4	0.2

NOTES:
[1] Hazardous waste number.
[2] Chemical abstracts service number.
[3] Quantitation limit is greater than the calculated regulatory level. The quantitation limit therefore becomes the regulatory level.
[4] If o-, m-, and p-Cresol concentrations cannot be differentiated, the total cresol (D026) concentration is used. The regulatory level of total cresol is 200 mg/l.

7. All samples will be analyzed in a laboratory approved by IDEQ, EPA, or other approved by the landfill director. Acceptable regulatory analytical protocols for analyzing total petroleum hydrocarbons may include: EPA Method 418.1, Diesel Range Organics (DRO) option under USEPA Method 8015B, Oregon DEQ Northwest Total Petroleum Hydrocarbon Methods for diesel and gasoline (NWTPH-DX & NWTPH-Gx), EPA Method 1664 A if TPH contaminated wastewater, or other regulatory approved TPH testing method as reported in the State Summary of Soil and Groundwater Cleanup Standards for Hydrocarbons published by the EPA Office of Underground Storage Tanks. However, Payette County reserves the right to require other test methods if waste characterization data is suspect. Field samples performed with hydrocarbon vapor measuring instruments (HNU, OVA, etc.) are for soils screening purposes only and its data will not be accepted for final landfill acceptance. Approved EPA or State analytical laboratory methods for testing TPH and TCLP must be followed. As of 2014, the regulatory approved method for TPH analysis is EPA Method 1664 and toxicity characteristic leaching procedures for EPA hazardous wastes D004 through D043 shall be followed. The amount of sampling required will be determined on a case-by-case basis upon review by the Clay Peak Landfill. Sampling typically reflects one soil sample for each 500 cubic yards up to 1000 cubic yards and thereafter at a rate of one soil sample per 1000 cubic yards associated with virgin fuel oil spills. Releases from used petroleum products may likely require more frequent sampling as directed by the technical review process. Regardless, the burden of proof, stating a material is acceptable for final disposal, will fall on the generator of the

waste material and the generator is responsible for all costs associated with the testing, handling, and subsequent disposal of incorrectly characterized petroleum-contaminated soils.

8. The suggested guidance provided by the IDEQ[5] will be followed concerning ground slope, setbacks from the edge of the treatment area, and contaminated soil thickness. Petroleum-contaminated soils will not be spread over snow or extremely muddy soil at the Landfill. Such practice could promote the run-off of constituents of concern, rather than volatilization. Payette County has a semi-arid climate that promotes the volatilization of VOCs during most of the year. It will be the judgment of the Clay Peak Landfill director whether to accept petroleum-contaminated soils during November through May.

9. The Payette County Clay Peak Landfill will require a recognized professional, in the field of treating petroleum-contaminated soils to provide documentation stating that the petroleum-contaminated soil meets the requirements for final disposal. Because of the range of factors that may affect the contaminated site, no single set of qualifications can be specified. If there is uncertainty, the services of a Professional Geologist (P.G.), Professional Engineer (P.E.), or a professional with expertise in environmental chemistry should be obtained.

10. Soils which do not contain constituent levels in excess of regulatory limits of an applicable TC level and with TPH contamination levels, may be accepted for direct disposal at the Clay Peak facility.

11. The owner or generator of the wastes or the Responsible Party will be responsible for all expenses associated with treatment, testing and storage of the treated waste. Treatment charges will be determined on a case-by-case basis. The waste will be considered fully remedied when the surface application treatment has reduced the contaminant levels to the values reported in Table 2-3.

This policy only pertains to gasoline, oil, and diesel contaminated soils and under no circumstances can this policy be adapted to other hazardous substances.

POLICY ON RATES FOR DISPOSAL OF PETROLEUM-CONTAMINATED SOILS

Clay Peak Landfill accepts petroleum-contaminated soil at the landfill for final disposal. Interim treatment may be required for final disposal. For example, interim treatment shall be required for PCS exceeding the concentrations listed in the O&M manual. Accordingly, the rates for special handling and treatment prior to disposal shall be set as described in the fee schedule located in Appendix D.

Treatment is defined as a) initial leveling and grading to a maximum of one foot thickness; b) turn PCS at six month intervals as required to allow aeration to reduce volatiles; and c) test annually to determine contaminant concentrations. Test contaminants include those parameters reported in Table 2-3.

5 - Idaho Department of Environmental Quality, "Procedures for Land Treatment of Petroleum Contaminated Soils," Information Series #7, Petroleum Pollution Prevention & Remediation, May 2002., pp. 5-7.

When soil testing results show less than or equal to the Idaho Residential Use Soil Screening Levels summarized in Table 2-3, the Owner or generator of the wastes or Responsible Party shall be notified and treatment shall cease. Note that DEQ Tier 0 Soil Cleanup Levels reported in earlier O&M Manuals were replaced by IDEQ in 2012 with the Residential Use Soil Screening Levels reported in IDAPA 58.01.24.800, Table 2-3.

Table 2-3
Residential Use Soil Screening Levels

Chemical or Contaminant	Concentration[1] (mg/Kg)	Critical Pathway
Benzene	0.025	GWP
Toluene	6.6	GWP
Ethylbezene	0.025	Vapor Intrusion
Total Xylenes	27	Vapor Intrusion
Ethylene DiBromide	0.0001	GWP
1,2-Dichloroethane	0.013	GWP
Methyl Tert-Butyl Ether	0.0364	GWP
Polcyclic Aromatic Hydrocarbon (PAH)		
Acenapthene	200	GWP
Anthracene	3200	GWP
Benzo(a)pyrene	0.02	Direct Contact
Benzo(b)fluoranthene	0.2	Direct Contact
Benzo(a)anthracene	0.09	GWP
Benzo(g,h,i)perylene	NA	
Benzo(k) fluoranthene	1.9	Direct Contact
Chrysene	95	GWP
Fluorene	240	GWP
Fluoranthene	1400	GWP
Napthalene	0.12	Vapor Intrusion
Phenanthrene	NA	
Pyrene	1000	GWP
Total Petroleum Hydrocarbons (TPH)		
Greater than (>) 25,000 mg/L	Not acceptable	
25,000 – 3,750 mg/L	Acceptable to land farm at landfill	
3,750 – 0 mg/L	Acceptable to incorporate into open face of active cell of landfill	

Note 1: Contaminant concentrations below the values reported may be placed in the face of the landfill cell. Otherwise the soils must be landfarmed.
GWP: ground water protection
Source of Data: IDAPA 58.01.24.800, Table 2.

In order to dispose of diesel or gasoline contaminated soils at Clay Peak a number of steps must be followed. The soils must be sampled, at a minimum, for TPH. Based on process knowledge, further testing for total and/or TCLP RCRA metals, solvents and BTEX may be required. A copy of these test results must be given to the landfill operator for an environmental/technical review. The soil, if accepted, must be spread to a uniform depth of 4 inches on the site therefore a cost is assigned to both the tonnage and the acreage that it must be spread over.

Soils Testing Requirements for Treatment and Disposal

Representative soil samples must be collected and analyzed for the following:

1. Total Petroleum Hydrocarbons for all oil and gas spills
2. Benzene, Ethyl-benzene, Toluene, and Xylene if gas spill suspected
3. Other analyses based on process knowledge
   (i.e., waste oil may contain solvents & metals)

Representative soil samples should reflect at least one soil sample for each 500 cubic yards up to 1,000 cubic yards and thereafter 1 soil sample per each 1000 cubic yards of petroleum-contaminated soil. However, the Landfill Director may adjust the sampling frequency, based upon process knowledge and potential environmental impacts.

Cost of Soil Treatment and Disposal

- Payette County Residents $17.25/ton for soil plus $2.30/ton for treatment = $19.55 per ton of petroleum contaminated soils, if landfarming costs = $1,250/acre/year
- Non Payette County Residents: $25.00/ton for soil plus $2.60/ton for treatment = $27.60 per ton of petroleum contaminated soil, if landfarming costs = $1,400.00/acre/year
- All laboratory analysis costs billed directly to Owner or Waste Generator

4. USED OIL AND USED ANTIFREEZE

Disposal of used oil and used antifreeze is regulated under criteria of 40 CFR Part 261 Identification and Listing of Hazardous Waste. (Note that the previous O&M manual referenced waste oil, but the term used oil is now used to avoid confusion with the testing requirements for oils whereas process knowledge is not known.) Used oil frequently contains benzene, lead, and/or chlorinated solvents which may cause the oil to be classified as a hazardous waste under the Toxicity Characteristic criteria of 40 CFR Part 261.24. Used antifreeze mixed with used oil must be managed as used oil. To encourage recycling, the EPA has provided an exemption in 40 CFR 261.6 to hazardous wastes, which can be recycled. 40 CFR 261.6(a)(1) states that "...Hazardous wastes that are recycled will be known as "recyclable materials." Section 261.6(a)(3) states " The following recyclable materials are not subject to regulation under parts 262 through parts 266 or parts 268, 270, or 124 of this chapter, and are not subject to the notification requirements of section 3010 of RCRA:" and 261.6(a)(3)(iii) "Used oil that exhibits one or more of the characteristics of hazardous waste but is recycled in some other manner than being burned for energy recovery:" These provisions may also apply to used antifreeze.

POLICY OF THE CLAY PEAK LANDFILL

The County will provide holding tanks for temporary storage of used motor oil and used antifreeze. Only used motor oil and used antifreeze from private individuals who change motor oil from their own vehicles will be accepted for disposal and/or recycle. Used oils and used

antifreeze from commercial businesses such as gas stations, oil change shops, or private fleet maintenance shops, etc. is not intended to be accepted for disposal or recycled at the landfill and will be addressed on a case-by-case basis. Oils and antifreeze containing hydraulic fluid, PCB-contaminated oil, antifreeze or other petroleum contaminated liquids will not be accepted for disposal/recycle in the used oil holding tank. But, these petroleum contaminated liquids will also be addressed on a case-by-case basis and may be accepted at the landfill after proper treatment, following an evaluation of the waste characteristics that will likely require analytical testing.

Presently (in 2014), the Clay Peak landfill utilizes an oil burner in the maintenance facility for energy recovery of used oils. However, the County is also prepared to contract with an independent regulatory approved recycler for offsite used oil disposal/recycling.

Presently (in 2014) the Clay Peak landfill accepts and consolidates used antifreeze and contracts with a regulatory approved recycler for periodic offsite disposal/recycling of antifreeze.

5. COMPRESSORS AND REFRIGERATION EQUIPMENT

Title VI of the 1990 Clean Air Act Amendments states in section 42 USC 608 (c) "...it shall be unlawful for any person, in the course of maintaining, servicing, repairing, or disposing of an appliance or industrial process refrigeration, to knowingly vent or otherwise knowingly release or dispose of any Class I or Class II substance used as a refrigerant in such appliance (or industrial process refrigeration) in a manner which permits such substance to enter the environment". The Class I and Class II substances referred to in Section 608 are chlorofluorocarbons and hydro-chlorofluorocarbons respectively.

POLICY OF THE CLAY PEAK LANDFILL

The County will accept any refrigeration or other equipment, which was designed to contain Class I, or Class II substances as defined above for equipment disposal or recycle at the landfill. Clay Peak Landfill's certified CFC technicians will remove and properly dispose of the Class I or II substances, whereas the spent refrigerant is temporarily stored onsite until sufficient volumes are attained for economical disposal offsite. The disposal of accumulated refrigerators and air conditioners will be through metal recyclers as white goods described below.

6. WHITE GOODS

"White goods" are defined as household appliances which include but are not limited to: stoves, ranges, refrigerators, washing machines, clothes dryers, water heaters, water treatment systems, furnaces, dishwashers, or microwaves. There are no specific laws or regulations that prohibit "white goods" from being accepted at the landfill except as discussed in the preceding section of this manual discussing Class I and II substances.

POLICY OF THE CLAY PEAK LANDFILL

The County desires to facilitate the recycling of as much of the metals waste stream as is practical. Clay Peak Landfill has an established fee schedule for acceptance of white goods. The white goods will be temporarily held on-site pending sale to a qualified metal recycler.

7. INDUSTRIAL WASTES

Title 39 Chapter 74 Idaho Code defines industrial solid waste as "solid waste generated by manufacturing or industrial processes that is not a hazardous waste regulated under subtitle C

of RCRA. Such waste may include, but is not limited to, waste resulting from the following manufacturing processes: Electric power generation; fertilizer and agricultural chemicals; food and related products and by-products; inorganic chemicals; iron and steel manufacturing/foundries; leather and leather products; nonferrous metals manufacturing/foundries; organic chemicals; plastics and resins manufacturing; pulp and paper industry; rubber and miscellaneous plastic products; stone, glass, clay and concrete products; textile manufacturing; transportation equipment and water treatment. This term does not include mining waste or oil and gas waste."

POLICY OF THE CLAY PEAK LANDFILL

Industrial wastes that may be considered as normal municipal solid waste are those wastes that may be landfilled without any special procedures, handling, or testing by landfill personnel. Each industrial waste and/or waste stream, which cannot be considered as typical municipal solid wastes may be evaluated individually to determine if the waste will be accepted. The burden of proof that a particular industrial waste and/or waste stream is an acceptable innocuous waste is solely the responsibility of the waste generator, but the landfill director and/or the Payette Board of County Commissioners reserves all rights to either accept or reject any industrial waste and/or waste stream regardless of data supplied by the waste generator, if negative impacts to landfill operations are suspected.

Payette County encourages industrial waste generators to evaluate their waste stream(s) to minimize, detoxify, and recycle as much of the waste stream as possible.

8. ASBESTOS

Disposal of Asbestos containing materials is regulated by criteria in 40 CFR Part 61 National Emission Standards for Hazardous Air Pollutants: Asbestos NESHAP Revision. 40 CFR 61.154 prescribes the asbestos handling requirements for active waste disposal sites.

POLICY OF THE CLAY PEAK LANDFILL

The County shall comply with all disposal criteria as required by 40 CFR 61.154. The County will only accept those asbestos containing material which are delivered to the site in conformance with handling, labeling, packaging and all other criteria as required for waste generators and transporters of 40 CFR Part 61.

Special Asbestos Handling Procedure

The following procedure details the extra management criteria mandated by 40 CFR 61.154 to which the County must comply.

1. All asbestos containing materials transported to the Clay Peak Landfill for landfill disposal shall be properly packaged to minimize worker exposure and documented with a waste shipment record (WSR) as shown in Figure 2-4. Commercial asbestos abatement contractors and others may also use hazardous waste manifests to document and track the movement of asbestos containing materials; but, the WSR must still be completed and attached to the hazardous waste manifest for landfill tracking. The landfill operator must evaluate WSR's and hazardous waste manifest (if applicable) for accuracy and sign for receipt of material. A copy of the WSR and hazardous waste manifest (if applicable) must be returned to the waste generator within 30 days of receipt of the waste.

2. At least six inches of compacted soil material that contains no asbestos will be placed over the asbestos-containing waste material during the same operating day or within twenty-four hours of disposal. If the asbestos-containing wastes are not buried within 24 hours the County will erect warning signs at all entrances and at intervals of 330 ft or less along the property line of the site or along the perimeter of the sections of the site where asbestos-containing waste material is deposited

3. The County will submit, to the Southwest District Health Department, Division of Environmental Quality, and the regional Environmental Protection Agency, a discrepancy report if any incongruities are discovered with the WSR regarding waste quantities or condition of the waste. The report will be submitted within 15 days for waste volume discrepancies and 1 day for improperly enclosed or uncovered waste.

4. All copies of WSR's will be retained for at least two years and will be available for inspection by regulatory agencies at the site during normal business hours.

5. All records and maps of the location, depth, area, and quantity in cubic yards of asbestos-containing waste material at the site will be maintained until closure of the landfill. These records will be available for inspection by regulatory agencies at the site during normal business hours.

6. All applicable regulatory agencies will be notified at least 45 days prior to excavating or otherwise disturbing any asbestos-containing waste material that has been previously covered. Notification shall include scheduled starting and completion dates, reason for disturbing the waste, procedures to be used to control emissions during excavation, storage, transport, and final disposal.

7. A copy of all records mapping and/or reporting the asbestos waste disposal locations and quantities will be submitted to the regulatory agencies during the certification process of landfill cell closure.

8. Within 60 days of landfill closure, a property deed of the landfill will be filed which contains: statements that land was used for asbestos disposal, statement that all records of asbestos waste disposal locations and quantities were properly filed, and that the site is subject to 40 CFR 61 subpart M (40 CFR 61.140 through 61.157).

Figure 2-4
WASTE SHIPMENT RECORD
(Used Generally for Acceptance of Asbestos Containing Materials)

1. Work site name & address	Owner name	Owner phone
2. Operator name & address		Operator phone
3. Waste Disposal Site (WDS) name, address, and physical site location **CLAY PEAK LANDFILL** **2560 Hwy 52 (PO BOX 777), PAYETTE, IDAHO 83661**		WDS phone **(208) 642-6036**
4. Name and address of responsible agency **Southwest District Health Department, Director of Environmental Health Services, 13307 Miami Lane, Caldwell, Idaho 83606**		
5. Description of materials	6. Containers No. Type	7. Total quantity m^3 (cu yd)
8. Special handling instructions and additional information		
9. OPERATOR'S CERTIFICATION: I hereby declare that the contents of the consignment are fully and accurately described above by proper shipping name and are classified, packaged, marked, and labeled/placarded, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.		
Printed / Typed Name & Title	Signature	Month / Day / Year
10. Transporter 1 (Acknowledgement of receipt of materials)		
Printed / Typed Name & Title	Signature	Month / Day / Year
Mailing Address		Phone
11. Transporter 2 (Acknowledgement of receipt of materials)		
Printed / Typed Name & Title	Signature	Month / Day / Year
Mailing Address		Phone
12. Discrepancy noted between waste described on this manifest and waste actually received.		
13. Waste disposal site owner or operator: Certification of receipt of asbestos containing materials covered by this manifest, except as noted.		
Printed / Typed Name & Title	Signature	Month / Day / Year

Form Revised September 5, 2012

Continuation of Figure 2-4

INSTRUCTIONS FOR COMPLETING WASTE SHIPMENT RECORD

Waste Generator Section (Items 1-9)

1. Enter the name of the facility at which asbestos waste is generated and the address where the facility is located. In the appropriate spaces, also enter the name of the owner of the facility and the owner's phone number.
2. If a demolition or renovation, enter the name and address of the company and authorized agent responsible for performing the asbestos removal. In the appropriate spaces, also enter the phone number of the operator.
3. Enter the name, address, and physical site location of the waste disposal site (WSD) that will be receiving the asbestos materials. In the appropriate spaces, also enter the phone number of the WDS. Enter "on-site" if the waste will be disposed of on the generator's property.
4. Provide the name and address of the local, State, or EPA Regional office responsible for administering the asbestos NESHAP program.
5. Indicate the types of asbestos waste materials generated. If from a demolition or renovation, indicate the amount of asbestos that is:
   - Friable asbestos material
   - Nonfriable asbestos material
6. Enter the number of containers used to transport the asbestos materials listed in Item 5. Also enter one of the following container codes used in transporting each type of asbestos material (specify any other type of container used if not listed below):
   - DM – Metal drums, barrels
   - DP – Plastic drums, barrels
   - BA – 6 mil plastic bags or wrapping
7. Enter the quantities of each type of asbestos material removed in units of cubic meters or cubic yards.
8. Use this space to indicate special transportation, treatment, storage or disposal or Bill of Lading information. If an alternate waste disposal site is designated, note it here. Emergency response telephone numbers or similar information may be included here.
9. The authorized agent of the waste generator must read and then sign and date this certification. The date is the date of receipt by transporter.

NOTE: The waste generator must retain a copy of this form.

Transporter Section (Items 10 & 11)

10. & 11 Enter name, address, and telephone number of each transporter used, if applicable. Print or type the full name and title of the person accepting responsibility and acknowledging receipt of materials as listed on this waste shipment record for transport. Enter date of receipt and signature.

NOTE: The transporter must retain a copy of this form.

Disposal Site Section (Items 12 & 13)

12. The authorized representative of the WDS must note in this space any discrepancy between waste described on this manifest and waste actually received as well as any improperly enclosed or contained waste. Any rejected materials should be listed and destination of those materials provided. A site that converts asbestos-containing waste material to non-asbestos materials is considered a WDS.
13. The signature (by hand) of the authorized WDS agent indicates acceptance and agreement with statements on this manifest except as noted in Item 12. The date is the date of signature and receipt of shipment.

NOTE: The WDS must retain a completed copy of this form. The WDS must also send a completed copy to the operator listed in Item 2.

9. RESTAURANT GREASE TRAP WASTES

The Edible Oil Regulatory Reform Act of 1995 tasked the EPA with establishing classes for animal and vegetable oils and fats. In June 2000, EPA provided a regulatory ruling[6] on the environmental hazards associated with edible oils; whereas EPA reported petroleum oils, animal fats and vegetable oils share common physical and chemical properties and produce similar harmful environmental effects when they are spilled in the environment; however, the new rule removes terms that are related to persistence as they apply to animal fats and vegetable oils.

POLICY OF THE CLAY PEAK LANDFILL

The general policy of Payette County is that restaurant fats, oils, and grease (FOG) will be accepted at the Clay Peak Landfill as an ingredient in the organic compost or landfilled if solidified. The waste is generally delivered by pumper truck as a low viscosity slurry composed of predominantly water and FOG. The Liquid Waste Manifest shown in Figure 2-3 will be used to accept restaurant grease trap wastes from restaurants, schools, and other facilities located in counties having a contract with Payette County.

All restaurant grease trap wastes will be pumped into designated open trenches on the landfill property for dewatering and solidification. Wood chips will be added to the trench before and during pumping to stabilize and absorb the free liquids followed by evaporation to complete the solidification process. Since composting of FOG has been problematic; the landfill will continue with solidifying the restaurant grease trap wastes with wood chips and evaporation and the solidified waste will be disposed of in the landfill cell.

10. DEAD ANIMAL DISPOSAL

Disposal of dead animals is regulated by criteria in the IDAPA 02.04.17 Rules Governing Dead Animal Movement and Disposal developed by the Idaho Department of Agriculture. IDAPA 02.04.17 prescribes movement and disposal requirements for dead animals. Section 030.04 of IDAPA 02.04.17 allows for the disposal of dead animals in approved sanitary landfills.

POLICY OF THE CLAY PEAK LANDFILL

[procedure approved by SWDH on January 15, 2010]

The County has agreed to dispose of dead animals in accordance with disposal criteria stipulated in IDAPA 02.04.17, if the dead animal(s) do not complicate existing landfill disposal efforts or does not place a perceived high level of liability on landfill operations and/or Payette County. For example, dead animals from large commercial animal husbandry operations such as cattle feed-yards, dairies, wild-horse round-ups, and other confined animal feeding operations that may affect landfill capacity or create significant landfill logistical demand on Payette County personnel and equipment may not be accepted. Additionally, dead animals that are known to have died from infectious or contagious diseases or are perceived by the public to compromise biosecurity shall not be accepted without landfill director approval. Infectious and contagious diseases include anthrax, bovine spongiform encephalopathy (BSE or Mad Cow Disease), and other infectious animal diseases. Therefore, 24-hour pre-approval for landfill disposal of dead animals is highly recommended. Dead animals are to be delivered to the site in conformance with the dead animal transportation criteria stipulated in IDAPA 02.04.17.040. Disposal of animals shall be by one of the following methods: 1) Placing the dead animal on the working face of the landfill,

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or 2) Placing the dead animal in a pre-designated burial site. Small animals may be disposed of by either of these two methods, and covered within six (6) hours to control vectors. Larger animals such as cows and horses shall be placed at the toe of the working face or in a pre-designated burial site, and covered within four (4) hours of receipt to ensure vector control.

Special Handling Procedure

The following procedure details the additional management requirements mandated by IDAPA 02.04.17.04 to which the County must comply for the burial of dead animals.

Dead animals shall be buried to such a depth that no part of the dead animal shall be nearer than three (3) feet to the natural surface of the ground. Every part of the dead animal shall be covered with at least three (3) feet of earth. The location of burial site shall be:

a. At least three hundred (300) feet from any wells, surface water intake structures, and public or private drinking water supply lakes or springs.
b. At least three hundred (300) feet from any existing residences.
c. At least fifty (50) feet from property lines.
d. At least one hundred (100) feet from public roadways.
e. At least two hundred (200) feet from any surface water body such as a river, stream, lake, pond, intermittent stream, or sinkhole.
f. Burial sites shall not be located in low-lying areas subject to flooding, or in areas with a high water table where the seasonal high water level may contact the burial pit.

11. FLUORESCENT LIGHTING FIXTURES

Disposal of fluorescent lighting fixtures and other mercury containing equipment may be disposed of as Universal Wastes, Hazardous Wastes, Conditionally Exempt Small Quantity Generator Waste or as Solid Wastes, as stipulated in 40 CFR Part 273 Standards for Universal Waste Management and 40 CFR Part 261, Identification and Listing of Hazardous Wastes. The IDEQ administers the afore-described regulatory requirements with IDAPA 58.01.05. Rules and Standards for Hazardous Waste.

Lamp or light ballasts constructed prior to 1980 contained polychlorinated biphenyls (PCBs) and their disposal if leaking is governed by the Toxic Substances Control Act (TSCA), as stipulated in 40 CFR 761.70. Disposal of non-leaking light ballasts containing PCBs may be recycled as Universal Wastes at EPA approved recycling facilities.

POLICY OF THE CLAY PEAK LANDFILL

Payette County does not accept Hazardous Wastes or TSCA wastes for landfill bury. But the general policy of Payette County is that fluorescent lighting fixtures, high-intensity discharge lamps, other mercury containing equipment, and non-leaking PCB ballasts should be handled as Universal Wastes and appropriately recycled at regulatory approved recycling facilities.

The Clay Peak Landfill may accept household quantities of these wastes for landfill bury if delivered only in household quantities that are exempt from hazardous waste regulations. For example, landfill bury of not more than twelve (12) lamps or three (3) light ballasts may be considered as household quantity which reflects the lamp replacement of a typical 2-car home garage. The lamps and ballasts may be placed onto the face of the landfill for direct landfill bury. However, County Waste Screeners should not break the lamps if they are delivered intact and

avoid physical handling, but cautiously direct the placement of the lamps and ballasts onto the face of the landfill for immediate bury.

IDEQ offers guidance to those who generate and manage waste lamps and ballasts per the following internet site. http://www.deq.idaho.gov/media/532176-lamp_and_ballast_fs_0509.pdf
Generally, lamp and ballast recyclers will provide packaging and pick-up services for spent unbroken lamps and ballasts. Lamp and ballast recycling costs vary because of quantity, location, and fuel surcharges, but costs are approximately $100 for 40 4-foot T-12 lamps, approximately $100 for a 5–gallon pail of non PCB ballasts, and approximately $400 for a 5–gallon pail of PCB ballasts. Potential lamp and ballast recyclers include:

Safety-Kleen Systems
6334 Supply Way
Boise, ID 83716
208.342.8882 or 208.272.0487

Specialty Environmental Services, Inc
110 East 39th Street
Boise, Idaho 83714
208.327.9977

E. Cell Cover Material Requirements

DAILY COVER
Title 39 Chapter 74 Idaho Code requires the County to "provide for daily cover as provided in 40 CFR 258.21". Daily cover as defined by 40 CFR 258.21 is six inches of earthen material covering disposed solid waste at the end of each operating day, or at more frequent intervals if necessary to control disease vectors, fires, odors, blowing litter, and scavenging.

FINAL COVER
See Section 2-V. Closure Plan below for final cover design.

POLICY OF THE CLAY PEAK LANDFILL

The County will apply six inches of earthen material over all disposed solid waste at the end of each operating day. If conditions require, the County will apply earthen material over the disposed waste at more frequent intervals.

F. Disease Vector Control

Title 39 Chapter 74 Idaho Code requires the County to "provide disease vector control as provided in 40 CFR 258.22". A disease vector as defined by 40 CFR 258.22 (b) is "...any rodents, flies, mosquitoes, or other animals, including insects, capable of transmitting disease to humans." All owners or operators of municipal solid waste landfill units must in accordance with 40 CFR 258.22(a) "...prevent or control on-site populations of disease vectors using techniques appropriate for the protection of human health and the environment".

POLICY OF THE CLAY PEAK LANDFILL

Six inches of earthen material will be applied over all disposed solid waste at the end of each operating day to control and prevent birds from being attracted to the area. Clay Peak Landfill is not

within 10000 feet of the nearest airport, located in Payette, Idaho. The Payette Municipal Airport is located approximately 12000 feet from the Clay Peak Landfill.

In 2003, Clay Peak Landfill was issued a Federal Fish and Wildlife depredation permit #MB075517-0 from the U.S. Department of the Interior. The permit allowed the killing with firearms of 100 Ring-billed gulls and 100 California gulls annually. Non-lethal pyrotechnic devices are also authorized as the preferred method to disperse birds. The permit must be renewed annually; however, since Clay Peak Landfill has not needed to use lethal force against intruding birds, the permit has been allowed to expire. If the Landfill does begin to attract birds at some point a depredation permit may be considered again. Firearms must be prudently handled at the landfill and the direct authorization of the landfill director is required before firearms may be loaded or discharged.

If any depredation permits are applied for and obtained the landfill director will maintain records as required by 50 CFR 13.46 and 50 CFR 21.41 and will be responsible for permit renewals and federal reporting.

G. Explosive Gas Control

Idaho Code Title 39 Chapter 74 requires that landfill "implement a program of routine methane monitoring and control as provide in 40 CFR 258.23." 40 CFR 258.23 requires that levels of methane gas generated by the facility do not exceed 25 percent of the lower explosive limit for methane in facility structures and the lower explosive limit at the facility property boundary.

POLICY OF THE CLAY PEAK LANDFILL

Consideration of those factors listed in 40 CFR 258.23(b)(1) which are discussed in detail in the design 1993 Design Report and the 2001 Design Report, indicate that quarterly monitoring of methane in facility structures and at the property boundary is sufficient to alert the landfill operator of a potential methane gas hazard.

Special Operation Criteria

Methane monitoring will be conducted quarterly in compliance with 40 CFR 258.23 (a) and the results will be entered into the operating record using the form presented in Figure 2-5. Hand-held methane monitors are used at the locations tested that include:

- Office restroom, electrical conduit
- Office crawl space
- Scale house crawl space
- Inbound scale crawl space
- Outbound scale crawl space
- Resident 1, crawl space
- Resident 2, crawl space
- Road to cell #2
- Landing at Cell #2
- Telephone relay room at the maintenance building
- Methane vent pipes
- Area around monitoring CP wells 2 -14

All readings shall be recorded, with location of each reading, and the record shall be dated, signed by the person performing the tests and placed in the permanent record of the facility. Figure 2-5 will be used to record methane monitoring results.

In the event that any reading greater than the applicable limit as established by 40 CFR 258.23 (a) (25% of the lower explosive limit) is found in an enclosed building, the enclosure shall be purged of its enclosed air with a fan or portable blower (placed outside the enclosure, with a duct or tube to convey air into the enclosure), then closed and retested at intervals of 24, 48 and 72 hours after closure. In the event that retesting shows presence of methane, further tests shall be conducted at a frequency to be determined from circumstances of the location in order to supply data for determination of the required remedial measures. If a concentration greater than 50% (regulatory requirement is 100% LEL) of the lower explosive limit is found during perimeter monitoring, further tests shall be made as circumstances warrant to define the needed remediation measures. See the *METHANE GAS MONITORING* section of this manual for additional gas monitoring discussion.

Clay Peak Landfill is complying with IDEQ guidance by installing a system of perforated horizontal PVC pipes in the landfill cells to collect methane (CH_4) gas. The pipes are laid in a gas collection system ≈ 3 ft x 3 ft gravel collection trench with fabric cover. The pipes are brought to the surface on the periphery of the landfill cells. Pipes with low methane readings are vented to the atmosphere. Most pipes, particularly those with moderate to high methane readings, are connected to a manifold leading to a flare. There are seven gas flares installed around the closed landfill cell #1, and as of April 2014 there are eight gas vents in the northern sector of landfill cell #2.

Figure 2-5
CLAY PEAK LANDFILL GAS MONITORING FORM

Date of Monitoring: _____ Test Performed By: _____

Barometric Pressure: _____ rising / steady / falling local barometric pressures found at : http://www.localconditions.com/weather-payette-idaho/83661/past.php or from the Ontario Airport: https://airportview.net/wx/awos-detail.php?sid=KONO

Location [a]	Readings						
	Instrument [b]	Time	CH_4 or LEL [c] (%)	CO [d] (ppm)	O_2 [e] (%)	H_2S [f] (ppm)	Comments
area of CP-2	Orange MX4		% LEL				
area of CP-3	Orange MX4		% LEL				
area of CP-4	Orange MX4		% LEL				
area of CP-5	Orange MX4		% LEL				
area of CP-6	Orange MX4		% LEL				
area of CP-7	Orange MX4		% LEL				
area of CP-8	Orange MX4		% LEL				
area of CP-9	Orange MX4		% LEL				
area of CP-10	Orange MX4		% LEL				
area of CP-11	Orange MX4		% LEL				
area of CP-12	Orange MX4		% LEL				
area of CP-13	Orange MX4		% LEL				
area of CP-14	Orange MX4		% LEL				
Office Restroom Elect Conduit	Orange MX4		% LEL				
Office Restroom Elect Conduit	Beacon 200 wall unit		% LEL				
Office Crawl Space	Orange MX4		% LEL				
Scale House Crawl Space	Orange MX4		% LEL				
Scale House Crawl Space	Beacon 200 wall unit		% LEL				
Inbound Scale Crawl Space	Orange MX4		% LEL				
Outbound Scale Crawl Space	Orange MX4		% LEL				
Resident 1 Crawl Space	Orange MX4		% LEL				
Resident 2 Crawl Space	Orange MX4		% LEL				
Road to Cell 2	Orange MX4		% LEL				
Landing at Cell 2	Orange MX4		% LEL				
Telephone Relay Room at Shop	Orange MX4		% LEL				
Cell 1 – F-1 gas flare	No Readings		Emissions Observed:				
Cell 1 – F-2 gas flare	No Readings		Emissions Observed:				
Cell 1 – F-3 gas flare	No Readings		Emissions Observed:				
Cell 1 – F-4 gas flare	No Readings		Emissions Observed:				
Cell 1 – F-5 gas flare	No Readings		Emissions Observed:				
Cell 1 – F-6 gas flare	No Readings		Emissions Observed:				
Cell 1 – F-7 gas flare	No Readings		Emissions Observed:				

Continuation of Figure 2-5

CLAY PEAK LANDFILL GAS MONITORING FORM

Date of Monitoring: _____ Test Performed By: _____

Barometric Pressure: _____ rising / steady / falling local barometric pressures found at : http://www.localconditions.com/weather-payette-idaho/83661/past.php or from the Ontario Airport: https://airportview.net/wx/awos-detail.php?sid=KONO

Location	**Instrument**	**READING**					
		east / west (**%** CH_4)	east / west (**%** CH_4)	east / west (% CH_4)	east / west (% CH_4)	east / west (% CH_4)	
Cell 2– V2	Black MSA	/	/	/	/	/	
Cell 2– V3	Black MSA	/	/	/	/	/	
Cell 2 – V4	Black MSA	/	/	/	/	/	
Cell 2 – V5	Black MSA	/	/	/	/	/	
Cell 2 – V6	Black MSA	/	/	/	/	/	
Cell 2– V7	Black MSA	/	/	/	/	/	
Cell 2 – V8	Black MSA	/	/	/	/	/	
Cell 2– V	Black MSA	/	/	/	/	/	
Cell 2– V	Black MSA	/	/	/	/	/	
Cell 2 – V	Black MSA	/	/	/	/	/	
Cell 2 – V	Black MSA	/	/	/	/	/	
Cell 2 – V	Black MSA	/	/	/	/	/	
Cell 2– V	Black MSA	/	/	/	/	/	
Cell 2 – V	Black MSA	/	/	/	/	/	
Cell 2 – V	Black MSA	/	/	/	/	/	
Cell 2 – V	Black MSA	/	/	/	/	/	
Cell 2 – V	Black MSA	/	/	/	/	/	
Cell 2 – V	Black MSA	/	/	/	/	/	
Cell 2 – V	Black MSA	/	/	/	/	/	
Cell 2 – V	Black MSA	/	/	/	/	/	
Cell 2 – V	Black MSA	/	/	/	/	/	
Cell 2 – V	Black MSA	/	/	/	/	/	

NOTES FOR FIGURE 2-5, CLAY PEAK LANDFILL GAS MONITORING FORM

Note a:

- CP 2 – CP-14: Groundwater monitoring wells No 2 through No. 14, located within 200 feet of the landfill cell #1 perimeter.
- Cell 1 – F-1 - F-7: Gas Flares 1 through 7 installed around perimeter of Landfill Cell No. 1 Permitted as : F-1 = NW FLR 1.2, F-2 = NW FLR 1.1; F-3 = NE FLR 1.1; F-4 = NE FLR 1.2; F-5 = SE Flare 1.1; F-5 = SW Flare 1.1; and F-7 = SE Flare 1.2
- Cell 2 – V1 Level 1 - V6 Level 1: gas vents 1 through 6 installed in first level of Landfill Cell No. 2
- Cell 2 – V7 Level 2 - V8 Level 2: gas vents 7 through 8 installed in second level of Landfill Cell No. 2

Note b:

- Black colored MSA Altair 5X gas detector is used for environmental compliance per Landfill O&M Manual requirements. The black MSA Altair 5X measures methane (CH_4) as percent by volume, oxygen (O_2) as percent by volume, hydrogen sulfide (H_2S) in parts per million (ppm), and carbon monoxide (CO) in ppm. Calibration gas specified by the manufacturer for this instrument has the following specifications: Manufacturer is replacing the calibration gas with a high methane concentration by volume that has not been determined. These directions shall be revised when manufacturer provides new calibration gas. The new calibration gas must only be used on the MSA Altair 5X gas detector because this calibration gas will 'burn out' the sensor on the Ventis MX4 gas detector. Calibration gas for the MSA Altair 5X contains: Methane = 2.5% by volume, O_2 = 15% by volume, H_2S = 20 ppm, and CO = 60 ppm. Note the MSA Altair 5X is normally equipped with a combustible gas sensor that reads percent Lower Explosive Limit (% LEL); however, this MSA Altair 5X was custom built whereas the combustible gas sensor was replaced with a methane gas sensor. Therefore, methane gas readings equal to or greater than 5% methane by volume indicate potential explosive conditions and requires landfill staff response and possible regulatory notification. Regulatory notification shall be made by the Landfill Director or designee and includes contacting Southwest District Health Department, attn: David Loper, at 208-455-5200.
- Orange colored Ventis MX4 instrument gas detector is used for worker safety compliance per Occupational Safety and Health (OSHA) standards. The orange Ventis MX4 instrument measures % LEL, O_2 as percent by volume, H_2S in ppm, and CO in ppm. Calibration gas specified by the manufacturer for this instrument has the following specifications: 50 % LEL (methane = 2.5% by volume), O_2 = 19% by volume, H_2S = 25 ppm, CO = 100 ppm. Alarms will be energized when LEL exceeds 50%, which is 2.5% methane. If the MX4 gas detector alarm is energized, the MSA Altair 5X should be used to confirm landfill gas concentrations. DO NOT USE the Orange MX4 instrument in areas designed for the Black MSA because the Orange MX4 gas sensor will immediately fail and require replacement when LEL readings exceed 50% (or exceed 2½ % Methane).
- Beacon 200 is a wall-mounted, continuous-monitoring gas detection instrument located in the restroom wall in the administrative office. The Beacon 200 has two sensors. Sensor 1 monitors the air contaminants ≈12 inches below the Beacon 200 wall unit inside the office restroom. Sensor 2 monitors the air contaminants beneath the scale house or crawl space. LEL readings exceeding 9% (or 0.5 % methane by volume) energizes an exhaust fan installed to ventilate the crawl space. The Beacon 200 wall unit is calibrated using the same gas as used for the orange Ventis MX4: 50 % LEL (methane = 2.5% by volume), O_2 = 19% by volume, H_2S = 25 ppm, and CO = 100 ppm.

Note c:

This reading is either Methane (CH_4) or Lower Explosive Limit (LEL), based on instrument calibration. The black Altair 5X measures CH_4 as percent by volume and the orange Ventis MX4 and Beacon 200 measure percent LEL. Note the LEL for methane is five (5) percent or 50,000 ppm by volume and the upper explosive limit (UEL) for methane is fifteen (15) percent or 150,000 ppm by volume. However, the LEL values reported on the chart above need adjusted to the calibration gas utilized (i.e., 50 % LEL = 2.5% CH_4 by volume.

Note d:

Carbon Monoxide (CO): The maximum exposure allowed by the Occupational Safety and Health Administration (OSHA) in the workplace over an eight hour period is 35 ppm. A CO concentration of 12,000 to 13,000 ppm is deadly after 1-3 minutes. A CO concentration of 1600 ppm is deadly after one hour.

Note e:

Oxygen (0_2): An oxygen deficient environment is defined by OSHA as one that has less than nineteen and one-half (19.5) percent oxygen by volume. Ambient air contains approximately twenty-one (21) percent oxygen by volume.

Note f:

Hydrogen Sulfide (H_2S): The LEL for H_2S is 4.3 percent by volume or 43,000 ppm and the UEL for H_2S is forty-five (45) percent by volume or 450,000 ppm. The OSHA permissible exposure limit (PEL) for H_2S is 20 ppm. NIOSH Immediately Dangerous To Life or Health Concentration (IDLH) is 100 ppm.

Immediately Report to Landfill Supervisor or Landfill Foreman if

- CH_4 readings exceeding 2 ½ percent by volume
- LEL readings exceed 10% (calibrated to 2 ½ percent CH_4 by volume)
- CO values exceed 35 ppm.
- Oxygen values are less than 20 percent.
- Hydrogen Sulfide concentrations exceed 19 ppm.

NORCO Incorporated sold gas detection instruments to Payette County.
David Malmberg, Sales Representative,
400 SE 10th Street, Ontario, Oregon 97914
208.880.1760 (cell) email: davidm@norco-inc.com

H. Fire Control

Fire control at the facility will be accomplished using landfill equipment to smother the fire with soil, followed by support from the landfill's water truck. Water hoses and fire extinguishers are available in buildings at marked locations. Fire extinguishers are located in fixed holders on heavy equipment and most light duty vehicles. The facility water system is supplied by an onsite well capable of supplying water at rate of 25 gpm and the system will have a 20,000 gallon holding tank which will partially gravity feed to discharge with pumper tank loading capability. The holding tank will maintain a 10,000 gallon reserve (50% of the tank) at all times for use in fire control. Back up is available from Payette Rural Fire District.

Landfill personnel will till soil strips on the hillside along the landfill property perimeter. These de-vegetated strips will serve as fire breaks to disrupt the spread of wild fires.

I. Air Criteria

Title 39 Chapter 74 Idaho Code requires a landfill facility to "ensure that MSWLF units do not violate any ambient air quality standard or emission standard from any emission of landfill gases, combustion or any other emission associated with a MSWLF unit as defined in 40 CFR 258.24". This section explicitly prohibits the open burning of municipal solid waste. Exceptions to this prohibition are "...for the infrequent burning of agricultural wastes, silvicultural wastes, landclearing debris, diseased trees, or debris from emergency cleanup operations...".

Other applicable compliance issues include: 1) control of airborne particulates, 2) VOC and HAPS control and 3) nuisance odor mitigation.

POLICY OF THE CLAY PEAK LANDFILL

Municipal solid waste will not be burned as a routine operating practice at the landfill. Accidental ignition of the municipal solid waste by way of a hot burn barrel, lightning strike, or other unintentional means will be extinguished as quickly as possible. Initially the County will exercise the latitude allowed by the law to control burn those specific waste streams listed above. Any exempted wastes, which are commingled, with municipal solid waste will not be burned and will be disposed of in entirety in the landfill. As the County solid waste management system evolves the burning of the exempt wastes will be phased out as composting procedures and facilities are developed.

Despite the Landfill's arid setting, fine grained cover material, surface water run-on/run-off control measures and large potential evapotranspiration, there is potential for generating methane (CH_4) gas from within the landfill cells. Therefore, a well-conceived and methodically implemented methane control strategy is part of the Landfill management plan. A system of poly vinyl chloride (PVC) piping manifolds and headers are routinely installed within the landfill cells under the guidance of consulting registered professional engineers. These PVC pipes deliver the methane to atmospheric vents when CH_4 concentrations are low, but flares are installed for combustion when high CH_4 concentrations are noted. Payette County received Permits to Construct (IDAPA 58.01.01, Sec. 203 & 205) from Idaho DEQ prior to expansion of the methane control systems and flares. The most recent Permit to Construct #P-2008.0078 issued by IDEQ is dated December 16, 2008 and is presented in Appendix B. Emanation of methane and non-methane VOCs from the landfill is not expected to affect the ambient air quality of the site, but could trigger provisions of the Federal Clean Air Act, specifically 40 CFR 60, Subpart WWW, (>50Mg/year regulatory trigger for non-methane VOCs) or NESHAP Subpart AAAA – National Emission Standards for Municipal Solid Waste Landfills.

Seven gas flares have been installed and are operating for landfill cell #1 and as of June 2014 there are eight gas vents with no gas flares serving landfill cell #2. Additional gas vents and gas flares will be added to landfill cell #2 according to the above-described methane control strategy when determined necessary.

J. Access Control

Title 39 Chapter 74 Idaho Code requires access to be controlled as defined in 40 CFR 258.25. This section requires that "owners or operators of all MSWLF units must control public access and prevent unauthorized vehicular traffic and illegal dumping of wastes by using artificial barriers, natural barriers, or both, as appropriate to protect human health and the environment".

POLICY OF THE CLAY PEAK LANDFILL

The portion of the County road, which transects BLM property, is fenced within the road right-of-way to control egress from the Motorcycle Park (located on the BLM property) onto the County road. At the confluence of the county road and State Highway 52, signs are posted with operating hours of the facility. A lockable gate is located at this juncture.

Perimeter access to the landfill site is controlled by a four-strand wire fence that encircles the entire footprint of the landfill site including all monitoring wells and the easterly access road to the landfill unit processes. The landfill facility or compound is enclosed within a 6 foot high chain link fence with lockable access gate that controls traffic to the weigh station, office, maintenance yard, and individual landfill unit processes or facilities. The maintenance yard is further secured with a chain link fence to restrict free access to the equipment maintenance shop, vehicle storage shed, and temporary hazardous material storage area during business hours. A four foot tall residential type chainlink fence with rolling access gate surrounds the caretaker residence.

The compound access gate located at the entrance booth or weigh station is locked when the landfill site is closed.

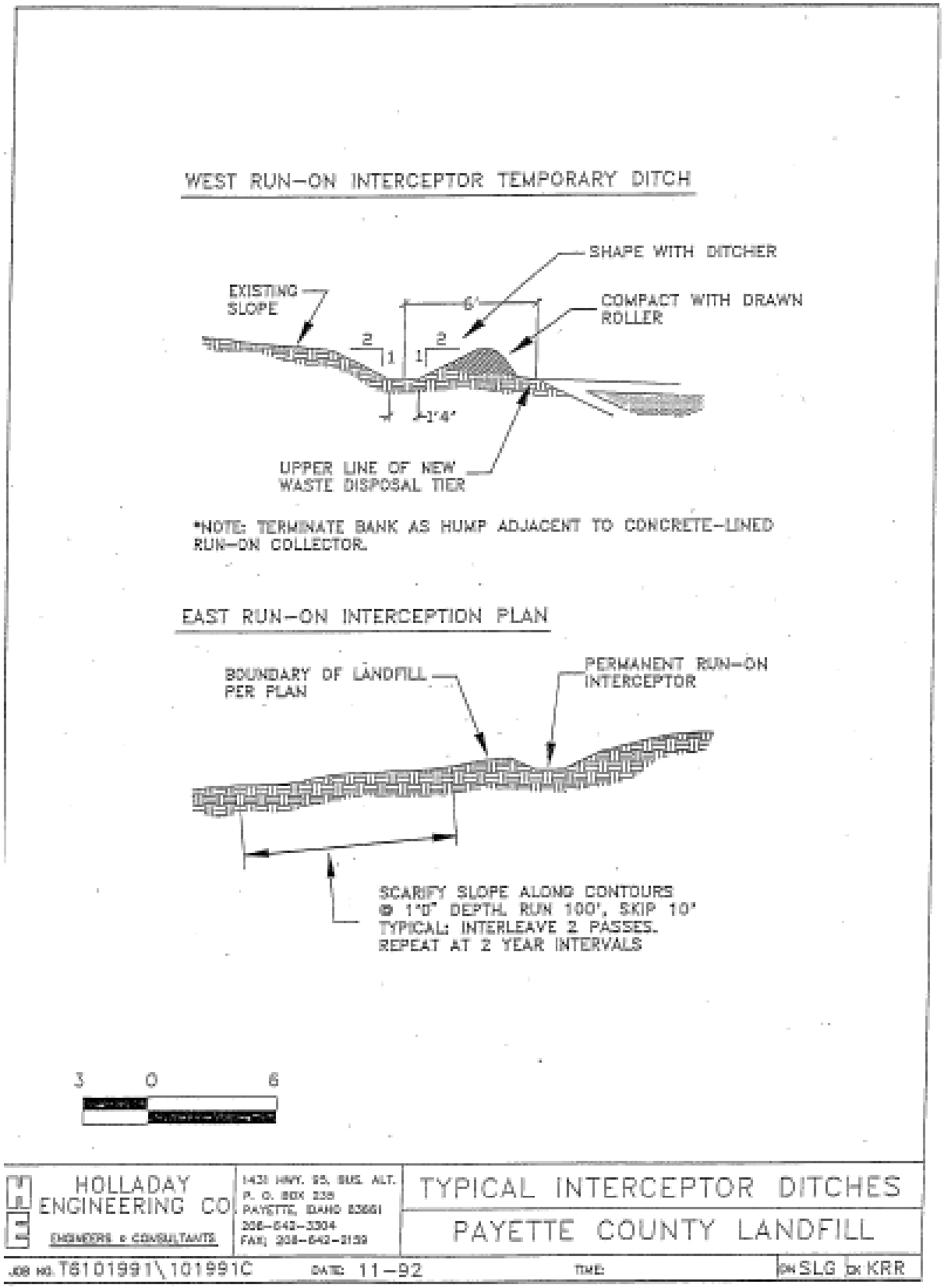
K. Run-On Control

Idaho Code Title 39 Chapter 74 Section 12(7)(a) (Idaho Code 39-7412(7)(a)) requires a landfill facility to construct and maintain adequate control structures to "prevent all the run-on of surface waters and other liquids resulting from a maximum flow of a twenty-five (25) year, one (1) hour storm, or snowmelt, whichever is greater, into the active portion of the MSWLF unit".

POLICY OF THE CLAY PEAK LANDFILL

Run-on interceptor ditches at the boundary of the landfill cell are the primary surface water control measures. Cell #1 has been constructed and closed. Cell #2 is being constructed and the typical run-on control measures are shown in Figures 2-6. Water collected by the run-on interceptor ditches will be routed back to the valley drainage below or south of the active landfill cell area. If undisturbed areas remain after cell construction within the perimeter established by these ditches, runoff from existing native surfaces to the active area are prevented by tillage of the native soil surface (ripping and furrowing along the surface contours). The tillage will increase the infiltration rate of the native soil surface enough to prevent runoff events. The gravel outcrop in the drainage below the landfill is covered with two (2) feet of compacted fine-grained soil in order to minimize the chance of surface water infiltration into the monitoring horizon.

Figure 2-6
TYPICAL RUN-ON INTERCEPTORS



L. Run-Off Control

Idaho Code Title 39 Chapter 74 Section 12(7)(b) (Idaho Code 39-7412(7)(b)) requires a landfill facility to "control the collection of the run-off of surface waters and other liquids resulting from a twenty-four (24) hour, twenty-five (25) year storm, or snowmelt, whichever is greater, from the active portion and the closed portions of a MSWLF unit;". Also section IC 39-74.12(7)(c) requires a landfill owner to "prevent the discharge of pollutants into waters of the United States and the State of Idaho..." from surface water run-off from the active portion of a MSWLF unit. Currently, EPA has not delegated NPDES implementation authority to the State of Idaho.

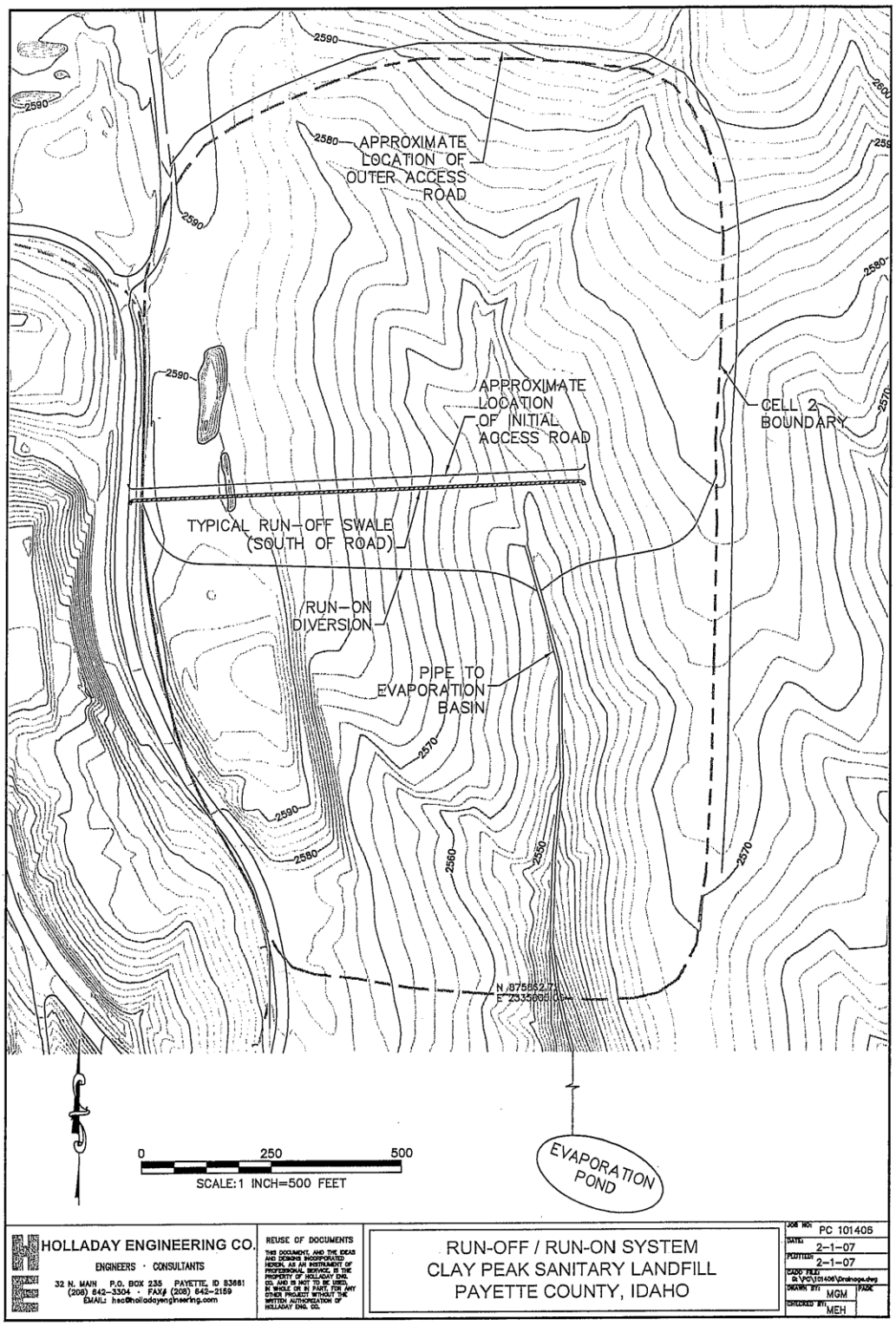
On December 1, 2004, discussions were held with Ms. Misha Vakoc of the EPA Region 10 NPDES office. According to Ms. Vakoc, “if a facility does not discharge storm water to a municipal separate storm sewer system (MS4) or to a water of the United States, then that facility does not need an NPDES storm water discharge permit.” It was determined that Clay Peak Landfill is not required to obtain a permit under Storm Water Discharges from Construction Activities (Phase I or II) or a Storm Water Pollution Prevention Plan because it does not discharge storm water to a water of the United States.

POLICY OF THE CLAY PEAK LANDFILL

The current design of Clay Peak Landfill insures that all run-off water from the active portion of the MSWLF unit is diverted to an evaporation pond located south of Cell #1 and Cell #2. No potentially polluted run-off water is introduced into the waters of the United States or the State of Idaho. Therefore, no separate NPDES or Storm Water Pollution Prevention Plan has been filed with the Idaho DEQ. Since the planned strategy for controlling the buildup of moisture in the contents of the landfill prior to placement of the final cover is to maximize runoff and evaporation of rain and snowmelt water and to minimize the likelihood that appreciable volumes of infiltrated water will penetrate the landfill contents to depths beyond the reach of the subsequent arid summer's drying effects. These controls will be done consistent with timely, safe and efficient operation of the landfill.

Within the working area, slopes of temporary covers are to be maintained at 1% base slopes, which will reduce puddle formation and promote run-off from the working area (rather than infiltration) during intense precipitation or snow melting events. Run-off from the working area is to be caught by temporary run-off collection ditches built in native soil along the south side of the working area at each operating segment boundary (only one run-off collector is to be in existence at any given time). Permanent run-off collection ditches on the east and west sides of the North-South running cells will convey the run-off from the landfill cells. Run-off will flow along the natural slope of the property and towards the south, thus matching the natural flow of the topography. A maximum run-off flow of 6.03 cfs is predicted for the active landfill area for a 25-year storm for a precipitation zone A per Idaho Department of Transportation intensity-duration-frequency chart system, concentration time 20 min., approximately 8 acres surface area, run-off coefficient 0.75. Run-off flows are directed to a water evaporation basin located south of the closed landfill cell #1. Note that landfill operators have never observed standing water in the evaporation basin following any storm event. Water retained from drainage of the active area of the landfill will not be allowed to flow into the waters of the State of Idaho. The evaporation basin is sized to contain the maximum runoff of a 25-year, 24-hour storm, plus the probable maximum annual runoff (based on a 5-year HELP model simulation) of the projected maximum working area of the landfill, plus a 50% allowance for carryover, with a design net evaporation rate of three feet per year. Surface area is sized to provide annual evaporation of 120% of the average annual runoff (based on the maximum projected landfill working face area of 8 acres). Figure 2-7 illustrates the approximate location of the Cell #2 boundary, typical run off swale, run-on diversion, outer access road, and piping to the evaporative stormwater containment pond.

Figure 2-7
RUN-ON AND RUN-OFF CONTROL SYSTEM FOR CELL #2



M. Record Keeping Requirements

Title 39 Chapter 74 Idaho Code requires a landfill facility to establish "recordkeeping procedures as provided in 40 CFR 258.29". This section requires that a landfill facility record and retain operating records at the facility or at an approved alternate location.

POLICY OF THE CLAY PEAK LANDFILL

The County shall maintain this manual as part of the operating record in compliance with 40 CFR 258.29. All references to the Clay Peak Landfill Operating Record will be in reference to the files and completed forms retained at the Clay Peak Landfill, but regulatory correspondence(s) with county commissioners shall be retained at the Payette County Clerk's office, located at the Payette County Courthouse, 1130 3rd Avenue North, Payette, Idaho 83661.

The County will keep on file, as a part of the operating record, its employee training procedures for the recognition of regulated hazardous waste and PCB wastes. The County will also compile and retain all waste inspection/screening forms completed during random and routine incoming waste inspections in the operating record. If any wastes or waste shipment is found unacceptable for landfill acceptance, the Landfill Director or Foreman will be immediately notified by the waste screener or inspector to determine subsequent actions that may include waste removal by landfill personnel, and/or waste removal by an independent subcontractor, and/or regulatory reporting. Wastes that are not acceptable for landfill acceptance include hazardous wastes exceeding household quantities and hazardous substances such as PCB contaminated materials.

The County will maintain copies of all the gas monitoring findings, demonstrations, certifications, and testing at the landfill facility as part of the operating record. If the gas monitoring reveals concentrations above acceptable levels a remediation plan will be formulated and entered into the operating record. Refer to Section 2.IV.A. METHANE GAS MONITORING and Figure 2-5 for specific landfill gas monitoring and recordkeeping requirements.

The closure and post-closure plans required to be in an operating record are presented in Section V. CLOSURE PLAN and Section VI. POST-CLOSURE PLAN below. Prior to beginning closure of a landfill cell, the County will enter a *notice of intent to close* into the operating record. Any monitoring, testing, analytical data, or certification associated with closure or post-closure will be compiled in the operating records retained at the landfill site.

The County will enter into the operating record a copy of the property deed to the landfill facility with a notation indicating that the land has been used as a landfill facility and is restricted under 40 CFR 258.61.

N. Hours of Operation

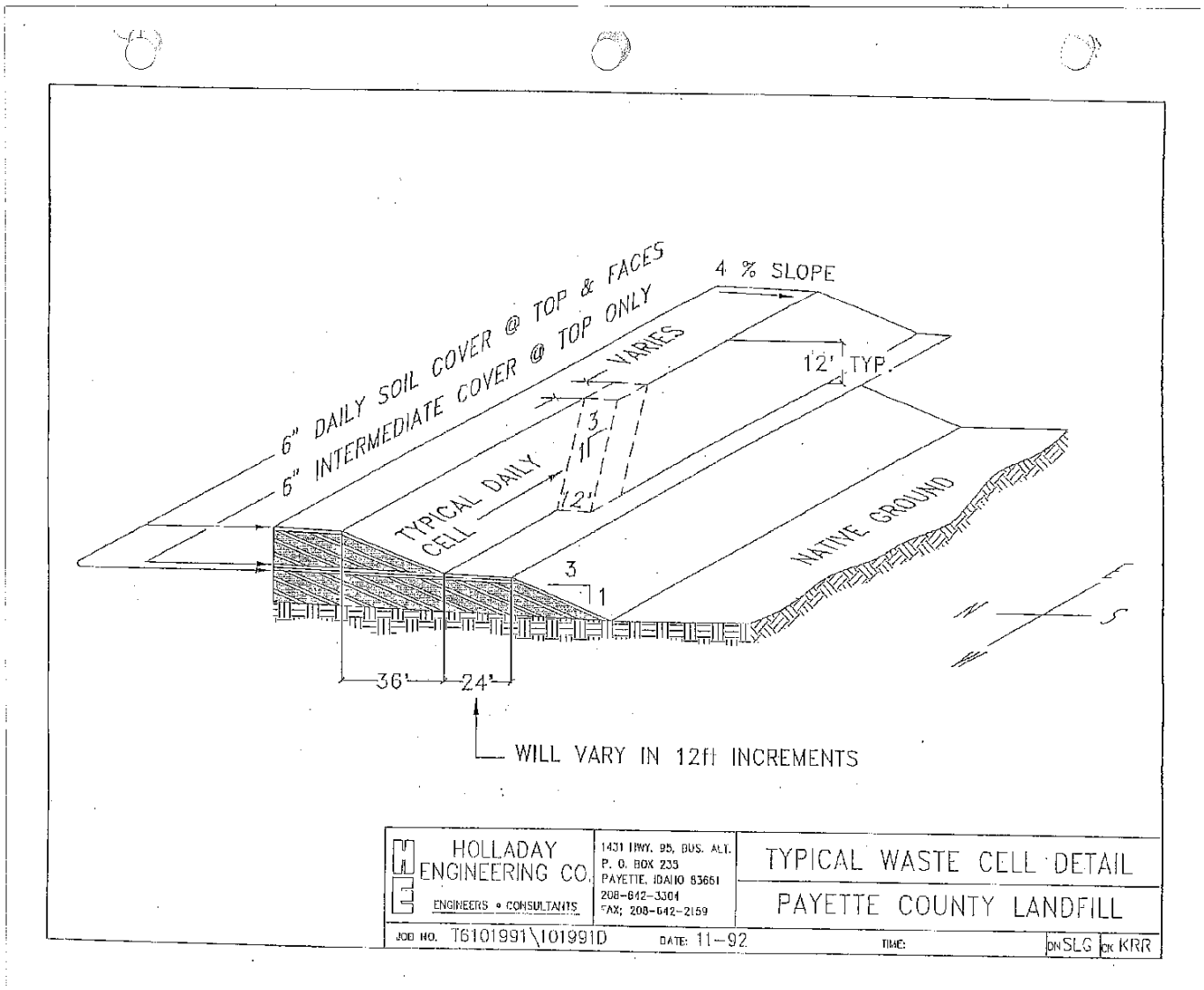
The Clay Peak Landfill facility will be open to accept municipal and non-municipal solid waste on Monday through Saturday from 8:00 A.M. to 5:00 P.M. The facility will be closed on Sundays and the observance day for the following holidays: New Year's Day, Martin Luther King Jr. Birthday, Presidents Day, Memorial Day, Fourth of July, Labor Day, Columbus Day, Veterans Day, Thanksgiving Day and Christmas Day.

III. OPERATIONAL PROCEDURE

A. Cell Design

The waste received each day for landfill burial will be placed in a waste cell, compacted in lifts not greater than two feet, and covered with a six-inch layer of fine-grained soil at the end of the day. Compaction will consist of approximately five compactor passes up per waste lift. Landfill cells will be completed in tiers, as shown in the Typical Waste Cell Detail, presented in Figure 2-8 with each tier consisting of several parallel rows of cells. Usually, the cells on each row will be built consecutively. Row width and cell depth will be kept to uniform dimensions, and the specific dimensions used will be selected to optimize the use of the particular compacting equipment acquired for operation of the landfill. Based on landfill experience, row width is typically not less than twelve feet. Cell depth will be dependent to some extent on the average volume of waste received daily, and may be adjusted during operation.

Figure 2-8
TYPICAL WASTE CELL DETAIL



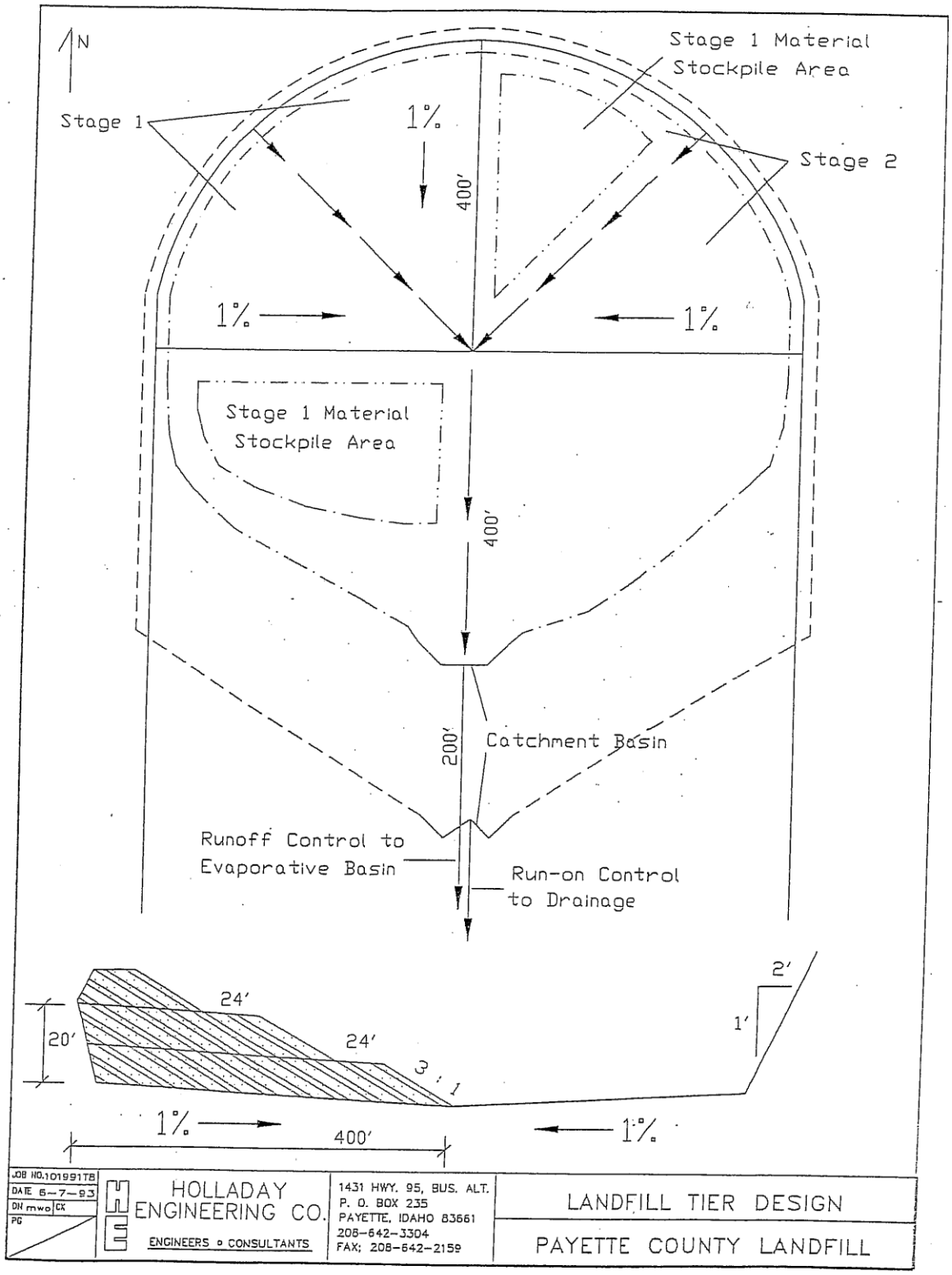
B. Tier Design

Two tier designs will be used during landfill cell construction. One design method will be used in the extreme northern section of the landfill cell while the other method will be used over the remaining sections of the landfill cell. To insure adequate surface drainage and slope stability both methods will have the same base cut requirements. These requirements are a one percent base slope oriented towards the drainage conduit and 3:1 sidewall slopes. All tier cuts will be surveyed.

Due to the shallow topography of the northern section of the landfill, only one tier will be constructed. This tier will have the required base cut and be at a maximum depth of approximately twenty feet at the toe of slope. The tier shape will be a semi-circle fitted into the tip of the landfill as shown on Figure 2-9 Landfill Tier Design Detail.

The tier design for the balance of the landfill consists of several smaller cuts. These tiers will be cut into the western and eastern slopes on successive twelve foot contour lines. The east to west width of tier will be dictated primarily by the natural topography of the landfill interior. In places of gentle slopes the width of a tier can be very wide. In steeper sloped topography the tier width will be reduced. Once the tier width is established an appropriate tier length (north to south) can be determined. The length will be that distance which in combination with the specific tier width will create a volume sufficient to hold a minimum of eight weeks of waste placement. A tier length will remain relatively constant for successive tiers following twelve contour lines up the slope.

Figure 2-9
TYPICAL LANDFILL TIER DESIGN



C. Drainage Systems

The run-off drainage system will consist of temporary collectors, runoff collection ditches, and the water evaporation basin. The temporary run-off collectors will be built at the southern edge of each operating segment at the time of opening of the segment. These collectors will transport the run-off to the temporary runoff collection ditches that will carry the run-off to the evaporation basin, located south of landfill cell #1.

D. Site Preparation & Waste Placement Procedure

Waste placement and excavation cut removal will follow three basic methodologies. The methodology used will depend primarily on the location and the season of the waste placement or burial.

The initial waste placement/burial will begin in the northern portion of the landfill cell. Before any waste will be placed, the required base cut will be made. Material from this cut will be used as the daily cover material. This initial cut will take the an approximate shape of a quarter-circle fitted into the northwest tip of the landfill as shown on the Landfill Tier Design shown in Figure 2-9. The entire quarter section will be constructed and opened at one time. The cut material from this section will be stockpiled on the western slope south of the cut and on the northeastern slope adjacent to the cut. The placement of waste will begin on the western front edge of the initial cut. The slopes of the waste facing south and east will be at 3:1. The western face of the waste will be adjacent to the landfill sidewall. Waste placement will follow the landfill sidewall in a circular manner until the active face reaches the eastern most edge of the initial cut. At the eastern edge of the cut a new row of waste will be started. This row will proceed in the same circular manner as the first row to the western front edge. This method of waste depositing, compaction and daily covering will continue until the entire wedge has been filled. The second quarter section will now be cut following the same dimensions as the first cut. This wedge will be filled with waste in the same manner as the first wedge.

The placement of waste from this point will be accomplished in a slightly different manner. After the initial layer of waste is placed on the native ground it is possible to begin waste placement directly on top of this layer. To provide access to the second and subsequent layers ramps will be necessary. These ramps will not exceed eight percent grades and will be placed in the final row of a layer. This will allow waste depositors to have direct access to the active face. The first row of the second layer will be placed along the western sidewall. A portion of the second layer will be above grade, which will require a 3:1 outer slope. The waste face will move from the north to the south. The termination of a row will be twenty four feet from the southern front edge of the waste. The second row will start twenty four feet from the southern front edge and move to the north. Waste placement will continue in this manner until adequate access area no longer exists. At this point the first quarter circle in the eastern slope will be cut. Waste placement will proceed into this new cut and along the second layer as access area permits. As the waste placement continues on the first and second layers it will be possible to start depositing waste on a third layer. The above grade layers will maintain outer slopes at 3:1 and a one percent, top surface slope oriented toward the run-off collection system. This layering method will be followed until maximum design height is obtained. Once the maximum height is obtained six feet of final cover soil will be placed to begin closing the back of the landfill. This cap should proceed at a rate which will ensure that less than eight acres of open landfill is ever exposed.

As the back circular portion of the landfill is filled with waste it will be necessary to begin cut removal at the leading southern edge of the waste. It may be necessary to cut these tiers earlier to provide cover material for the waste placement in northern landfill section. The tier cutting will follow the general base tier slope requirements described above. The western slope will be filled and then the eastern slope will be filled. The tiers in the slopes will roughly follow the natural twelve-foot contour lines of the topography. The amount of cut to be removed at one time should be sufficient so as to allow for eight weeks of waste placement. The cut material will be used for the daily cover and can be store on the opposite slope. The southern extent of the tier cut should be sufficient so as to allow no more than 200 feet between the southern edges of the operating sections. The tiers will be filled from the higher edges on the north side to the lower edges on the south side. The actual waste placement in the tiers will be from west to east in the manner described above. Once the western slope is filled with waste to a maximum workable height new tier cuts can be made in the eastern slope. The extension of the waste face to the east will allow for a greater height of the waste on the western slope. As the waste placement proceeds up the eastern slope a maximum height for the tier width will be reached due to the required 3:1 slope at the termination of each waste layer. At this maximum height the landfill will have an open unfilled section in the southeastern corner. To facilitate the most rapid filling of this section the same procedure will be followed only waste placement will begin on the eastern slope and proceeding up the western slope.

All waste placement methodologies have the goals of minimizing open landfill area and facilitating the most rapid advance of the landfill cap. When possible the placement of waste will be in a manner so that the waste itself will act as a barrier to wind. In some circumstances this will not be possible so movable or temporary wind fences or barriers will be used to minimize the wind transport of trash or litter.

IV. MONITORING REQUIREMENTS

A. Methane Gas Monitoring

Methane vapor monitoring will be performed quarterly along the perimeter of the closed landfill cell, along the perimeter of the active landfill cell, and within the facility structures throughout the active life of the landfill. Gas monitoring will continue thereafter on an annual basis on the perimeter of all closed cells. See Figure 2-5 for the methane monitoring, recording, and reporting form. Monitoring frequency may be increased as necessary for maintaining safety when or where conditions warrant. A questionable condition at any location should be spot checked promptly regardless of monitoring schedule. The elements of gas monitoring are as follows:

1. SAMPLING EQUIPMENT

Hand-held, battery-powered gas detectors, fitted with an aspirator and several feet of tubing for accessing wells and confined spaces, are employed for gas monitoring. The gas detectors have audio and/or visual self-diagnostics for verification of proper field functioning. Calibration of the gas detectors are performed in accordance with manufacturer recommendations prior to instrument use by employing gas reference standards as reported on Figure 2-5 for the measurement of gas concentrations in parts per million air (ppm), percent oxygen (%O_2), percent volume air (%VOL), and percent lower explosive limit (%LEL). Factory inspection and servicing of gas detectors should be performed as recommended by the manufacturer. Two gas detectors were acquired from NORCO Incorporated, David Malmberg, Sales Representative, 400 SE 10th Street, Ontario, Oregon 97914 208.880.1760 (cell). The MSA Altair 5X gas detector is used for areal environmental compliance and the Ventix MX4 gas detector is used for worker safety compliance. See Figure 2-5 for specific gas monitoring and gas calibration requirements.

2. METHANE WELL MONITORING

Methane monitoring of ambient air conditions will be performed near monitoring wells CP2 – CP14 for the presence of methane gas, but this monitoring is not used for environmental compliance, since these wells were not constructed for environmental compliance. Well gas caps shall not be opened unless directed by the landfill director or his designee, because potential trapped gasses may pose a safety risk to workers attempting to remove the well caps. Public access and no smoking shall be restricted around the monitoring wells. Refer to the notes in Figure 2-5 for well monitoring procedures.

3. PERIMETER AND FACILITY MONITORING

Checks for methane gas in the ambient air surrounding the landfill will be performed at each groundwater monitoring well site as described above, near methane collection vents, along the perimeter of the cell(s) where frequented by the public or personnel (such as along access roads), and at the active face. All rooms of confined structures frequented by people will be monitored and the results recorded, including crawl spaces and the weigh scale pit. Again, peak gas concentration, or where appropriate the range of values encountered, will be recorded accompanied with any pertinent comments on the field log sheet. Refer to Figure 2-5 for specific gas monitoring locations and requirements.

4. DATA HANDLING AND SAFETY

Methane, hydrogen sulfide, carbon monoxide, oxygen, and lower explosive readings are to be recorded at the locations as described on the field form presented in Figure 2-5. Additionally, the name of the sampler and time of sampling should be recorded as noted in Figure 2-5. All completed forms and any field log books should be retained with the operating record at the landfill office.

If an unsafe gas condition is detected as described on Figure 2-5 (i.e., greater than: 25% LEL, 1.25% VOL, or 12,500 ppm) within a confined space, or an area frequented by the public, such as the active face, the sampler and all others present should leave the area immediately and notify the Landfill Director and/or designee. If the Landfill Director and/or designee is not available, and depending on the locality and severity of the condition, either County Commissioners and/or the local Sheriff's Office should be notified (see Section 1. EMERGENCY INFORMATION above). The SWDH should also be notified. Elevated or explosive levels of landfill gas are to be expected in the close proximity of the mouths of gas collection vents. The area around landfill gas vents is to be isolated from the public and protected by fencing and warning signs. All personnel required to approach these stations should understand the need for absence of ignition sources and the need for a portable air supply to assist breathing if necessary. It should be noted that landfill gas may contain combustible and toxic gases other than methane, such as carbon monoxide and hydrogen sulfide. Landfill gas can displace air in confined spaces such as inside buildings, which could produce a local oxygen deficiency as well as an explosive situation. Gas concentration values having possible health and safety concern are provided in Table 2-4 below:

Table 2-4
Summary of Gas Concentrations Having Health and Safety Concern

Gas Contaminant	Gas Detector Reading	
	Lower Limit[1]	Upper Limit[2]
Methane (CH_4)	5% VOL (100% LEL)	13.5% (100% UEL)
Hydrogen sulfide (H_2S)	10 ppm @ 8 hrs (toxic)	1000 ppm immediate (fatal)
Carbon monoxide (CO)	25 ppm @ 8 hrs (toxic)	4000 ppm immediate (fatal)
Oxygen (O_2)	<19.5%(deficient)	>20.9% (enriched)
Note 1: Lower Explosive Limit (LEL) Note 2: Upper Explosive Limit (UEL)		

The methane gas collection and flaring system design is presented on the drawing titled Methane Gas Control System, in Appendix B. In summary, the gas collection system consists of perforated PVC pipes and rock positioned transverse to the long axis of the landfill cell. These transverse pipes are buried at various depths within the landfill cell and are separated by 150 feet horizontally. The pipes are buried within 2' x 2' rock filled trenches to promote gas migration. A maximum of 4,000 linear feet of buried pipe is connected by manifold to a variable flow flare. The flare igniter is a solar powered, independent unit firing a piezo-electric sparking unit. No pilot gas system is required.

Surrounding the footprint of landfill cell #1, a series of 25-foot gas collection wells have been installed. These passive wells intercept migrating subsurface landfill gas. The gas is carried by manifold to a flare for destruction. The well heads are protected by steel and concrete bollards. A similar arrangement will be utilized in cell #2 for gas collection. See Appendix C. for gas flare construction details.

B. Ground Water Sampling

Both hydrogeologic characterization or facility design reports prepared by Payette County in 1993 and 2001 indicate site conditions are acceptable to suspend ground water monitoring. Suspension of ground water monitoring was granted by the IDEQ in conformance with Idaho Code Section 39.7410 (1) and 40 CFR Part 258.50 (b) based upon the evidence that there is no potential for migration of hazardous constituents from the landfill to the uppermost aquifer during the active life of the unit and the post-closure period.

Therefore, **no groundwater sampling is planned for the Clay Peak Landfill**; however, the following groundwater sampling protocols are provided to maintain good quality controls and quality assurance of water quality data, if groundwater sampling and characterization is performed at a later date.

In summary, wells will be purged in accordance with accepted sampling procedures and those wells, which do not contain sufficient water or do not recover in a reasonable period of time, will not be sampled or characterized. The potentiometric surface or groundwater level and field parameter measurements will be taken during sample collection to include temperature, pH, and conductivity.

Ground water samples will be collected by closely following the procedures below:

1. DECONTAMINATION

Initial sets of groundwater samples will be collected using a PVC or stainless steel bailer. The bailer will be decontaminated between each well sampling event using a distilled water double rinse. All other non-disposable equipment introduced into the well will be double rinsed with distilled water before use in another well. The use of disposable tubing and bailers will help minimize sampling decontamination requirements If any well maintains a quantity of water sufficient to sample, the County may install dedicated equipment to purge, sample and record water level.

2. FIELD PARAMETER EQUIPMENT AND CALIBRATION

Temperature, pH and specific conductance parameters will be measured in the field. Portable equipment or instruments required for these measurements shall be calibrated in accordance with manufacturers' specifications. Calibration of the pH meter will occur daily at a minimum during a sampling event or any time the pH value does not stabilize or is not near the historic norm for that well. Also, specific conductance and temperature calibration will be checked daily with a salt solution and a standard mercury thermometer respectively.

3. SAMPLING EQUIPMENT

Ground water samples will be retrieved through the well casing using a PVC or stainless steel bailer, though disposable PVC bailers are preferred. Ground water samples shall be collected in laboratory supplied EPA cleaned containers containing preservatives appropriate for the intended suite of analytical tests.

4. WATER LEVEL ELEVATION MEASUREMENT

Water level measurements shall be collected prior to well purging and sampling. Water levels will be measured by lowering a graduated tape fitted with an audio or visual alarm into the well. All water level data will be referenced first to the top of the casing liner then to mean sea elevation through ground survey of all well heads. The recording of the level, time, date, well number and person(s) measuring the level will be recorded in the Field Log Book at the time of measurement.

5. WELL PURGING

Wells will be purged prior to sample collection but after water level measurement. Wells will be purged utilizing bailer or by dedicated pump if one is installed. Wells will be purged a minimum of five well volumes in accordance with Idaho Department of Water Resources criteria. Should low yields and/or very small water volumes prevent a well from being properly purged the well will not be sampled and characterized.

6. FIELD DATA HANDLING

Data will be recorded on field sheets presented in Figure 2-10 or in a log book that should include at least: name of sampler, date and time of sampling, sample or well location, well depth, depth to water surface, volume of water purged, and field measurements for water pH, temperature, and conductivity. The data from the field sheet or field log book will be electronically stored following each monitoring event. A preliminary scan of the data for errors will be conducted after each well measurement and sampling event. Anomalous results shall be noted and shall be immediately resampled and tested.

Figure 2-10
GROUNDWATER MONITORING REPORT

CLAY PEAK LANDFILL WELL INFORMATION

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
WELL #	DATE/TIME	LINER DEPTH	GROUND ELEV.	LINER ELEV.	WATER DEPTH BELOW LINER	WATER ELEV. (5-6)	WATER THICK. (3-6)	GAS (LEL%) MONITORING	SAMPLES TAKEN	TEMP (C)	pH	COND (mS/cm)	TDS (g/L)	SAMPLER	COMMENTS
CP-1		380.00	2553.95	2555.95											
CP-2		77.20	2591.58	2593.98											
CP-3		95.20	2566.30	2567.60											
CP-4		95.32	2566.78	2569.75											
CP-5		75.45	2549.30	2551.95											
CP-6		55.19	2526.97	2529.12											
CP-7		50.38	2526.89	2529.35											
CP-8		70.45	2548.06	2551.10											
CP-9		102.46	2574.15	2576.55											
CP-10		105.30	2578.59	2581.89											
CP-11		90.00	2569.41	2571.20											
CP-12		95.35	2588.13	2590.10											
CP-13		103.40	2566.95	2570.34											
CP-14		86.65	2552.47	2555.66											
CP-PROD															

NOTES	FACILITY METHANE MONITORING	DATE/TIME	GAS (LEL%) MONITORING	SAMPLER	COMMENTS
	PERIMETER				
	SHOP				
	SCALE HOUSE / PIT				
	OFFICE				
	RESIDENCE				

7. SAMPLE PRESERVATION AND HANDLING

Water samples shall be collected in laboratory supplied, EPA cleaned sample containers containing preservatives appropriate for the specific analytical tests desired. Water samples shall be appropriately labeled, dated, marked, cooled to 6°C, and packed in portable coolers with ice for shipment to an EPA approved analytical laboratory. Sample shipment schedules must comply with the analytical holding time for each analytical test desired. See 40 CFR Part 132 for sample preservation and holding times. A chain-of-custody (COC) must accompany all sample shipments which shall include sample identification number, number of samples collected, time and date of sample collection, well number, person(s) collecting the sample, person relinquishing the COC, and the analytical test desired.

8. CHAIN OF CUSTODY

Standard chain of custody forms will be completed at each sampling location at the time of sample collection. This form will be included with the appropriate samples when shipped to the laboratory. Time, date and signature of individuals are required each time the samples are relinquished to another's care. Custody seals are to be completed and places around the lid of the cooler. A copy of the chain of custody will also be included in the Field Log Book.

9. ANALYTICAL METHODS

All analytical tests shall be performed by the applicable approved EPA Test Method for a particular constituent by a certified laboratory. An analysis request form will be filled out prior to the sample collection. A copy of this form will be in the Field Log Book and the original will be sent with each sample set sent to the laboratory. The analysis request form may be combined as a part of the chain of custody form only if all the requisite information is included.

10. QUALITY ASSURANCE / QUALITY CONTROL

Trip Blanks shall be utilized for all sampling events when appropriate and shall accompany each set of samples. Cation/Anion ratios will be calculated from analytical results as a check on the performance of the analytical accuracy of the laboratory. Analytical results will be compared between wells and between monitoring events for each well for consistency of data and for temporal variations.

C. Ambient Air Evaluation

Title 39, Chapter 1, Section 10 Idaho Code allows the Director or board to require, if they desire, "...the registration of persons engaged in operations which may result in air pollution, and of persons causing, permitting or allowing construction of any facility or new equipment capable of emitting air contaminants into the atmosphere...". The federal Clean Air Act section 7410 requires states to adopt and submit a "plan which provides for implementation, maintenance, and enforcement" of national primary and secondary ambient air quality standards. Title 1, Chapter 1 of the "Rules and Regulations for the control of Air Pollution in Idaho" are the rules that Idaho intends to use to comply with the federal law. In these rules and regulations, no specific standards or limits are stated for municipal solid waste landfill (MSWLF) air emissions. It is assumed that the subsection on toxic substances (IDAPA 16.01.01011,01.) is the most applicable Idaho rule in regards to MSWLF air emissions. This subsection of these rules and regulations states that "a. Any contaminant which is by its nature toxic to human or animal life or vegetation, but is not specifically controlled elsewhere in this chapter shall not be emitted in:
i.) Amounts which will cause, or significantly contribute to causing, ambient air concentrations listed in the toxic air pollutant carcinogenic standards, or toxic air pollutant interim limits; or ii.) Emitted in such quantities or concentrations as to alone, or in combination with other contaminants, injure or unreasonably affect human or animal life or vegetation."

The EPA published guidance document "Air Emissions from Municipal Solid Waste Landfills - Background Information for Proposed Standards and Guidelines" establishes that air emissions from MSWLFs are "health related pollutants". This determination is based on the identification of nine carcinogenic constituents known to be toxic to human and animal health in MSWLF air emissions. The document also identified ozone produced from MSWLF as a risk to vegetation. For simplicity these products are grouped together in a category called non-methane organic compounds (NMOC).

Section 7411(f) of the Clean Air Act calls for the establishing of new source performance standards (NSPS). The EPA guidance document, referenced above, in accordance to NSPS, describes standards and actions by which MSWLF air emissions should be evaluated and handled. The EPA guidelines proposed a three tier evaluation approach for landfill facilities to determine control requirements for landfill air emissions.

The first tier involves assumed values for deriving air emissions. If a MSWLF has a state verified design capacity of less than 100,000 megagrams (Mg), 110,200 tons, of refuse it is not required to perform further air emission testing, reporting or install air emission controls. If an MSWLF has a design capacity of greater than 100,000 Mg of refuse then the facility is required to determine the NMOC emission rates from the landfill each year. This estimate is performed using the Scholl Canyon Model which has been modified to estimate the mass emission rate of NMOC at the landfill. If site specific data is not available conservative default values are provided by the EPA for use in the evaluation. In the event that the estimated NMOC emission rate is less than 150 Mg/yr then the landfill facility will not have to install air emission controls or conduct additional evaluations. The facility will be required to determine, annually, the NMOC emission rate of the landfill and place the results in the facility operating record. If the NMOC emission rates are greater than 150 Mg/yr then the landfill facility can either install air emission controls or conduct a Tier 2 evaluation.

A methane gas collection and emission controls were installed for landfill cell #1 and is being installed for landfill cell #2 as landfill cell #2 is being constructed, in accordance with the IDEQ Air Quality Permit to Construct P-2008-0078, dated December 16, 2008, presented in Appendix B. Therefore, annual NMOC emission calculations are not required since emission controls are being installed.

IDEQ prepared a Statement of Basis for the PTC dated December 16, 2008 that describes an emission inventory, the expected emission rates based on the Landfill Gas Emissions Model (LANDGEM), and an ambient air quality impact analysis that resulted in IDEQ reporting that air quality emissions from the Clay Peak Landfill will not cause or significantly contribute to a violation of any air quality standard.

The County has installed 7 gas flares along the perimeter of landfill cell #1 that serve as air emission controls.

The landfill gas emissions will be controlled using Landfill Services Corporation CF-5 gas flares, or equivalent. The landfill will maintain a copy of the service manual for the CF-5 flares. Maintenance will be performed in accordance with manufacturer's specifications and in compliance with Permit No. P-2008.0078, dated December 16, 2008. A copy of the permit is included in the O&M Manual, Appendix B, and is available on-site upon request.

Opacity will be evaluated quarterly for all flares and recorded on the form presented in Figure 2-5. Records of certified opacity readings, when required, will be maintained on site and also provided to Idaho DEQ upon request.

D. Weather Data Collection

Title 39, Chapter 7412(11)(a) Idaho Code requires sanitary landfills collecting greater than 20 tons per day of municipal solid waste, based on an annual average, to collect meteorological data. These data are available through the U.S. Department of the Interior Bureau of Reclamation website at: http://www.usbr.gov/pn/agrimet/webarcread.html

Procedure for Weather Data (Wx) Access:

1. Go to the internet website referenced above. It will be identified as “AgriMet Historical Archive Weather Data Access.” The AgriMet web page is a report generator screen. It allows users to pick from a variety of Wx data.
2. To generate a Wx report, set “station” as ***ONTO-Ontario, OR***. Set “start” and “end” dates as required.
3. To comply with Chapter 74 requirements, select, at a minimum, the following items:

    i. ET = Evapotranspiration Kimberly-Penman(in)
    ii. MM = Mean Daily Air Temperature(F)
    iii. PP = Daily (24 hour) Precipitation(in)
    iv. YM = Mean Daily Dewpoint Temperature(F)(evaporative temp.)
    v. UA = Daily Average Wind Speed(mph)
    vi. UD = Daily Average Wind Direction(degrees azimuth)

Since these data are permanently archived electronically by the Bureau of Reclamation, it is unnecessary to make hard copies or store the data at the Clay Peak Landfill. However, to satisfy regulatory requirements, Clay Peak staff must maintain immediate local internet access to the AgriMet website. These data must be made available upon demand by any regulatory authority.

For additional information, call (208) 378-5283 or send email to Peter Palmer, ppalmer@pn.usbr.gov AgriMet Program Coordinator.

V. CLOSURE PLAN

A. General Criteria

This Closure Plan complies with the federal criteria of 40 CFR 258.60(d). This federal criteria states that "The owner or operator must notify the State Director that a closure plan has been prepared and placed in the operating record no later than the effective date of this part, or by the initial receipt of waste, whichever is later" as provided for in Title 39 Chapter 74 Idaho Code. Inclusion of the closure plan in previous editions of the O&M Manual has fulfilled this regulatory reporting requirement.

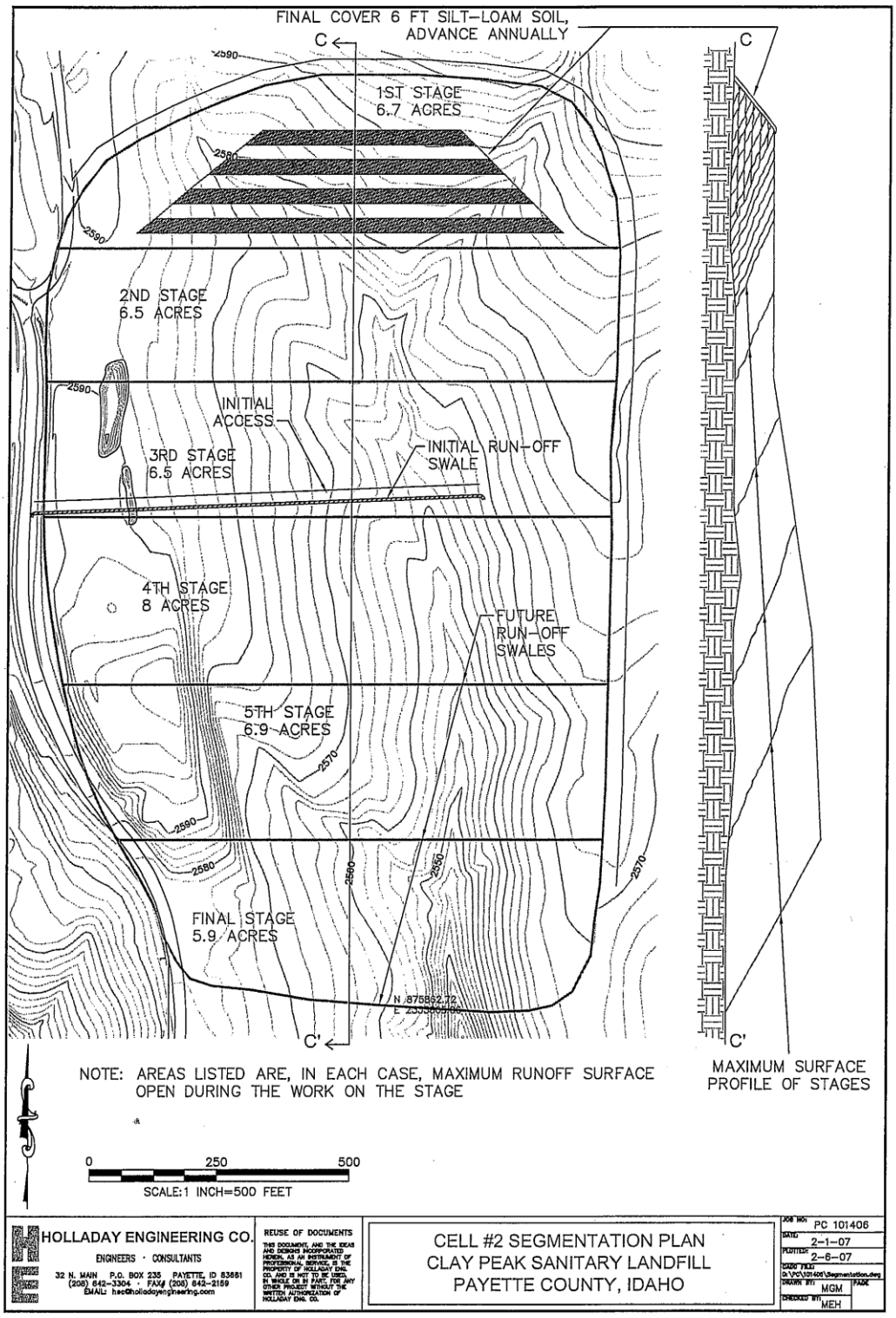
Closure will be performed in stages. As sections of the landfill are filled to the design top-of-waste level, the final soil cover will be placed and seeded in an annual operation. The final cover design reported in the 1993 Design Report and 2001 Design Report with 2003 Modifications will be utilized that specifies a monolithic 6 foot depth fine-grained soil cover design. Closure will be a continuous procedure during most of the operating period of the facility but, final closure of the entire landfill site to include Landfill Cells #1, #2, and #3 will commence within 30 day of the receipt of the last waste with final closure activities to be completed within 180 days. However, performing the closure steps in stages will allow the County to close and submit closure certification reports for landfill cells as soon as practical following closure of a landfill cell. For example, the closure certification report for Landfill Cell #1 was completed and regulatory approved on January 2, 2014, while all other MSWLF units remained active. Copy of the closure certification report for Landfill Cell #1 is provided in Appendix A.

At periodic intervals (three to five years, as provided by 39.7419 Idaho Code), staff from the County, Southwest District Health Department, and Idaho Department of Environmental Quality, will meet to review the operation of the landfill facility and its respective unit processes as well as review ongoing landfill cell closure activities. Prior to or at the time of these meetings, landfill sections or units, which have been closed during the interim, will be described by the County and certified as closed, as provided by 39.7415 Idaho Code.

At the completion of all closure activities for all MSWLF units at the Clay Peak Landfill, federal regulation 40 CFR 258.60.(i).1 requires the County to record a notation on the deed to the landfill facility property or other instrument that is normally examined during land title search that the land has been used as a landfill facility and that restrictions regarding use of the property are in place during the post-closure period. Property restrictions during the post closure period include activities that prevent disturbance of the final cover, any components of the containment system, or the functions of the monitoring systems unless necessary to comply with regulatory requirements. Additionally, the County will notify IDEQ that the notation on the deed has been recorded and a copy has been placed in the operating record. The notation on the deed must be in perpetuity to notify any potential property purchasers.

With staged closure or 'close as you go' that follows the segmentation plans presented in the 1993 Design Report and 2001 Design Report with 2003 Modifications, the maximum area that should require immediate closure, in the event of a requirement to close prior to completion of a landfill cell, will be approximately eight (8) acres. The segmentation plan for Landfill Cell #2 is presented in Figure 2-11 and the segmentation plan for Landfill Cell #3 will be prepared when Landfill Cell #2 approaches closure, sometime between 2030 and 2040. As discussed earlier in Section 2.I above, Landfill Cell #1 is closed and Landfill Cells #2 and #3 have approximately 24 mcy landfill capacity that should have an expected active life through 2100 if used by residences and businesses in Gem, Washington, Payette, Valley, and east Oregon.

Figure 2-11
SEGMENTATION PLAN FOR LANDFILL CELL #2



B. Final Cover Design Options

Since the State of Idaho has obtained primacy for implementation of Subtitle D requirements from EPA, an arid design final cover may be applied instead of a Subtitle D prescribed cover. These conditions are described below.

Per 40 CFR Part 258 Criteria:
A final cover designed to meet the Subtitle D criteria must consist of layers to minimize infiltration and erosion and be constructed to meet or exceed the following specifications:

1) The infiltration layer must be comprised of a minimum of 18 inches of earthen material that has a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present, or a permeability no greater than 1 X 10^{-5} cm/sec, whichever is less, and
2) The erosion layer must consist of a minimum of 6 inches of earthen material that is capable of sustaining native plant growth.

Per Idaho Solid Waste Facility Act (ISWFA) Criteria:
Consequent to "approved state status" the County may construct a final cover using fine-grained soil material with an intrinsic permeability no greater than 1 X 10^{-3} cm/sec and a minimum thickness of twenty-four (24) inches; and

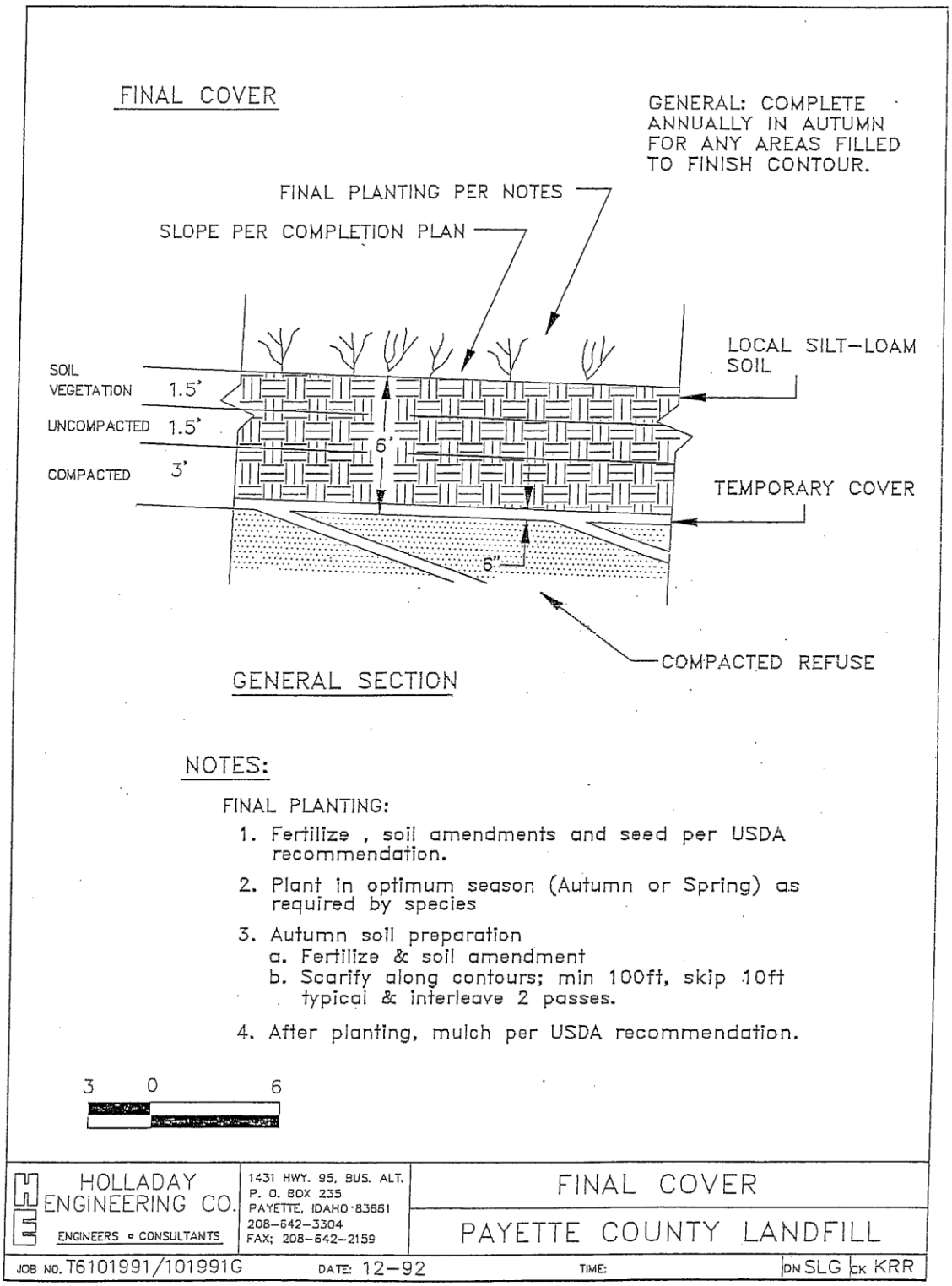
1) Have capillary holding capacity greater than the projected maximum accumulated volume of water as determined by utilization of accepted water balance methodology based on local or regional twenty-five (25) year climatic records;
2) Annual precipitation is less than twenty-five (25) inches with net evaporative losses greater than thirty (30) inches annually;
3) The top six (6) inches of cover shall be capable of sustaining shallow-rooted native plant growth and this design shall demonstrate consideration of site specific factors as provided in 40 CFR 258.60(2)(b);
4) The final grade of slopes shall be greater than 2% unless otherwise supported by the post closure plan and uses approved by the health district, and the grade of side slopes not greater than 33%.

Therefore, the final cover for landfill cells #1, #2, and #3 shall consist of six (6) feet of local fine-grained soil material that includes the following soil layers:

- 0 to 6 inches soil depth referred to as the top layer: An erosion layer that is capable of sustaining vegetation.
- 6 inches to 30 inches intermediate layer that has a permeability less than or equal to the base layer and serves as the vertical percolation layer that provides storage of moisture and detention of drainage to be extracted by plant uptake and evapotranspiration.
- 3 to 6 ft depth base layer (or bottom) of the final cover resting on or above the covered trash that will consist of 3 feet of compacted earthen material having an intrinsic permeability no greater than 1 x 10^{-4} cm/sec. The compacted base layer will serve as the barrier layer to prevent vertical water flow.

Payette County used the criteria described above for closing Landfill Cell #1 that is detailed in the closure report presented in Appendix A. The closure report describes the technical approach used to demonstrate closure compliance and the data collected to confirm that closure activities complied with the regulatory requirements and the final cell cover design illustrated in Figure 2-12.

Figure 2-12
TYPICAL FINAL COVER DESIGN



VI. POST-CLOSURE PLAN

Title 39 Chapter 74 Idaho Code requires a landfill facility to conduct "post-closure care as provided under 40 CFR 258.61." 40 CFR 258.61 requires post-closure care to be conducted for thirty (30) years following closure.

Post-closure care involves the following:

1) Maintaining the integrity and effectiveness of any final cover,
2) Maintaining and operating the leachate collection system in accordance with the requirements in 40 CFR 258.40,
3) Monitoring groundwater and maintaining groundwater monitoring systems in accordance with the requirements of 40 CFR 258 Subpart E,
4) Maintaining and operating gas monitoring systems in accordance with the requirements in 40 CFR 258.23.

A written post-closure plan describing the monitoring and maintenance activities, land use during the post-closure period, and responsible parties with addresses and telephone numbers must be placed in the operating record. The State Director must be notified that a post-closure plan has been prepared and placed in the operating record.

POLICY OF THE CLAY PEAK LANDFILL

Per SWDH correspondence dated November 20, 2010, no additional Post Closure Plan is required because the elements of the Post Closure Plan are satisfactorily addressed in this O&M Plan which reports:

- gas and methane monitoring requirements,
- final cover effectiveness requirements,
- seeding program, and
- erosion monitoring controls.

The County will provide post-closure care for a period of thirty (30) years after final closure, except as may subsequently be provided by legislation or by action of regulatory agencies. Post-closure care will include maintenance of the final cover, monitoring of surface water runon and runoff controls, and monitoring for methane concentrations as set forth in the METHANE GAS MONITORING section of this report. Additionally, final cover settlement shall be measured during post closure. Final layout of Landfill Cell #1 is presented in Figure 2-13 which illustrates the location and the elevations of the settlement markings for Landfill Cell #1.

At the times of monitoring as set forth in the referenced passages, the final cover will be inspected for effects of erosion and subsidence. If any damage is discovered, repairs will be made by appropriate means, which may include tillage, replanting, scarifying, contouring, replacement of fill, or any combination of these methods.

Since the design of the Clay Peak Landfill does not include a leachate collection system, there will be no post-closure leachate system maintenance nor leachate treatment.

The landfill property will not be in use for any activities, which may damage any component of the landfill during the post-closure period. The office to contact during the post-closure period is the Payette County Commissioners, Payette County Courthouse, Payette, Idaho, telephone (208) 642-6015.

After the post-closure period for each MSWLF unit is completed, the County will certify through a professional engineer or through approval of the Southwest District Health Department that the post-closure care has been completed in accordance with the post-closure plan and has been placed in the operating record.

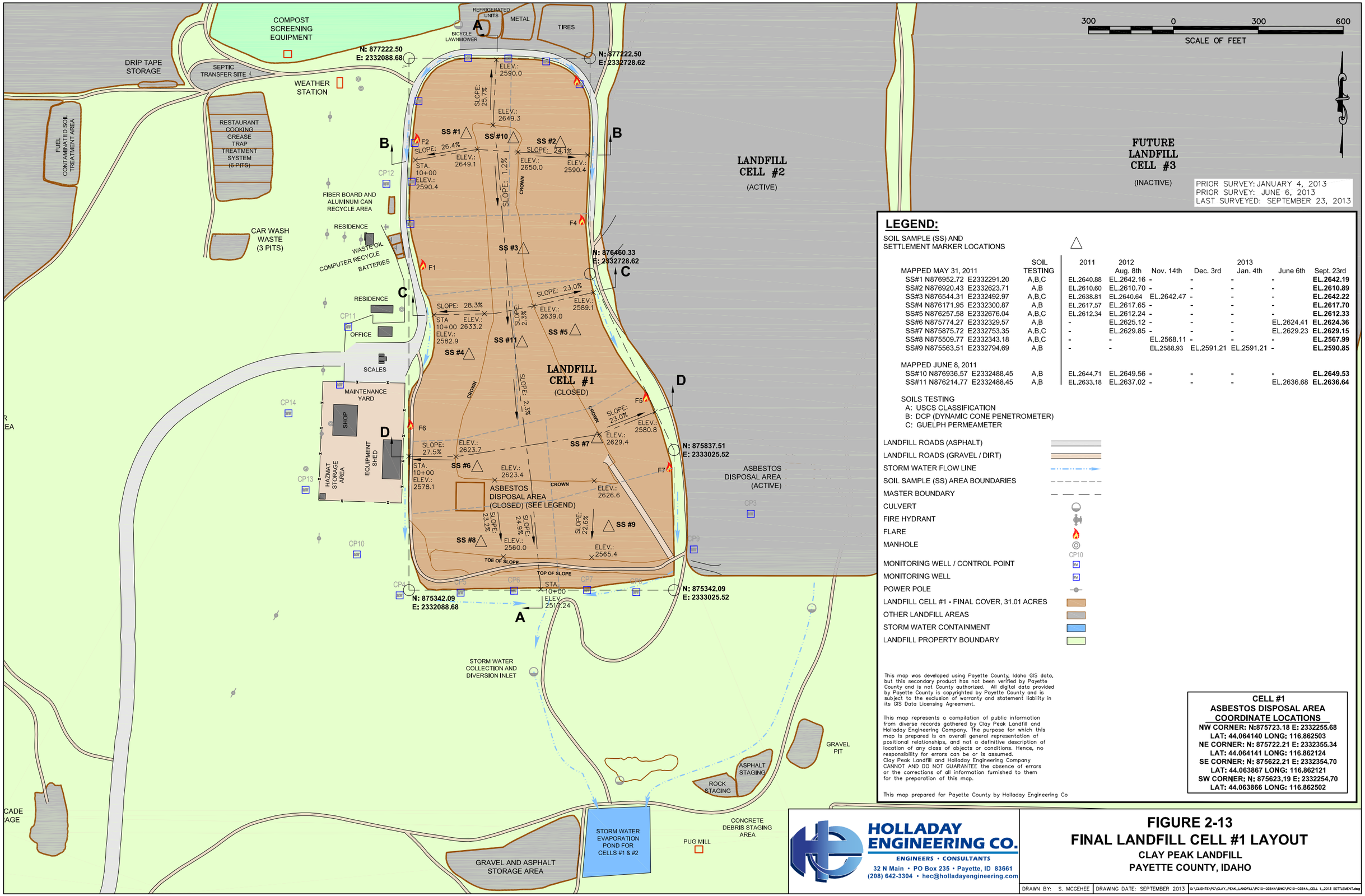
The notation on the property deed that describes the property was used as a landfill facility and is subject to property use restrictions will only be recorded once when all MSWLF facility units have been closed and the final MSWLF unit has completed its post-closure care period, expected after 2100. However, this condition is subject to regulatory changes.

VII. FINANCIAL ASSURANCE

Title 39 Chapter 74 Idaho Code requires a landfill facility to have financial assurance underwriting provisions for closure as defined in 40 CFR 258.71, post-closure as defined in 40 CFR 258.72, and corrective action as defined in 40 CFR 258.73. The mechanisms available to a landfill facility for obtaining financial assurance is defined in 40 CFR 258.74. A combination of these mechanisms is also available to the landfill facility. The allowable mechanisms are a trust fund, a surety bond guaranteeing payment or performance, a letter of credit, insurance, a corporate financial test, a local government financial test, a corporate guarantee, a local government guarantee, a state-approved mechanism, a state assumption of responsibility, or a combination of these mechanisms.

POLICY OF THE CLAY PEAK LANDFILL

The County has established a mechanism to hold funds adequate to cover the developed cost projections. The chosen mechanism will remain effective until all closure and post-closure activities have been completed or until replaced with a different mechanism which will achieve the same requirements. The cost projections will be updated annually, on or about September 30th. The Financial Assurance Requirements for 2012/2013 and 2013/2014 fiscal years were estimated $1,566,352 and $1,439,600, respectively. Figure 2-13 shows the final layout of Landfill Cell #1 and Figure 2-14 shows the aerial limits of Landfill Cells #1 and #2 that were subject to financial assurance requirements for 2014/2015.



LEGEND:

SOIL SAMPLE (SS) AND SETTLEMENT MARKER LOCATIONS

		SOIL TESTING	2011	2012 Aug. 8th	Nov. 14th	Dec. 3rd	2013 Jan. 4th	June 6th	Sept. 23rd
MAPPED MAY 31, 2011									
SS#1 N876952.72	E2332291.20	A,B,C	EL.2640.88	EL.2642.16	-	-	-	-	**EL.2642.19**
SS#2 N876920.43	E2332623.71	A,B	EL.2610.60	EL.2610.70	-	-	-	-	**EL.2610.89**
SS#3 N876544.31	E2332492.97	A,B,C	EL.2638.81	EL.2640.64	EL.2642.47	-	-	-	**EL.2642.22**
SS#4 N876171.95	E2332300.87	A,B	EL.2617.57	EL.2617.65	-	-	-	-	**EL.2617.70**
SS#5 N876257.58	E2332676.04	A,B,C	EL.2612.34	EL.2612.24	-	-	-	-	**EL.2612.33**
SS#6 N875774.27	E2332329.57	A,B	-	EL.2625.12	-	-	-	EL.2624.41	**EL.2624.36**
SS#7 N875875.72	E2332753.35	A,B,C	-	EL.2629.85	-	-	-	EL.2629.23	**EL.2629.15**
SS#8 N875509.77	E2332343.18	A,B,C	-	-	EL.2568.11	-	-	-	**EL.2567.99**
SS#9 N875563.51	E2332794.69	A,B	-	-	EL.2588.93	EL.2591.21	EL.2591.21	-	**EL.2590.85**
MAPPED JUNE 8, 2011									
SS#10 N876936.57	E2332488.45	A,B	EL.2644.71	EL.2649.56	-	-	-	-	**EL.2649.53**
SS#11 N876214.77	E2332488.45	A,B	EL.2633.18	EL.2637.02	-	-	-	EL.2636.68	**EL.2636.64**

SOILS TESTING
- A: USCS CLASSIFICATION
- B: DCP (DYNAMIC CONE PENETROMETER)
- C: GUELPH PERMEAMETER

LANDFILL ROADS (ASPHALT)
LANDFILL ROADS (GRAVEL / DIRT)
STORM WATER FLOW LINE
SOIL SAMPLE (SS) AREA BOUNDARIES
MASTER BOUNDARY
CULVERT
FIRE HYDRANT
FLARE
MANHOLE
MONITORING WELL / CONTROL POINT (CP10)
MONITORING WELL
POWER POLE
LANDFILL CELL #1 - FINAL COVER, 31.01 ACRES
OTHER LANDFILL AREAS
STORM WATER CONTAINMENT
LANDFILL PROPERTY BOUNDARY

This map was developed using Payette County, Idaho GIS data, but this secondary product has not been verified by Payette County and is not County authorized. All digital data provided by Payette County is copyrighted by Payette County and is subject to the exclusion of warranty and statement liability in its GIS Data Licensing Agreement.

This map represents a compilation of public information from diverse records gathered by Clay Peak Landfill and Holladay Engineering Company. The purpose for which this map is prepared is an overall general representation of positional relationships, and not a definitive description of location of any class of objects or conditions. Hence, no responsibility for errors can be or is assumed. Clay Peak Landfill and Holladay Engineering Company CANNOT AND DO NOT GUARANTEE the absence of errors or the corrections of all information furnished to them for the preparation of this map.

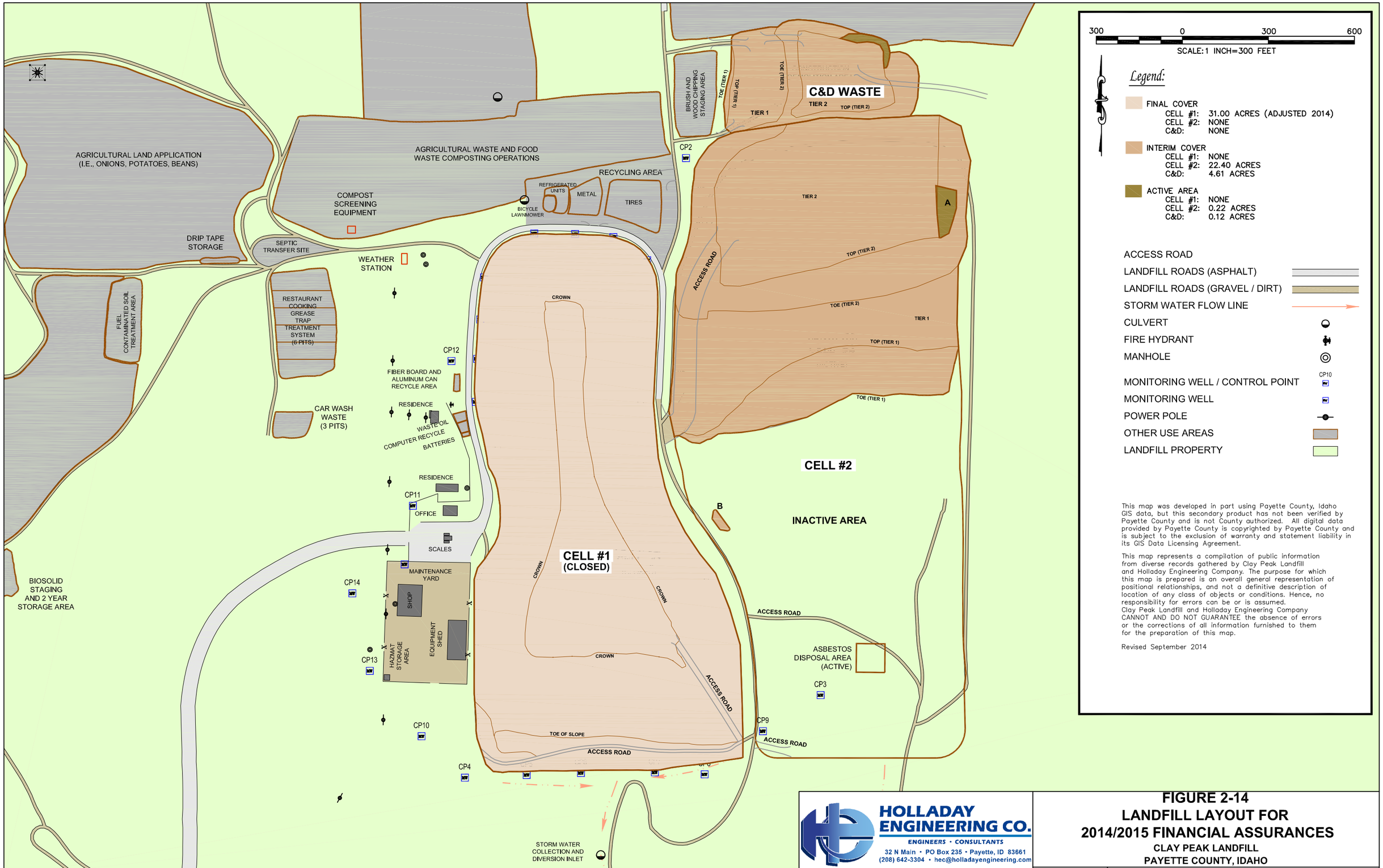
This map prepared for Payette County by Holladay Engineering Co

CELL #1
ASBESTOS DISPOSAL AREA
COORDINATE LOCATIONS
NW CORNER: N:875723.18 E: 2332255.68
LAT: 44.064140 LONG: 116.862503
NE CORNER: N: 875722.21 E: 2332355.34
LAT: 44.064141 LONG: 116.862124
SE CORNER: N: 875622.21 E: 2332354.70
LAT: 44.063867 LONG: 116.862121
SW CORNER: N: 875623.19 E: 2332254.70
LAT: 44.063866 LONG: 116.862502

HOLLADAY ENGINEERING CO.
ENGINEERS • CONSULTANTS
32 N Main • PO Box 235 • Payette, ID 83661
(208) 642-3304 • hec@holladayengineering.com

FIGURE 2-13
FINAL LANDFILL CELL #1 LAYOUT
CLAY PEAK LANDFILL
PAYETTE COUNTY, IDAHO

DRAWN BY: S. MCGEHEE | DRAWING DATE: SEPTEMBER 2013 | G:\CLIENTS\PC\CLAY_PEAK_LANDFILL\PC10-0354A\DWG\PC10-0354A_CELL 1_2013 SETTLEMENT.dwg


AGRICULTURAL LAND APPLICATION
(I.E., ONIONS, POTATOES, BEANS)
AGRICULTURAL WASTE AND FOOD
WASTE COMPOSTING OPERATIONS
COMPOST
SCREENING
EQUIPMENT
RECYCLING AREA
REFRIGERATED
UNITS
METAL
TIRES
BICYCLE
LAWNMOWER
BRUSH AND
WOOD CHIPPING
STAGING AREA
C&D WASTE
TIER 1
TIER 2
TOP (TIER 1)
TOE (TIER 1)
TOE (TIER 2)
TOP (TIER 2)
CP2
A
ACCESS ROAD
DRIP TAPE
STORAGE
SEPTIC
TRANSFER SITE
WEATHER
STATION
FUEL
CONTAMINATED SOIL
TREATMENT AREA
RESTAURANT
COOKING
GREASE
TRAP
TREATMENT
SYSTEM
(6 PITS)
CROWN
CP12
FIBER BOARD AND
ALUMINUM CAN
RECYCLE AREA
CAR WASH
WASTE
(3 PITS)
RESIDENCE
WASTE OIL
COMPUTER RECYCLE
BATTERIES
CELL #2
RESIDENCE
CP11
OFFICE
SCALES
B
INACTIVE AREA
CELL #1
(CLOSED)
BIOSOLID
STAGING
AND 2 YEAR
STORAGE AREA
MAINTENANCE
YARD
CP14
SHOP
EQUIPMENT
SHED
HAZMAT
STORAGE
AREA
CP13
ASBESTOS
DISPOSAL AREA
(ACTIVE)
CP3
CP9
CP10
TOE OF SLOPE
CP4
STORM WATER
COLLECTION AND
DIVERSION INLET
300 0 300 600
SCALE: 1 INCH=300 FEET
Legend:
FINAL COVER
CELL #1: 31.00 ACRES (ADJUSTED 2014)
CELL #2: NONE
C&D: NONE
INTERIM COVER
CELL #1: NONE
CELL #2: 22.40 ACRES
C&D: 4.61 ACRES
ACTIVE AREA
CELL #1: NONE
CELL #2: 0.22 ACRES
C&D: 0.12 ACRES
ACCESS ROAD
LANDFILL ROADS (ASPHALT)
LANDFILL ROADS (GRAVEL / DIRT)
STORM WATER FLOW LINE
CULVERT
FIRE HYDRANT
MANHOLE
MONITORING WELL / CONTROL POINT
MONITORING WELL
POWER POLE
OTHER USE AREAS
LANDFILL PROPERTY
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Revised September 2014
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ENGINEERS • CONSULTANTS
32 N Main • PO Box 235 • Payette, ID 83661
(208) 642-3304 • hec@holladayengineering.com
FIGURE 2-14
LANDFILL LAYOUT FOR
2014/2015 FINANCIAL ASSURANCES
CLAY PEAK LANDFILL
PAYETTE COUNTY, IDAHO
DRAWN BY: S. MCGEHEE
DRAWING DATE: SEPTEMBER 2013

SECTION 3 –
NON-MUNICIPAL SOLID WASTE

IDEQ approved the Clay Peak Non-Municipal Site Approval Application on December 10, 2007, whereas DEQ found the landfill site complies with general siting requirements identified in IDAPA 58.01.06.012.09 and IDAPA 58.01.06.012.11.

I. FACILITY DESCRIPTIONS

The regulatory requirements for the characterization and disposal of non-municipal solid waste landfill facilities (NMSWLF) are found in 40 CFR Part 257 and IDAPA 58.01.06 – Solid Waste Management Rules.

A. Construction and Demolition (C&D) Facility

The Clay Peak Landfill accepts "construction/demolition waste" that includes excess or waste construction building materials. Construction and demolition waste include:

- Packaging and rubble resulting from construction, remodeling, repair and
- Materials accumulated from the demolition of concrete and asphalt pavements, houses, commercial buildings and other structures.

Such waste includes, but is not limited to, bricks, concrete, other masonry materials, soil, rock, lumber, road spoils, rebar, paving materials and tree stumps. Asbestos and non-inert wastes such as brush and tree limbs are not considered C&D wastes, whereas asbestos is buried in a designated area in the landfill cell and brush and trees are chipped or ground for compost material. All C&D wastes are buried and covered with top soil.

B. Composting Facility

The composting facility accepts compostable organic waste material from construction demolition, food processors, and food stores to formulate a compost that is high in nitrogen and other natural soil amendments. The quality of the compost allows the landfill to market and sell the product to local consumers. The compost produced is in accordance with U.S. Environmental Protection Agency Method defined in 40 CFR Part 503. It undergoes laboratory testing by an independent third-party lab to insure that the product is in compliance with standards for heavy metals and bacteria. The compost is also a part of the Idaho Department of Agriculture Certificate for Commercial Soil and Plant Amendments under Certificate #796.

The SWDH approved composting of food wastes at the Clay Peak Landfill following a trial period of successful food waste composting, whereas the landfill did not experience any operational issues during the trial that would be problematic for continued food waste composting. However, SWDH approval is limited to composting fruit and vegetable wastes and does not accept meat or dairy products for composting.

Food waste generators must specifically request its food waste be composted and acknowledge that the food waste will only be composted if it complies with the Clay Peak Landfill waste acceptance criteria.

C. Car Wash Sump Water Facility

Clay Peak Landfill accepts car wash sump water that contains fine silts and grit. EPA[7] identified vehicle wash water from sumps as non-hazardous and suitable for treatment by application to vegetated areas. Wash water can generally be discharged to a municipal publicly owned treatment works (POTW) once the water is filtered for grit and oil. Where these options are not available, the Clay Peak Landfill may be used for car wash sump water disposal. The waste is generally delivered by pumper truck along with a Liquid Waste Transport Manifest, as shown in Figure 2-3.

The car wash sump water is a low viscosity slurry composed predominantly of water that will be pumped into designated open trenches on the landfill property for dewatering by evaporation. The dewatered fine sands and grit are then removed and disposed of as petroleum-contaminated soils.

II. OPERATING STANDARDS

In accordance with IDAPA 58.01.06 Section 012.03, the owner and operator of a Tier II facility shall comply with the following requirements.

A. Prohibited Activities – Uniform for Each Facility or Unit Process

The following activities are prohibited:

i. Disposal in a landfill of regulated waste from any business that provides health care, support to health care businesses, or medical diagnostic services that has not been decontaminated. "Regulated waste" and "decontaminated" for the purpose of Section 011 shall have the same meaning as defined at 29 CFR 1910.1030.
ii. Speculative accumulation, unless otherwise approved by the Department in writing; and
iii. Disposal of radioactive waste except in a facility regulated pursuant to Section 39-4405(9), Idaho Code, and rules adopted hereunder of a facility regulated under the authority of The Atomic Energy Act of 1954, as amended.

POLICY OF THE CLAY PEAK LANDFILL

Clay Peak Landfill will inspect waste loads delivered to the landfill on a random basis in accordance with Section 2.II A. Waste Inspection and Screening for Regulated and Special Wastes Not Designated for Landfill Disposal. In summary, personnel at the weigh station will question each waste hauler for regulated wastes and at least 5% of the waste loads delivered to the landfill will be inspected for regulated wastes to enforce the Clay Peak Landfill Policy: "Hazardous wastes are not accepted at the Clay Peak Landfill."

B. Signs

Facilities or unit processes open to the general public shall clearly post visible and legible signs at each entrance to the facility or unit process. The sign for the landfill facility shall specify at a minimum the name of the facility, the hours of operation, and an emergency phone number. The sign for unit processes shall specify the name of the unit process and/or the type of waste accepted at the unit process location.

7 "Source Water Protection: Managing Vehicle Washing to Prevent Contamination of Drinking Water:, EPA 816-F-01-024, July 2001, p. 3.

POLICY OF THE CLAY PEAK LANDFILL

The Clay Peak facility will be open to accept delivery of non-municipal solid wastes, Monday through Saturday from 8:00 A.M. to 5 P.M. The facility will be closed on Sundays and the observance day of the following holidays: New Year's Day, Martin Luther King Jr. Birthday, Presidents Day, Memorial Day, Fourth of July, Labor Day, Columbus Day, Veterans Day, Thanksgiving Day and Christmas Day. This information is posted on a sign displayed at the entrance as well as a phone number for an emergency contact.

C. Waste Types – Described for Each Facility

Only the solid waste types listed in the approved operating plan may be accepted for disposal or processing.

POLICY OF THE CLAY PEAK LANDFILL

1. Construction and Demolition (C&D) Facility

The Clay Peak Landfill accepts "construction/demolition waste" that includes excess or waste construction building or demolition materials such as:

- concrete, bricks, and other masonry materials
- wood (including painted, treated, and coated wood products)
- asphalt from roads and roofing shingles
- plaster, gypsum, drywall
- metals, pipe, rebar,
- glass
- plastics,
- non asbestos insulation
- trees, stumps, soil, and rock from land clearing activities

Solid waste that is NOT considered to be C&D waste include, but is not limited to:

- asbestos wastes
- garbage or solid waste mixed with the municipal waste stream
- recyclable metals, appliances, tires, brush acceptable for chipping into a compost product
- hazardous materials
- electrical fixtures containing hazardous materials such as fluorescent lights, ballasts, or transformers
- carpeting and furniture
- containers having more than one inch of residue remaining on the bottom of containers larger than ten gallons
- sealed containers
- unrecognizable waste

Empty containers having 10 gallons or less capacity with no more than one inch of residue remaining in the container should be removed from the C&D waste and landfilled as municipal solid waste if the waste containers can be safely removed by the waste screener.

2. Composting Facility

The composting facility at the Clay Peak Landfill accepts organic waste material from construction demolition, food processors, and food stores to formulate a compost that is high in carbon, nitrogen, and other natural soil amendments. Such compostable materials include, but are not limited to: trees, brush, leaves, straw, sawdust from untreated woods, grass clippings, other organic yard wastes, culled agricultural products, and food wastes.

Food wastes must contain only fruit and vegetable wastes and compostable packagings that will break down in compost temperatures less than 150 °F. Food wastes containing inerts such as Styrofoam, plastics, metals, glass, and compostable packagings that require compost temperatures greater than 150 °F will be cause to reject the food wastes for composting. All food wastes not complying with Clay Peak Landfill waste acceptance criteria will be directed to the landfill burial cell for final disposal. Food waste generators not complying with the waste acceptance criteria will be assessed a surcharge or incur additional waste handling fees.

All food wastes expected to meet waste acceptance criteria will be weighed and temporarily stockpiled or staged onsite to inspect, consolidate, and incorporate wood chips for composting. Temporary stockpiling or staging of food wastes should not exceed three days during hot summer weather and six days during cold winter weather. Food wastes may have higher nitrogen content than onions and should decompose much quicker than culled onions; therefore, additional carbon rich materials such as wood chips and straw may be required to control ammonia gases. Given the variability of water and nitrogen content in food waste, the compost windrower's observations (visual and odor) will be used to adjust the wood chip content to control odor and vectors. The food wastes mixed with wood chips will then be incorporated into the windrows as soon as possible and placed near the center of the windrow to reduce odor and vector attraction. The windrows will be wetted as necessary to maintain bacteria activity with windrow temperatures above 125 °F and preferably between 140°F and 150 °F.

3. Car Wash Sump Water Facility

Clay Peak Landfill accepts car wash sump water that contains fine silts and grit. The waste is generally delivered by pumper truck and is a low viscosity slurry composed predominantly of water. To a reasonable extent, the car wash sump water should be free of antifreeze, paints, solvents, and excessive quantities of petroleum products. Waste loads identified as potentially "characteristic" or "listed" hazardous waste will not be accepted. Toxicity Characteristic Leaching Procedure (TCLP) testing is required if wastes are suspected to be hazardous wastes.

D. Waste Monitoring and Measurement – Described for Each Facility

Provisions shall be made for monitoring and measuring all solid wastes delivered to the landfill facility and its respective unit process. The waste monitoring program shall include:

i. A daily written log listing the types and quantities of wastes received;
ii. A plan for monitoring and handling receipt of unauthorized wastes;
iii. Routine inspection and characterization of the wastes received, and
iv. Other measures including in an approved Operating Plan.

POLICY OF THE CLAY PEAK LANDFILL

The Clay Peak Landfill has scales at the entrance to weigh all vehicles prior to entering and leaving the site to record the amount of non-municipal waste entering. Tonnage of waste and waste types are recorded for each month. The types of waste received are described as construction and demolition waste, composting waste, car wash sump waste, septage wastes, asbestos, biosolids or sludge, tires, culled agricultural products, and other industrial or sludge wastes.

The county employees are trained to answer questions from the public and to screen for what is acceptable and unacceptable waste delivered to the facility. If an item is brought into the Clay Peak Landfill that does not meet the landfill acceptance criteria, the County informs the patron that they cannot leave the item at the facility and disposal must be done elsewhere. If an item is unacceptable, it is noted and a standard waste inspection form (Figure 2-2) is completed and kept in the records. When, or if, a County employee finds or identifies a hazardous waste, the waste inspection form is again completed and the waste should be returned to the owner or the owner must reimburse the County for proper disposal of the item. The County's goal is to inspect at least 5% of all waste loads for hazardous waste that is delivered to the site. Those wastes to which ownership cannot be established or those wastes which the County has agreed to handle will be appropriately staged or stored for subsequent disposal or recycle. For example, regulated wastes will be temporarily stored at the hazardous materials (HAZMAT) storage facility located within the facility maintenance compound until proper disposal can be arranged. All hazardous materials (includes hazardous wastes and hazardous substances) will be shipped offsite by Payette County for proper disposal and will require a shippers manifest. The shipment of hazardous wastes and toxic substances for offsite disposal will require a hazardous waste manifest to be completed by US Department of Transportation (DOT) trained personnel. At this time, Payette County must contract the preparation and completion of hazardous waste manifests to qualified contractors, such as reported in Section 1. Copies of all hazardous waste manifests shall be appropriately distributed among the generator, transporter, and regulator with a copy kept in the facility operating record.

1. Construction and Demolition (C&D) Facility

All construction and demolition facility waste that is brought into the Clay Peak Landfill is visually inspected. No material that contains hazardous wastes is accepted, including asbestos. The charge of disposal of this material is per ton and records of the amount of waste being brought to the facility are recorded.

2. Composting Facility

Any material brought to the site that could contaminate the quality of the compost and not make the final compost product suitable as a soil amendment will be rejected. Therefore, process knowledge and/or testing is required for all organic material brought to the landfill site for composting and/or disposal.

All ingredients used in composting are biodegradable organics that have been directed to the landfill because the organic wastes have no apparent value to the waste generator. These wastes include:

- Agricultural waste products such as culled or spoiled onions, potatoes, peppers, and other vegetable products
- Food wastes such as unpackaged vegetables, fruits, and breads
- Organic yard wastes such tree branches, lawn clippings, and shrubbery

- Organic demolition debris such as spent lumber, tree stumps, and other organic demolition debris.

Compostable plastic products are not acceptable for composting at the Clay Peak Landfill because site composting temperatures are not expected to exceed 160ºF that is required for biologically breaking down compostable plastic products.

Agricultural and food wastes typically have high organic nitrogen content as well as other nutrients that are readily biodegradeable or compostable. However, these wastes have high water content varying from 75% to 95% moisture content and require additional carbon to properly sustain aerobic composting. The organic yard wastes and organic demolition debris which are relatively low in water content but high in carbon content are mechanically mulched and mixed with the agricultural and food wastes to absorb excess water and to balance the nutrient requirements for aerobic windrow composting. Agricultural waste products and food wastes are both staged at the landfill for mechanically mixing with mulched organic to solidify the waste for transport to the compost windrows. Any wastewaters drained from the agricultural waste products and foods wastes are collected and mechanically mixed with mulch to form a solidified product for transfer to the compost windrow. The waste staging areas are bermed to prevent the runoff of wastewater.

Solidifying the wastes or liquids is dependent upon the characteristics of the mulched material; therefore, the equipment operator must slowly add and mix the mulched material with a front end loader until a wet product is formed that can be trucked to the composting windrows.

All food wastes accepted by the Clay Peak Landfill for inclusion into its composting operations will be managed in accordance with the operational criteria stipulated by the SWDH in their approval letter to County Commissioner, Marc Shigeta, dated November 15, 2013. Operational criteria will include:

1. Nuisance controls shall be maintained to limit disease and discomfort, malodorous gasses, and vectors that may be associated with composting. If any of the above factors cannot be maintained within acceptable levels, the food composting operations must cease for the protection of public health.
2. All food wastes received must be measured in the form of cubic yards or tons.
3. Temporary food waste staging should be limited to three days during warm weather and six days during cold weather to minimize vector exposure and odor.
4. Compost windrow temperatures shall be satisfactorily maintained between to ensure the destruction of pathogens that may be present within the food wastes. Typical windrow temperatures will range from 125°F to 145°F, if the following operational criteria is followed.

Food wastes may have a higher nitrogen content than onions and should decompose much quicker than culled onions; therefore, additional carbon rich materials such as wood chips and straw may be required to control ammonia gases. Given the variability of water and nitrogen content in food waste, the landfill operations will rely on the compost windrower's observations (visual and odor) to adjust the wood chip content to control odor and vectors. However, since wood chips are readily available for mixing, operators can easily and quickly manage the carbon content in the composting windrow(s).

Composting is largely performed during early spring to late fall. Since the compost is largely mulch material with high carbon content, the composting process is slow but easily managed by visual observation. Water is added to the windrows as frequently as once per day, pending

weather conditions to promote bacterial activity. Additionally, compost windrows are generally turned weekly to every other week based on visual observation. Internal windrow temperatures may range from 120ºF to 150º F, but temperature monitoring is not required because of daily windrow observation will govern daily water addition, weekly windrow turning and the extended composting period that varies from four to six months before screening. Frequent windrow turning does not promote high windrow temperatures but helps maintain an aerobic environment to minimize the development of odors and low pH compost. Mulch screening removes larger "mulch seconds" and other undesirable products such as rocks, metals, plastics and other non-compostable materials. Mulched seconds are clumps of organics that have not fully composted or broken down and may be recycled to the composting windrow or used to help solidify other wastes accepted at the landfill such as grit from car wash sumps. The screened product is either transported to the final compost staging area for marketing, or recycled to the compost windrow for additional composting. Since Clay Peak generally "cures" the compost for an extended period after it visually looks finished, the finished product is a more chemically stable end-product

3. Car Wash Sump Water Facility

The Clay Peak Landfill accepts car wash sump water containing fine sands and grit. The waste must be a low viscosity slurry composed predominantly of water. To a reasonable extent, the car wash water should be free of antifreeze, paints, solvents, and excessive quantities of petroleum products. Waste loads identified as potentially "characteristic" or "listed" hazardous waste will be refused. The disposal charge for car wash sump water is by the ton.

E. Communication – Uniform for Each Facility

Communication devices shall be available or reasonably accessible at the site.

POLICY OF THE CLAY PEAK LANDFILL

The County employees working at the landfill communicate use handheld radios and portable cell telephones. The office telephone is (208) 642-6036.

F. Fire Prevention and Control – Uniform for Each Facility

Adequate provisions shall be made for controlling or managing fires at the site.

POLICY OF THE CLAY PEAK LANDFILL

Fire control at the facility will be accomplished in accordance with the Fire Controls described in Section 2.II.H.

G. Facility Access – Uniform for Each Facility

Unauthorized vehicles and persons shall be prohibited access to the landfill facility, whereas the facility or unit process, open to the public, shall accept waste only when an attendant is on duty. The facility or unit process shall be fenced or otherwise blocked to access when an attendant is not on duty.

POLICY OF THE CLAY PEAK LANDFILL

Access control at the facility will be accomplished in accordance with access controls described in Section 2.II. J.

H. Scavenging and Salvaging – Uniform for Each Facility

Scavenging by the public at a facility is prohibited; however, salvaging may be conducted in accordance with a written operations plan and only by the owner, operator or an authorized agent.

POLICY OF THE CLAY PEAK LANDFILL

Salvaging at the site is conducted by the County employees with authorization by the Landfill Foreman or designee, or by the waste screener only. If the Landfill Foreman or designee authorizes a patron to salvage an item, a County employee pulls the item from the waste and the patron loads it into their vehicle.

I. Nuisance Control – Uniform for Each Facility

The owner and operator shall control nuisances, including but not limited to:

i. Disease or Discomfort. Operations at any facility shall not provide sustenance to rodents or insects that cause human disease or discomfort;
ii. Vector. Vector control procedures shall prevent or control vectors that may cause health hazards or nuisances;
iii. Odor. The facility shall be operated to control malodorous gases; and
iv. Litter. Effective measures shall be taken to minimize the loss of wind-blown debris from the landfill cells. Debris blown from or within the facility shall be collected and properly disposed to prevent objectionable accumulations.

POLICY OF THE CLAY PEAK LANDFILL

Landfill personnel will be observant to the presence of vector fauna. Presence of diseased vector fauna will be reported to the Landfill Director for further evaluation and appropriate animal control.

1. Construction and Demolition Facility

The waste material accepted for this facility is typically not attractive to insects or animals and does not have significant odor. An earthen material cover is applied to the facility occasionally to prevent wind blown litter

2. Composting Facility

The types of materials that attract nuisance insects or animals such as fats, meat scraps, bones, and cheese are not commonly used in the compost material. Odor is reduced by frequent windrow turning that also keeps the material aerated and minimizes septic conditions. The compost is kept slightly moist to aid with decomposition and to prevent loss of material from high winds.

3. Car Wash Sump Water Facility

This waste material is typically no attractive to animals and does not have significant odor. The waste is primarily a liquid, but the solids may be dewatered and removed to the petroleum contaminated soils stockpile for subsequent treatment. An earthen cover may be applied if odors become apparent.

J. Bird Hazard to Aircraft – Uniform for Each Facility

No facility or unit process may handle putrescible wastes in such a manner that will attract birds and increase the likelihood of bird/aircraft collisions. Facilities that are located within ten thousand (10000) feet of any airport or runway used by turbojet aircraft, or within five thousand (5000) feet of ay airport used by only piston-type aircraft shall operate the facility in such a manner that birds are not a hazard to aircraft.

POLICY OF THE CLAY PEAK LANDFILL

Prevention of bird hazards to aircraft will be accomplished in accordance with the disease vector controls discussed in Section 2.II.F.

K. Open Burning and Fires – Uniform for Each Facility

Open burning is prohibited at facilities except as authorized by these rules and IDAPA 58.01.01, “Rules for the Control of Air Pollution in Idaho”.

i. No open burning shall be conducted during an air pollution episode, declared in accordance with IDAPA 58.01.01, “Rules for the Control of Air Pollution in Idaho”
ii. Open burning is authorized only if it is infrequent and the materials are agricultural wastes, silviculture wastes, land clearing debris, diseased trees, or debris from emergency cleanup operations. Materials burned shall not include municipal garbage, dead animals, asphalt, petroleum products, paints, tires or other rubber products, plastics, paper (other than necessary to start the fire), cardboard, treated wood, construction debris, metal, pathogenic wastes, hazardous wastes, or any other substance (other than natural vegetation) that when burned releases toxic emissions, dense smoke or strong odors.
iii. Open burning shall be conducted pursuant to conditions set forth by the Department or local fire authority. The owner and operator of the facility shall contact the Department and the local fire authority prior to conducting open burning to report its nature and location.

POLICY OF THE CLAY PEAK LANDFILL

Open burning at the Clay Peak Landfill will be conducted infrequently and only when large amounts of agricultural or silviculture (untreated wood and tree limbs) waste is accumulated at the site. Only non-treated waste will be burned and no open burning will take place during a regulatory burn ban. No domestic waste will be burned. The landfill will only conduct burning after notifying the local rural fire department.

L. Storm Water Run-On / Run-Off Controls – Uniform for Each Facility

The operator plan shall include sufficient storm water management provisions, which may incorporate a NPDES storm water pollution prevention plan, to prevent contamination of surface and ground water and prevent the spread and impact of contamination beyond the boundary of the facility.

POLICY OF THE CLAY PEAK LANDFILL

Storm water controls at the facility will be in accordance with controls discussed in Section 2.II. K and Section 2.II.L.

M. Odor Management – For Composting Facility Only

In accordance with IDAPA 58.01.06, The owner and operator of a Tier II processing facility shall implement a Department approved Odor Management Plan designed to minimize malodorous gases. An Odor Management Plan shall include specific operating criteria for oxygen, moisture and temperature levels appropriate fro the wastes to be processed and processing technologies to be employed, methods used to maintain the specific operating criteria and a monitoring strategy that includes the frequency and parameters for monitoring the specific operating criteria.

For example, the acceptance of food wastes for composting will continue if no apparent problems to control vectors and odors are observed during quarterly inspections. As of June 2014, no apparent odor or vector problems have been noted by Alan Scharbrough (Landfill Director), Gary Kelley (Landfill Foreman), and Basil Tupyi, PE (Holladay Engineering Co). The food waste generator shall be required to remove all plastics, aluminum and other inert packaging and the food wastes shall be incorporated into the windrows as soon as possible and placed near the center of the windrow to reduce odor and vector attraction.

POLICY OF THE CLAY PEAK LANDFILL

The materials used for composting are selected to balance nutrient and moisture requirements for optimum decomposition. Keeping the compost aerated helps to reduce odor, but additional wood chips are added if odors cannot be controlled. If a rotten egg (hydrogen sulfide) odor is detected, the compost is either too wet or there is insufficient aeration.

N. NMSWLF Operating Requirements – For C&D Facility Only

In accordance with IDAPA 58.01.06, the owner and operator of a NMSWLF shall comply with the following operating requirements:

1. Compaction and placement of waste in locations consistent with the approved O&M Plan.
2. Provision for storage of waste during periods when the NMSWLF is inaccessible, such as during the winter months.
3. Application of a six (6) inch compacted soil cover layer on exposed waste as necessary to prevent nuisance and vector conditions at periods consistent with the approved operating plan. An owner and operator may request that IDEQ approve an alternate cover that addresses vectors, litter, fire, odor, and scavenging concerns.
4. Placement of an interim cover layer of twelve (12) inches of compacted soil between lifts to provide erosion control and structural stability. An owner and operator may request that IDEQ approve an alternate interim cover that addresses erosion and stability for subsequent lifts.
5. Preservation of existing vegetation where attainable.

POLICY OF THE CLAY PEAK LANDFILL

The C&D waste received each day will be placed in the designated area of the C&D Facility. The initial waste placement will be on the eastern edge of the C&D facility and proceed in a north-south direction within the boundaries of the excavated pit. The C&D wastes are compacted in 2 foot lifts

and covered with six (6) inches of soil. Compaction is achieved with approximately five passes from a bulldozer/compactor. Row widths will vary depending on the volume of the waste received. When the rows are filled to the western end of the facility, an additional six (6) inches of soil will be placed for a total interim cover of twelve (12) inches between lifts.

The west end of the C&D waste cell may be used when access to the eastern portion of the C&D cell is limited. The six (6) inch compacted soil cover will be applied approximately every two weeks, but cover placement frequency may be adjusted as warranted. As each lift of C&D waste is placed, an interim cover of twelve (12) inches compacted soil may be required to provide erosion and stability for subsequent lifts. Existing vegetation will be preserved when practical.

III. CLOSURE REQUIREMENTS – Described for Each Facility

In accordance with IDAPA 58.01.06, the closure requirement for a Tier II facility shall comply with the following:

i) **Public Notice**. For a facility open to the public, the owner and operator shall provide public notice of the facility's closure by publishing a notice in the local newspaper and posting signs at the facility's entrance. This notice shall be published and the signs posted:
   a. At least thirty (30) days and no more than ninety (90) days prior to the date of last receipt of waste for a facility that has reached disposal capacity; or
   b. If the facility has remaining capacity and there is a reasonable likelihood that the facility will receive additional waste, a notice shall be published and signs posted at least thirty (30) days and no more than ninety (90) days prior to closure.

   Landfill Facility must publish a public announcement in the local newspaper and post signs at the facilities entrance at least 30 days prior to closure.

ii) **Facility Closure**. Unless the IDEQ or the Department establishes an alternate closure time period, the owner and operator shall close the facility within six (6) months of the Department's approval of the Closure Plan. The facility shall be closed in accordance with the approved Closure Plan.

iii) **Clean Site/Access Control.** The owner and operator shall close the facility by managing or removing all solid waste to prevent impact to human health or the environment and installing a gate or other device to prevent public access after the last receipt of waste. Operator shall close facility within 2 months of the Department's approval.

iv) **Drainage and Erosion Control**. The owner and operator shall install appropriate measures to control erosion and install appropriate measures to control the run-on and runoff from a twenty-five (25) year, twenty-four (24) hour storm event and to provide for he diversion of other surface waters from the closed facility.

v.) **Closure Plan Certification.** Within 30 days of closure, the owner and operator shall notify the Department in writing that the facility was closed in accordance with the approved Closure Plan. If closure of the facility is different from the approved Closure Plan, the owner and operator shall submit for Department review and approval documents, such as "as-built" plans showing the final conditions of the facility.

POLICY OF THE CLAY PEAK LANDFILL

At such time as the non-municipal solid waste landfill facilities located at Clay Peak Landfill are closed, a closure and post-closure plan will be submitted in accordance with the applicable rules. The closure activities for the non-municipal solid waste landfill facilities include:

1. **Construction and Demolition Facility**
   The closure requirements will be in accordance with IDAPA 58.01.06, Section 012.05, as well as the following closure requirements described in detail IDAPA 58.01.06 Section 012.11.f-l:
   i. Specific requirements are listed for Final Cover, Facility Stabilization, Slope Stability, and Drainage Control.
   ii. A Closure Plan shall be provided
   iii. A notation shall be recorded on the deed.
   iv. A Post-Closure Plan shall be provided and Post0-Closure care shall be conducted for a period of five (5) years with inspections and the Post Closure Care Plan shall be maintained and available for review on request by IDEQ

2. **Composting Facility**
   The closure requirements will be in accordance with IDAPA 58.01.096 Section 012.05.

3. **Car Wash Sump Water Facility**
   The closure requirements will be in accordance with IDAPA 58.01.096 Section 012.05.

IV. DOCUMENTATION REQUIREMENTS – Uniform for Each Facility or Landfill Unit Process

The owner and operator shall maintain on site:

- A copy of each IDEQ approved application and plan required
- Documentation, such as a daily log of the quantity and type of waste received
- An operations log of the methods used to maintain the operating criteria and sampling results

POLICY OF THE CLAY PEAK LANDFILL

The County shall maintain this O&M Manual as part of the operating record in compliance with IDAPA 58.01.06. All references to the Clay Peak Landfill Operating Record will be in reference to the files and completed forms retained at the Clay Peak Landfill, but regulatory correspondence(s) with county commissioners shall be retained at the Payette County Clerk's office, located at the Payette County Courthouse, 1130 3rd Avenue North, Payette, Idaho 83661.
.
The County will maintain a computerized record of all wastes received and hard copies of all the inspections, reports, demonstrations, certifications, and testing at the landfill facility to be part of the operating record.

SECTION 4
OTHER SOLID WASTE

I. BIOSOLIDS SURFACE DISPOSAL

See the Clay Peak Landfill Surface Disposal Facility Operation & Maintenance Manual for the surface disposal of biosolids from wastewater treatment facilities.

II. CULL ONION and CULL POTATOES DISPOSAL

The Idaho State Department of Agriculture (ISDA) administers the regulatory requirements for the disposal of cull onions and cull potatoes as found in IDAPA 02.06.17 – Rules Concerning the Disposal of Cull Onions & Potatoes. The ISDA regulated products include:

- Cull onions: All cull onions produced as a result of market conditions, the grading process, or as a result of breakdown in storage or sorted out in the field during harvest and bulbs and waste left over from seed production.
- Cull potatoes: All cull potatoes produced as a result of market conditions, the grading process, or as a result of breakdown in storage, or sorted out in the field during harvest and tubers and waste left over from potato seed production.

The Clay Peak Landfill utilizes the disposal methods found in IDAPA 02.06.17.071. that includes "Disposal by Composting" and "Disposal by Spreading" for cull onion and cull potato disposal. The Clay Peak Landfill generally employs the "Disposal by Composting' method; however, the Landfill may still use the "Disposal by Spreading" alternative if site conditions and operations are not amenable for the "Disposal by Composting" method.

'Disposal by Composting' requires cull onions and cull potatoes to be covered with twelve inches or more of composting materials that largely consists of wood chips or mulch generated from wood chipping and brush grinding. This condition provides a carbon base that is mixed and composited in the production of a fine soil amendment. Refer to Section 3. I.B. for the operational criteria of Clay Peak's non-municipal solid waste composting facility.

'Disposal by Spreading' requires cull onions and cull potatoes to be spread on agricultural areas within the Landfill and disked into the soils such that all onions and debris are buried under onion-free soil. Disking is performed to control odors and vectors.

III. SEPTAGE STORAGE

Septage waste will be accepted for temporary storage at the Clay Peak Landfill from local septic tank pumping and cleaning establishments. Underground storage tanks for the temporary accumulation and storage of septage will be maintained in designated locations at Clay Peak Landfill. There are currently three underground storage vessels: one 8,000 gallon mild steel tank, one 10,000 gallon stainless steel tank, and a newly constructed 16,000 gallon concrete tank.. Commercial pumper trucks will deliver septage to Clay Peak Landfill and pay a disposal fee according to the fee schedule located in Appendix D. The Manifest/Application for Septage shown below in Figure 4-1 will be completed to identify the transporter, their waste, and origin. Payette County will maintain a contract with a commercial firm for periodic removal of the septage waste. The removal contractor will be responsible for compliance with applicable regulations and licensure requirements as directed by the IDEQ and SWDH. The removal contractor will assume responsibility for the septage. As of January 2015, final septage disposal is at the City of Nampa Wastewater Treatment Facility, a regulatory permitted wastewater treatment facility in southwestern Idaho.

Figure 4-1

MANIFEST / APPLICATION FOR SEPTAGE

To be Completed by Licensed Septic Tank Pumper

Homeowner/Business Name:_____ Date:_____

Address:_____ Receipt #_____

Phone #:_____ Time:_____

Legal Description: T_____ R_____ Sec_____ 1/4 Sec_____

Septic Tank Size:_____ Volume Pumped:_____ Cost $_____

Comments:_____

Disposal Method and Location:_____ Fees $_____

Total Cost $_____

Include other component parts thereof if more than one source contributes to each load:_____

Domestic septage does not include liquid or solid material removed from a septic tank, cesspool, or similar treatment works that receives either commercial wastewater or industrial wastewater and does not include grease removed from a grease trap at a restaurant. (40 CFR 503.9(f))

Check one of the following:

Load contains only domestic septage ____

Load contains only non-domestic septage ____

Load contains domestic and non-domestic septage ____

I certify, under penalty of law, that this information will be used to determine compliance with the Payette County Ordinance and 40 CFR 503. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.

x_____ x_____

Homeowners/Business Managers Signature Business Name

x_____ x_____

Pumper Truck Operator Signature Name Licensed Under

A copy of this manifest is to be provided to Clay Peak Landfill and retained by all parties for a period of not less than five years.

SECTION 5 – APPENDICES

A. Final Construction Quality Assurance Report,
   Prepared for the Closure of Landfill Cell #1, Clay Peak Landfill,
   Dated December 30, 2013, Engineer Stamped on December 31, 2013 and IDEQ Approved on January 2, 2014

B. Air Quality Permit to Construct, issued December 16, 2008

C. Specifications and Installation Requirements for Landfill Gas Vent Flares

D. Waste Disposal Fee Schedule, as of June 3, 2014

E. Landfill Facility Maps
   E-1 Entire Site
   E-2 Facility Operations

APPENDIX A

FINAL CONSTRUCTION QUALITY ASSURANCE REPORT
Prepared for the Closure of Landfill Cell #1
Clay Peak Landfill

Dated December 30, 2013
Engineer Stamped on December 31, 2013
IDEQ approved on January 2, 2014

2014BABI

FINAL CONSTRUCTION QUALITY ASSURANCE REPORT

Prepared for the

Closure of Landfill Cell #1
Clay Peak Landfill

Payette County, Idaho

PROFESSIONAL ENGINEER
REGISTERED
4017
STATE OF IDAHO
BASIL TUPYI

Basil Tupyi
31 December 2013

Prepared by

Holladay Engineering Company
32 North Main Street
Payette, Idaho

December 30, 2013

APPROVED
By: Josh Sand
IDAHO DEQ
Boise Regional Office
Date: Jan. 2, 2014

Final
Construction Quality Assurance Report
for the
Closure of Landfill Cell #1
Clay Peak Landfill, Payette County

Certifying Engineer: Basil Tupyi, PE
HECO Project No. 10-0354A

This Final Construction Quality Assurance (QA) Report presents a summary of the landfill operations and information/data compiled during closure of Landfill Cell #1 at the Clay Peak Landfill to demonstrate compliance with Idaho Department of Environmental Quality (IDEQ) and Southwest District Health Department (SWDH) landfill closure requirements.

Regulatory Requirements

The Final Hydrogeologic Characterization, Monitoring System, and Facility Design of the Clay Peak Sanitary Landfill, dated March 1993, and approved by IDEQ provided the regulatory design, construction, and operational requirements for Landfill Cell #1. The design utilized an unlined, arid landfill cell design with silt loam soils for the final cover having optimal or near optimal agronomic water storage characteristics combined with evapotranspiration to retain and/or consume annual precipitation with no leachate to be generated. Landfill operations, maintenance, and staged closure were further detailed in the Operations & Maintenance (O&M) Manual, last revised September 2007, that was approved and is regulatory administered by the SWDH. Additionally, the O&M Manual includes a notification to IDEQ and SWDH that a closure plan has been prepared and is part of the operating record.

Payette County and SWDH agreed to a landfill closure certification program in June 2011, that was designed to confirm compliance with regulatory landfill cover construction requirements. Therefore, this Final QA Report documents the construction activities and analytical testing results that confirms landfill cover construction requirements were met. Additionally, IDEQ comments on the Draft QA Report have been resolved and incorporated into this Final QA Report.

Content of Final QA Report

The Final QA Report contains the following information:

Section	Closure Element or Activity Description
1	**Waste Inventory**: Summarize the mass of wastes deposited in Landfill Cell #1. Includes Table 1, Summary of Solid Wastes and Asbestos Deposited in Landfill Cells 1 and 2 From 1993 to 2011.
2	**Final Landfill Layout**: Discuss the final landfill layout and provide a figure that maps the aerial extent of Landfill Cell #1and the adjoining activities, reports the final site elevations and surface slope, and locates the surface water control features, landfill gas collection and flaring appurtenances, landfill cell settlement markers, and post-closure surface features. Includes: • Figure 1, Final Landfill Cell #1 Layout (revised June 17, 2013). • Figure 2, Final Landfill Cell #1 Cross Sections (revised June 17, 2013) • Figure 3, Continued Final Landfill Cell #1 Cross Sections (revised June 17, 2013) • Figure 4, Cell #1 North West Side Slope Cross Sections (revised June 17, 2013)

3	**Vector Control:** Describe measures taken to: 1) separate the wastes from vectors, 2) minimize long term maintenance, and 3) be protective of human health and the environment. Includes Figure 5, Final Landfill Cover Design
4	**Landfill Gas Control:** Summarize the controls used to limit landfill gas migration and map their location(s). Landfill gas monitoring will closely follow the Corrective Action Plan for detecting and mitigating landfill gas emissions as presented in Exhibit E below.
5	**Assessment and Characterization of Final Landfill Cover :** Report discrete soil sampling results to demonstrate the depth of the final cover is 6 feet or greater; therefore, complying with minimum landfill cover thickness criteria. Report soil characterization and classification tests that indicate sandy loam to silty loam soils used in cover construction; therefore, meeting soil classification HELP #'s 4 – 9 as stipulated for an unlined arid landfill design. Note the Hydrologic Evaluation of Landfill Performance (HELP) Model was used in the Clay Peak Landfill design. Report dynamic cone penetrometer (DCP) test results to verify that the lower depth of the final cover, 3 ft to 6 ft depth, is well compacted and will prevent leachate by restricting infiltration to the upper three feet of the final cover. Report hydraulic conductivity test results to confirm default hydraulic conductivities obtained from soil classification tests have silty loam soils that range from 1.7×10^{-3} cm/sec to 1.9×10^{-4} cm/sec with a conductivity of 1×10^{-5} cm/sec being the lowest hydraulic conductivity desired for the protection of the liner from gas migration.
6	**Final Vegetative Cover** Describe the seed bed preparation and seeding based on observations and photos. Includes Figure 6, Copy of Actual Invoice for Seed or Vegetative Cover.
7	**Certifying Engineer Observations** Includes Table 2 Summary of Soil Characteristics for the Final Landfill Cover of Landfill Cell #1

Six Exhibits are included in this Final QA Report to help substantiate landfill closure activities and subsequent certification requirements. The six Exhibits include:

A. TECHNICAL APPROACH FOR LANDFILL CLOSURE consisting of the Revised Technical Approach dated September 2010 and Engineer Responses to SWDH dated April 24, 2011, May 24, 2011, June 3, 2011, and June 6, 2011

B. REGULATORY APPROVAL OF FINAL COVER FOR LANDFILL COVER CONSTRUCTED DURING "CLOSE AS YOU GO" that Includes Engineer Submittal dated August 2011 AND SWDH Approval dated September 2011

C. SOILS ANALYTICAL DATA that includes

- Soil Characterization Data from Americian Geotechnics (i.e., Guelph Permeameter for Hydraulic Conductivity, Dynamic Cone Penetrometer for Soil Compaction, Soil Screening for Soil Classification) and
- In-Place Soil Density Test Results from IRVCO Asphalt Inc. and Materials Testing and Inspection Inc.

D. PHOTO LOG

E. CORRECTIVE ACTION PLAN FOR THE CLAY PEAK LANDFILL, dated May 10, 2013
A corrective action plan to detect and mitigate landfill gas containing methane around the landfill cells and beneath landfill facility structures. Landfill gas monitoring and recordkeeping forms are included in Exhibit E.

F. REGULATORY APPROVAL OF DRAFT QA REPORT with regulatory and engineer comments/responses.

1.0 Waste Inventory

Payette County commenced landfilling operations in October 1993 that employed a "close as you go" landfill cell closure design, whereas the final landfill cover was placed upon the final waste lift immediately after its construction. This closure approach was very cost effective because it allowed the concurrent use of heavy equipment for daily landfill cover placement and final landfill cover construction. However, the "close as you go" landfill cell construction was limited to the northern sector and sidewalls of Landfill Cell #1 because the "close as you go" could not be fully utilized:

1) On the crest of Landfill Cell #1, where gravel and road base materials were placed for landfill site access during landfill operations (see Photo 2 in Exhibit D), and
2) In the southern sector of Landfill Cell #1 that could not be closed until all landfilling operations and user traffic were stopped.

Landfilling operations in Landfill Cell #1 ceased in October 2010, when all landfill wastes designated for burial were directed to Landfill Cell #2. Photos 1 through 3 show aerial views of Landfill Cell #1 in 1999, 2010, and 2012.

A yearly summary of all solid wastes deposited in Landfill Cell #1 is presented in Table 1. Photos 4 and 5 show the scale house with the landfill in the background in 2002 and 2012, respectively. Note the changes in landfill height in 2002 and 2012.

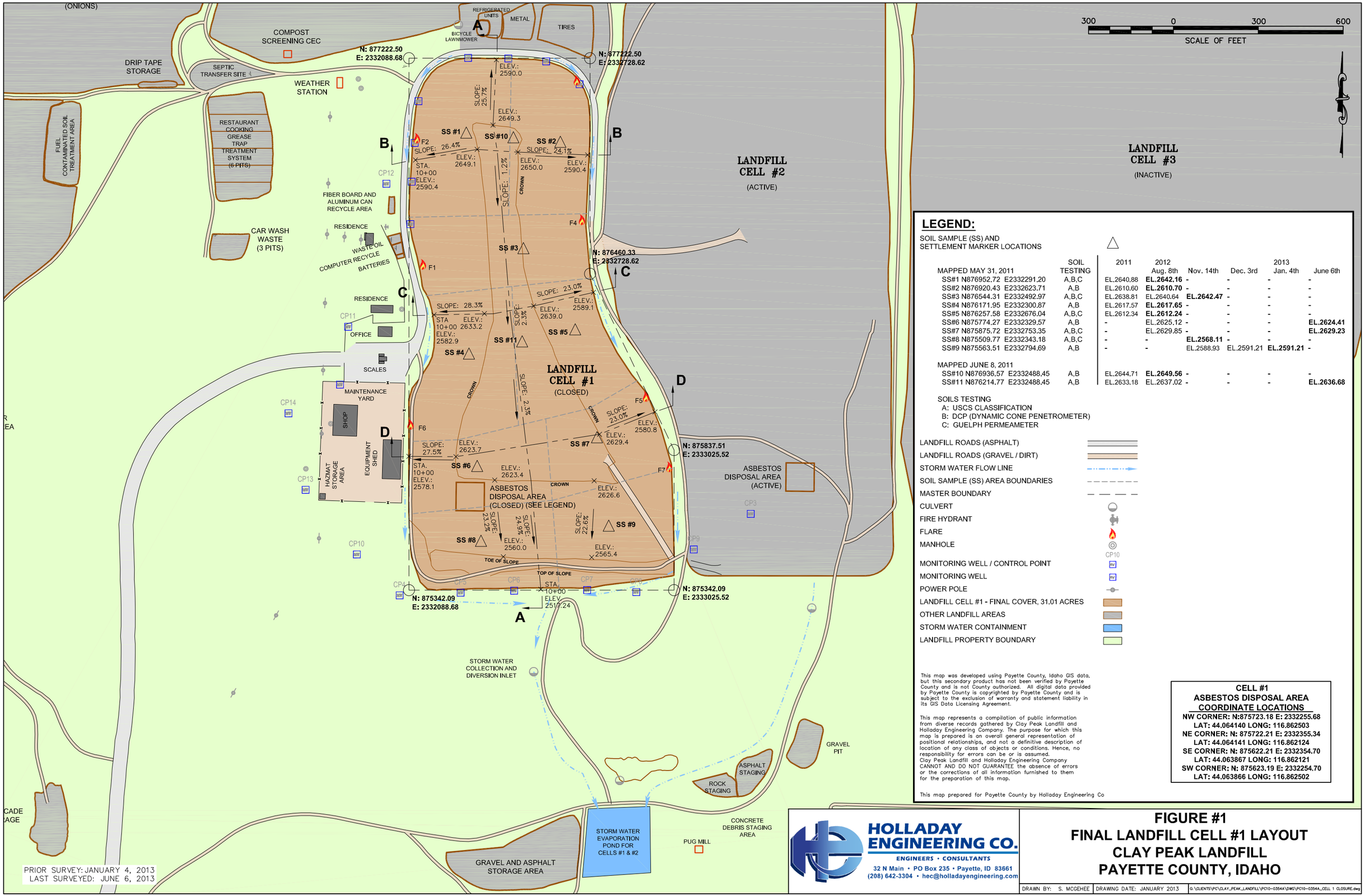
Table 1
Summary of Solid Wastes and Asbestos Deposited in Landfill Cells 1 and 2
From 1993 to 2011

Year	Landfill Cell 1		Landfill Cell 2		Total Wastes	
	Solid Wastes (tons)	Asbestos (tons)	Solid Wastes (tons)	Asbestos (tons)	Solid Wastes (tons)	Asbestos (tons)
Oct 1993 – Sept 1998	350,000[a]	200[b]	0	0	350,000	200
Oct 1998 - 2001	248,165[c]	301	0	0	248,165	301
2002	76,854[d & e]	17	1,569	0	78,423	17
2003	78,912[d & e]	29	1,610	0	80,522	29
2004	77,650[d & e]	30	1,585	0	79,235	30
2005	74,227[d & e]	40	1,514	0	75,741	40
2006	80,149[d & e]	35	1,697	0	81,846	35
2007	79,653[d & e]	42	1,626	0	81,279	42
2008	75,485[d & e]	6	1,541	0	77,026	6
2009	17,277[f]	0	51,830	35	69,107	35
2010	17,331[f]	0	51,994	46	69,325	46
2011	0	0	68,451	39	68,451	39
Subtotal	1,175,703	700	183,417	120	1,359,120	820

source: waste receipts provided by Landfill Administrator
Notes
a: waste tonnage not measured, assumed 70,000 tons per year based on Report: Final Hydrogeologic Investigation and Waste Cell Design, Lateral Expansion of Clay Peak Sanitary Landfill, prepared March 2001 and DEQ approved on March 12, 2001.
b: asbestos not measured, assumed 40 tons per year
c: tonnage measured but not reported yearly
d: tonnage measured and reported yearly
e: assumed 2% of yearly wastes sent to Cell #2 during poor top access to Cell #1
f: assumed 75% of yearly wastes sent to Cell #2 and all asbestos sent to Cell #2

2.0 Final Landfill Layout

A plan view of the final Landfill Cell #1 is shown Figure 1 that illustrates the final landfill cell perimeter, perimeter roadway, landfill surface slopes, elevations of the landfill base and crest, and storm water run-off drainages or flow lines. Additionally, key landfill components or features that may require post closure care are also described on Figure 1 that include stormwater retention basin, closed asbestos disposal site, landfill gas flares, and soil sampling (SS) locations. The SS locations are marked with cast-in-place concrete caps that also serve as settlement markers. The SS locations or settlement markers and perimeter of the closed asbestos disposal site are mapped in Figure 1 with northings and eastings, in accordance with the Idaho State Plan Coordinate System. Final landfill slopes were found to meet minimum final cover slopes of 2% along the crest and maximum 33% on sidewalls, except at the northern apex of the crest is an area that has 1.2% slope. However, this area is not subject to stormwater runon and the final cover has approximately 7 feet depth (1 foot thicker than design criteria) that will maintain its function and limit moisture to the upper half of the final landfill cover. The final surface profiles are illustrated in Figures 2, 3, and 4. Refer to Table 2 for final cover depths.



LEGEND:

SOIL SAMPLE (SS) AND SETTLEMENT MARKER LOCATIONS

MAPPED MAY 31, 2011	SOIL TESTING	2011	2012 Aug. 8th	Nov. 14th	Dec. 3rd	2013 Jan. 4th	June 6th
SS#1 N876952.72 E2332291.20	A,B,C	EL.2640.88	**EL.2642.16**	-	-	-	-
SS#2 N876920.43 E2332623.71	A,B	EL.2610.60	**EL.2610.70**	-	-	-	-
SS#3 N876544.31 E2332492.97	A,B,C	EL.2638.81	EL.2640.64	**EL.2642.47**	-	-	-
SS#4 N876171.95 E2332300.87	A,B	EL.2617.57	**EL.2617.65**	-	-	-	-
SS#5 N876257.58 E2332676.04	A,B,C	EL.2612.34	**EL.2612.24**	-	-	-	-
SS#6 N875774.27 E2332329.57	A,B	-	EL.2625.12	-	-	-	**EL.2624.41**
SS#7 N875875.72 E2332753.35	A,B,C	-	EL.2629.85	-	-	-	**EL.2629.23**
SS#8 N875509.77 E2332343.18	A,B,C	-	-	**EL.2568.11**	-	-	-
SS#9 N875563.51 E2332794.69	A,B	-	-	EL.2588.93	EL.2591.21	**EL.2591.21**	-
MAPPED JUNE 8, 2011							
SS#10 N876936.57 E2332488.45	A,B	EL.2644.71	**EL.2649.56**	-	-	-	-
SS#11 N876214.77 E2332488.45	A,B	EL.2633.18	EL.2637.02	-	-	-	**EL.2636.68**

SOILS TESTING
- A: USCS CLASSIFICATION
- B: DCP (DYNAMIC CONE PENETROMETER)
- C: GUELPH PERMEAMETER

LANDFILL ROADS (ASPHALT)
LANDFILL ROADS (GRAVEL / DIRT)
STORM WATER FLOW LINE
SOIL SAMPLE (SS) AREA BOUNDARIES
MASTER BOUNDARY
CULVERT
FIRE HYDRANT
FLARE
MANHOLE
MONITORING WELL / CONTROL POINT
MONITORING WELL
POWER POLE
LANDFILL CELL #1 - FINAL COVER, 31.01 ACRES
OTHER LANDFILL AREAS
STORM WATER CONTAINMENT
LANDFILL PROPERTY BOUNDARY

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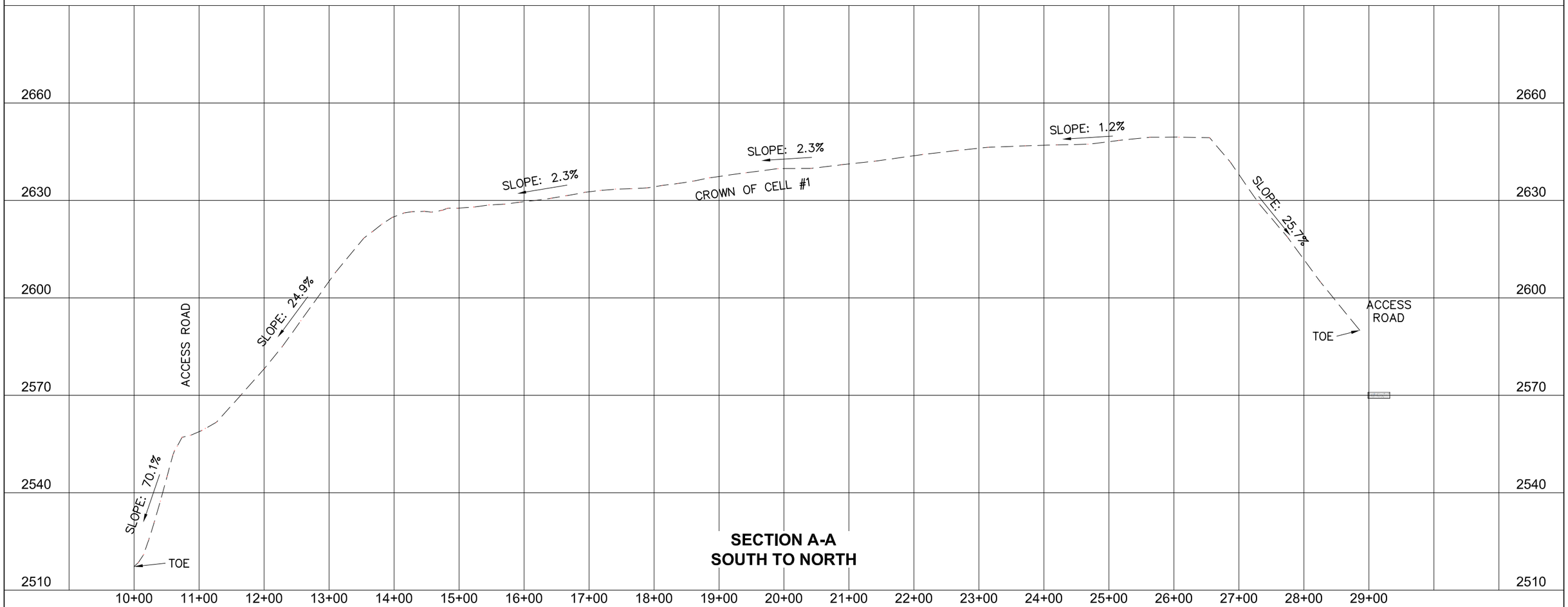
This map prepared for Payette County by Holladay Engineering Co

CELL #1
ASBESTOS DISPOSAL AREA
COORDINATE LOCATIONS
NW CORNER: N:875723.18 E: 2332255.68
LAT: 44.064140 LONG: 116.862503
NE CORNER: N: 875722.21 E: 2332355.34
LAT: 44.064141 LONG: 116.862124
SE CORNER: N: 875622.21 E: 2332354.70
LAT: 44.063867 LONG: 116.862121
SW CORNER: N: 875623.19 E: 2332254.70
LAT: 44.063866 LONG: 116.862502

HOLLADAY ENGINEERING CO.
ENGINEERS • CONSULTANTS
32 N Main • PO Box 235 • Payette, ID 83661
(208) 642-3304 • hec@holladayengineering.com

FIGURE #1
FINAL LANDFILL CELL #1 LAYOUT
CLAY PEAK LANDFILL
PAYETTE COUNTY, IDAHO

DRAWN BY: S. MCGEHEE | DRAWING DATE: JANUARY 2013 | G:\CLIENTS\PC\CLAY_PEAK_LANDFILL\PC10-0354A\DWG\PC10-0354A_CELL 1 CLOSURE.dwg



SECTION A-A
SOUTH TO NORTH

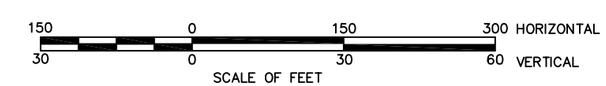


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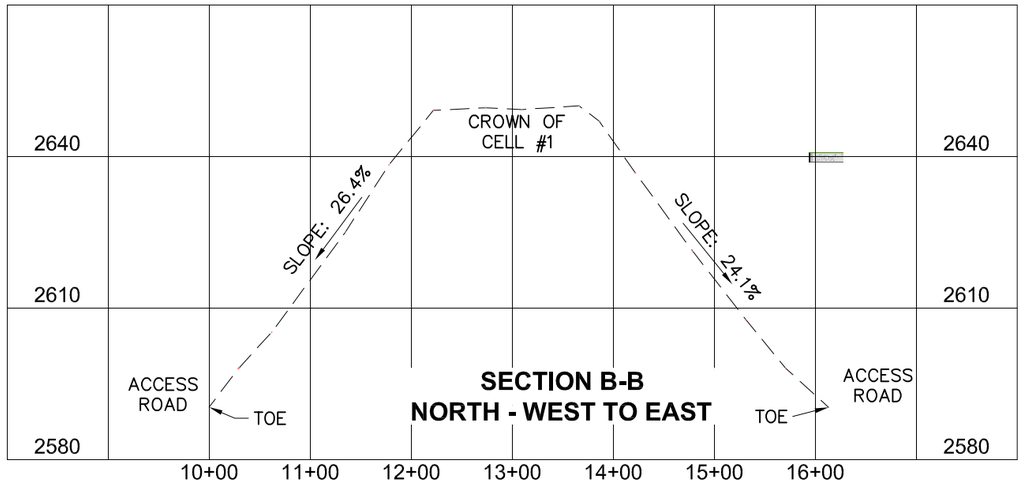
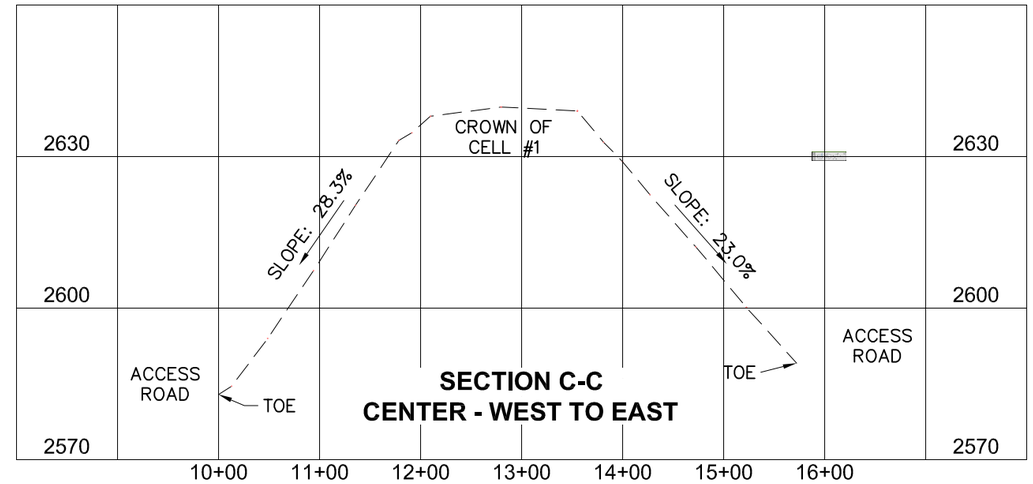
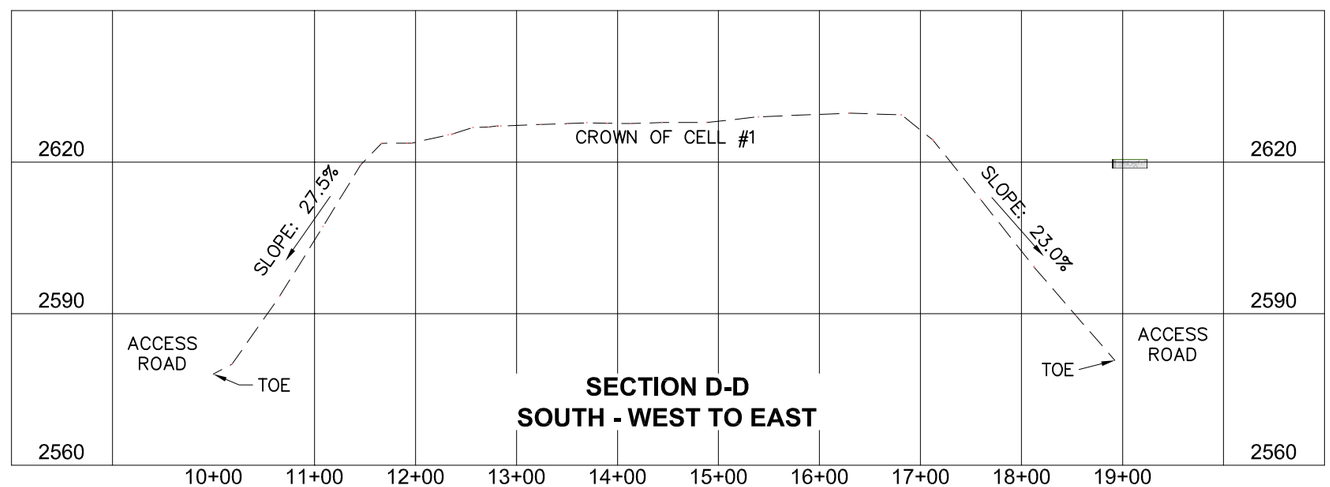
FIGURE #2
FINAL LANDFILL CELL #1 CROSS SECTIONS
CLAY PEAK LANDFILL
PAYETTE COUNTY, IDAHO

DRAWN BY: S. MCGEHEE | DRAWING DATE: JUNE 2013 | G:\CLIENTS\PC\CLAY_PEAK_LANDFILL\PC10-0354A\DWG\PC10-0354A_CELL 1 CLOSURE.dwg







150 0 150 300 HORIZONTAL
30 0 30 60 VERTICAL
SCALE OF FEET

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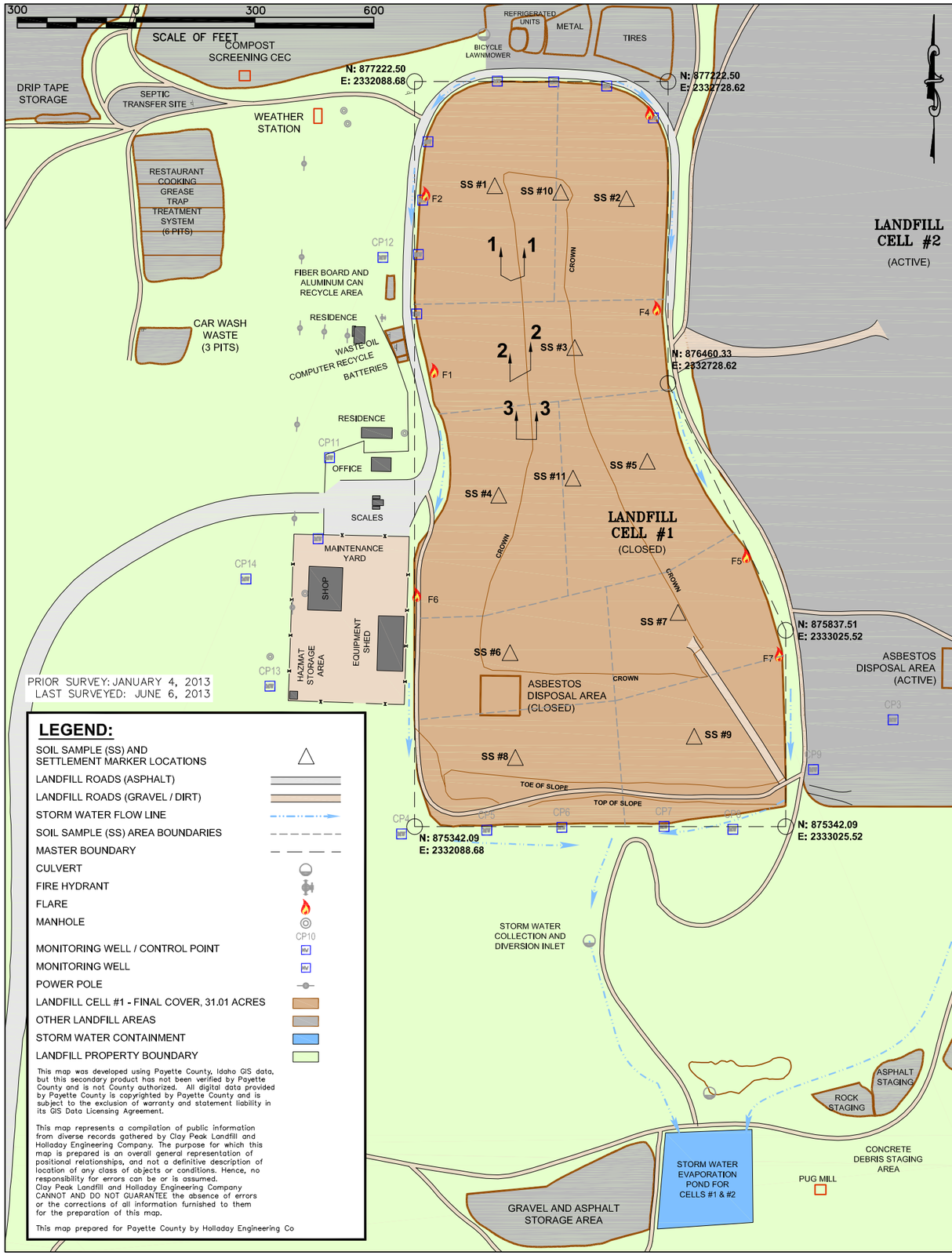
FIGURE #3
FINAL LANDFILL CELL #1 CROSS SECTIONS
CLAY PEAK LANDFILL
PAYETTE COUNTY, IDAHO

DRAWN BY: S. MCGEHEE | DRAWING DATE: JUNE 2013 | G:\CLIENTS\PC\CLAY_PEAK_LANDFILL\PC10-0354A\DWG\PC10-0354A_CELL 1 CLOSURE.dwg



PRIOR SURVEY: JANUARY 4, 2013
LAST SURVEYED: JUNE 6, 2013

LEGEND:

- SOIL SAMPLE (SS) AND SETTLEMENT MARKER LOCATIONS
- LANDFILL ROADS (ASPHALT)
- LANDFILL ROADS (GRAVEL / DIRT)
- STORM WATER FLOW LINE
- SOIL SAMPLE (SS) AREA BOUNDARIES
- MASTER BOUNDARY
- CULVERT
- FIRE HYDRANT
- FLARE
- MANHOLE
- CP10 MONITORING WELL / CONTROL POINT
- MONITORING WELL
- POWER POLE
- LANDFILL CELL #1 - FINAL COVER, 31.01 ACRES
- OTHER LANDFILL AREAS
- STORM WATER CONTAINMENT
- LANDFILL PROPERTY BOUNDARY

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This map prepared for Payette County by Holladay Engineering Co

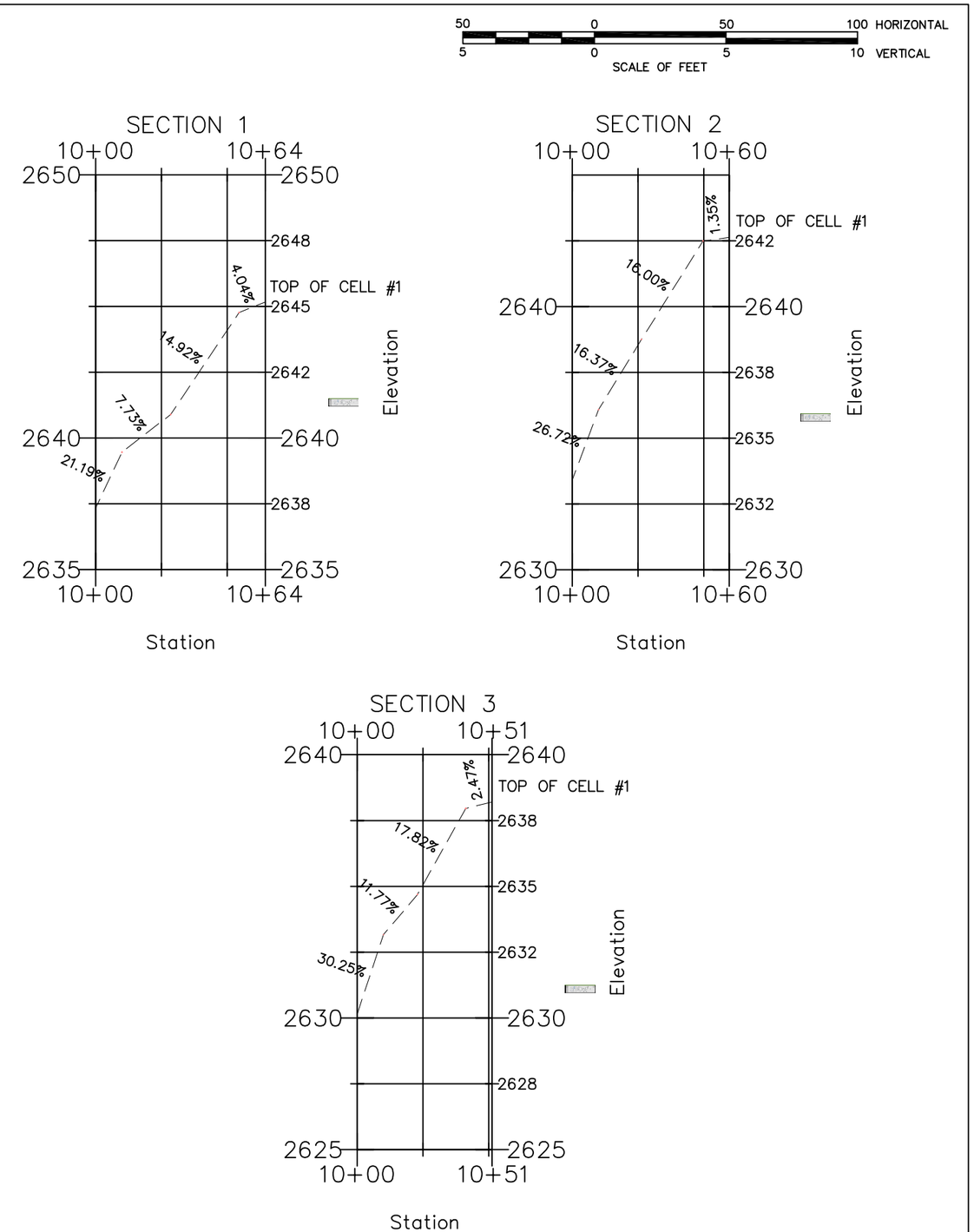

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FIGURE #4
CELL #1 NORTH WEST SIDE SLOPE
CLAY PEAK LANDFILL
PAYETTE COUNTY, IDAHO

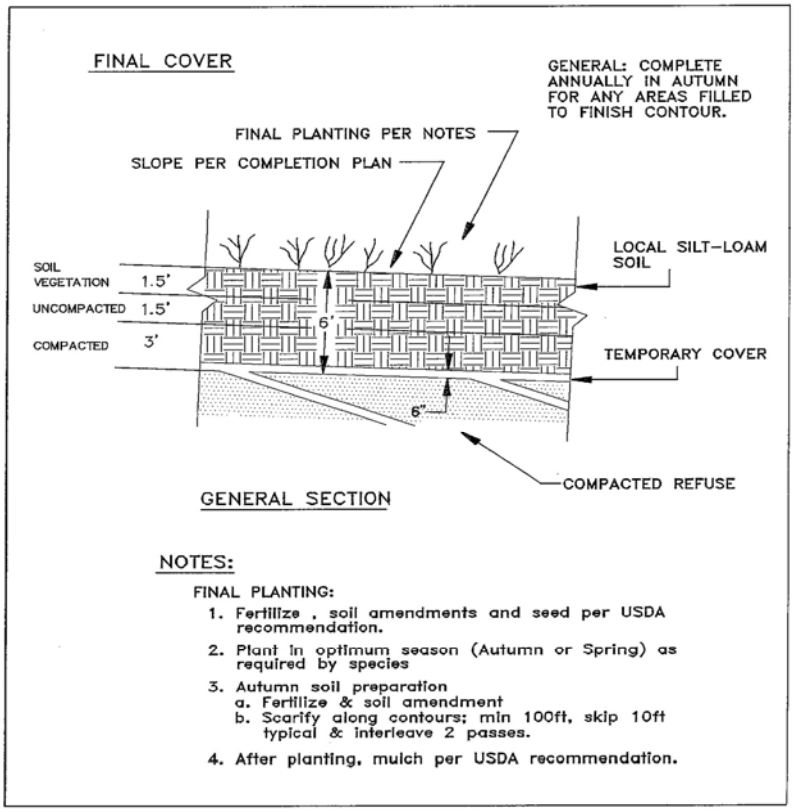
DRAWN BY: S. MCGEHEE | DRAWING DATE: JUNE 2013 | G:\CLIENTS\PC\CLAY_PEAK_LANDFILL\PC10-0354A\DWG\PC10-0354A_CELL 1 CLOSURE.dwg

3.0 Vector Control

Earthen material was placed over the landfilled wastes at the end of each operating day for vector control. Depredation permits were also required in 2003 to further disperse birds, but the earthen cover was very successful in limiting bird activity. The final landfill cover with vegetative cover shown in Figure 5 ensures that all buried waste will not be disturbed or uncovered inadvertently.

Figure 5 shows the final landfill cover design as approved for Landfill Cell #1 in the facility design documents and as reported in the Final Closure Plan on page 55 of the O&M Manual.

Figure 5
Final Landfill Cover Design



Source: Final Hydrogeologic Characterization Monitoring System and Facility Design of the Clay Peak Sanitary Landfill, Payette County, Idaho dated March 1993.

As discussed earlier, drainages along the cell perimeter quickly diverts runoff away from the landfill cell and to the stormwater retention basin to further minimize local insect vectors. Roadways along the perimeter Cell #1 allow for easy maintenance of stormwater drainages and diversion structures.

4.0 Landfill Gas Control

A methodical landfill gas control strategy was implemented to contain, collect, discharge, and "burn off" landfill gases generated from waste decomposition. The final landfill cover design is not expected to generate leachate; therefore, landfill gas generation will be limited to anaerobic waste decomposition at a rate based on the waste's natural moisture content. A gas collection system consisting of gravel trenches, perforated polyvinylchloride (PVC) piping, and PVC manifolds collect and pipe the landfill gases to seven atmospheric vents that have automated gas flares to ignite and burn the combustible gases such as methane, as shown in Figure 1. An IDEQ air quality permit, Permit # P-

2008-0078 was last revised and issued on December 16, 2008. The atmospheric vents and automated gas flares are visually inspected monthly for emissions and the atmospheric vents are monitored quarterly during post closure until no appreciable gas is detected, as reported in the Corrective Action Plan, dated May 10, 2013. Landfill gas monitoring and recordkeeping requirements are presented in the Corrective Action Plan which have been incorporated into the O&M Manual and is included in the Final QA Report as Exhibit E. Gas vents with flares are shown on Photos 7 and 8.

5.0 Characterization of Final Landfill Cover

Soil sampling and characterization was initially performed in 2011 to assess the final cell cover constructed in the areas where "close as you go" was employed (in the northern sector of Landfill Cell #1). A systematic 5 point grid was used to identify soil sample (SS) locations; but two additional soil sample locations (SS#10 and SS#11) were added for the purpose of better assessing the center or crest of Landfill Cell #1. See Figure 1 for the soil sample locations. The soil sample locations are marked with metal T posts and concrete settlement markers that will be used to determine landfill settlement. Settlement marker shown in Exhibit D, Photo 25

The soil sampling results in 2011 indicated the final landfill cell cover in the areas of SS#1, SS#2, SS#4, and SS#5 met the regulatory requirements for soil cover depth, soil classification, hydraulic conductivity, and soil compaction; however, the final cover near SS#3 required additional earthwork for regulatory compliance. The regulatory submittal and SWDH approval letter for the June and July 2011 soil sampling results are presented as Exhibit B and the soil sampling results are also summarized in Table 2 for direct reference.

Final cell cover construction for the two areas where "close as you go" was not employed began in early 2012 when IRVCO Asphalt was contracted to place and compact the final cover on the crest of Landfill Cell #1. IRVCO Asphalt achieved final cover compaction with multiple heavy equipment passes that was found to be consistently greater than 92% compaction at three foot cover depth, as reported by Materials Testing and Inspection (MTI) (see Exhibit C for MTI testing results). The compacted soils prevented the use of a manual hollow stem auger; therefore, backhoe test pits were used to collect and characterize soils at depth. Other soils testing was performed by American Geotechnics following IRVCO Asphalt earthwork that indicated the areas on the crest of Landfill Cell #1 near SS# 6, SS #7, SS # 10, and SS # 11 comply with regulatory requirements for cover thickness, soil classification, hydraulic conductivity, and cover compaction. These results are also summarized in Table 2 and the analytical lab reports presented in Exhibit C. The final cover near SS#3 was again found to have less than 6 feet depth; therefore, additional earthwork was required for the area around SS#3. The Certifying Engineer also noted the final surface of the landfill cover was obtained from top soil located southwest of Landfill Cell #1 that contained surface organic matter. (See photo 24 in Exhibit D.)

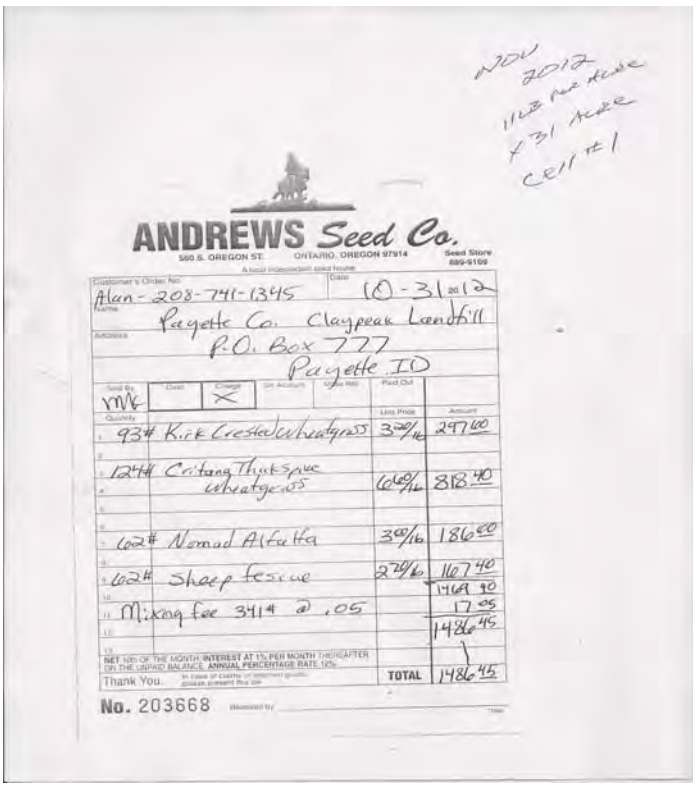
The remaining final landfill cover for Landfill Cell #1 was constructed by Payette County during fall 2012 utilizing Payette County owned and rented equipment operated by Payette County staff. Note that earthwork performed by IRVCO Asphalt resulted in nearly 12 inches of additional cover depth exceeding minimum regulatory requirements along the crest of Landfill Cell #1. Thereafter, Payette County used backhoe "pot holing" to help verify final cover thickness before implementing soils testing and to help minimize excessive earthwork. The final cover for Landfill Cell #1 was completed during fall 2012 and the analytical results indicate the areas near SS# 3, SS# 8, and SS #9 were improved to comply with regulatory requirements for cover thickness, soil classification, hydraulic conductivity, and cover compaction. Note that the areas around SS #3, #9, #10, and #11 required multiple earthwork and soils testing events to comply with the 6 foot depth final cover requirements. See Table 2 for a summary of the analytical results and the actual laboratory data reports are presented

in Exhibit C. Photos showing landfill cover construction and analytical testing are presented in Exhibit D, photos 9 – 37.

6.0 Final Vegetative Cover

Though the Certifying Engineer noted in 2010 that the final soil cover in the areas where "close as you go" construction was employed had good vegetation growth; much of the vegetated landfill surface area was redisturbed in 2012 to better establish vegetation growth. The Certifying Engineer noted final cover top soil was obtained from Payette County property south and southwest of Landfill Cell #1 that showed good vegetative growth and organic matter. The material did not contain gravels and caliche that would adversely impact vegetation. The final cover was roller harrowed during October and November 2012 to produce an excellent uniform seed bed. The landfill cover was hydroseeded in November 2012 using the regulatory approved seed mixture presented in the Cell #1 closure documents in Exhibit B, Attachment 2. See Figure 7 for seed invoice.

Figure 7
Copy of Actual Invoice for Seed or Vegetative Cover


NOV 2012
1168 per Acre
x 31 Acre
Cell #1

ANDREWS Seed Co.
560 S. OREGON ST. ONTARIO, OREGON 97914
Seed Store 889-9109

Customer's Order No.: Alan - 208-741-1345
Date: 10-31-2012
Name: Payette Co. Claypeak Landfill
Address: P.O. Box 777
Payette ID

Sold By: MW
Cash: | Charge: X | On Account | Order No. | Paid Out

Quantity		Unit Price	Amount
1	93# Kick Crested/Wheatgrass	3.20/lb	297.60
2			
3	124# Critana Thickspike Wheatgrass	6.60/lb	818.40
4			
5			
6			
7	62# Nomad Alfalfa	3.00/lb	186.00
8			
9	62# Sheep fescue	2.70/lb	167.40
10			1468.80
11	Mixing fee 341# @ .05		17.05
12			1486.45
13			

NET 10th OF THE MONTH INTEREST AT 1% PER MONTH THEREAFTER ON THE UNPAID BALANCE. ANNUAL PERCENTAGE RATE 12%
Thank You. In case of claims or shortage of goods, please present this slip
TOTAL 1486.45

No. 203668 Received by _____

Excellent seed coverage was noted during hydroseeding, based on the colored dye coverage. Fall rains followed hydroseeding that should potentially promote an excellent final vegetative cover; however, extended cold winter temperatures of 0°F during late December 2012 and January 2013 are expected to impact seed germination and growth that may require reseeding those areas damaged by winter cold temperatures. Nomad alfalfa seed was inadvertently included in the grass seed mixture; however, it likely lacked sufficient fall growth to weather the cold winter temperatures. A broad-leaf herbicide application such as 2-4-D may be required to prevent growth of any deep rooted broad leaf plant. The requirements for re-seeding and/or application of a broad-leaf herbicide will not be known until summer 2013 or later; when field conditions are observed/inspected during post closure care to confirm the need for re-seeding and broad-leaf control measures. See Exhibit D photo 24 for topsoil and photos 32 – 37 for final cover bed preparation and seeding.

7.0 Conclusions By The Certifying Engineer

Basil Tupyi, PE, Idaho License No. P-4017 performed the functions of the professional or certifying engineer who periodically observed daily operations of waste and daily cover placement during 2008 through 2010, as well as periodically observed the construction of the final landfill cover by IRVCO Asphalt and Payette County staff. Additionally, Mr. Tupyi coordinated and met with surveyors and soils testing personnel, whereas he periodically observed and directed their respective field activities. Site surveys were performed by Holladay Engineering Co. and analytical soils testing was performed by American Geotechnics, Boise, Idaho.

The analytical results summarized in Table 2 indicate the final landfill cover complies with the closure conditions as stipulated in the 1) Technical Approach presented in Exhibit A and 2) August 2011 report presented in Exhibit B: The following closure conditions were met:

- Soil sampling with a hollow-stem auger and/or backhoe revealed the depth of the final cover exceeds 6 feet that met or exceeded landfill design cover criteria.
- Composited soil samples at depth reported sandy loam to silty loam soils that met soil classification HELP #'s 4 – 9.
- The Guelph Permeameter tests reported hydraulic conductivities ranging from 3.4 x 10-4 to 1.8 x 10-5 cm / sec at the 22 to 24 inch soil depth; therefore the upper soil layer will satisfactorily serve its hydraulic function to provide storage of moisture and detention of drainage that will be extracted by evapotranspiration.
- The field dynamic cone penetrometer tests and the in-place nuclear density measurements indicate a compacted cover that will restrict infiltration to the upper three feet of the final cover and prevent leachate.
- The source of the final 6 inches of final cover was excavated from an area south and southwest of the landfill that was vegetated with grasses having good organic content with no gravels.
- The final cover was very well roller harrowed and then hydro seeded with the regulatory approved seed mixture. Few gravels or caliche particles were noted on the final roller harrowed surface with good seed coverage, based on the colored dye coverage.
- Fall rains occurred within two weeks following hydro seeding; therefore, good grass growth is expected; except, harsh winter conditions may have some impact.
- Concrete settlement markers have been placed at all soil sample locations that will be used to determine landfill settlement. Elevations of settlement markers are reported on Figure 1.

The analytical results summarized in Table 2 are taken from the laboratory reports compiled in Exhibit C.

Photos are provided in Exhibit D further illustrating landfill operations, cover construction, and soils testing performed on the final cover.

The Corrective Action Plan, dated May 10, 2013 for monitoring and mitigating landfill gas emissions is presented in Exhibit E. Exhibit E also includes regulatory review comments and subsequent engineer responses to the Corrective Action Plan.

IDEQ approval of the Draft QA Report that follows IDEQ report review comments and Engineer responses are presented in Exhibit F.

TABLE 2
Summary of Soil Characteristics for the Final Landfill Cover of Landfill Cell #1

Soil Sample Location or Marker No. (date of test)	Soil Classification [1]			Permeability [2] w/ Guelph Permeameter	DCP Testing Summary	Observations[3] During Soil Sampling	Holladay Engineer Observations [4]
	HELP #	USDA	USCS				
SS #1 Final Cover [June 2011]	8	Loam	Sandy Silt ML w/3% gravel	$3.4x10^{-4}$cm/sec	compaction increases with depth from 0 to 6 ft • ≈95 blows from 0-3ft • ≈210 blows from 3-6ft	no waste to 6 ft depth	Dried heavy vegetation with sand/silts on surface in 2011. Dyes used in hydro seeding illustrated good seed coverage in 2012.
SS #2 Final Cover [June 2011]	8	Loam	Sandy Silt ML w/4% gravel		compaction decreases with depth from 0 to 6 ft • ≈50 blows from 0-3½ft • ≈30 blows from 3½-6ft	no waste to 6 ft depth	Dried vegetation with sand/silts on surface in 2011. Dyes used in hydro seeding illustrated good seed coverage in 2012.
SS #2 N (75ft north of SS #2) [June 2011]	8	Loam	Sandy Silt ML w/4% gravel		compaction decreases with depth from 0 to 6 ft • ≈70 blows from 0-2½ft • ≈25 blows from 2½-6ft	no waste to 6 ft depth, vegetation and cemented particles at surface	Dried vegetation with sand/silts on surface in 2011.
SS #2 S (75 ft south of SS #2) [June 2011]	8	Loam	Sandy Silt ML w/14% gravel		well compacted at depth from 0 to 6 ft • ≈150 blows from 0-3ft • ≈100 blows from 3-6ft	no waste to 6 ft depth, vegetation and cemented particles at surface	Dried vegetation with sand/silts on surface in 2011.
SS #3 Not Final Cover [June 2011]	6 or 7	Sandy Loam	Silty Sand SM w/14% gravel	Note 5	compaction increases with depth from 0 to 6 ft • ≈ 80 blows from 0-3 ft • ≈160 blows from 3-6ft	no waste to ≈ 42 inch depth	no gravel on surface in 2011
SS #3 Not Final Cover [September 4, 2012]	6 or 7	Sandy Loam	Sandy Silt (ML) w/trace of gravel	1.1×10^{-4} cm/sec	compaction increases with depth from 0 to 6 ft • ≈ 25 blows from 0-3 ft • ≈ 90 blows from 3-6ft	no waste to ≈ 56 inch depth at 20 ft north of SS #3	approximately 22 inches soil added to the area during summer 2012
SS # 3A Final Cover [November 14, 2012]	6 or 7	Sandy Loam	Sandy Silt (ML)		uniformly compacted at depth but heavily compacted at 5 ft to 5 ½ ft depth, cannot penetrate beyond 5 ½ ft • ≈50 blows from 0-3 ft • ≈65 blows from 3- 5 ½ ft	no waste to 5 ½ ft depth	Area built up or backfilled approximately 12 inches to 16 inches since September 4, 2012. Seedbed prepared with a roller harrow in 2012. Dyes used in hydro seeding illustrated good seed coverage in 2012.

TABLE 2
Summary of Soil Characteristics for the Final Landfill Cover of Landfill Cell #1

Soil Sample Location or Marker No. (date of test)	Soil Classification [1]			Permeability [2] w/ Guelph Permeameter	DCP Testing Summary	Observations[3] During Soil Sampling	Holladay Engineer Observations [4]
	HELP #	USDA	USCS				
SS #4 Final Cover [June 2011]	7	Loam	Silty Sand with Gravel SM w/17% gravel		compaction uniform with depth from 0 to 6 ft • ≈70 blows from 0-3 ft • ≈70 blows from 3-6 ft	no waste to 6 ft depth	Cementitious particles (like caliche) on the surface in 2011. Roller harrowed to prepare seed bed. Dyes used in hydro seeding illustrated good seed coverage.
SS #5 Final Cover [June 2011]	6 or 7	Sandy Loam	Silty Sand SM w/13% gravel	2.5×10^{-4} cm/sec	compaction increases with depth from ≈ 0 to 4.5 ft • ≈50 blows from 0-3 ft • ≈110 blows from 3-6ft	no waste to 6 ft depth	Test Pit ≈ 50 feet northwest of marker: no gravels but cementitious particles (like caliche) noted on the surface, cementitious particles found in excavated soil with minimum 7 feet soil cover and no waste in 2012. Surface roller harrowed for seed bed. Dyes used in hydro seeding illustrated good seed coverage in 2012.
SS # 6 Final Cover [August 15, 2012]	6 or 7	Sandy Loam	Sandy Silt (ML) w/13.2 % gravel		well compacted throughout depth from ≈ 0 to 6 ft • ≈70 blows from 0-3 ft • ≈150 blows from 3-6ft	no waste to 6 ft depth	Backhoe pit 20 ft north of marker indicated no waste to 7 ½ ft depth in 2012. Surface roller harrowed for seed bed. Dyes used in hydro seeding illustrated good seed coverage in 2012.
SS #7 Final Cover [August 15, 2012]	6 or 7	Sandy Loam	Sandy Silt ML w/ 15 % gravel on Sept 4th	7.0×10^{-5} cm/sec	compaction increases with depth from ≈ 0 to 6 ft • ≈40 blows from 0-3 ft • ≈175 blows from 3-6ft	no waste to 6 ft depth	Backhoe pit 20 ft north of marker indicated no waste to 7 ft depth in 2012. Surface roller harrowed for seed bed. Dyes used in hydro seeding illustrated good seed coverage in 2012.
SS #8 Final Cover [November 14, 2012]	6 or 7	Sandy Loam	Sandy Silt (ML) w/ 1% gravel	1.8×10^{-5} cm/sec	compaction increases with depth from ≈ 0 to 6 ft • ≈60 blows from 0-3 ft • ≈190 blows from 3-6ft	no waste to 6 ft depth	Surface roller harrowed for seed bed. Dyes used in hydro seeding illustrated good seed coverage in 2012.
SS #9 Not Final Cover [November 14, 2012]	6 or 7	Sandy Loam	Sandy Silt (ML) trace of gravel		compaction increases with depth from ≈ 0 to 6 ft • ≈50 blows from 0-3 ft • ≈125 blows from 3-6ft	trash debris encountered at 4 ft	

TABLE 2
Summary of Soil Characteristics for the Final Landfill Cover of Landfill Cell #1

Soil Sample Location or Marker No. (date of test)	Soil Classification [1]			Permeability [2] w/ Guelph Permeameter	DCP Testing Summary	Observations[3] During Soil Sampling	Holladay Engineer Observations [4]
	HELP #	USDA	USCS				
SS # 9A Final Cover [November 20, 2012]	6 or 7	Sandy Loam	Sandy Silt (ML) w/ 1% gravel		compaction increases with depth from ≈ 0 to 6 ft • ≈50 blows from 0-3 ft • ≈ 100 blows from 3-6 ft	located 15 ft east of SS#9 marker no waste to 6 ft depth	Area build up or backfilled approximately 36 inches since November 2012. Surface roller harrowed for seed bed. Dyes used in hydro seeding illustrated good seed coverage in 2012.
SS #10 Not Final Cover [June 2011]	8	Loam	Sandy Silt (ML) w/ 2% gravel		well compacted uniformly with depth from 0 to 6 ft • ≈ 90 blows from 0-3ft • ≈100 blows from 3-6ft	no waste to ≈ 66 inches depth	vegetation with sand/silts on surface
SS # 10 Final Cover [Sept 4, 2012]		Sandy Loam	Silty Sand (SM) w/ 6% gravel		compaction increases with depth and then stabilizes • ≈ 75 blows from 0-3ft • ≈65 blows from 3-6ft	no waste to 6 ft depth	Backhoe pit located 20 ft north of marker indicated no waste to at least 84 inches depth in 2012. Surface roller harrowed for seed bed. Dyes used in hydro seeding illustrated good seed coverage in 2012.
SS #11 Not Final Cover [June 2011]	8	Loam	Sandy Silt (ML) w/ 7% gravel		well compacted uniformly with depth from 0 to 6 ft • ≈140 blows from 0-3ft • ≈180 blows from 3-6ft	no waste to ≈ 24 inches depth	Test Pit ≈ 50 feet west of marker: sand/silt, sprinkled with ¾ minus gravel on surface, 1 inch depth gravel road base with waste noted at ≈ 24 inch depth
SS# 11 Final Cover [Sept 4, 2012]	6 or 7	Sandy Loam	Sandy Silt (ML) w/ trace of gravel		compaction increases with depth to 30 inches and then compaction well maintained from 30 inches to 80 inches depth • ≈85 blows from 0-3ft • ≈190 blows from 3-6ft	no waste to ≈ 6 ½ ft depth	Backhoe pit approximately 20 ft north of SS#11 indicated no waste to 7 ft depth in 2012. Surface roller harrowed for seed bed. Dyes used in hydro seeding illustrated good seed coverage in 2012.

Note 1: Soil Classifications per Hydrologic Evaluation of Landfill Performance (HELP) Model, US Department of Agriculture (USDA), and Unified Soil Classification System (USCS)
Note 2: Soil sample collected at ≈ 22 to 24 inch depth
Note 3: Observations by Travis Thomsen, American Geotechnics,
Note 4: Observations by Basil Tupyi, PE, Holladay Engineering Co.
Note 5: Soil unsuitable for test method because soil sloughing into hole during testing.

EXHIBIT A

Technical Approach for Landfill Closure

HOLLADAY
ENGINEERING CO.
ENGINEERS • CONSULTANTS

September 29, 2010

Mr. Brian Crawford
Southwest District Health Department
920 Main Street
Caldwell, Idaho 83605

Subject: Revised Technical Approach for Certifying Closure of Landfill Cell #1
Clay Peak Landfill, Payette County, Idaho
HECO Project # 10-0354A

Dear Mr. Crawford:

Payette County proposes the following Revised Technical Approach to certify closure of landfill Cell #1 at the Clay Peak Landfill. Final waste acceptance and placement into Cell #1 is expected during late October or early November 2010 unless wet muddy landfill conditions are encountered that would delay final waste placement into Cell #1 until 2011. Hence, wet weather could delay final Cell #1 closure activities until summer or fall 2011.

The Revised Technical Approach closely follows:

- Final Hydrogeologic Characterization, Monitoring System, and Facility Design of the Clay Peak Sanitary Landfill, dated March 1993 and referred hereafter as the Facility Design;
- Closure Plan presented in the Clay Peak Landfill's Operation and Maintenance (O&M) Manual, revised September 2007 and
- Subpart F, Closure and Post-Closure, EPA Municipal Solid Waste Landfill Criteria – Technical Manual.

In summary, the Technical Approach is consistent with the Facility Design and Technical Manual described above and is designed to demonstrate/certify the final landfill cover will:

- limit infiltration and erosion,
- control landfill gas migration,
- separate wastes from vectors, and
- is protective of human health and the environment.

It should be noted that inclusion of the Closure Plan in the O&M Manual fulfills the regulatory notification requirement that a Closure Plan has been prepared and placed in the operating record located at the Clay Peak Landfill, 2560 Highway 52, Payette County,

32 N MAIN STREET • PO BOX 235 • PAYETTE, IDAHO 83661 • 208-642-3304 • 208-642-2159 FAX

Payette, Idaho. Furthermore, the field and laboratory data collected during final closure will be included in the closure certification.

REVISED TECHNICAL APPROACH

A. *Soils testing will be performed to assess the final cover and to confirm the composition of the final cover is as shown in Figure 1. Figure 1 shows the final landfill cover design as approved for Cell #1 in the Facility Design (per Figure 18) and as reported in the Final Closure Plan on page 55 of the O&M Manual.*

Insitu dynamic cone penetrometer (DCP) tests will be systematically performed to assess the subgrade and confirm:

1. *the final cover from 0 to 3 feet depth is uncompacted and will support grass growth,*
2. *the final cover from 3 feet to 6 feet is compacted,*
3. *the temporary refuse cover depth, and*
4. *the total depth of final landfill waste cover.*

DCP tests will be first performed in a systematic 5-point grid pattern on the final cover for Cell #1 completed before September 27, 2010 as mapped in Figure 2 and then in a systematic 4-point grid pattern on the area of Cell #1 completed after September 27, 2010. Soil penetration resistance reported from the DCP tests will differentiate whether the soils are uncompacted or compacted (i.e., the number of hammer blows for the uncompacted depths should be less than the number of hammer blows for the compacted depths after adjusting for soil depth resistance).

Additionally, three composite soil samples from 0 to 6-inch depth will be collected to determine soil organic content. Soil organic concentrations in the upper six inches should promote shallow-rooted plant growth; therefore, the topsoil may require amendments if low soil organic concentrations of less than 2% are encountered, per Western Lab, Parma, Idaho recommendation.

The soil characteristics for the source of the final landfill cover for cell #1 was reported in the Facility Design that subsequently lead to the landfill cover design illustrated in Figure 1; therefore, additional soils testing such as soil permeability and soils texture are not required because Payette County is not deviating from the design presented in the Facility Design.

B. *A summary of the topsoil seeding program to include the seed mixture, seed rate, seed application procedures, and long term topsoil protection measures will be provided in the closure certification.*

C. *Current maps or figures that identify final site contours and slope, aerial extent of the facility and its boundaries, landfill cell settlement markers, surface water control features, landfill gas collection and flaring appurtenances, and any post-closure surface features will be provided in the closure certification. Specifically, the grade of the final cover shall be greater than two per cent (2%) and the grade of side slopes not more than thirty-three per cent (33%) will be documented.*

D. *A summary of the controls used to limit landfill gas migration and their apparent mapped location(s) will be provided in the closure certification.*

E. *The measures taken to: 1) separate the wastes from vectors, 2) minimize long term maintenance, and 3) be protective of human health and the environment will be summarized in the closure certification.*

F. *Documentation supporting the notation on the landfill property deed: "that the property has been used as a landfill facility and its subsequent land use is restricted under 40 CFR 258.61 (c) (3)" will be provided in the closure certification.*

Post-closure care will be conducted for a period of thirty (30) years following construction of the final cover as discussed in the O&M Manual. A Post-Closure Plan describing the facility monitoring and maintenance activities, land use during the post-closure period, and the responsible parties with addresses and telephone numbers will be completed and filed in the operating record which is maintained at the landfill site. Regulatory notification of the Post-Closure Plan will be completed immediately after the Post-Closure Plan is filed in the operating record.

Please contact me at 208.642.3304 or basil@holladayengineering.com if you have any questions or need additional information regarding our technical approach for certifying landfill closure.

Sincerely,
Holladay Engineering Company

Basil Tupyi, PE, CHMM

Copy To: Alan Scharbrough, Payette County

HOLLADAY
ENGINEERING CO.
ENGINEERS • CONSULTANTS

April 28, 2011

Mr. David Loper
Director, Environmental Health Services
Southwest District Health Department
920 Main Street
Caldwell, Idaho 83605

Subject: Response to SWDH Comments to the Revised Technical Approach for Certifying Closure of Landfill Cell #1, Clay Peak Landfill, Payette County
HECO Project No. PC 10-0354A

Dear Mr. Loper:

On February 14, 2011 we met with your staff and others[1] to discuss the Southwest District Health Department (SWDH) comments dated November 8, 2010 to the Revised Technical Approach. It was our understanding the SWDH comments and concerns appeared to be satisfactorily addressed during the meeting to include:

- continuous landfill closure procedures,
- systematic soil sample collection procedures,
- cone penetrometer testing of the existing and final cover to report soil compaction levels,
- existing and final cover seeding program;
- and final site mapping, except --

the Idaho Department of Environmental Quality (DEQ) considered additional soils texture or soils classification and permeability testing was still necessary to address soil homogeneity concerns with the local DEQ approved soil source.

Having reviewed the information and data[2] supporting the landfill closure plan for landfill Cell #1 as presented in Article V of the Municipal & Non-Municipal Waste Facilities Operation & Maintenance Manual (O&M Manual), we agree with DEQ that analytical testing for soils texture or soil classification should be performed to confirm the placement of local silt loam into the final landfill cover, per design. But, we find soil permeability or hydraulic conductivity testing is not necessary if soils texture or soils classification tests are performed because of the correlation between soils classification and hydraulic conductivity detailed below. However, a limited number of insitu hydraulic conductivity tests will be performed to confirm the conditions reported by the soils classification tests. A summary of the analytical tests to be performed are presented at the conclusion of this letter for your quick reference, but, the following (perhaps lengthy) discussion is presented to show the correlation between soils texture or soils classification and soil permeability as reported by the Hydrologic Evaluation of Landfill Performance (HELP) modeling program and its user-built library of soil texture characteristics.

The HELP model was used in 1992 to evaluate two landfill cover designs for Cell #1 that included:

1) Unlined landfill design and
2) Lined landfill design:

The unlined landfill design uses a landfill cover of silt loam soils having optimal or near—optimal agronomic water storage characteristics combined with evapotranspiration to retain and/or consume annual precipitation whereas no leachate is generated. Therefore, this design does not require a barrier soil liner in the landfill base nor a leachate collection and treatment system. However, the unlined landfill design also requires an evaluation of the landfill cover to determine whether the buildup of methane gas during waste degradation would damage or affect the integrity of the landfill cover and its subsequent water containment properties as well as compromise site health and safety.

The lined landfill design utilizes a restrictive permeable or soil barrier landfill cover to minimize infiltration into the landfill and requires a leachate collection, removal, and treatment system. The HELP model reports this design requires a landfill cover with a permeability of less than 1×10^{-5} cm/sec and a liner in the landfill base with a permeability of less than 1×10^{-7} cm/sec that would virtually eliminate vertical water movement to the geologic profile below the landfill. This design also requires an evaluation of the landfill cover to determine whether the buildup of methane gas during waste degradation would damage or affect the landfill cover and its permeability properties as well as impact local health and safety.

The unlined landfill design was selected for Cell #1 Clay Peak Landfill because of the local arid climate, which averages less than 12 inches precipitation per year, and the local geotechnical conditions with silty loam soils having high water holding capacities and conditions conducive to evapotranspiration.

A staged landfill closure design or approach was chosen and detailed in the 1993 Hydrogeologic Characterization Monitoring System and Facility Design of the Clay Peak Sanitary Landfill Report (1993 Design Report). This landfill design facilitates precipitation runon/runoff by:

1. constructing drainage swales to excluding all runon;
2. compacting and sloping the interim cover that directs runoff to containment basins; and
3. constructing the landfill cell upward as rapidly as practical that maximizes the soil's ability to blot or absorb infiltrated water therefore utilizing the reserve wilting capacity of the solid waste.

The HELP program and references reviewed[2] described four types of landfill layers and their respective hydraulic functions which include:

1) Vertical percolation layer that provides storage of moisture and detention of drainage whereas flow is either downward due to gravity drainage or extracted by evapotranspiration.
2) Lateral drainage layers that promote lateral landfill drainage at or below the surface of the landfill liner systems with hydraulic conductivities greater than 1.0×10^{-3} cm/sec.

3) Barrier soil liners that restrict vertical flow rates with permeabilities of 1.0×10^{-6} cm/sec in non-arid climates and 1×10^{-5} cm/sec in arid climates with minimum 2 feet soil depth.
4) Geomembrane liners that are made from nearly impermeable materials that restrict leakage to material defects.

The HELP model further reports the primary hydraulic function for a vertical percolation layer is to provide storage of moisture and detention of drainage; therefore, only the vertical percolation layer will apply to the unlined landfill design for Cell #1. However, the vertical percolation layer may also act as a barrier for controlling landfill gas and should be evaluated to determine if excessive methane gas pressures occur.

The HELP model utilizes 42 default material characteristics that include light density soil characteristics, high density soil characteristics, waste characteristics, and geosynthetic materials in its modeling assessment, if site specific data is not available. The 42 material characteristics reported by HELP are presented in Attachment I.

We find silty loam soils in Attachment I equates to HELP #'s 4 through 9 which include various compositions of silt, sand, and loam that have water holding capacities or "field-capacities" of at least 0.2 ft water retention per foot of soil. Additionally, the HELP model's default hydraulic conductivity values for these silty loam soils range from 1.7×10^{-3} cm/sec to 1.9×10^{-4} cm/sec, and 1992 engineer notes indicate 2×10^{-4} cm/sec is expected with local soils. Hence, soils testing will be performed to demonstrate the final cover consists of silty loams as described by HELP #'s 4 through 9.

The landfill's final cover was also evaluated in 1992 to ensure the buildup of gas generated during waste degradation would not affect the integrity of the landfill cover and its water holding capacity as well as not compromise health and safety. A maximum soil permeability of 1×10^{-5} cm/sec is used as a soil barrier in arid environments as discussed in item 3 above, thus reflecting the greatest gas pressures expected. However, actual soil permeability rates are expected to be near 2×10^{-4} cm/sec; therefore, the calculations presented in Appendix D for maximum methane generation/pressure are very conservative and should not require confirmation, since the calculations found methane gas pressures not excessive and the landfill has since constructed a methane gas collection and flaring system; further alleviating any concerns associated with methane buildup. Interestingly, your November 8th comments indicate the 1×10^{-5} cm/sec "*is dictated or required in the 3 to 6 feet depth of landfill cover per the 1993 Design Report*", but the HELP program uses 1×10^{-5} cm/sec only to the extent that it calculates the worst case of methane buildup. Note that the soils from the approved source are not expected to achieve a permeability of 1×10^{-5} cm/sec, per Attachment I.

In conclusion, the landfill closure certification for Cell #1 will include the work or analytical data described in sections A through F as reported in the Revised Technical Approach and additional analytical data described below to include soil classification with limited insitu hydraulic conductivity analyses to confirm default hydraulic conductivities obtained from soil classification results. The table below presents a summary of all analytical testing that will be reported to demonstrate landfill construction complies with the 1993 Design Report.

Summary of Analytical Laboratory Testing				
Test Description		Laboratory Protocol	Frequency	Purpose
1	USCS Soil Classification	ASTM D2487-10 or equivalent USDA	5 systematic grid locations in existing cover and 4 systematic grid locations in new cover, composite 0 to 6 feet depth	confirm landfill cover is silt loam per HELP #'s 4 through 9
2	Dynamic Cone Penetrometer (DCP)	per DCP manufacturer and ASTM D6951	5 systematic grid locations in existing cover and 4 systematic grid locations in new cover, 0 to 6 feet depth	plot cone resistance to depth of soil to demonstrate 3 to 6 feet depth has greater compaction than 0 to 3 feet depth
3	Insitu Hydraulic Conductivity	Guelph Permeameter per ASTM D-5126	at 3 of the 5 systematic grid locations for the existing cover and 2 of the 4 systematic grid locations in the new cover, discrete 4 feet depth	compare and confirm default hydraulic conductivities obtained from soil classification test results
4	Soil Organic Concentration	ASTM D2975 -07a or USDA[1] or equal	at 3 of the 5 systematic grid locations for the existing cover and 2 of the 4 systematic grid locations in the new cover, composite 0 to 6 inch depth	soil organics should exceed 2% soil content to support vegetation, otherwise amendments may be added.
Note 1: North American Proficiency Testing Method, S-9.10; SOIL, PLANT AND WATER REFERENCE METHODS FOR THE WESTERN REGION, 2nd Edition, 2003				

Payette County is prepared to start final Cell #1 closure activities as soon as we receive your concurrence with the landfill closure program described above. Please contact me if you have any questions.

Sincerely,
HOLLADAY ENGINEERING COMPANY

Basil Tupyi, PE

Copies to: Alan Scharbrough, Payette County
Kasey Ketterling, Holladay Engineering

Note 1: Meeting conducted at 1:00 pm on February 14, 2011 at Holladay Engineering, Payette, Idaho to discuss technical approach and landfill certification requirements for final closure cover of Cell #1 for the Clay Peak Landfill. Individuals attending included Brian Crawford and David Loper with Southwest District Health Department; Jack Gantz and Dean Ehlert with Idaho Department Environmental Quality; Alan Scharbrough and Gary Kelley with Clay Peak Payette County Landfill; and John Blom, Kasey Ketterling, and Basil Tupyi with Holladay Engineering serving as the engineers for Payette County.
Note 2: References examined include 1992 file notes and calculations by Ken Rice, PE; 1992 Hydrologic Evaluation of Landfill Performance (HELP) modeling results; the Hydrogeologic Characterization Monitoring System and Facility Design of the Clay Peak Sanitary Landfill Report, approved by DEQ on June 11, 1993; The

Hydrologic Evaluation of Landfill Performance (HELP) Model: User's Guide for Version 3, EPA /600/R-94/168a, September 1994, US EPA Office of Research and Development; The Hydrologic Evaluation of Landfill Performance (HELP) Model: Engineering Documentation for Version 3, EPA /600/R-94/168b, September 1994, US EPA Office of Research and Development; and the Solid Waste Landfill, A Design Manual, June 1987, Publication No. 87-13, Washington State Department of Ecology, Olympia, Washington

ATTACHMENT I

"HELP" DEFAULT MATERIAL CHARACTERISTICS

Soils Texture Class			Total Porosity (vol/vol)	Field Capacity (vol/vol)	Wilting Point (vol/vol)	Saturated Hydraulic Conductivity (cm/sec)
HELP #	USDA	USCS				
Low Density Soil Characteristics						
1	CoS (coarse sand)	SP (sand poor graded)	0.417	0.045	0.018	1.0×10^{-2}
2	S (sand)	SW (sand well graded)	0.437	0.062	0.024	5.8×10^{-3}
3	FS (fine sand)	SW (sand well graded)	0.457	0.083	0.033	3.1×10^{-3}
4	LS (loam sand)	SM (sand silt)	0.437	0.105	0.047	1.7×10^{-3}
5	LFS (loam fine sand)	SM (sand silt)	0.457	0.131	0.058	1.0×10^{-3}
6	SL (sand loam)	SM (sand silt)	0.453	0.190	0.085	7.2×10^{-4}
7	FSL (fine sand loam)	SM (sand silt)	0.473	0.222	0.104	5.2×10^{-4}
8	L (loam)	ML (silt low plasticity)	0.463	0.232	0.116	3.7×10^{-4}
9	SiL (silt loam)	ML (silt low plasticity)	0.501	0.284	0.135	1.9×10^{-4}
10	SCL (sand clay loam)	SC (sand clay)	0.398	0.244	0.136	1.2×10^{-4}
11	CL (clay loam)	CL (clay loam)	0.464	0.310	0.187	6.4×10^{-5}
12	SiCL (silt clay loam)	CL (clay loam)	0.471	0.342	0.210	4.2×10^{-5}
13	SC (sand clay)	SC (sand clay)	0.430	0.321	0.221	3.3×10^{-5}
14	SiC (silt clay)	CH (clay high	0.479	0.371	0.251	2.5×10^{-5}

		plasticity)				
15	C (clay)	CH (clay high plasticity)	0.475	0.378	0.251	2.5×10^{-5}
21	G (gravel)	GP (Gravel poorly graded)	0.397	0.032	0.013	3.0×10^{-1}
Moderate and High Density Soil Characteristics						
22	L (Moderate) (loam)	ML (silt low plasticity)	0.419	0.307	0.180	1.9×10^{-5}
23	SiL (Moderate) (silt loam)	ML (silt low plasticity)	0.461	0.360	0.203	9.0×10^{-6}
24	SCL (Moderate) (sand clay loam)	SC (sand clay)	0.365	0.305	0.202	2.7×10^{-6}
25	CL (Moderate) (clay loam)	CL (clay low plasticity)	0.437	0.373	0.266	3.6×10^{-6}
26	SiCL (Moderate) (silt clay loam)	CL (clay low plasticity)	0.445	0.393	0.277	1.9×10^{-6}
27	SC (sand clay)	SC (sand clay)	0.400	0.366	0.288	7.8×10^{-7}
28	SiC (Moderate) (silt clay)	CH (clay high plasticity)	0.452	0.411	0.311	1.2×10^{-6}
29	C (Moderate) (clay)	CH (clay high plasticity)	0.451	0.419	0.332	6.8×10^{-7}
16	Liner or Barrier Soil		0.427	0.418	0.367	1.0×10^{-7}
17	Bentonite Mat		0.750	0.747	0.400	3.0×10^{-9}
Waste Characteristics						
18	Municipal Waste		0.671	0.292	0.077	1.0×10^{-3}
19	Municipal Waste with Channeling		0.168	0.073	0.019	1.0×10^{-3}
30	High-Density Electric Plant Coal Fly Ash		0.541	0.187	0.047	5.0×10^{-5}
31	High-Density Electric Plant Coat Bottom Ash		0.578	0.076	0.025	4.1×10^{-3}
32	High-Density Municipal Solid Waste Incinerator Fly Ash		0.450	0.116	0.049	1.0×10^{-2}

33	High Density Fine Copper Slag	0.375	0.055	0.020	4.2×10^{-2}
Geosynthetic Material Characteristics					
20	Drainage Net (0.5 cm)				$1.0 \times 10^{+1}$
34	Drainage Net (0.6 cm)				$3.3 \times 10^{+1}$
35	High Density Polyethylene (HDPE) Membrane				2.0×10^{-13}
36	Low Density Polyethylene (LDPE) Membrane				4.0×10^{-13}
37	Polyvinyl Chloride (PVC) Membrane				2.0×10^{-11}
38	Butyl Rubber Membrane				1.0×10^{-12}
39	Chlorinated Polyethylene(CPE) Membrane				4.0×10^{-12}
40	Hypalon or Chlorosulfonated Polyethylene (CSPE) Membrane				3.0×10^{-12}
41	Ethylene-Propylene Diene Monomer (EPDM) Membrane				2.0×10^{-12}
42	Neoprene Membrane				3.0×10^{-12}

Source: The Hydrologic Evaluation of Landfill Performance (HELP) Model: User's Guide for Version 3, EPA /600/R-94/168a, September 1994, US EPA Office of Research and Development, and The Hydrologic Evaluation of Landfill Performance (HELP) Model: Engineering Documentation for Version 3, EPA /600/R-94/168b, September 1994, US EPA Office of Research and Development.

ATTACHMENT I
Engineer Responses

Engineer Responses to DEQ Comments regarding Certifying Landfill Closure of Cell #1, Clay Peak Landfill, Payette County, Idaho (reference David Loper's May 24, 2011 electronic mail correspondence)

DEQ comment #1 *A site map showing sampling, compaction testing and permeability testing locations should be provided for your review prior to any field work, including a table showing depth(s) of proposed samples and tests.*

Engineer Response #1: A site map is attached showing the approximate sample locations. A table was presented in the April 28, 2011 letter summarizing the analytical tests, frequency, and depth location. This table is presented below for your quick reference.

Summary of Analytical Laboratory Testing				
Test Description		Laboratory Protocol	Frequency	Purpose
A	USCS Soil Classification	ASTM D2487-10 or equivalent USDA	5 systematic grid locations in existing cover and 4 systematic grid locations in new cover, composite 0 to 6 feet depth	confirm landfill cover is silt loam per HELP #'s 4 through 9
B	Dynamic Cone Penetrometer (DCP)	per DCP manufacturer and ASTM D6951	5 systematic grid locations in existing cover and 4 systematic grid locations in new cover, 0 to 6 feet depth	plot cone resistance to depth of soil to demonstrate 3 to 6 feet depth has greater compaction than 0 to 3 feet depth
C	Insitu Hydraulic Conductivity	Guelph Permeameter per ASTM D-5126	at 3 of the 5 systematic grid locations for the existing cover and 2 of the 4 systematic grid locations in the new cover, discrete 4 feet depth	compare and confirm default hydraulic conductivities obtained from soil classification test results
D	Soil Organic Concentration	ASTM D2975 -07a or USDA[1] or equal	at 3 of the 5 systematic grid locations for the existing cover and 2 of the 4 systematic grid locations in the new cover, composite 0 to 6 inch depth	soil organics should exceed 2% soil content to support vegetation, otherwise amendments may be added.
Note 1: North American Proficiency Testing Method, S-9.10; SOIL, PLANT AND WATER REFERENCE METHODS FOR THE WESTERN REGION, 2nd Edition, 2003				

DEQ comment #2: *We don't necessarily agree with the characterization of the HELP materials #4 through #7 as constituting "silt loam" soils. With the exception of #9 (and possibly #8) the other soils bear no resemblance in their composition to silt loam soils. An examination of a USDA textural triangle confirms that the only soils in the group proposed that might have close to the amount of silt needed would be some limited loam soils. All the others in their grouping are far distant from silt loams compositionally. If anything, it would be more realistic to also include the other soil group adjacent to silt loams that have similar amounts of silt (such as silty clay loams).*

Engineer Response #2: We agree that silt loams containing small concentrations of clay (HELP materials #10, 11, and 12) are acceptable as a vertical percolation layer that provides storage of moisture and detention of water for the unlined landfill cell.

DEQ Comment #3.*There should be more elaboration on the field sampling/compositing methods that will be used to obtain the samples described for the soil textural classification. It appears that there will be five locations in the old cover and four in the new. We would need to see the site map requested above in order to determine if these are adequate numbers of samples for the areas involved. The site map should show the systematic grid(s) lay out. There may be specific areas of concern with respect to the cover material that aren't sampled by the grids. The samples that result presumably would represent the entire 6 foot thickness of the cover. However, it may be more helpful to have depth related characterization.*

Engineer Response #3. Soils sampling will be performed in two distinct sampling events. The first sampling event will determine whether the existing landfill cover that was constructed according to a staged or "close as you go" landfill construction design that meets the design criteria summarized in the table above, and if not, to determine whether any construction modifications are necessary to complete the existing cover as well as the yet to be constructed final landfill cover. The attached map shows the approximate sample locations whereas sampling will be conducted within a 20 foot diameter of the mapped location. The sample locations will be field marked utilizing the global positioning system. All field sampling will be manually performed using handtools and instruments followed by laboratory analyzes where required.

A. USCS Soil Classification using the Atterberg Limits and full coarse & fine gradation tests. Soil will be composited from 0 to 6 feet depth using either a 3-inch hand auger boring or 1 ½ inch diameter soil probe. The composited soil sample will be laboratory analyzed.

B. Dynamic Cone Penetrometer (DCP). Soil compaction or resistance measurements will be plotted and compared to soil depth using the DCP that measures the soil penetration depth per blow following the dropping of a known hammer weight from a known height. The soil bearing capacity measurements will be field collected from 0 to 6 feet soil depth.

C. Guelph Permeameter. Hydraulic conductivity measurements will be collected at the four foot soil depth level to report the hydraulic conductivity in the lower compacted soil cover layer, 3 to 6 foot depth. A three inch diameter soil boring will be drilled to the 4 foot soil depth and all loose soil removed from the boring before the 1 ½ inch diameter Guelph Permeameter is inserted into the boring for field measurements.

D. Soil Organics. Soil samples will be collected with a soil probe at 0 to 6 inches and composited for laboratory analysis of percent organic matter.

DEQ Comment #4: *Why are the Permeameter measurements being done at four feet? It may be that it was selected to be the midpoint of the bottom three feet of the cover "liner". The locations for the Permeameter testing should also be provided on the site map requested above.*

Engineer Response #4: Hydraulic conductivity measurements focus on the compacted soil cover layer which is 3 to 6 feet depth. The soil sample locations are described on the attached map.

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May 31, 2011

Mr. David Loper
Director, Environmental Health Services
Southwest District Health Department
920 Main Street
Caldwell, Idaho 83605

Subject: Engineer Responses to DEQ Comments regarding Certifying Landfill Closure of Cell #1, Clay Peak Landfill, Payette County, Idaho

Dear Mr. Loper:

Thank you for meeting today with the Payette County Commissioners, Alan Scharbrough, and Holladay Engineering representatives regarding the technical approach for certifying landfill closure of Cell #1 for the Clay Peak Landfill. It is our understanding that our draft responses, dated May 27, 2011, largely addresses the Southwest District Health Department's (SWDH) concerns in your May 24, 2011 electronic mail correspondence. To minimize further project delays, we are formally submitting those draft responses as Attachment I to this letter for your quick reference and confirmation of the technical approach for certifying landfill closure. The technical approach for certifying landfill closure will include reporting the elements and data as described in our submittals dated September 29, 2010, April 28, 2011 and May 31, 2011.

For your information, we are prepared to begin the collection of field data within five days following your agreement with the technical approach. Please contact me at basil@holladayengineering.com or 208.642.3304 if you need any additional information.

Sincerely,
Holladay Engineering Company

Basil Tupyi, PE, CHMM

Enclosures:

Copies To: Payette County Commissioners
Alan Scharbrough
Kasey Ketterling

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From: Basil Tupyi
Sent: Wednesday, June 01, 2011 11:01 AM
To: Loper, David
Cc: 'Alan Scharbrough'; Kasey Ketterling; Jack.Gantz@deq.idaho.gov; 'Betty Dressen'
Subject: Technical Approach to Certifying Landfill Closure

Attachments: Response to SWDH email comments, 24 Apr 2011.pdf; Attachment I, Engr Response to Loper's May 24, 2011 email.pdf

David,
Thank you for meeting with us yesterday. Attached is our re-submittal of the responses to your May 24, 2011 email concerns.
Note that we are prepared to begin field testing next week.

Basil Tupyi, PE, CHMM

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From: Basil Tupyi
Sent: Friday, June 03, 2011 5:41 PM
To: Loper, David
Cc: 'Alan Scharbrough'; 'Betty Dressen'; 'Bruce.Wicherski@deq.idaho.gov'; Jack.Gantz@deq.idaho.gov; Kasey Ketterling
Subject: Engineer Responses to DEQ Comments, dated 3 June 2011

Attachments: Response to DEQ email comments, 3 June 2011.pdf; Table 1, Summary of Soils Testing Protocols.pdf

David,

Attached are 1) engineer responses to Bruce Wicherski's comments and 2) a revised summary of soils testing protocols. It is my understanding that there are no other outstanding issues regarding approval of the Technical Approach for Certifying Landfill Closure of Cell #1 for the Clay Peak Landfill, Payette County.

Please advise.

Basil Tupyi, PE, CHMM

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---

From: Bruce.Wicherski@deq.idaho.gov [mailto:Bruce.Wicherski@deq.idaho.gov]
Sent: Friday, June 03, 2011 9:39 AM
To: Basil Tupyi
Subject: Additional Comments

Basil-
Here you go. Again, sorry about that, I thought you'd received these earlier. Give me a call at your convenience, I'll be in all day.

1) Since the HELP model soil types are described in terms of USDA classification the information gathered and measurements taken on the cover soils should be sufficient to be able to classify them within the USDA system.
2) The details of the sampling procedures should be clarified in order to ensure that representative samples are obtained. This includes how the compositing, mixing, and sampling of the composited material for lab analysis will take place. Will subsamples for composites be taken based on fixed intervals, based on the proportions of certain soil layers, or what? How will adequate mixing of composites be ensured if subsamples of different moisture contents and textures be encountered?
3) Comment Response 3 mentions two separate sampling events, describes the first one but doesn't describe the second one.
4) If this was supposed to be an ET cover why is there a compacted soil layer?
5) Sampling only the 0-6 inch layer for soil organics seems inadequate given the typical rooting depths of native vegetation.

Thanks.
Bruce

Bruce Wicherski, P.G.
Voluntary Cleanup Program Manager
Idaho Department of Environmental Quality
1410 North Hilton
Boise, Idaho 83706

Phone: 208-373-0246
Fax: 208-373-0143
Email: bruce.wicherski@deq.idaho.gov
Voluntary Cleanup Program website: http://www.deq.idaho.gov/Applications/Brownfields/index.cfm?site=voluntarycleanup.htm

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June 3, 2011

Mr. David Loper
Director, Environmental Health Services
Southwest District Health Department
920 Main Street
Caldwell, Idaho 83605

Dear Mr. Loper:

Subject: Engineer Responses to DEQ Comments Dated June 3, 2011 Regarding Technical Approach for Certifying Landfill Closure of Cell #1
Clay Peak Landfill, Payette County, Idaho
HECO Project No. PC 10-0354A

Dear Mr. Loper:

Comments from Bruce Wicherski, Idaho Department of Environmental Quality (DEQ), were received today regarding my May 31, 2011 correspondence and my responses are presented below. Note that Mr. Wicherski and I discussed his comments and it is my understanding that Mr. Wicherski concurred with the following engineer responses.

DEQ Comment #1: *Since the HELP model soil types are described in terms of USDA classification the information gathered and measurements taken on the cover soils should be sufficient to be able to classify them within the USDA system.*
Engineer Response #1: The HELP model provides a correlation for USCS and USDA soil classifications; however, the soils testing laboratory will provide both USCS and USDA soil classifications for quick comparison. It should be understood that the soil classification test results are to demonstrate the soil cover material will adequately serve as a vertical percolation layer with properties for maximum moisture storage and evapotranspiration. Therefore, differences or disagreements between laboratory test results and default soil characteristic values as presented in the HELP model are likely but will not prevent the evaluation on whether the final landfill soil cover provides good water or moisture storage and evapotranspiration properties.

DEQ Comment #2: *The details of the sampling procedures should be clarified in order to ensure that representative samples are obtained. This includes how the compositing, mixing, and sampling of the composited material for lab analysis will take place. Will subsamples for composites be taken based on fixed intervals, based on the proportions of certain soil layers, or what? How will adequate mixing of composites be ensured if subsamples of different moisture contents and textures be encountered?*
Engineer Response #2: No subsamples will be collected for soil composites. All composite soil samples will include the entire volume of soil sample collected for the entire depth of soil sample (i.e., 0 to 6 feet depth for USCS soil classifications and 0 to 12 inch depth for soil organics). The

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composited sample will then be mixed and split in accordance with AASHTO T248 to obtain a representative soil sample volume for subsequent analysis. For example, all cuttings or soils from a 3 inch diameter hollow stem auger drilled from 0 to 6 feet depth for soil classification will be collected in a container and then mixed and split according to AASHTO T248 for subsequent laboratory analysis.

DEQ Comment #3: *Comment Response 3 mentions two separate sampling events, describes the first one but doesn't describe the second one.*
Engineer Response #3: The first sampling event is to demonstrate the existing landfill cover meets the final landfill cover design criteria. Construction practices to complete the 'yet to be constructed' landfill cover may remain the same or be modified according to the test results obtained during the first sampling event. The second sampling event will follow after the 'yet to be constructed' landfill cover is constructed, and the results used to verify the final landfill cover meets the original and/or modified design requirements.

DEQ Comment #4: *If this was supposed to be an ET cover why is there a compacted soil layer?*
Engineer Response #4: The final landfill cover was designed for an arid climate having less than 25 inches of precipitation per year with net evaporative losses greater than thirty inches annually. Therefore, the final landfill cover design consists of 0 to 3 feet depth of uncompacted fine grain soils and 3 to 6 feet depth of compacted fine grain soils for maximum water storage and evapotranspiration. Evapotranspiration is generally the primary mechanism for removing water or moisture from the final cover, but it is limited to vegetation root depth that is set at three feet soil depth, per landfill design. The 3 to 6 feet depth of compacted fine grain soils continue to serve as a layer which can contain moisture or precipitation, but the compaction is partly intended to restrict vegetation root growth that would otherwise compromise the landfill cover and allow moisture to seep into the landfill waste and generate leachate. Based on discussions with Mr. Wicherski, it was concluded that hydraulic conductivity tests should be discretely performed at the 2 foot soil depth and not at the 4 foot soil depth, to more accurately reflect uncompacted soil characteristics.

DEQ Comment #5: *Sampling only the 0-6 inch layer for soil organics seems inadequate given the typical rooting depths of native vegetation.*
Engineer Response #5: Percent soil organics will be determined from five composite soil samples collected from 0 to 12 inches depth.

Please contact me at basil@holladayengineering.com or 208.642.3304 if you need any additional information.

Sincerely,
HOLLADAY ENGINEERING COMPANY

Basil Tupyi, PE.

Copies To: Payette County Commissioners
Alan Scharbrough, Payette County
Bruce Wicherski, DEQ
Jack Gantz, DEQ
Kasey Ketterling, Holladay Engineering Co.

Table 1

Summary of Analytical Laboratory Testing Requirements

Test Description		Laboratory Protocol	Frequency	Purpose
A	USCS Soil Classification and USDA Classification	ASTM D2487-10 or equivalent USDA, composite and split samples per AASHTO T248	5 systematic grid locations in existing cover and 4 systematic grid locations in new cover, composite 0 to 6 feet depth	confirm landfill cover is silt loam per HELP #'s 4 through 11
B	Dynamic Cone Penetrometer (DCP)	per DCP manufacturer and ASTM D6951	5 systematic grid locations in existing cover and 4 systematic grid locations in new cover, 0 to 6 feet depth	plot cone resistance to depth of soil to demonstrate 3 to 6 feet depth has greater compaction than 0 to 3 feet depth
C	Insitu Hydraulic Conductivity	Guelph Permeameter per ASTM D-5126	at 3 of the 5 systematic grid locations for the existing cover and 2 of the 4 systematic grid locations in the new cover, discrete 2 feet depth	compare and confirm default hydraulic conductivities obtained from soil classification test results
D	Soil Organic Concentration	ASTM D2975 -07a or USDA[1] or equal	at 3 of the 5 systematic grid locations for the existing cover and 2 of the 4 systematic grid locations in the new cover, composite 0 to 12 inch depth	soil organics should exceed 2% soil content to support vegetation, otherwise amendments may be added.

Note 1: North American Proficiency Testing Method, S-9.10; SOIL, PLANT AND WATER REFERENCE METHODS FOR THE WESTERN REGION, 2nd Edition, 2003

From: Loper, David [David.Loper@phd3.idaho.gov]
Sent: Monday, June 06, 2011 8:47 AM
To: Basil Tupyi
Cc: Alan Scharbrough; Betty Dressen; Bruce.Wicherski@deq.idaho.gov; Jack.Gantz@deq.idaho.gov; Kasey Ketterling; Crawford, Brian; Krosch Bruce; Dean.Ehlert@deq.idaho.gov
Subject: RE: Engineer Responses to DEQ Comments, dated 3 June 2011

Importance: High

Basil,

Good morning,

Thank you for the email and attachments. There are no other outstanding issues regarding approval of the Technical Approach for Certifying Closure of Cell #1 for Clay Peak Landfill. Please begin the work and we look forward to reviewing the comprehensive findings.

If you have questions, please do not hesitate to call.

Sincerely,

David M. Loper, REHS/RS
Director, Environmental Health Services
Southwest District Health
13307 Miami Lane
P. O. Box 850
Caldwell, ID 83606
Phone: 208.455.5401 (Fax 208.455.5405)
http://www.publichealthidaho.com

From: Basil Tupyi [mailto:basil@holladayengineering.com]
Sent: Friday, June 03, 2011 5:41 PM
To: Loper, David
Cc: 'Alan Scharbrough'; 'Betty Dressen'; 'Bruce.Wicherski@deq.idaho.gov'; Jack.Gantz@deq.idaho.gov; Kasey Ketterling
Subject: Engineer Responses to DEQ Comments, dated 3 June 2011

David,

Attached are 1) engineer responses to Bruce Wicherski's comments and 2) a revised summary of soils testing protocols. It is my understanding that there are no other outstanding issues regarding approval of the Technical Approach for Certifying Landfill Closure of Cell #1 for the Clay Peak Landfill, Payette County.

Please advise.

Basil Tupyi, PE, CHMM

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From: Bruce.Wicherski@deq.idaho.gov [mailto:Bruce.Wicherski@deq.idaho.gov]
Sent: Friday, June 03, 2011 9:39 AM
To: Basil Tupyi
Subject: Additional Comments

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1) Since the HELP model soil types are described in terms of USDA classification the information gathered and measurements taken on the cover soils should be sufficient to be able to classify them within the USDA system.
2) The details of the sampling procedures should be clarified in order to ensure that representative samples are obtained. This includes how the compositing, mixing, and sampling of the composited material for lab analysis will take place. Will subsamples for composites be taken based on fixed intervals, based on the proportions of certain soil layers, or what? How will adequate mixing of composites be ensured if subsamples of different moisture contents and textures be encountered?
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Thanks.
Bruce

Bruce Wicherski, P.G.
Voluntary Cleanup Program Manager
Idaho Department of Environmental Quality
1410 North Hilton
Boise, Idaho 83706

Phone: 208-373-0246
Fax: 208-373-0143
Email: bruce.wicherski@deq.idaho.gov
Voluntary Cleanup Program website: http://www.deq.idaho.gov/Applications/Brownfields/index.cfm?site=voluntarycleanup.htm

ATTACHMENT 2

Final Vegetative Cover – Seeding Plan

Recommended Grasses and Forbs (per USDA—NRCS 2000, 2001, 2006 and 2009)

- **Use a mixture of grass types with a forb mixed in a for variety of covers**
- **Broad cast each species separately to get most uniform distribution of seed**
- **Planting depth of ¼ to ½ inch**
- **Best time to seed is either 1) after October 20th and before winter rain or snow or 2) after March 1st and before final spring rains.**

Recommended Seeds and Type	Seedling Vigor	Seeding Rate
GRASSES		
Wheatgrass, Crested ('Hycrest') or Wheatgrass, Crested ('Nordan')	Rapid	3 lb per acre
Wheatgrass, Thickspike ('Bannock' or Critana') or Wheatgrass, Snake River ('Secar')	Medium	4 lb per acre
Rescue, Sheep ('Covar or Bighorn')	Slow	2 lb per acre
FORBS		
Alfalfa ('Ladak, Trevois, Ranger or Nomad')	Medium	1 to 3 lbs per acre in mixture with grasses
Keep All Seeds Cool and Dry Until Application		

Inocculate alfalfa seed the evening before or early on seeding day in order for seed to dry by seeding time. Reinocculate alfalfa seed coated over 30 days or if alfalfa seed has not been kept cool and dry.

A. Equipment and Materials Recommended for Hand Seeding

- **One hand operated cyclone seeder for each person doing seeding**
- **Weight measuring scale, say 20 pound capacity**
- **Two plastic buckets**
- **Paper bags, medium size**
- **Marker pens**

B. Seeding Procedures

- **Divide seed for each species into required amounts and label bags. Seed each species separately for most uniform seed distribution.**
- **Adjust cyclone seeder according to manufacturer's instructions based on seeding rate. Periodically check number of seeds per square foot.**
- **Broadcast seed in two directions to achieve uniform distribution of seed. For example, use half of the seed of a species and broadcast across the slope, starting at the top. When reaching the edge of the seeding area, move downslope a distance equal to the width of the seed broadcast or throw and walk back across the slope, trying to avoid gaps. Adjust walking pace to complete seeding the**

designated area. Use the remaining half of the seed to repeat the procedure going downhill or down the slope. If slopes are too steep for seeding, broadcast the remaining seed in same direction across the slope except walk midway between previous broadcasts or lines of travel. Repeat seeding process for each species.

C. Jute Netting Protection (If Necessary):

- **Apply individual rolls of jute up and down slopes – not along the contours**
- **Bury the upper end of the netting at the top of the disturbed area in a trench at least 6 to 8 inches depth.**
- **Lay out rolls so edges overlay each other by a least 4 inches across the slope.**
- **The netting should go beyond the edge of the seeded area and the sides at least 1 foot and 3 feet at the bottom.**
- **Anchor the netting to the soil surface with anchor, pins or staples. Staples or anchor pins need to be driven perpendicularly in to the slope face and should be spaced approximately 5 feet apart along the sides and center of the roll. Spacing between staples at the upper end of a roll and at the end should overlap of 2 rolls should not be greater than 1 foot.**

D. Local Seed Suppliers from USDA listing:

Name of Supplier	Address	Contact Telephone No.
Boise Valley Seed	**Rural Route 10, Darrow Land Caldwell, Idaho**	**208.459.7211**
Fruitland Nursery	**301 South Hwy 95 Fruitland, Idaho**	**208.452.4204**
Sand Hollow Nursery	**Rurla Route 7 Caldwell, Idaho**	**208.459.7389**
WR Baxter Wholesale Nursery	**2615 Pioneer Ave Emmett, Idaho**	**208.365.6011**

References:

- USDA –NRCS, Wildfire Recovery Tips for Southern and Western Idaho, July 2000 replaced with USDA – NRCS, Wildfire Recovery Tips for Idaho, August 2006 http://www.plant-materials.nrcs.usda.gov/pubs/idpmspu6988.pdf
- USDA –NRCS, Technical Note Plant Materials No. 24 Improved Grass, Forb, Legume, and Woody Seed Species for the Intermountain West. First used June 2001. Revised October 2009 http://www.plant-materials.nrcs.usda.gov/pubs/idpmctn4620.pdf

EXHIBIT B

Regulatory Approval of Final Cover for Landfill Cover Constructed During "Close As You Go"

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August 31, 2011

Mr. David Loper
Director, Environmental Health Services
Southwest District Health Department
920 Main Street
Caldwell, Idaho 83605

Dear Mr. Loper:

Subject: Submittal of Field Data Demonstrating Compliance with Technical Approach for Certifying Landfill Closure of Cell #1, Clay Peak Landfill, Payette County, Idaho
HECO Project No. PC 10-0354A

Dear Mr. Loper:

Attached is a summary of the soils data collected during June and July 2011 to demonstrate the existing final landfill cover for the northern sector of Cell #1 meets the landfill closure requirements as outlined in the Revised Technical Approach For Certifying Closure of Cell #1 dated September 29, 2010 and Engineer responses dated April 28, 2011, May 31, 2011 and June 3, 2011

Payette County plans to move forward with the construction of the final landfill cover for the remaining sector of Cell #1 by early October, unless otherwise directed.

Please contact me at basil@holladayengineering.com or 208.642.3304 if you need any additional information.

Sincerely,
HOLLADAY ENGINEERING COMPANY

Basil Tupyi, PE.

Copies To: Payette County Commissioners
Alan Scharbrough, Payette County
Jack Gantz, DEQ
Kasey Ketterling, Holladay Engineering Co.

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Soil Sampling Results For Assessing The Final Landfill Cover In The Northern Sector of Cell #1

Soil sampling was performed on June 9 – 10, 2011 and July 10, 2011 to assess the final cover in the northern half of Cell #1 at the sampling locations shown in Figure 1. Soil sampling closely followed the procedures outlined in Revised Technical Approach dated September 29, 2010 and Engineer responses to Southwest District Health Department dated April 28, 2011, May 31, 2011 and June 3, 2011. The soil sampling program was intended to confirm compliance with final landfill cover requirements and for direct the construction practices necessary for completing the final cover for the southern half of Cell #1. It should be understood that past landfill closure activities included placement of the final landfill cover immediately following the placement of the final waste lift; except the final landfill cover was not placed onto the crest of Cell #1 where gravels and road base materials were placed for site entry and exit.

Initially, a systematic 5 point grid was used to identify soil sample locations; but two additional soil sample locations were added for the purpose of better assessing the center or crest of the northern half of Cell #1. See Figures 1 and 2 for soil sample locations. A summary of the soil classification, hydraulic conductivity and dynamic cone penetrometer (DCP) test results are presented in Table 1 below and the detailed soils laboratory test results are presented in Attachment 1. The final vegetative cover and seeding plan is presented in Attachment 2.

FINDINGS:

The analytical results summarized in Table 1 indicates compliance with the following conditions:

- The soil sampling with a hollow-stem auger revealed the depth of the final cover at SS#1, SS#2, SS#4, and SS#5 exceeds 6 feet that complies with landfill design criteria.
- Composited 6 feet depth soil samples reported sandy loam to silty loam soils that meet soil classification HELP #'s 4 – 9.
- The Gulph Permeameter tests reported hydraulic conductivities ranging from 3.4×10^{-4} to 2.5×10^{-4} cm / sec at the 24 inch soil depth; therefore the upper uncompacted soils will satisfactorily serve as a vertical percolation layer.
- The DCP tests indicate the lower three feet of final cover is more compacted than the upper three feet; except at SS #2. Sampling personnel noted the soils at SS#2 were silty sands near the surface and sandy silts near the 6 feet depth level which accounts for the difference in soil compaction. A CBR of 10 is typically associated with soils having 75% to 85% optimum density and a CBR of 50 is typically associated with soils having greater than 85% optimum density. Two additional DCP tests were performed approximately 75 feet north and 75 feet south of SS #2 to better ascertain the soil characteristics around SS #2. The results indicate the soil profile south of SS #2 is well compacted at depth and soil profile north of SS#2 is not well compacted at depth because of the high sand content. However, the steep west to east surface gradient around SS#2 is expected to provide good stormwater runoff with no ponding; therefore, no additional soil compaction work is necessary to minimize stormwater infiltration into the final landfill cover.

Tests for soil organic content were not performed during the soil sampling events because visual observations noted poor vegetation growth south of SS #1 and SS #2 that was indicative of low

soil organic content. Good vegetation growth was noted north of SS #1 and SS#2 which is an indicator of good organic content in the final cover.

FUTURE WORK:

Given the results discussed above, the following work is recommended to complete the construction of the final landfill cover for Cell #1.

- Complete the final landfill cover for Cell #1 with silty loam soils that are excavated onsite and that meets soil classification HELP # 4 – 9. The temporary gravel roadbase should be removed to the extent practical before completing the six feet thick final landfill cover, but an access roadway to the crest of the final landfill should be re-installed on top of the final landfill cover for Cell #1 maintenance. The earthwork to include soil compaction of the final cover will require supplemental water to achieve compaction requirements whereas the cover design requires greater compaction from 3 to 6 feet depth than from 0 to 3 feet. Therefore a watering truck should support all earthwork activities during final landfill cover construction.
- Complete the final six inches of landfill cover with a seed bed that is rich in organics. Therefore, organic rich topsoil or organic matter should be incorporated into the final cover prior to seeding or reseeding. For example, approximately 140 cubic yards of organic matter per surface acre of landfill should be incorporated into the upper 12 inches of final landfill cover prior to seeding or reseeding. Seeding or reseeding should be scheduled when precipitation events will support vegetation growth.
- The final landfill cover should be seeded when precipitation events will support vegetation growth, preferably in early March. The seed mixture shall closely follow the mixture described in Attachment 2. Hydro seeding is the preferred seeding method to establish the best grass stand.
- The final landfill cover will be tested or retested for soil classification, hydraulic conductivity and compaction at the locations shown in Figure 1 to confirm landfill design criteria were met with the construction practices employed. Soil organic testing is not planned if the engineer observes the organic mixing and placement as well as seed bed preparation.

TABLE 1

Summary of Soil Characteristics for Final Cover of Northern Half of Cell #1

Soil Sample Location or Marker No.	Soil Classification [1]			Permeability [2] w/ Guelph Permeameter	DCP Testing Summary	Observations [3] During Soil Sampling	Observations [4] After Soil Sampling
	HELP #	USDA	USCS				
SS #1[5] Final Cover	8	Loam	Sandy Silt ML w/3% gravel	3.4×10^{-4} cm/sec	compaction increases with depth to 6 ft • ≈95 blows from 0-3ft • ≈210 blows from 3-6ft	no waste to 6 ft depth	dried heavy vegetation with sand/silts on surface
SS #2[5] Final Cover	8	Loam	Sandy Silt ML w/4% gravel		compaction decreases with depth from 0 to 6 ft • ≈50 blows from 0-3½ft • ≈30 blows from 3½-6ft	no waste to 6 ft depth	dried vegetation with sand/silts on surface
SS #2 N[6] (75ft north of SS #2)	8	Loam	Sandy Silt ML w/4% gravel		compaction decreases with depth from 0 to 6 ft • ≈70 blows from 0-2½ft • ≈25 blows from 2½-6ft	no waste to 6 ft depth, vegetation and cemented particles at surface	dried vegetation with sand/silts on surface
SS #2 S[6] (75 ft south of SS #2)	8	Loam	Sandy Silt ML w/14% gravel		well compacted at depth from 0 to 6 ft • ≈150 blows from 0-3ft • ≈100 blows from 3-6ft	no waste to 6 ft depth, vegetation and cemented particles at surface	dried vegetation with sand/silts on surface
SS #3[5] Not Final Cover	6 or 7	Sandy Loam	Silty Sand SM w/14% gravel	Note 7	compaction increases with depth from 0 to 6 ft • ≈ 80 blows from 0-3 ft • ≈160 blows from 3-6ft	no waste to ≈ 42 inch depth	Test Pit ≈ 50 feet west of marker: 10 to 12 inches depth of 2 inch minus gravel road base with waste noted at ≈30 inches depth
SS #4[5] Final Cover	7	Loam	Silty Sand with Gravel SM w/17% gravel		compaction uniform with depth from 0 to 6 ft • ≈70 blows from 0-3 ft • ≈70 blows from 3-6 ft	no waste to 6 ft depth	cementitious particles (like caliche) on the surface
SS #5[5] Final Cover	6 or 7	Sandy Loam	Silty Sand SM w/13% gravel	2.5×10^{-4} cm/sec	compaction increases with depth from ≈ 0 to 4.5 ft • ≈50 blows from 0-3 ft • ≈110 blows from 3-6ft	no waste to 6 ft depth	Test Pit ≈ 50 feet northwest of marker: no gravels but cementitious particles (like caliche) noted on the surface, cementitious particles found in excavated soil with minimum 7 feet soil cover and no waste
SS #10[5] Not Final Cover	8	Loam	Sandy Silt ML w/ 2% gravel		well compacted uniformly with depth from 0 to 6 ft • ≈ 90 blows from 0-3ft	no waste to ≈66 inches depth	vegetation with sand/silts on surface

TABLE 1

Summary of Soil Characteristics for Final Cover of Northern Half of Cell #1

Soil Sample Location or Marker No.	Soil Classification [1]			Permeability [2] w/ Guelph Permeameter	DCP Testing Summary	Observations [3] During Soil Sampling	Observations [4] After Soil Sampling
	HELP #	USDA	USCS				
					• ≈100 blows from 3-6ft		
SS #11[5] Not Final Cover	8	Loam	Sandy Silt ML w/ 7% gravel		well compacted uniformly with depth from 0 to 6 ft • ≈140 blows from 0-3ft • ≈180 blows from 3-6ft	no waste to ≈ 24 inches depth	Test Pit ≈ 50 feet west of marker: sand/silt, sprinkled with ¾ minus gravel on surface, 1 inch depth gravel road base with waste noted at ≈ 24 inch depth

Note 1: Composite soil sample from 0 to 6 feet depth or to waste; whichever is least depth
Note 2: Soil sample collected at ≈ 24 inch depth
Note 3: Observations by Travis Thomsen , American Geotechnics, during sampling on 9 June through 10 June 2011
Note 4: Observations by Basil Tupyi, Holladay Engineering, on 28 June 2011
Note 5: Sampling conducted during 9 and 10 June 2011
Note 6: Sampling conducted on 10 July 2011
Note 7: Soil unsuitable for test method because soil sloughing into hole during testing.

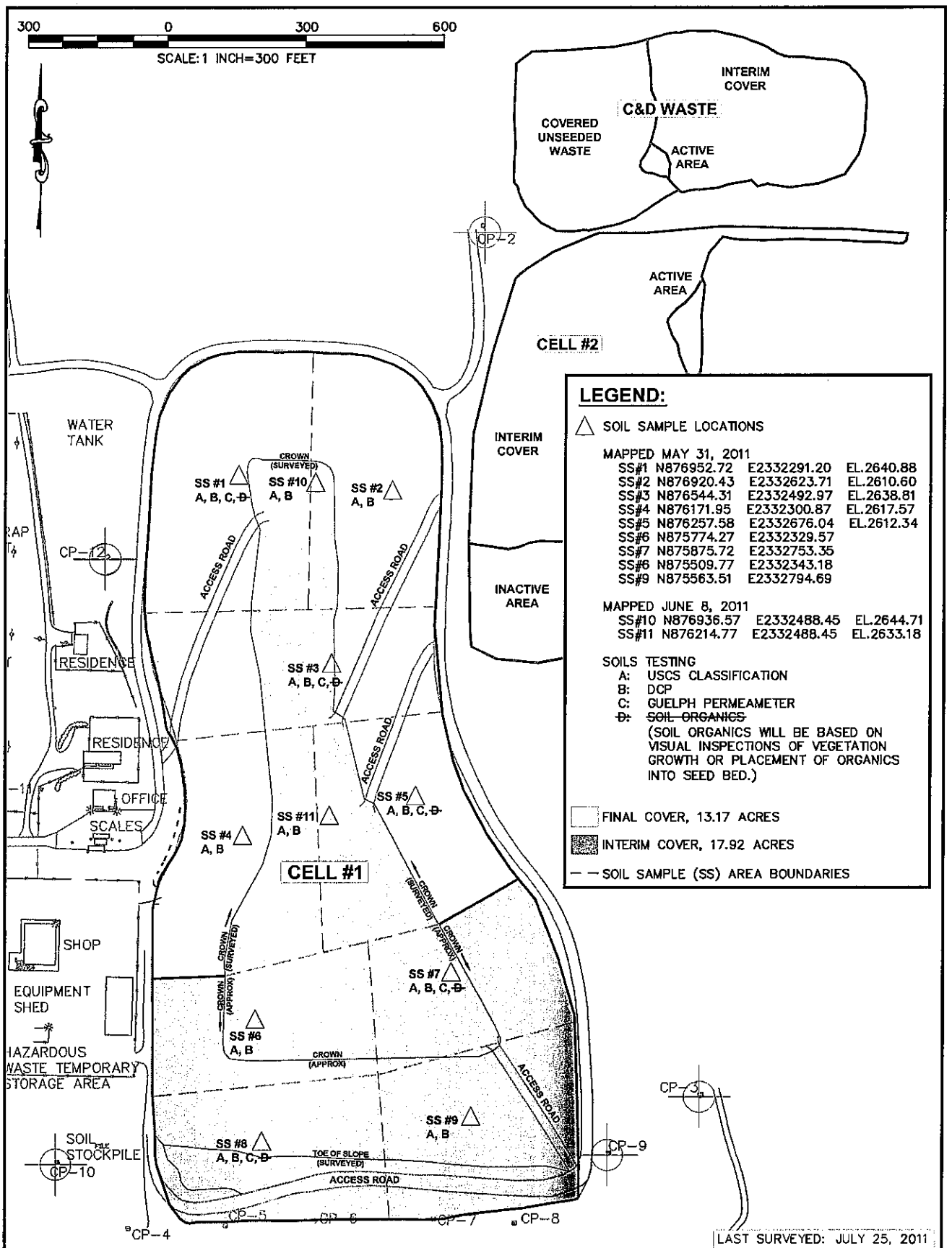

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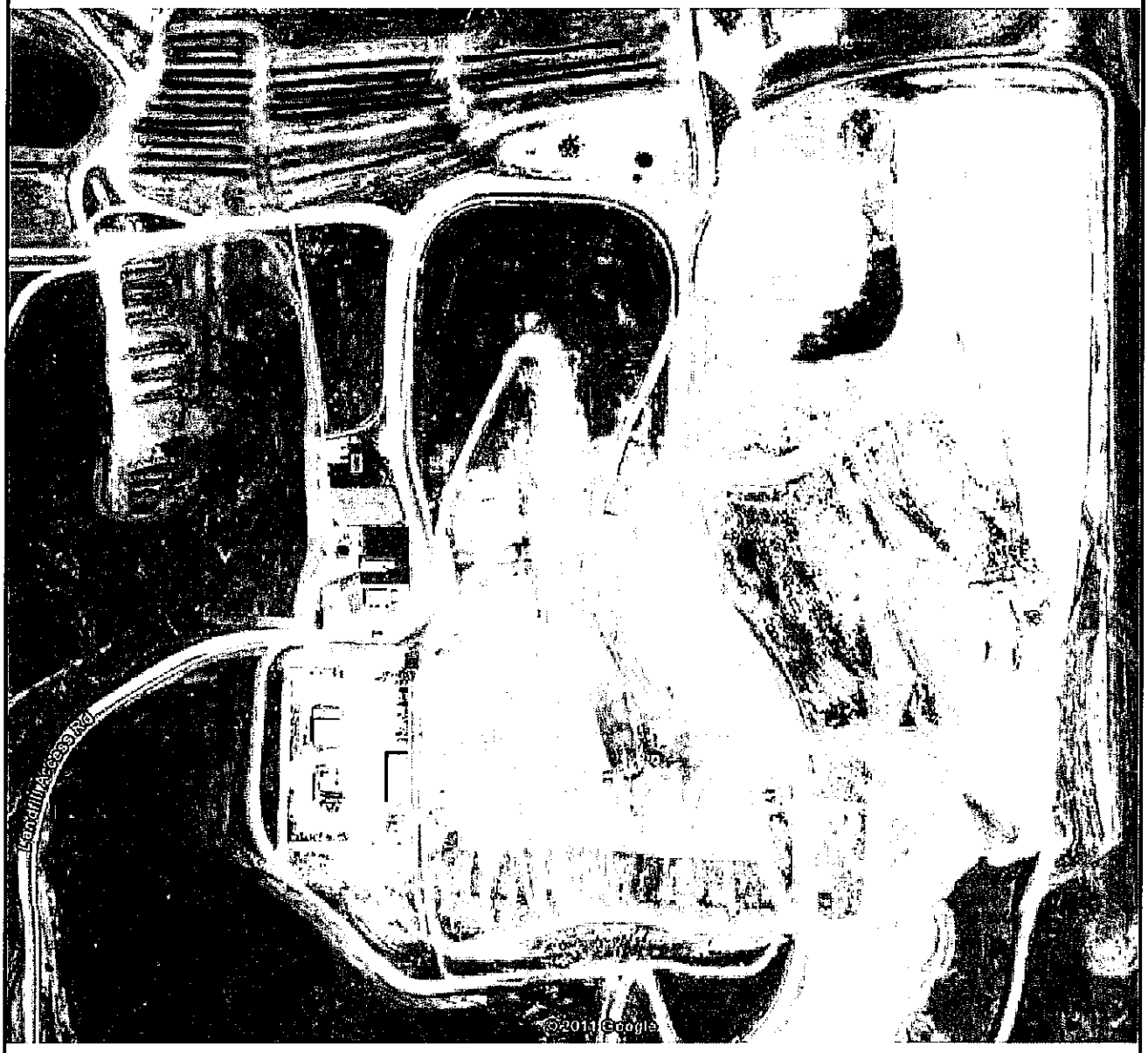
FIGURE #1
SOIL SAMPLING LAYOUT
CELL #1, CLAY PEAK LANDFILL
PAYETTE COUNTY, IDAHO

DRAWN BY: S. MCGEHEE | DRAWING DATE: MAY 2011 | G:\CLIENTS\PC\PC10-0354A\DWG\PC10-0354A_FIG-1_CELL 1 CLOSURE.dwg



NOT TO SCALE

IMAGE SOURCE: GOOGLE EARTH
APPROXIMATE IMAGE DATE: JULY 2010

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FIGURE #2
AERIAL VIEW
CELL #1, CLAY PEAK LANDFILL
PAYETTE COUNTY, IDAHO

DRAWN BY: S. MCGEHEE	DRAWING DATE: JULY 2011	G:\CLIENTS\PC\PC10-0354A\DWG\PC10-0354A_FIG-2_CELL 1 CLOSURE.dwg

ATTACHMENT I

Soils Laboratory Test Results

American Geotechnics
5260 Chinden Blvd.
Boise, Idaho 83714
Telephone: (208) 658-8700
Fax: (208) 658-8703

AMERICAN GEO TECHNICS

Project Information

Report to: Holladay Engineering
Project: Payette County Landfill Cell#1 closure
Report Date: 6/16/11
File No.: 11B-G2230

Material Information

Date Sampled: 6/9 through 6/10/11
Sampled By: American Geotechnics
Date Received: 6/13/11
Date Tested: 6/13 through 6/15/11

SUMMARY OF LABORATORY RESULTS

Lab Number	Borehole	Sample Type	Depth (ft)	Water Content (%)	% Passing #200 Sieve	Liquid Limit (%)	Plasticity Index	Soil Type	Remarks
11-0461	SS#01	GS	0.0'-6.0'	17.5	65.9	37	11	ML	Composite; USDA=Loam
11-0462	SS#02	GS	0.0'-6.0'	17.1	50.7	34	10	ML	Composite; USDA=Loam
11-0463	SS#03	GS	0.0'-4.5'	13.7	25.5	NV	NP	SM	Composite; USDA=Sandy Loam
11-0464	SS#04	GS	0.0'-6.0'	22.9	43.6	36	3	SM	Composite; USDA=Loam
11-0465	SS#05	GS	0.0'-6.0'	23.2	38.5	NV	NP	SM	Composite; USDA=Sandy Loam
11-0466	SS#10	GS	0.0'-6.0'	21.1	58.8	33	8	ML	Composite; USDA=Loam
11-0467	SS#11	GS	0.0'-4.0'	20.1	50.8	36	5	ML	Composite; USDA=Loam

Prepared By: Travis Thomsen

American Geotechnics
5260 Chinden Blvd.
Boise, Idaho 83714
Telephone: (208) 658-8700
Fax: (208) 658-8703

AMERICAN GEO TECHNICS

Project Information

Report to: Holladay Engineering
Project: Payette County Landfill Cell#1 closure
Report Date: 7/25/11
File No.: 11B-G2230

Material Information

Date Sampled: 7/21/11
Sampled By: American Geotechnics
Date Received: 7/21/11
Date Tested: 7/21 through 7/25/11

SUMMARY OF LABORATORY RESULTS

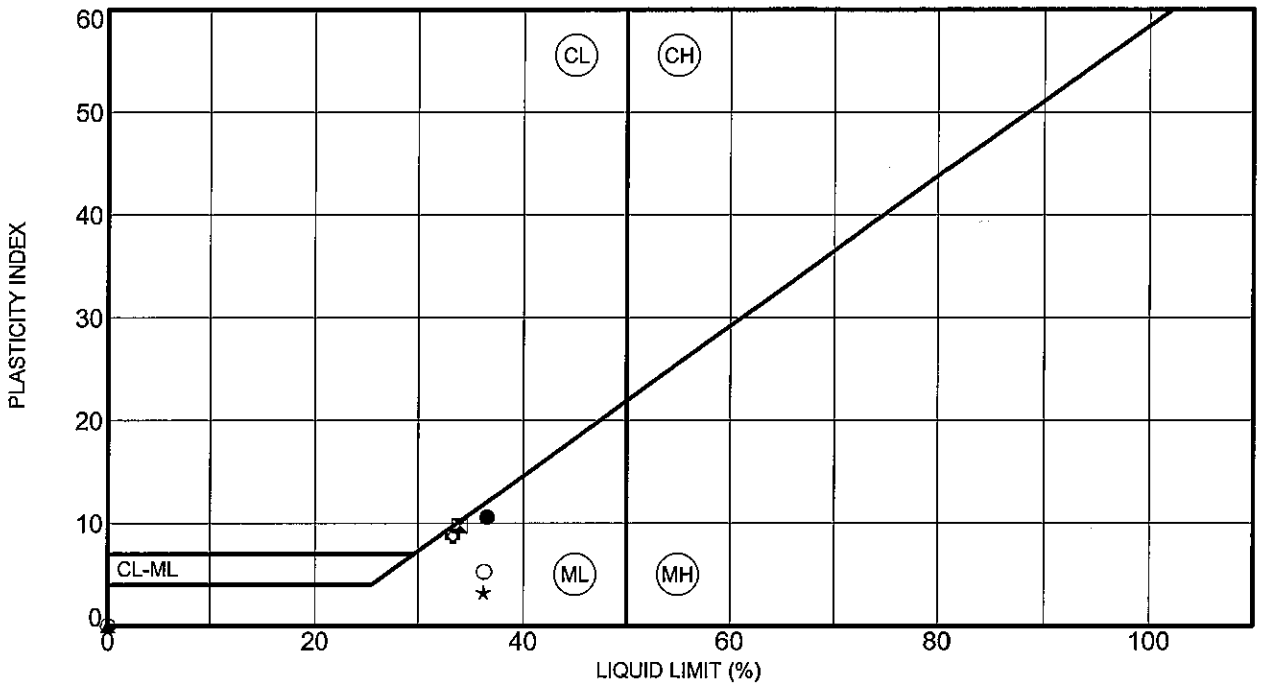
Lab Number	Borehole	Sample Type	Depth (ft)	Water Content (%)	% Passing #200 Sieve	Liquid Limit (%)	Plasticity Index	Soil Type	Remarks
11-0564	SS#2N	GS	0.0'-6.0'	17.7	59.5	33	8	ML	Combined; USDA=Loam
11-0565	SS#2S	GS	0.0'-6.0'	19.3	50.8	33	3	ML	Combined; USDA=Loam

Prepared By: Travis Thomsen

ATTERBERG LIMITS REPORT

CLIENT: Holladay Engineering
FILE NUMBER: 11B-G2230

PROJECT NAME: Payette County Landfill Cell#1 closure
PROJECT LOCATION: Payete County, Idaho



	Specimen Identification			MC	LL	PL	PI	Fines	Classification
●	SS#01	GS	0.0	18	37	26	11	66	SANDY SILT (ML)
⊠	SS#02	GS	0.0	17	34	24	10	51	SANDY SILT (ML)
▲	SS#03	GS	0.0	14	NV	NV	NP	26	SILTY SAND (SM)
★	SS#04	GS	0.0	23	36	33	3	44	SILTY SAND with GRAVEL (SM)
⊙	SS#05	GS	0.0	23	NV	NV	NP	39	SILTY SAND (SM)
✿	SS#10	GS	0.0	21	33	25	8	59	SANDY SILT (ML)
○	SS#11	GS	0.0	20	36	31	5	51	SANDY SILT (ML)

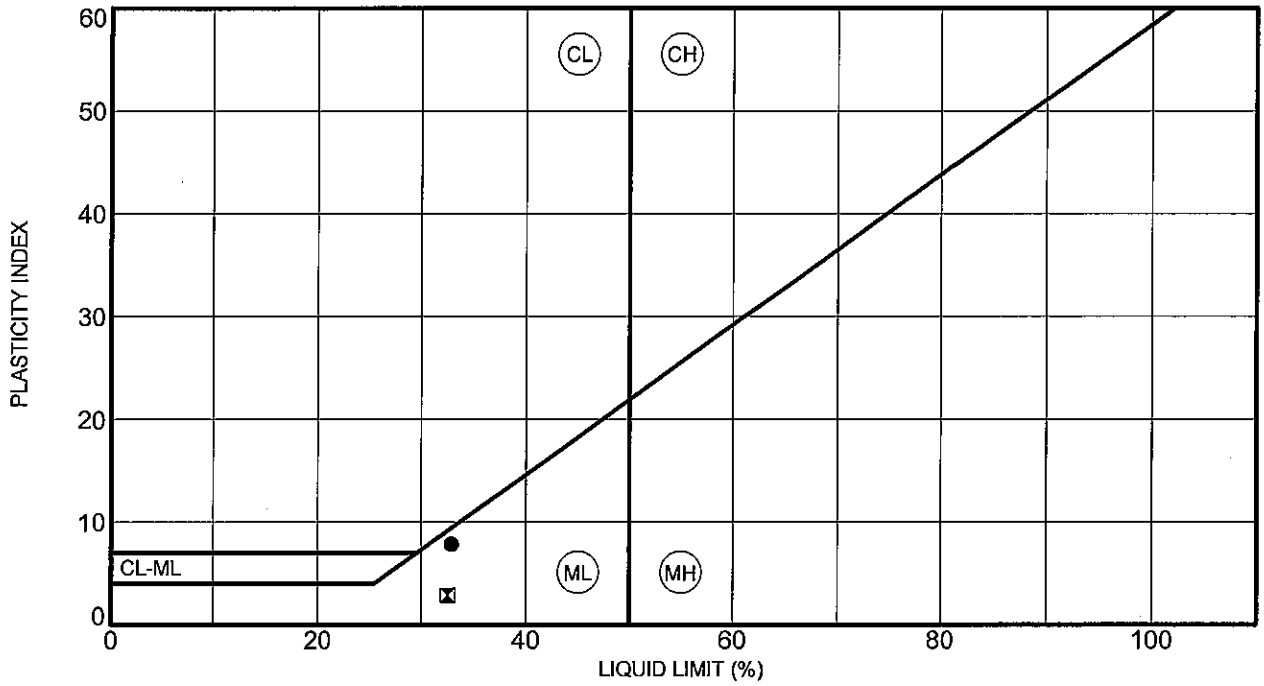
Prepared By: Travis Thomsen

American Geotechnics

ATTERBERG LIMITS REPORT

CLIENT: Holladay Engineering
FILE NUMBER: 11B-G2230

PROJECT NAME: Payette County Landfill Cell#1 closure
PROJECT LOCATION: Payette County, Idaho



	Specimen Identification			MC	LL	PL	PI	Fines	Classification
●	SS#2N	GS	0.0	18	33	25	8	60	SANDY SILT (ML)
⊠	SS#2S	GS	0.0	19	33	30	3	51	SANDY SILT (ML)

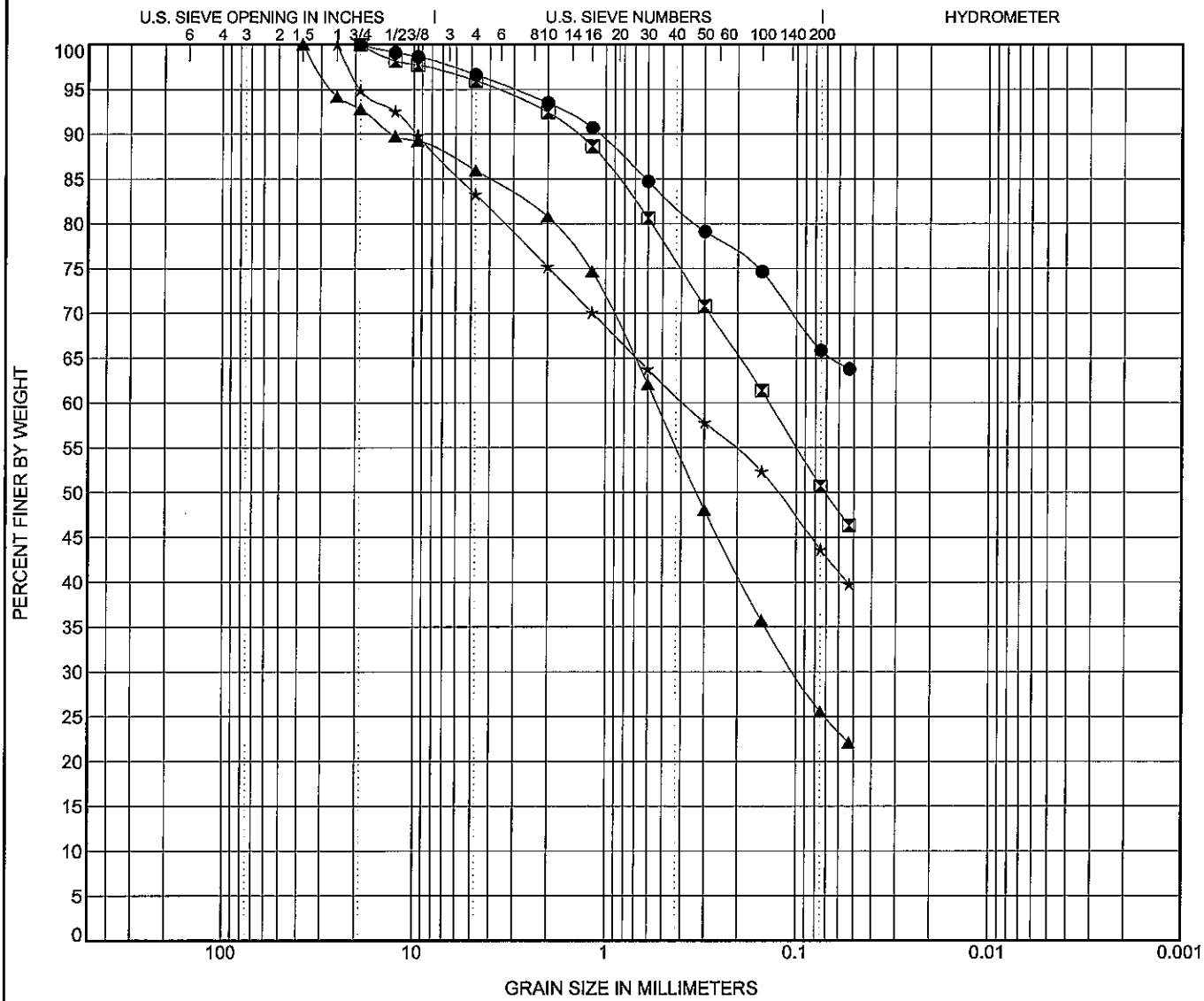
Prepared By: Travis Thomsen

American Geotechnics

PARTICLE-SIZE DISTRIBUTION REPORT

CLIENT: Holladay Engineering
FILE NUMBER: 11B-G2230

PROJECT NAME: Payette County Landfill Cell#1 closure
PROJECT LOCATION: Payete County, Idaho



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification			Classification	D10	D30	D60
●	SS#01	GS	0.0	SANDY SILT (ML)	--	--	
⊠	SS#02	GS	0.0	SANDY SILT (ML)	--	--	0.137
▲	SS#03	GS	0.0	SILTY SAND (SM)	--	0.102	0.541
★	SS#04	GS	0.0	SILTY SAND with GRAVEL (SM)	--	--	0.387

	Specimen Identification			%Gravel	%Sand	%Fines	D15	D50	D85	Cc	Cu	MC	LL	PL	PI
●	SS#01	GS	0.0	3.4	30.7	65.9	--	--	0.62	--	--	18	37	26	11
⊠	SS#02	GS	0.0	4.1	45.2	50.7	--	0.071	0.868	--	--	17	34	24	10
▲	SS#03	GS	0.0	14.1	60.4	25.5	--	0.33	4.053	--	--	14	NV	NV	NP
★	SS#04	GS	0.0	16.7	39.7	43.6	--	0.124	5.697	--	--	23	36	33	3

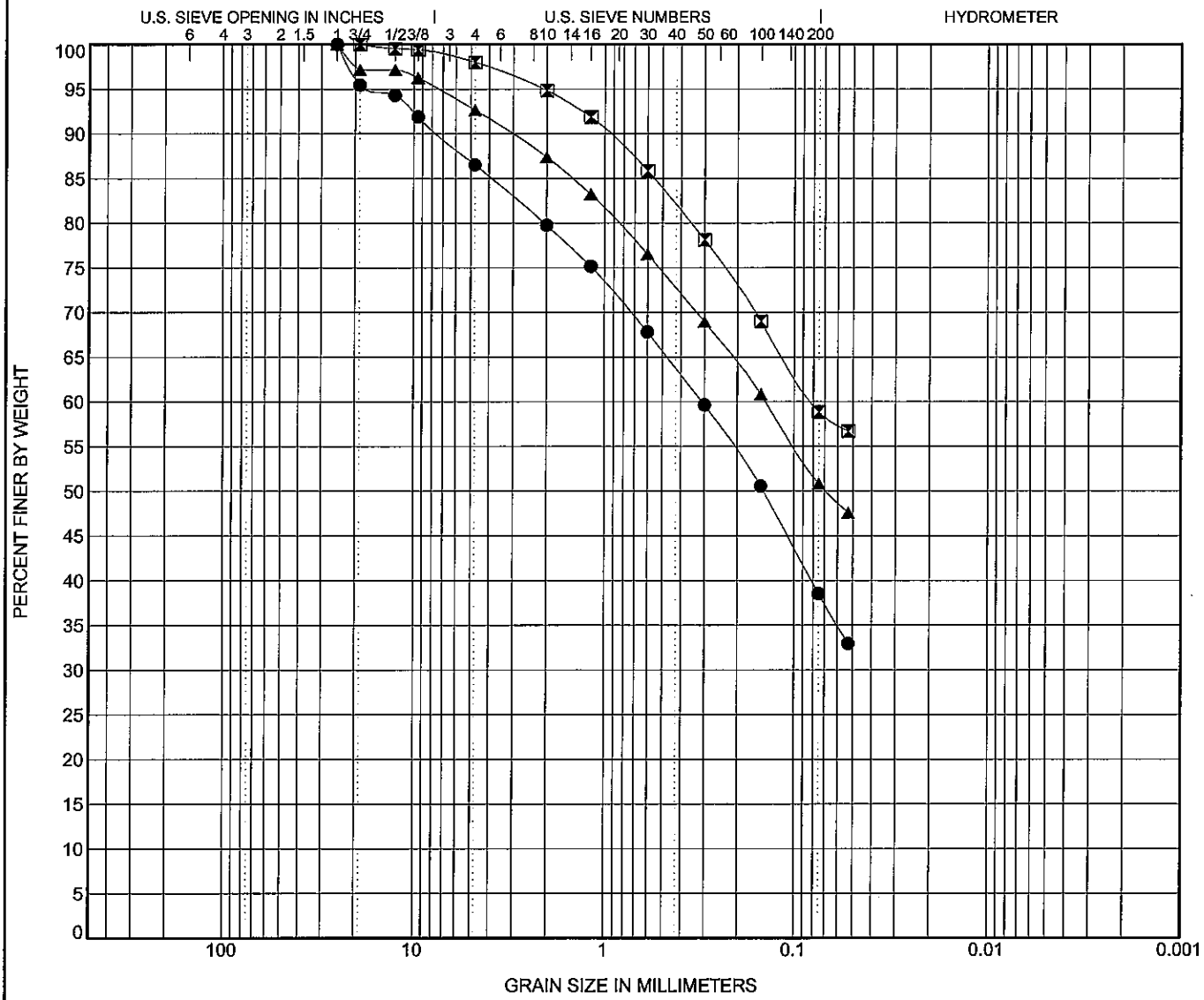
Prepared By: Travis Thomsen

American Geotechnics

PARTICLE-SIZE DISTRIBUTION REPORT

CLIENT: Holladay Engineering
FILE NUMBER: 11B-G2230

PROJECT NAME: Payette County Landfill Cell#1 closure
PROJECT LOCATION: Payete County, Idaho



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification			Classification	D10	D30	D60
●	SS#05	GS	0.0	SILTY SAND (SM)	--	--	0.31
⊠	SS#10	GS	0.0	SANDY SILT (ML)	--	--	0.081
▲	SS#11	GS	0.0	SANDY SILT (ML)	--	--	0.142

	Specimen Identification			%Gravel	%Sand	%Fines	D15	D50	D85	Cc	Cu	MC	LL	PL	PI
●	SS#05	GS	0.0	13.5	48.0	38.5	--	0.145	3.91	--	--	23	NV	NV	NP
⊠	SS#10	GS	0.0	2.0	39.2	58.8	--	--	0.556	--	--	21	33	25	8
▲	SS#11	GS	0.0	7.4	41.8	50.8	--	0.069	1.477	--	--	20	36	31	5

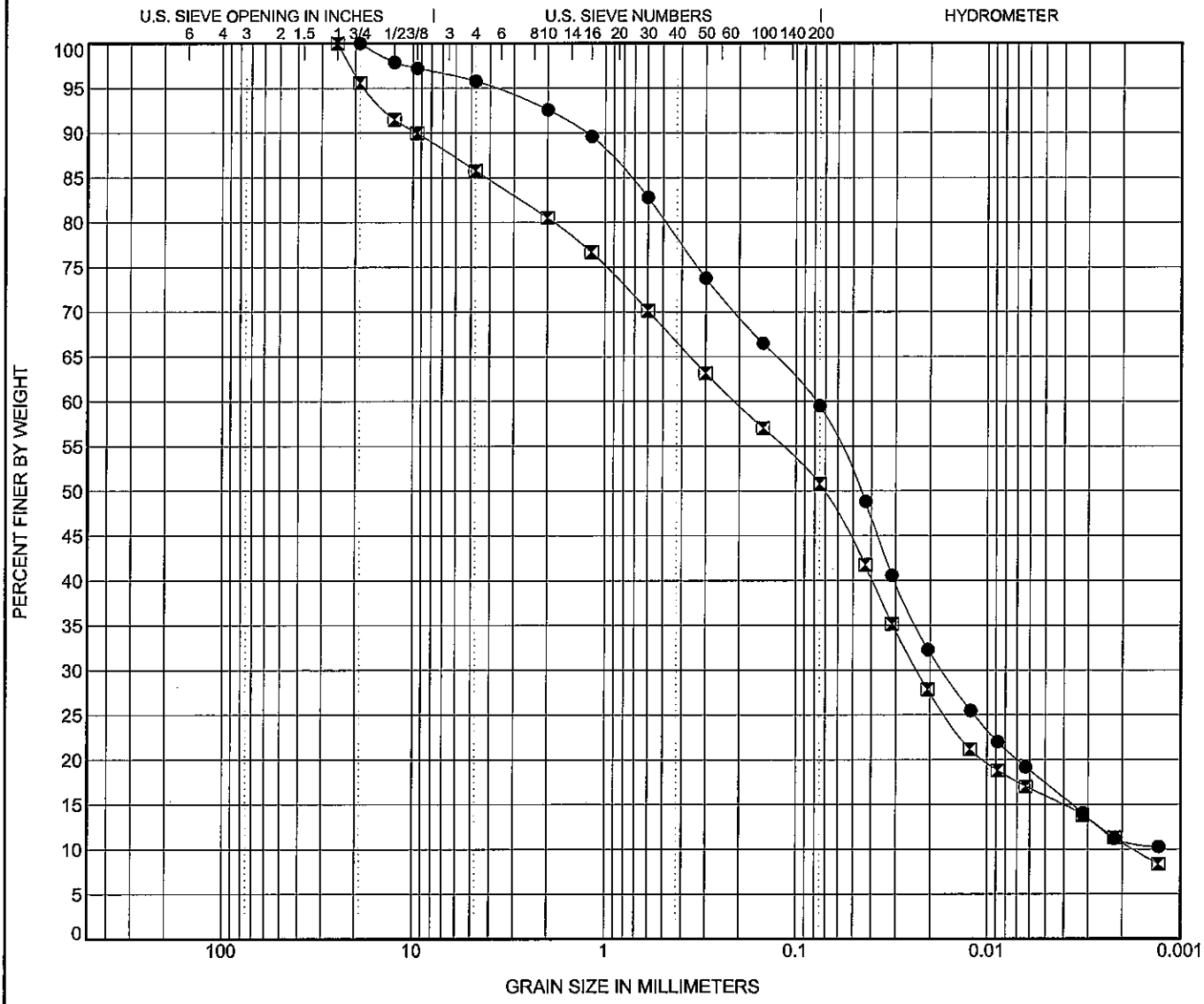
Prepared By: Travis Thomsen

American Geotechnics

PARTICLE-SIZE DISTRIBUTION REPORT

CLIENT: Holladay Engineering
FILE NUMBER: 11B-G2230

PROJECT NAME: Payette County Landfill Cell#1 closure
PROJECT LOCATION: Payette County, Idaho



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification			Classification	D10	D30	D60
●	SS#2N	GS	0.0	SANDY SILT (ML)	--	0.017	0.079
⊠	SS#2S	GS	0.0	SANDY SILT (ML)	0.002	0.023	0.21

	Specimen Identification			%Gravel	%Sand	%Fines	D15	D50	D85	Cc	Cu	MC	LL	PL	PI
●	SS#2N	GS	0.0	4.2	36.3	59.5	0.004	0.046	0.748	--	--	18	33	25	8
⊠	SS#2S	GS	0.0	14.2	35.0	50.8	0.004	0.071	4.185	1.49	120.81	19	33	30	3

Prepared By: Travis Thomsen

American Geotechnics

American Geotechnics
5260 Chinden Blvd.
Boise, Idaho 83714
Phone:(208) 658-8700
Fax: (208) 658-8703

Report to: Holladay Engineering
Project: Payette County Landfill Cell #1 Cover
Report Date: 6/16/11
Project No.: 11B-G2230

Material Information

Date Tested: 6/9 through 6/10/11
Tested By: American Geotechnics
Weather Condition: Fair

Test Results

In-Situ Permeability, Guelph Permeameter Method (Constant Head)

Location	Soil Description	Well Depth	Hydraulic Conductivity cm/sec
SS#1	Sandy Silt (ML); Loam	24"	3.4×10^{-4}
SS#3	Silty Sand (SM);Sandy Loam	22"	*NR
SS#5	Silty Sand (SM);Sandy Loam	24"	2.5×10^{-4}

* Material sloughing into hole during test, soil unsuitable for test method.

Reviewed By: VT

DCP TEST DATA

File Name: DCP

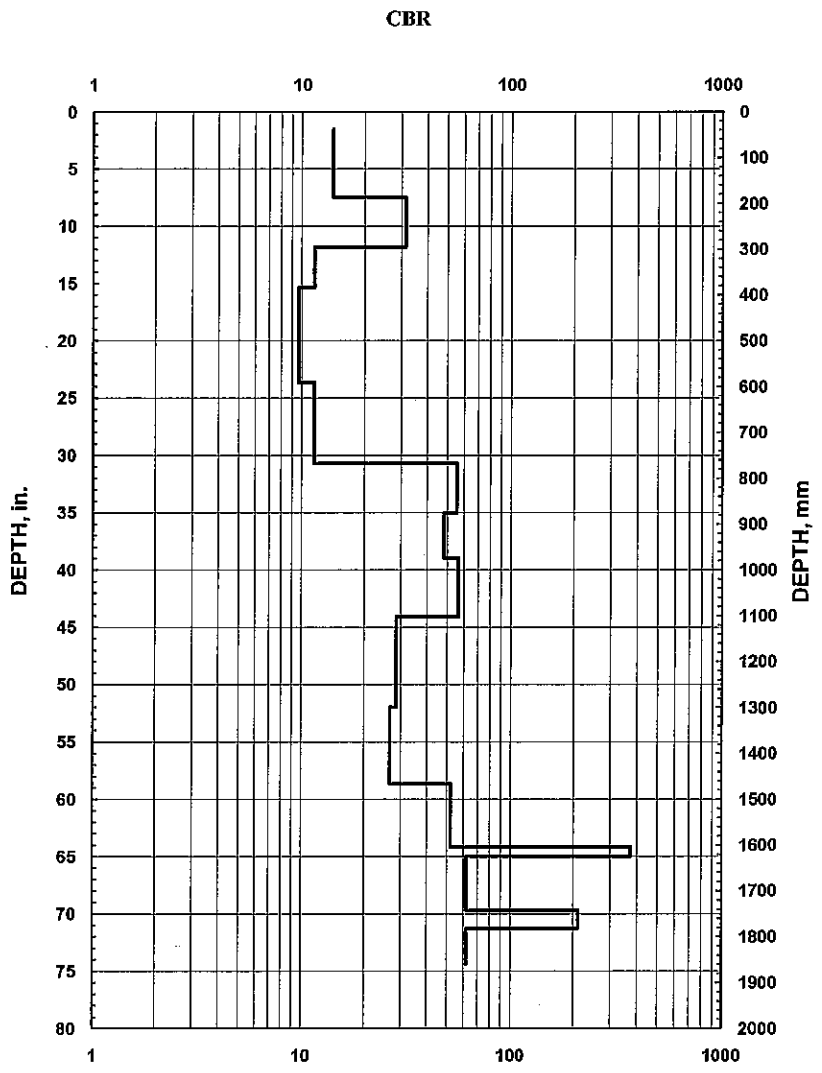
Project: *Payette Co. Landfill* **Date:** 9-Jun-11

Location: SS#1 **Soil Type(s):** Silty Sand (SM)

Hammer
- ○ 10.1 lbs.
- ◉ 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ◉ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	40	1
10	190	1
15	300	1
5	390	1
10	600	1
10	780	1
25	890	1
20	990	1
30	1120	1
25	1320	1
20	1490	1
30	1630	1
25	1650	1
30	1770	1
30	1810	1
20	1890	1



DCP TEST DATA

File Name: DCP

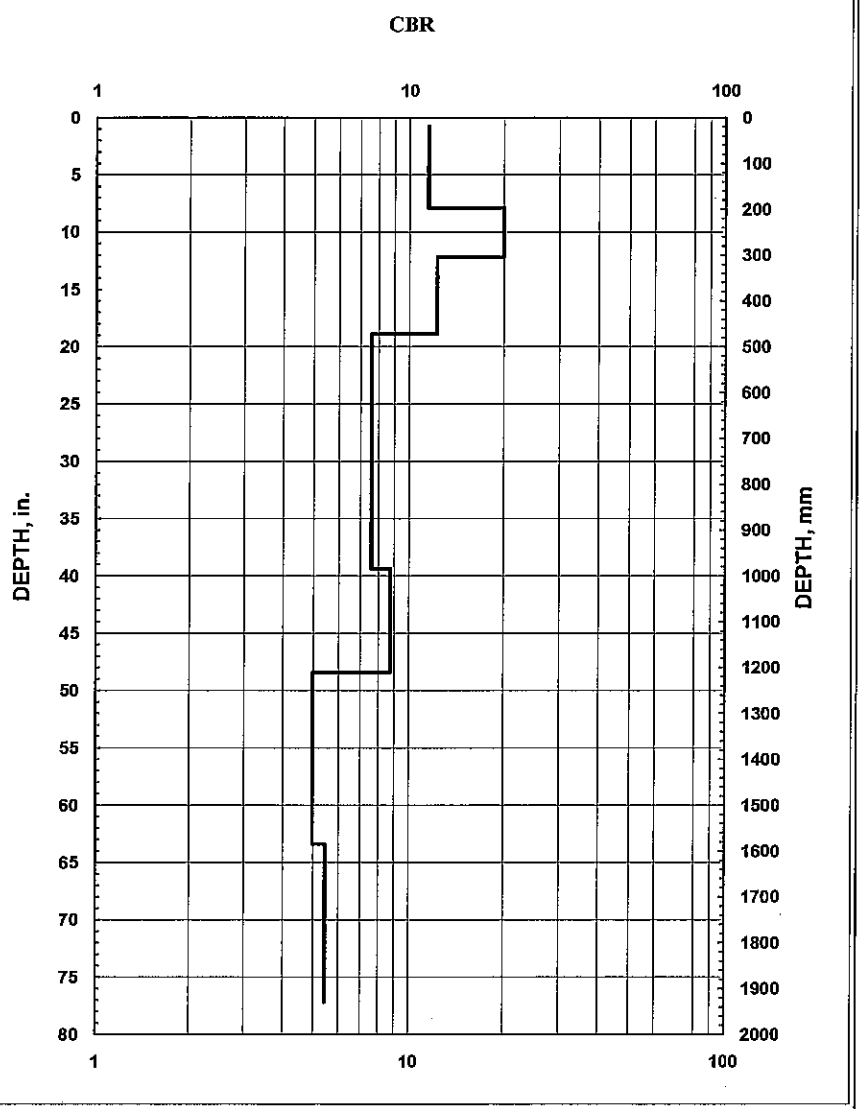
Project: *Payette Co. Landfill* **Date:** 9-Jun-11

Location: SS#2 **Soil Type(s):** Silty Sand (SM)

Hammer
- ○ 10.1 lbs.
- ◉ 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ◉ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	20	1
10	200	1
10	310	1
10	480	1
10	740	1
10	1000	1
10	1230	1
10	1610	1
10	1960	1



DCP TEST DATA

File Name: DCP

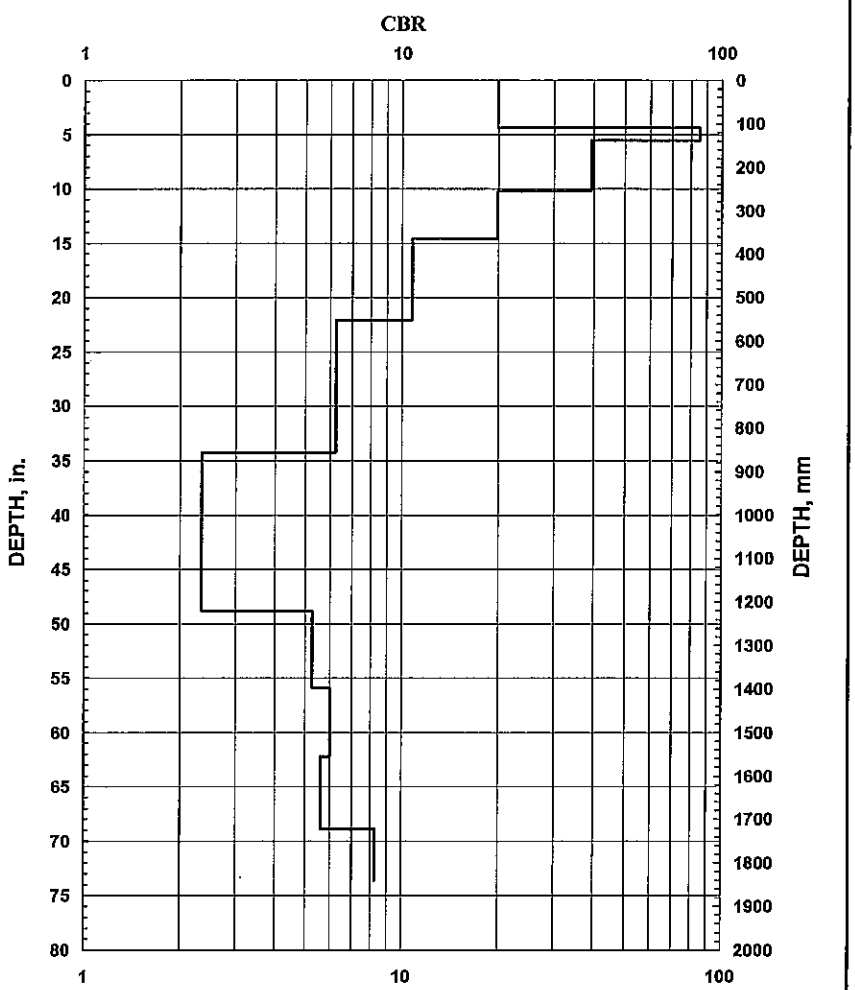
Project: Payette County Landfill **Date:** 21-Jul-11

Location: SS#2N 75' North of SS#2 **Soil Type(s):** Silty Sand (SM)

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
10	110	1
10	140	1
20	260	1
10	370	1
10	560	1
10	870	1
5	1240	1
5	1420	1
5	1580	1
5	1750	1
5	1870	1



DCP TEST DATA

File Name: DCP

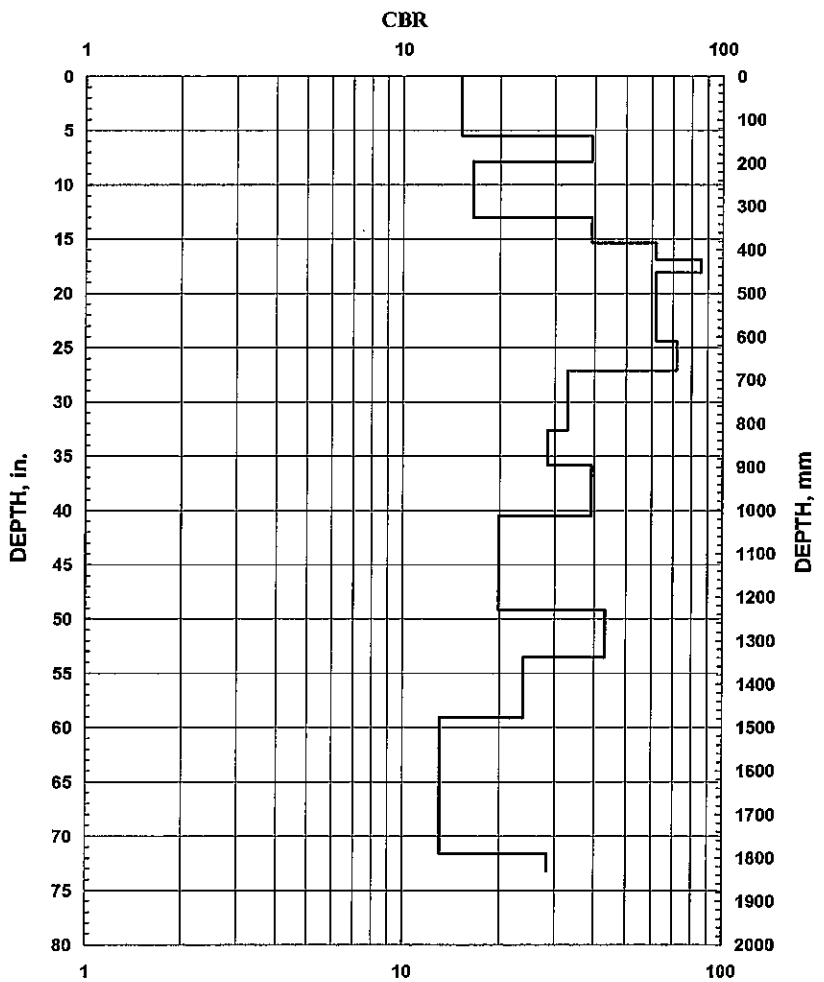
Project: Payette County Landfill **Date:** 21-Jul-11

Location: SS#2S 75' South of SS#2 **Soil Type(s):** Silty Sand (SM)

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
10	140	1
10	200	1
10	330	1
10	390	1
10	430	1
10	460	1
20	540	1
20	620	1
20	690	1
20	830	1
10	910	1
20	1030	1
20	1250	1
20	1360	1
15	1500	1
10	1660	1
10	1820	1
5	1860	1



DCP TEST DATA

File Name: DCP

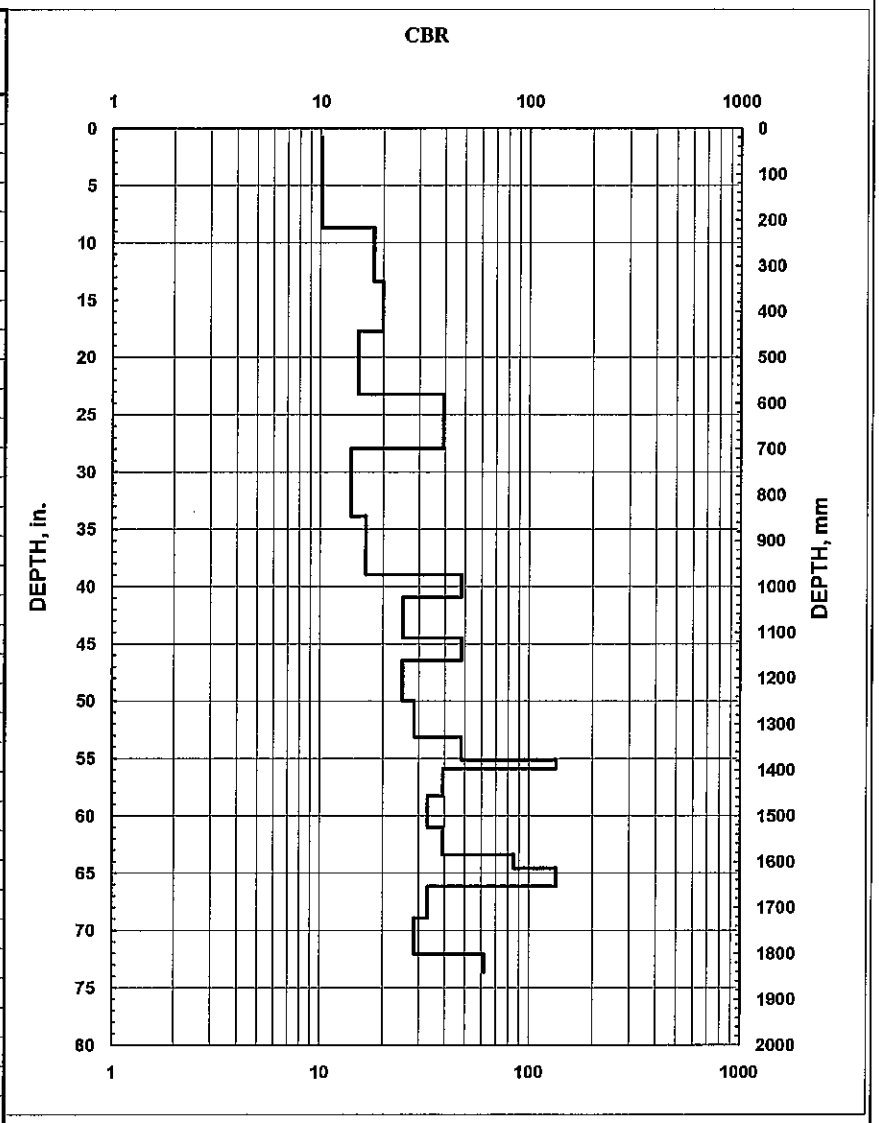
Project: *Payette Co. Landfill* **Date:** 9-Jun-11

Location: SS#3 **Soil Type(s):** Silty Sand (SM)

Hammer
- ○ 10.1 lbs.
- ◉ 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ◉ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	20	1
10	220	1
10	340	1
10	450	1
10	590	1
10	650	1
10	710	1
10	860	1
10	990	1
10	1040	1
10	1130	1
10	1180	1
10	1270	1
10	1350	1
10	1400	1
10	1420	1
10	1480	1
10	1550	1
10	1610	1
10	1640	1
10	1660	1
10	1680	1
10	1750	1
10	1830	1
10	1870	1



DCP TEST DATA

File Name: DCP

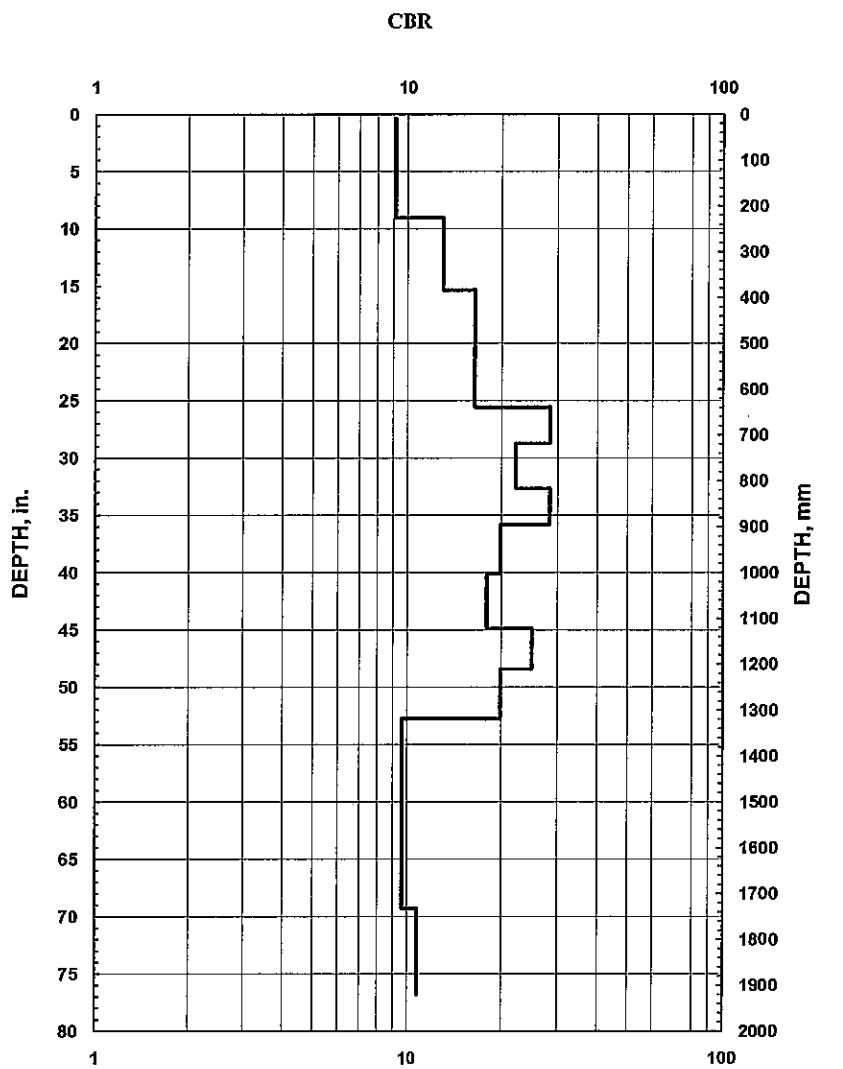
Project: *Payette Co. Landfill* **Date:** 9-Jun-11

Location: SS#4 **Soil Type(s):** Silty Sand (SM)

Hammer
- ○ 10.1 lbs.
- ◉ 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ◉ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	10	1
10	230	1
10	390	1
10	520	1
10	650	1
10	730	1
10	830	1
10	910	1
10	1020	1
10	1140	1
10	1230	1
10	1340	1
10	1550	1
10	1760	1
10	1950	1



DCP TEST DATA

File Name: DCP

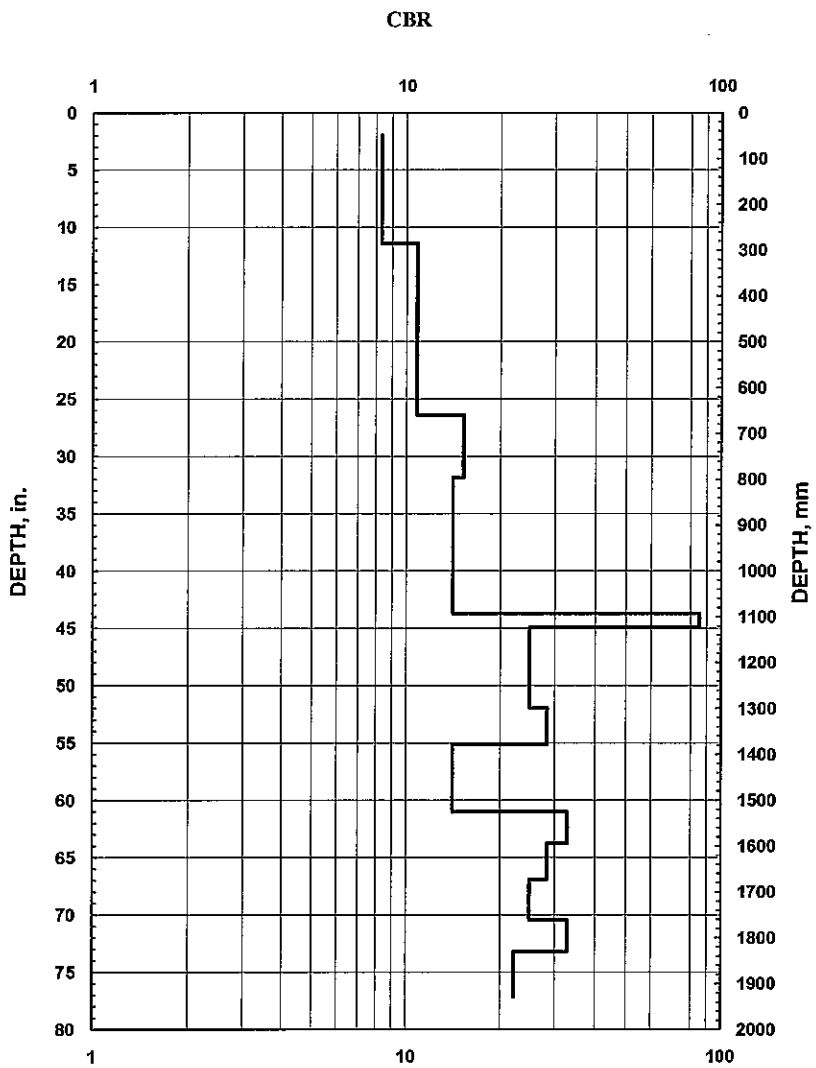
Project: *Payette Co. Landfill* **Date:** 9-Jun-11

Location: SS#5 **Soil Type(s):** Silty Sand (SM)

Hammer
- ○ 10.1 lbs.
- ◉ 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ◉ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	50	1
10	290	1
10	480	1
10	670	1
10	810	1
10	960	1
10	1110	1
10	1140	1
10	1230	1
10	1320	1
10	1400	1
10	1550	1
10	1620	1
10	1700	1
10	1790	1
10	1860	1
10	1960	1



DCP TEST DATA

File Name: DCP

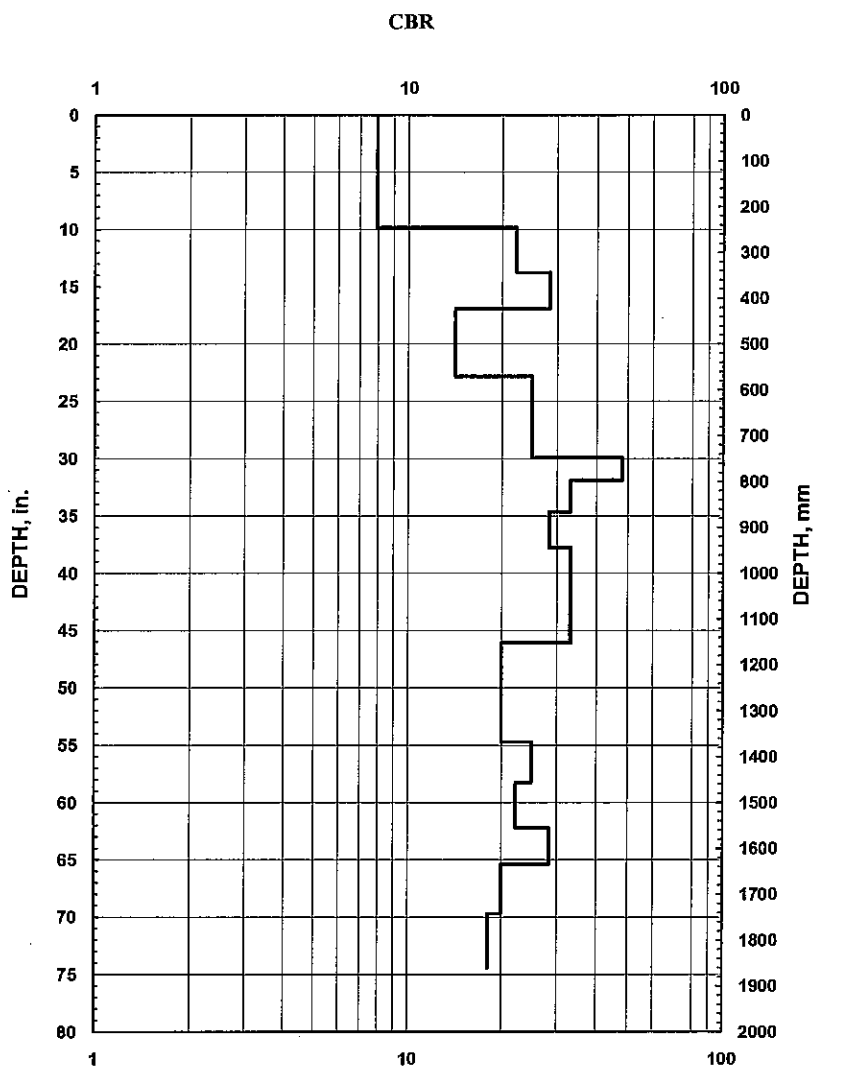
Project: *Payette Co. Landfill* **Date:** 9-Jun-11

Location: SS#10 **Soil Type(s):** Silty Sand (SM)

Hammer
- ○ 10.1 lbs.
- ◉ 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ◉ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
10	250	1
10	350	1
10	430	1
10	580	1
10	670	1
10	760	1
10	810	1
10	880	1
10	960	1
10	1030	1
10	1100	1
10	1170	1
10	1280	1
10	1390	1
10	1480	1
10	1580	1
10	1660	1
10	1770	1
10	1890	1



DCP TEST DATA

File Name: DCP

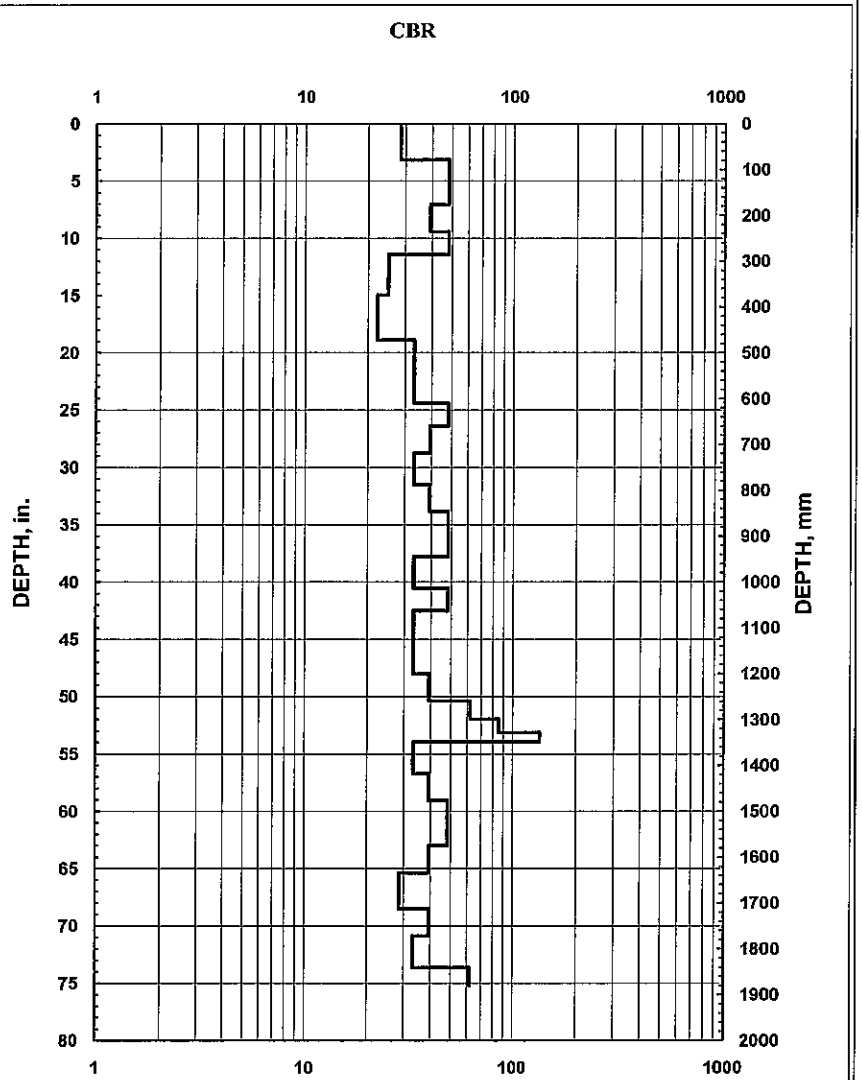
Project: *Payette Co. Landfill* **Date:** 9-Jun-11

Location: SS#11 **Soil Type(s):** Silty Sand (SM)

Hammer
- ○ 10.1 lbs.
- ◉ 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ◉ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
10	80	1
10	130	1
10	180	1
10	240	1
10	290	1
10	380	1
10	480	1
10	550	1
10	620	1
10	670	1
10	730	1
10	800	1
10	860	1
10	910	1
10	960	1
10	1030	1
10	1080	1
10	1150	1
10	1220	1
10	1280	1
10	1320	1
10	1350	1
10	1370	1
10	1440	1
10	1500	1
10	1550	1
10	1600	1
10	1660	1
10	1740	1
10	1800	1
10	1870	1
10	1910	1



PROJECT: Payette County Landfill Cell#1 closure
LOCATION: Payete County, Idaho

BORING NO. SS#01

METHOD: Hand Auger
DATE LOGGED: 6/9/2011
LOGGED BY: Travis Thomsen, WAQTC

AMERICAN GEO TECHNICS

GROUNDWATER:

Groundwater not encountered on 6/9/2011

DEPTH (ft)	TYPE - No.	LITHOLOGY	MATERIAL DESCRIPTION (Stratification lines represent approximate boundaries between materials)	LAYER THICKNESS (ft.)	DEPTH (ft)	REMARKS
			Sandy Silt (ML)- 66% Fines; LL=37, PL=26, PI=11; 31% sand; 3% gravel; W=18%; light brown.			Surface organics.
0.5						
1.0	GS-1					
1.5						
2.0						
2.5						Organics in soil.
3.0	GS-2			6.00		
3.5						
4.0						
4.5						
5.0	GS-3					
5.5						
6.0					6.00	

Bottom of Boring at 6.0 ft.

PROJECT: Payette County Landfill Cell#1 closure
LOCATION: Payete County, Idaho

BORING NO. SS#02

METHOD: Hand Auger
DATE LOGGED: 6/10/2011
LOGGED BY: Travis Thomsen, WAQTC

AMERICAN GEO TECHNICS

GROUNDWATER:

Groundwater not encountered on 6/10/2011

DEPTH (ft)	TYPE - No.	LITHOLOGY	MATERIAL DESCRIPTION (Stratification lines represent approximate boundaries between materials)	LAYER THICKNESS (ft.)	DEPTH (ft)	REMARKS
			Sandy Silt (ML)- 51% Fines; LL=34, PL=24, PI=10; 45% sand; 4% gravel; W=17%; gray brown.			Surface organics.
0.5						
1.0	GS-7					
1.5						
2.0						
2.5						
3.0	GS-8			6.00		
3.5						
4.0						
4.5						
5.0	GS-9					
5.5						
6.0					6.00	

Bottom of Boring at 6.0 ft.

PROJECT: Payette County Landfill Cell#1 closure
LOCATION: Payette County, Idaho

BORING NO. SS#2N

METHOD: Hand Auger
DATE LOGGED: 7/21/2011
LOGGED BY: Travis Thomsen, WAQTC

AMERICAN GEO TECHNICS

GROUNDWATER:

Groundwater not encountered on 7/21/2011

DEPTH (ft)	TYPE - No.	LITHOLOGY	MATERIAL DESCRIPTION (Stratification lines represent approximate boundaries between materials)	LAYER THICKNESS (ft.)	DEPTH (ft)	REMARKS
0.5			Sandy Silt (ML)- 60% fines; LL= 33; PL= 25; PI = 8; 36% sand; 4% gravel (cemented particles); dry to moist; brown to gray.			Vegetation and cemented particles at surface.
1.0	GS-101					
1.5						
2.0						
2.5						
3.0	GS-102			6.00		
3.5						
4.0						
4.5						
5.0	GS-103					
5.5						
6.0					6.00	

Bottom of Boring at 6.0 ft.

PROJECT: Payette County Landfill Cell#1 closure
LOCATION: Payette County, Idaho

BORING NO. SS#2S

METHOD: Hand Auger
DATE LOGGED: 7/21/2011
LOGGED BY: Travis Thomsen, WAQTC

AMERICAN GEO TECHNICS

GROUNDWATER:

Groundwater not encountered on 7/21/2011

DEPTH (ft)	TYPE - No.	LITHOLOGY	MATERIAL DESCRIPTION (Stratification lines represent approximate boundaries between materials)	LAYER THICKNESS (ft.)	DEPTH (ft)	REMARKS
0.5			Sandy Silt (ML)- 51% fines; LL= 33; PL= 30; PI = 3; 35% sand; 14% gravel (cemented particles); dry to moist; brown to gray.			Vegetation and cemented particles at surface.
1.0	GS-104					
1.5						
2.0						
2.5						
3.0	GS-105			6.00		
3.5						
4.0						
4.5						
5.0	GS-106					
5.5						
6.0					6.00	

Bottom of Boring at 6.0 ft.

PROJECT: Payette County Landfill Cell#1 closure
LOCATION: Payete County, Idaho

BORING NO. SS#03

METHOD: Hand Auger
DATE LOGGED: 6/10/2011
LOGGED BY: Travis Thomsen, WAQTC

AMERICAN GEO TECHNICS

GROUNDWATER:

Groundwater not encountered on 6/10/2011

DEPTH (ft)	TYPE - No.	LITHOLOGY	MATERIAL DESCRIPTION (Stratification lines represent approximate boundaries between materials)	LAYER THICKNESS (ft.)	DEPTH (ft)	REMARKS
0.5			Silty Sand (SM)- 60% Sand; 25% fines; LL=NV, PL=NP, PI=NV; 14% gravel; W=14%; light brown.			
1.0	GS-10					
1.5						
2.0				4.50		
2.5						
3.0	GS-11					
3.5						Garbage intermixed with soil.
4.0						
	GS-12					
4.5					4.50	

Bottom of Boring at 4.5 ft.

Refusal on garbage.

PROJECT: Payette County Landfill Cell#1 closure
LOCATION: Payete County, Idaho

BORING NO. SS#04

METHOD: Hand Auger
DATE LOGGED: 6/9/2011
LOGGED BY: Travis Thomsen, WAQTC

AMERICAN GEO TECHNICS

GROUNDWATER:

Groundwater not encountered on 6/9/2011

DEPTH (ft)	TYPE - No.	LITHOLOGY	MATERIAL DESCRIPTION (Stratification lines represent approximate boundaries between materials)	LAYER THICKNESS (ft.)	DEPTH (ft)	REMARKS
0.5			Silty Sand with Gravel (SM)- 43% fines; LL=36, PL=33, PI=3; 40% Sand; 17% gravel; W=23%; light brown.			Light to moderate cementation of particles.
1.0	GS-4					
1.5						
2.0						
2.5						
3.0	GS-5			6.00		
3.5						
4.0						
4.5						
5.0	GS-6					
5.5						
6.0					6.00	

Bottom of Boring at 6.0 ft.

PROJECT: Payette County Landfill Cell#1 closure
LOCATION: Payete County, Idaho

BORING NO. SS#05

METHOD: Hand Auger
DATE LOGGED: 6/10/2011
LOGGED BY: Travis Thomsen, WAQTC

GROUNDWATER:

Groundwater not encountered on 6/10/2011

AMERICAN GEO TECHNICS

DEPTH (ft)	TYPE - No.	LITHOLOGY	MATERIAL DESCRIPTION (Stratification lines represent approximate boundaries between materials)	LAYER THICKNESS (ft.)	DEPTH (ft)	REMARKS
0.5			Silty Sand (SM)- 48% Sand; 39% fines; LL=NV, PL=NP, PI=NV; 13% gravel; W=23%; light brown.			Lightly cemented particles.
1.0	GS-13					
1.5						
2.0						
2.5						
3.0	GS-14			6.00		
3.5						
4.0						
4.5						
5.0	GS-15					
5.5						
6.0					6.00	

Bottom of Boring at 6.0 ft.

PROJECT: Payette County Landfill Cell#1 closure
LOCATION: Payete County, Idaho

BORING NO. SS#10

METHOD: Hand Auger
DATE LOGGED: 6/10/2011
LOGGED BY: Travis Thomsen, WAQTC

AMERICAN GEO TECHNICS

GROUNDWATER:

Groundwater not encountered on 6/10/2011

DEPTH (ft)	TYPE - No.	LITHOLOGY	MATERIAL DESCRIPTION (Stratification lines represent approximate boundaries between materials)	LAYER THICKNESS (ft.)	DEPTH (ft)	REMARKS
			Sandy Silt (ML)- 59% Fines; LL=33, PL=25, PI=8; 39% sand; 2% gravel; W=21%; light brown.			Surface organics.
0.5						
1.0	GS-19					
1.5						
2.0						
2.5						
3.0	GS-20			6.00		Organics in soil. Gray in color.
3.5						
4.0						
4.5						
5.0	GS-21					
5.5						Garbage intermixed with soil.
6.0					6.00	

Bottom of Boring at 6.0 ft.

PROJECT: Payette County Landfill Cell#1 closure
LOCATION: Payete County, Idaho

BORING NO. SS#11

AMERICAN GEO TECHNICS

METHOD: Hand Auger
DATE LOGGED: 6/10/2011
LOGGED BY: Travis Thomsen, WAQTC

GROUNDWATER:

Groundwater not encountered on 6/10/2011

DEPTH (ft)	TYPE - No.	LITHOLOGY	MATERIAL DESCRIPTION (Stratification lines represent approximate boundaries between materials)	LAYER THICKNESS (ft.)	DEPTH (ft)	REMARKS
			Sandy Silt (ML)- 51% Fines; LL=36, PL=31, PI=5; 42% sand; 7% gravel; W=20%; gray.			
0.5						
1.0	GS-16					
1.5						Organics in soil.
2.0				4.00		Garbage intermixed with soil.
2.5						
3.0	GS-17					
3.5						
4.0					4.00	

Bottom of Boring at 4.0 ft.

Refusal on garbage.

ATTACHMENT 2

Final Vegetative Cover – Seeding Plan

Recommended Grasses and Forbs (per USDA—NRCS 2000, 2001, 2006 and 2009)

- **Use a mixture of grass types with a forb mixed in a for variety of covers**
- **Broad cast each species separately to get most uniform distribution of seed**
- **Planting depth of ¼ to ½ inch**
- **Best time to seed is either 1) after October 20th and before winter rain or snow or 2) after March 1st and before final spring rains.**

Recommended Seeds and Type	Seedling Vigor	Seeding Rate
GRASSES		
Wheatgrass, Crested ('Hycrest') or Wheatgrass, Crested ('Nordan')	Rapid	3 lb per acre
Wheatgrass, Thickspike ('Bannock' or Critana') or Wheatgrass, Snake River ('Secar')	Medium	4 lb per acre
Rescue, Sheep ('Covar or Bighorn')	Slow	2 lb per acre
FORBS		
Alfalfa ('Ladak, Trevois, Ranger or Nomad')	Medium	1 to 3 lbs per acre in mixture with grasses
Keep All Seeds Cool and Dry Until Application		

Inocculate alfalfa seed the evening before or early on seeding day in order for seed to dry by seeding time. Reinocculate alfalfa seed coated over 30 days or if alfalfa seed has not been kept cool and dry.

A. Equipment and Materials Recommended for Hand Seeding

- **One hand operated cyclone seeder for each person doing seeding**
- **Weight measuring scale, say 20 pound capacity**
- **Two plastic buckets**
- **Paper bags, medium size**
- **Marker pens**

B. Seeding Procedures

- **Divide seed for each species into required amounts and label bags. Seed each species separately for most uniform seed distribution.**
- **Adjust cyclone seeder according to manufacturer's instructions based on seeding rate. Periodically check number of seeds per square foot.**
- **Broadcast seed in two directions to achieve uniform distribution of seed. For example, use half of the seed of a species and broadcast across the slope, starting at the top. When reaching the edge of the seeding area, move downslope a distance equal to the width of the seed broadcast or throw and walk back across the slope, trying to avoid gaps. Adjust walking pace to complete seeding the**

designated area. Use the remaining half of the seed to repeat the procedure going downhill or down the slope. If slopes are too steep for seeding, broadcast the remaining seed in same direction across the slope except walk midway between previous broadcasts or lines of travel. Repeat seeding process for each species.

C. Jute Netting Protection (If Necessary):

- **Apply individual rolls of jute up and down slopes – not along the contours**
- **Bury the upper end of the netting at the top of the disturbed area in a trench at least 6 to 8 inches depth.**
- **Lay out rolls so edges overlay each other by a least 4 inches across the slope.**
- **The netting should go beyond the edge of the seeded area and the sides at least 1 foot and 3 feet at the bottom.**
- **Anchor the netting to the soil surface with anchor, pins or staples. Staples or anchor pins need to be driven perpendicularly in to the slope face and should be spaced approximately 5 feet apart along the sides and center of the roll. Spacing between staples at the upper end of a roll and at the end should overlap of 2 rolls should not be greater than 1 foot.**

D. Local Seed Suppliers from USDA listing:

Name of Supplier	Address	Contact Telephone No.
Boise Valley Seed	Rural Route 10, Darrow Land Caldwell, Idaho	208.459.7211
Fruitland Nursery	301 South Hwy 95 Fruitland, Idaho	208.452.4204
Sand Hollow Nursery	Rurla Route 7 Caldwell, Idaho	208.459.7389
WR Baxter Wholesale Nursery	2615 Pioneer Ave Emmett, Idaho	208.365.6011

References:

- USDA –NRCS, Wildfire Recovery Tips for Southern and Western Idaho, July 2000 replaced with USDA – NRCS, Wildfire Recovery Tips for Idaho, August 2006 http://www.plant-materials.nrcs.usda.gov/pubs/idpmspu6988.pdf
- USDA –NRCS, Technical Note Plant Materials No. 24 Improved Grass, Forb, Legume, and Woody Seed Species for the Intermountain West. First used June 2001. Revised October 2009 http://www.plant-materials.nrcs.usda.gov/pubs/idpmctn4620.pdf

Southwest District Health

13307 Miami Lane • P.O. Box 850 • Caldwell, Idaho 83606 • (208) 455-5300 • Fax (208) 454-7722

1008 East Locust
Emmett, ID 83617
(208) 365-6371

1155 3rd Avenue North
Payette, ID 83661
(208) 642-9321

46 West Court Street
Weiser, ID 83672
(208) 549-2370

Administration
455-5317

Environmental Health
455-5400

Family Health
455-5395

General Support
455-5307

Nutrition and Health Promotion
455-5343

September 22, 2011

Basil Tupyi, P.E., CHMM
Holladay Engineering Company
P. O. Box 235
Payette, ID 83661

RE: Submittal of field data demonstrating compliance with technical approach for certifying landfill closure of Cell #1, Clay Peak Landfill.

Dear Mr. Tupyi:

Southwest District Health (SWDH) and the Idaho Department of Environmental Quality (IDEQ) has received and reviewed the submittal of field data demonstrating compliance with technical approach for certifying landfill closure of Cell #1, Clay Peak Landfill, dated August 31, 2011. SWDH has the following comments/conditions of approval:

- It does not appear that organics testing was provided as agreed upon; however, in conversation with you on September 20, 2011, you indicated that the "Future Work" as described on page two of your submittal, would support the proposed vegetation. You state that you will observe the incorporation of the organic material and provide approval in writing.
- As a permeability test was not conducted, additional cover will be required at the location with the sandiest soil with gravel (#3).
- Applying seed in the fall is highly recommended to take advantage of the over winter moisture.
- The final vegetative cover-seeding plan should comprise of the grasses and native vegetation. The forbs like alfalfa have a very deep root system that could damage the cap and should not be used.
- A final landfill cover report/as-built must be submitted upon completion of the work as outlined in the four (4) bullet points on page two "Future Work".

If you need assistance or have questions concerning this letter, you may contact me at 208.455.5401, or via email: David.Loper@phd3.idaho.gov.

Sincerely,

David M. Loper, REHS/RS
Director, Environmental Health Services

RECEIVED
SEP 23 2011
HOLLADAY ENGINEERING CO.
PAYETTE, ID

c Bruce Krosch, Director, SWDH
Brian Crawford, Land Development Supervisor, SWDH
Jack Gantz, P.E., IDEQ Regional Office
Dean Ehlert, IDEQ State Office
Larry Church, Chairman, Payette County Board of Commissioners
Alan Scharbrough, Landfill Supervisor, Clay Peak Landfill
File copy

EXHIBIT C

Soils Analytical Data

Soil Sampling Results For Assessing The Final Landfill Cover In The Northern Sector of Cell #1

Soil sampling was performed on June 9 – 10, 2011 and July 10, 2011 to assess the final cover in the northern half of Cell #1 at the sampling locations shown in Figure 1. Soil sampling closely followed the procedures outlined in Revised Technical Approach dated September 29, 2010 and Engineer responses to Southwest District Health Department dated April 28, 2011, May 31, 2011 and June 3, 2011. The soil sampling program was intended to confirm compliance with final landfill cover requirements and for direct the construction practices necessary for completing the final cover for the southern half of Cell #1. It should be understood that past landfill closure activities included placement of the final landfill cover immediately following the placement of the final waste lift; except the final landfill cover was not placed onto the crest of Cell #1 where gravels and road base materials were placed for site entry and exit.

Initially, a systematic 5 point grid was used to identify soil sample locations; but two additional soil sample locations were added for the purpose of better assessing the center or crest of the northern half of Cell #1. See Figures 1 and 2 for soil sample locations. A summary of the soil classification, hydraulic conductivity and dynamic cone penetrometer (DCP) test results are presented in Table 1 below and the detailed soils laboratory test results are presented in Attachment 1. The final vegetative cover and seeding plan is presented in Attachment 2.

FINDINGS:

The analytical results summarized in Table 1 indicates compliance with the following conditions:

- The soil sampling with a hollow-stem auger revealed the depth of the final cover at SS#1, SS#2, SS#4, and SS#5 exceeds 6 feet that complies with landfill design criteria.
- Composited 6 feet depth soil samples reported sandy loam to silty loam soils that meet soil classification HELP #'s 4 – 9.
- The Gulph Permeameter tests reported hydraulic conductivities ranging from 3.4×10^{-4} to 2.5×10^{-4} cm / sec at the 24 inch soil depth; therefore the upper uncompacted soils will satisfactorily serve as a vertical percolation layer.
- The DCP tests indicate the lower three feet of final cover is more compacted than the upper three feet; except at SS #2. Sampling personnel noted the soils at SS#2 were silty sands near the surface and sandy silts near the 6 feet depth level which accounts for the difference in soil compaction. A CBR of 10 is typically associated with soils having 75% to 85% optimum density and a CBR of 50 is typically associated with soils having greater than 85% optimum density. Two additional DCP tests were performed approximately 75 feet north and 75 feet south of SS #2 to better ascertain the soil characteristics around SS #2. The results indicate the soil profile south of SS #2 is well compacted at depth and soil profile north of SS#2 is not well compacted at depth because of the high sand content. However, the steep west to east surface gradient around SS#2 is expected to provide good stormwater runoff with no ponding; therefore, no additional soil compaction work is necessary to minimize stormwater infiltration into the final landfill cover.

Tests for soil organic content were not performed during the soil sampling events because visual observations noted poor vegetation growth south of SS #1 and SS #2 that was indicative of low

soil organic content. Good vegetation growth was noted north of SS #1 and SS#2 which is an indicator of good organic content in the final cover.

FUTURE WORK:

Given the results discussed above, the following work is recommended to complete the construction of the final landfill cover for Cell #1.

- Complete the final landfill cover for Cell #1 with silty loam soils that are excavated onsite and that meets soil classification HELP # 4 – 9. The temporary gravel roadbase should be removed to the extent practical before completing the six feet thick final landfill cover, but an access roadway to the crest of the final landfill should be re-installed on top of the final landfill cover for Cell #1 maintenance. The earthwork to include soil compaction of the final cover will require supplemental water to achieve compaction requirements whereas the cover design requires greater compaction from 3 to 6 feet depth than from 0 to 3 feet. Therefore a watering truck should support all earthwork activities during final landfill cover construction.
- Complete the final six inches of landfill cover with a seed bed that is rich in organics. Therefore, organic rich topsoil or organic matter should be incorporated into the final cover prior to seeding or reseeding. For example, approximately 140 cubic yards of organic matter per surface acre of landfill should be incorporated into the upper 12 inches of final landfill cover prior to seeding or reseeding. Seeding or reseeding should be scheduled when precipitation events will support vegetation growth.
- The final landfill cover should be seeded when precipitation events will support vegetation growth, preferably in early March. The seed mixture shall closely follow the mixture described in Attachment 2. Hydro seeding is the preferred seeding method to establish the best grass stand.
- The final landfill cover will be tested or retested for soil classification, hydraulic conductivity and compaction at the locations shown in Figure 1 to confirm landfill design criteria were met with the construction practices employed. Soil organic testing is not planned if the engineer observes the organic mixing and placement as well as seed bed preparation.

TABLE 1

Summary of Soil Characteristics for Final Cover of Northern Half of Cell #1

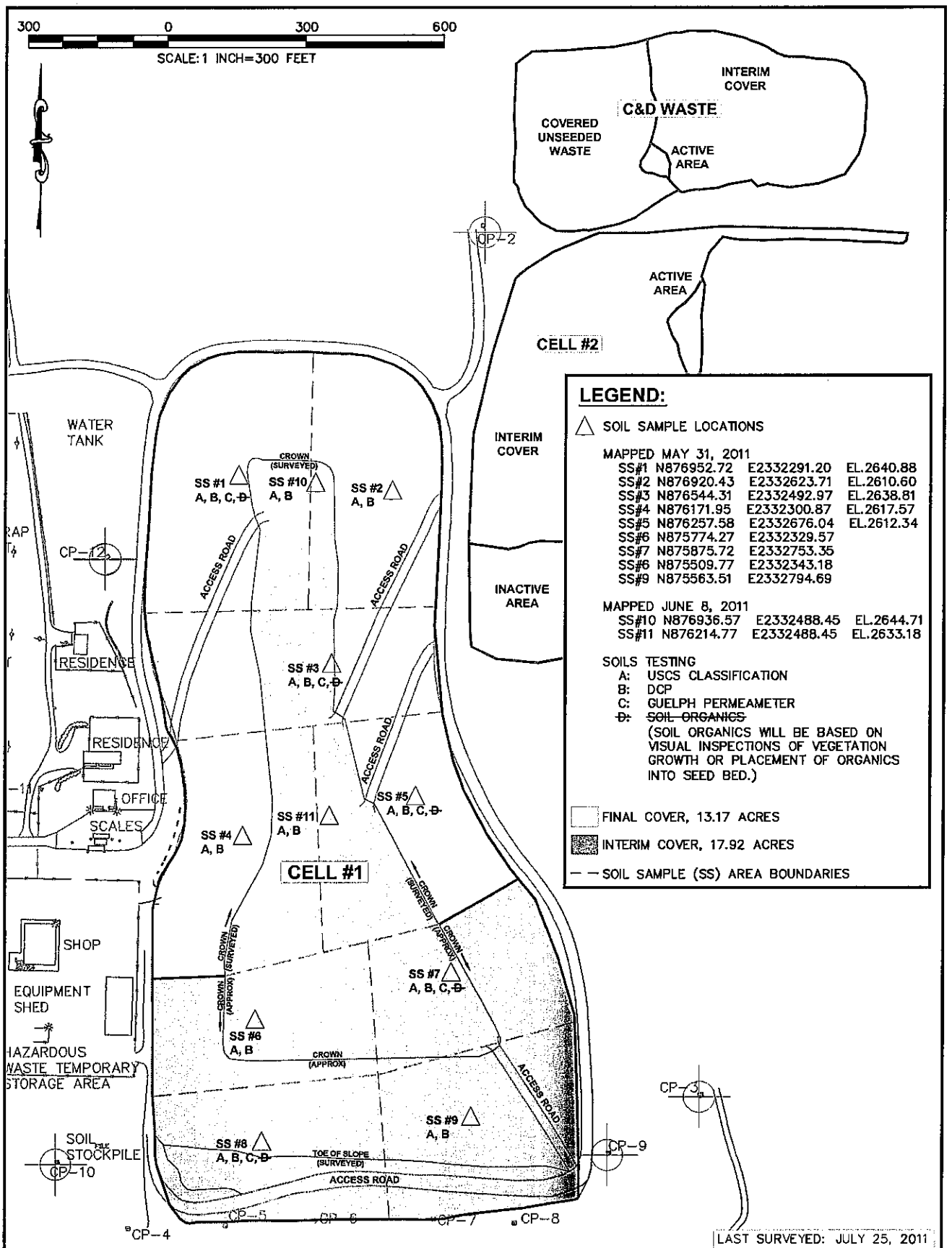
Soil Sample Location or Marker No.	Soil Classification [1]			Permeability [2] w/ Guelph Permeameter	DCP Testing Summary	Observations [3] During Soil Sampling	Observations [4] After Soil Sampling
	HELP #	USDA	USCS				
SS #1[5] Final Cover	8	Loam	Sandy Silt ML w/3% gravel	3.4×10^{-4} cm/sec	compaction increases with depth to 6 ft • ≈95 blows from 0-3ft • ≈210 blows from 3-6ft	no waste to 6 ft depth	dried heavy vegetation with sand/silts on surface
SS #2[5] Final Cover	8	Loam	Sandy Silt ML w/4% gravel		compaction decreases with depth from 0 to 6 ft • ≈50 blows from 0-3½ft • ≈30 blows from 3½-6ft	no waste to 6 ft depth	dried vegetation with sand/silts on surface
SS #2 N[6] (75ft north of SS #2)	8	Loam	Sandy Silt ML w/4% gravel		compaction decreases with depth from 0 to 6 ft • ≈70 blows from 0-2½ft • ≈25 blows from 2½-6ft	no waste to 6 ft depth, vegetation and cemented particles at surface	dried vegetation with sand/silts on surface
SS #2 S[6] (75 ft south of SS #2)	8	Loam	Sandy Silt ML w/14% gravel		well compacted at depth from 0 to 6 ft • ≈150 blows from 0-3ft • ≈100 blows from 3-6ft	no waste to 6 ft depth, vegetation and cemented particles at surface	dried vegetation with sand/silts on surface
SS #3[5] Not Final Cover	6 or 7	Sandy Loam	Silty Sand SM w/14% gravel	Note 7	compaction increases with depth from 0 to 6 ft • ≈ 80 blows from 0-3 ft • ≈160 blows from 3-6ft	no waste to ≈ 42 inch depth	Test Pit ≈ 50 feet west of marker: 10 to 12 inches depth of 2 inch minus gravel road base with waste noted at ≈30 inches depth
SS #4[5] Final Cover	7	Loam	Silty Sand with Gravel SM w/17% gravel		compaction uniform with depth from 0 to 6 ft • ≈70 blows from 0-3 ft • ≈70 blows from 3-6 ft	no waste to 6 ft depth	cementitious particles (like caliche) on the surface
SS #5[5] Final Cover	6 or 7	Sandy Loam	Silty Sand SM w/13% gravel	2.5×10^{-4} cm/sec	compaction increases with depth from ≈ 0 to 4.5 ft • ≈50 blows from 0-3 ft • ≈110 blows from 3-6ft	no waste to 6 ft depth	Test Pit ≈ 50 feet northwest of marker: no gravels but cementitious particles (like caliche) noted on the surface, cementitious particles found in excavated soil with minimum 7 feet soil cover and no waste
SS #10[5] Not Final Cover	8	Loam	Sandy Silt ML w/ 2% gravel		well compacted uniformly with depth from 0 to 6 ft • ≈ 90 blows from 0-3ft	no waste to ≈66 inches depth	vegetation with sand/silts on surface

TABLE 1

Summary of Soil Characteristics for Final Cover of Northern Half of Cell #1

Soil Sample Location or Marker No.	Soil Classification [1]			Permeability [2] w/ Guelph Permeameter	DCP Testing Summary	Observations [3] During Soil Sampling	Observations [4] After Soil Sampling
	HELP #	USDA	USCS				
					• ≈100 blows from 3-6ft		
SS #11[5] Not Final Cover	8	Loam	Sandy Silt ML w/ 7% gravel		well compacted uniformly with depth from 0 to 6 ft • ≈140 blows from 0-3ft • ≈180 blows from 3-6ft	no waste to ≈ 24 inches depth	Test Pit ≈ 50 feet west of marker: sand/silt, sprinkled with ¾ minus gravel on surface, 1 inch depth gravel road base with waste noted at ≈ 24 inch depth

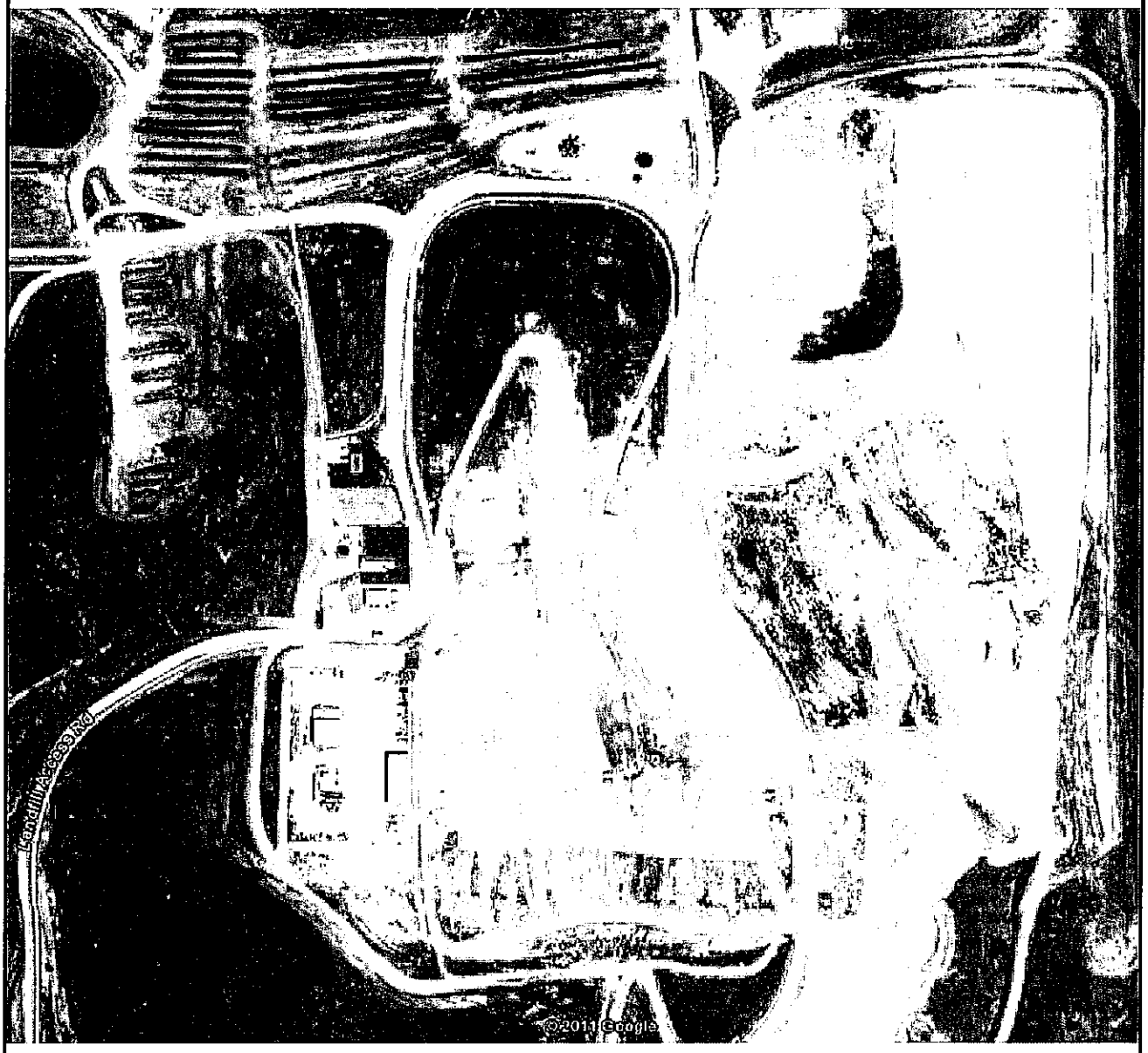
Note 1: Composite soil sample from 0 to 6 feet depth or to waste; whichever is least depth
Note 2: Soil sample collected at ≈ 24 inch depth
Note 3: Observations by Travis Thomsen , American Geotechnics, during sampling on 9 June through 10 June 2011
Note 4: Observations by Basil Tupyi, Holladay Engineering, on 28 June 2011
Note 5: Sampling conducted during 9 and 10 June 2011
Note 6: Sampling conducted on 10 July 2011
Note 7: Soil unsuitable for test method because soil sloughing into hole during testing.



HOLLADAY ENGINEERING CO.
ENGINEERS • CONSULTANTS
32 N Main • PO Box 235 • Payette, ID 83661
(208) 642-3304 • hec@holladayengineering.com

FIGURE #1
SOIL SAMPLING LAYOUT
CELL #1, CLAY PEAK LANDFILL
PAYETTE COUNTY, IDAHO

DRAWN BY: S. MCGEHEE | DRAWING DATE: MAY 2011 | G:\CLIENTS\PC\PC10-0354A\DWG\PC10-0354A_FIG-1_CELL 1 CLOSURE.dwg



NOT TO SCALE

IMAGE SOURCE: GOOGLE EARTH
APPROXIMATE IMAGE DATE: JULY 2010

HOLLADAY ENGINEERING CO.
ENGINEERS • CONSULTANTS
32 N Main • PO Box 235 • Payette, ID 83661
(208) 642-3304 • hec@holladayengineering.com

FIGURE #2
AERIAL VIEW
CELL #1, CLAY PEAK LANDFILL
PAYETTE COUNTY, IDAHO

DRAWN BY: S. MCGEHEE	DRAWING DATE: JULY 2011	G:\CLIENTS\PC\PC10-0354A\DWG\PC10-0354A_FIG-2_CELL 1 CLOSURE.dwg

ATTACHMENT I

Soils Laboratory Test Results

American Geotechnics
5260 Chinden Blvd.
Boise, Idaho 83714
Telephone: (208) 658-8700
Fax: (208) 658-8703

AMERICAN GEO TECHNICS

Project Information

Report to: Holladay Engineering
Project: Payette County Landfill Cell#1 closure
Report Date: 6/16/11
File No.: 11B-G2230

Material Information

Date Sampled: 6/9 through 6/10/11
Sampled By: American Geotechnics
Date Received: 6/13/11
Date Tested: 6/13 through 6/15/11

SUMMARY OF LABORATORY RESULTS

Lab Number	Borehole	Sample Type	Depth (ft)	Water Content (%)	% Passing #200 Sieve	Liquid Limit (%)	Plasticity Index	Soil Type	Remarks
11-0461	SS#01	GS	0.0'-6.0'	17.5	65.9	37	11	ML	Composite; USDA=Loam
11-0462	SS#02	GS	0.0'-6.0'	17.1	50.7	34	10	ML	Composite; USDA=Loam
11-0463	SS#03	GS	0.0'-4.5'	13.7	25.5	NV	NP	SM	Composite; USDA=Sandy Loam
11-0464	SS#04	GS	0.0'-6.0'	22.9	43.6	36	3	SM	Composite; USDA=Loam
11-0465	SS#05	GS	0.0'-6.0'	23.2	38.5	NV	NP	SM	Composite; USDA=Sandy Loam
11-0466	SS#10	GS	0.0'-6.0'	21.1	58.8	33	8	ML	Composite; USDA=Loam
11-0467	SS#11	GS	0.0'-4.0'	20.1	50.8	36	5	ML	Composite; USDA=Loam

Prepared By: Travis Thomsen

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AMERICAN GEO TECHNICS

Project Information

Report to: Holladay Engineering
Project: Payette County Landfill Cell#1 closure
Report Date: 7/25/11
File No.: 11B-G2230

Material Information

Date Sampled: 7/21/11
Sampled By: American Geotechnics
Date Received: 7/21/11
Date Tested: 7/21 through 7/25/11

SUMMARY OF LABORATORY RESULTS

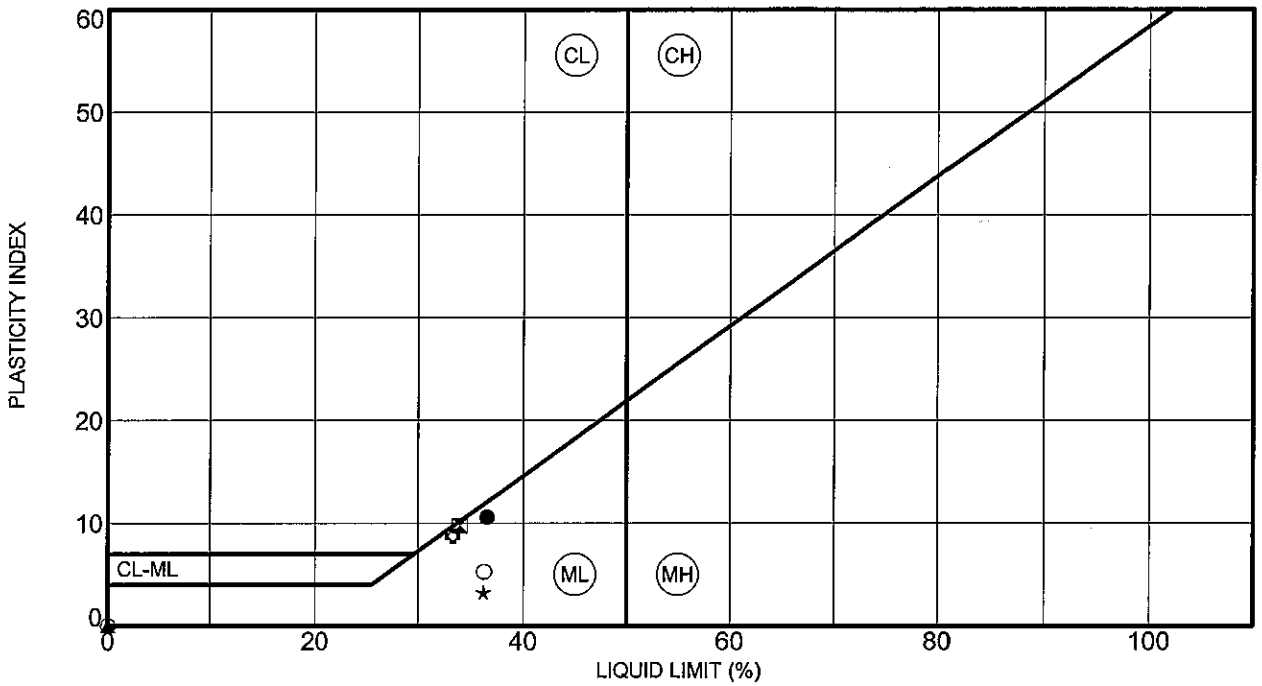
Lab Number	Borehole	Sample Type	Depth (ft)	Water Content (%)	% Passing #200 Sieve	Liquid Limit (%)	Plasticity Index	Soil Type	Remarks
11-0564	SS#2N	GS	0.0'-6.0'	17.7	59.5	33	8	ML	Combined; USDA=Loam
11-0565	SS#2S	GS	0.0'-6.0'	19.3	50.8	33	3	ML	Combined; USDA=Loam

Prepared By: Travis Thomsen

ATTERBERG LIMITS REPORT

CLIENT: Holladay Engineering
FILE NUMBER: 11B-G2230

PROJECT NAME: Payette County Landfill Cell#1 closure
PROJECT LOCATION: Payete County, Idaho



	Specimen Identification			MC	LL	PL	PI	Fines	Classification
●	SS#01	GS	0.0	18	37	26	11	66	SANDY SILT (ML)
⊠	SS#02	GS	0.0	17	34	24	10	51	SANDY SILT (ML)
▲	SS#03	GS	0.0	14	NV	NV	NP	26	SILTY SAND (SM)
★	SS#04	GS	0.0	23	36	33	3	44	SILTY SAND with GRAVEL (SM)
⊙	SS#05	GS	0.0	23	NV	NV	NP	39	SILTY SAND (SM)
✿	SS#10	GS	0.0	21	33	25	8	59	SANDY SILT (ML)
○	SS#11	GS	0.0	20	36	31	5	51	SANDY SILT (ML)

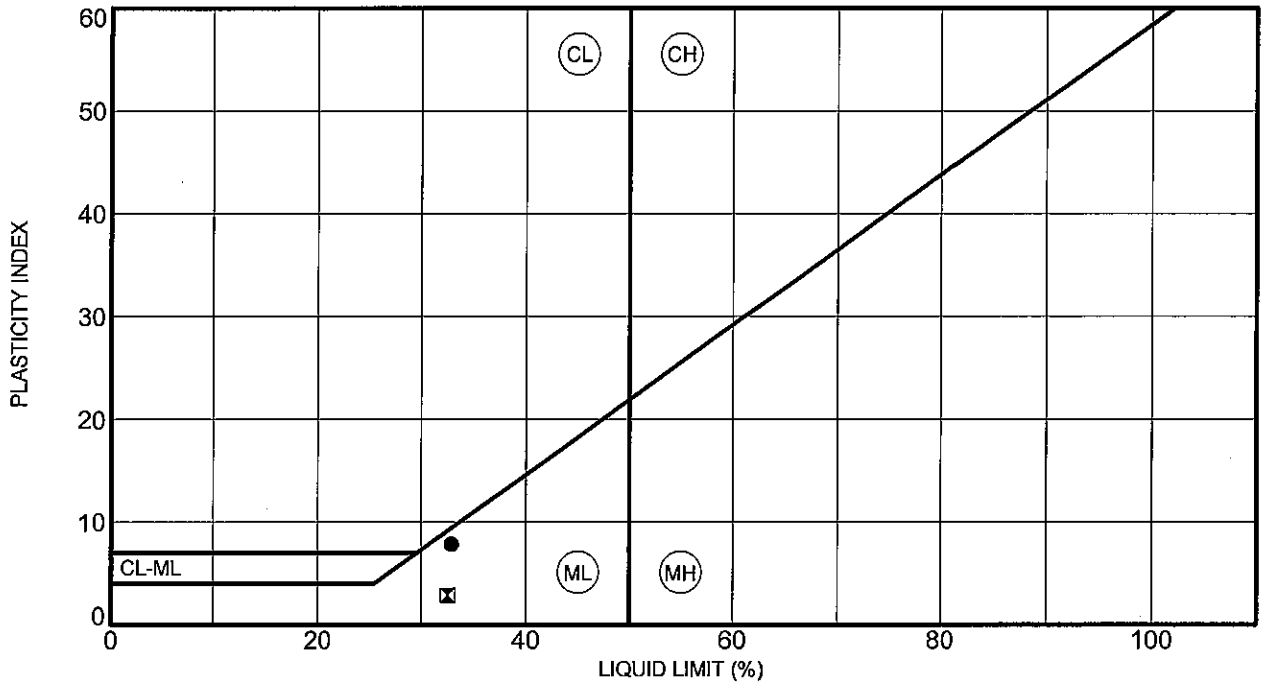
Prepared By: Travis Thomsen

American Geotechnics

ATTERBERG LIMITS REPORT

CLIENT: Holladay Engineering
FILE NUMBER: 11B-G2230

PROJECT NAME: Payette County Landfill Cell#1 closure
PROJECT LOCATION: Payette County, Idaho



	Specimen Identification			MC	LL	PL	PI	Fines	Classification
●	SS#2N	GS	0.0	18	33	25	8	60	SANDY SILT (ML)
⊠	SS#2S	GS	0.0	19	33	30	3	51	SANDY SILT (ML)

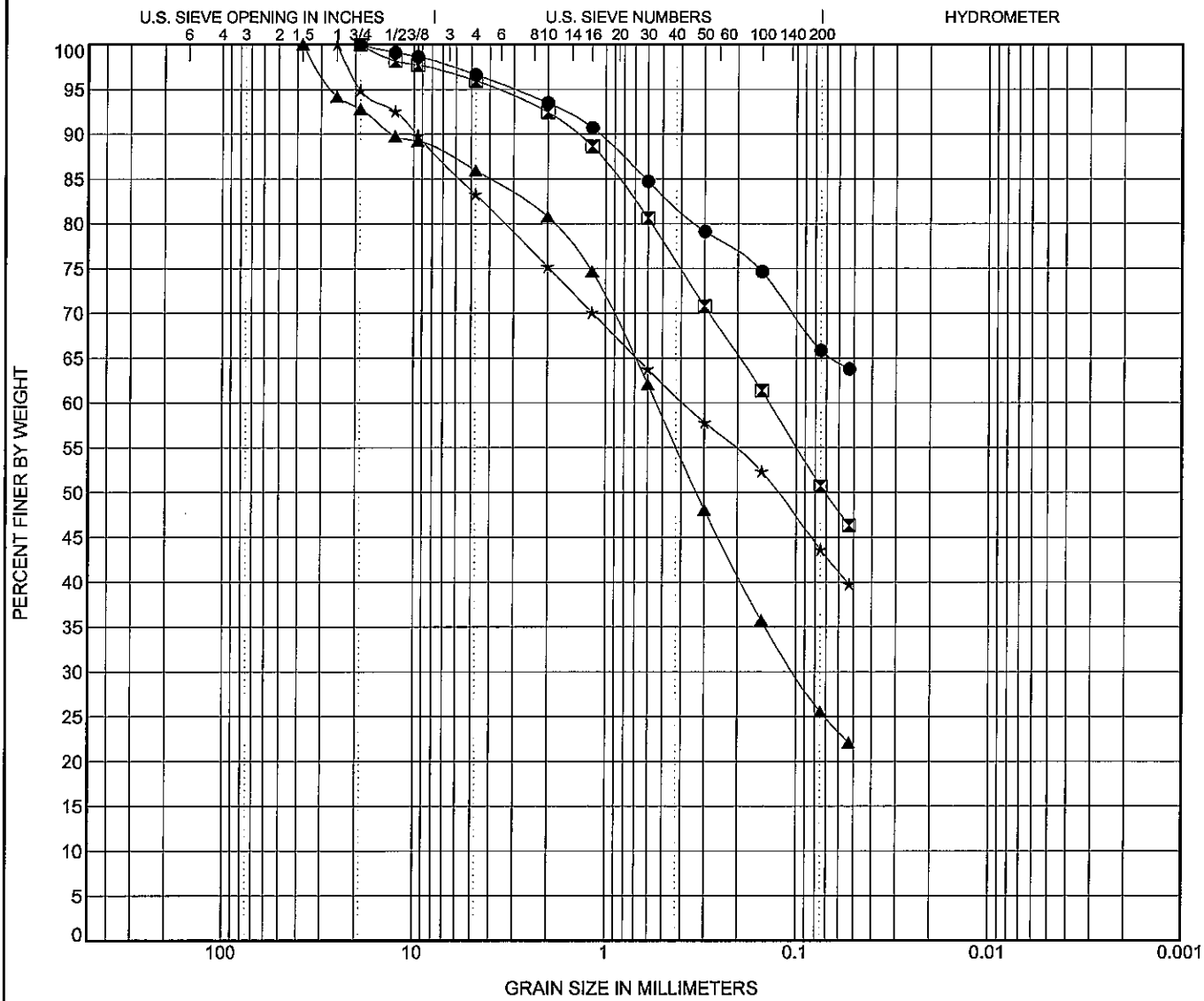
Prepared By: Travis Thomsen

American Geotechnics

PARTICLE-SIZE DISTRIBUTION REPORT

CLIENT: Holladay Engineering
FILE NUMBER: 11B-G2230

PROJECT NAME: Payette County Landfill Cell#1 closure
PROJECT LOCATION: Payete County, Idaho



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification			Classification	D10	D30	D60
●	SS#01	GS	0.0	SANDY SILT (ML)	--	--	
⊠	SS#02	GS	0.0	SANDY SILT (ML)	--	--	0.137
▲	SS#03	GS	0.0	SILTY SAND (SM)	--	0.102	0.541
★	SS#04	GS	0.0	SILTY SAND with GRAVEL (SM)	--	--	0.387

	Specimen Identification			%Gravel	%Sand	%Fines	D15	D50	D85	Cc	Cu	MC	LL	PL	PI
●	SS#01	GS	0.0	3.4	30.7	65.9	--	--	0.62	--	--	18	37	26	11
⊠	SS#02	GS	0.0	4.1	45.2	50.7	--	0.071	0.868	--	--	17	34	24	10
▲	SS#03	GS	0.0	14.1	60.4	25.5	--	0.33	4.053	--	--	14	NV	NV	NP
★	SS#04	GS	0.0	16.7	39.7	43.6	--	0.124	5.697	--	--	23	36	33	3

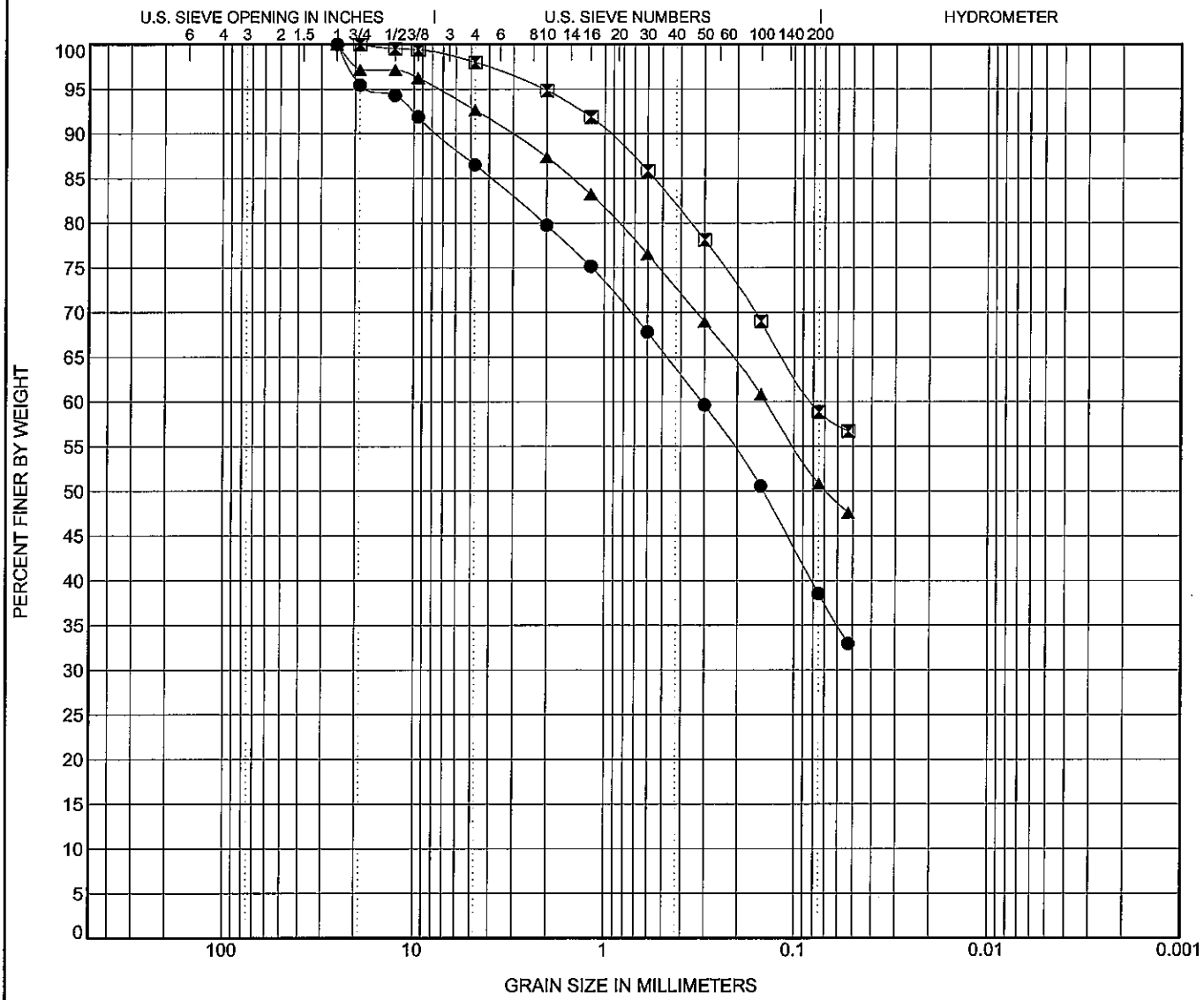
Prepared By: Travis Thomsen

American Geotechnics

PARTICLE-SIZE DISTRIBUTION REPORT

CLIENT: Holladay Engineering
FILE NUMBER: 11B-G2230

PROJECT NAME: Payette County Landfill Cell#1 closure
PROJECT LOCATION: Payete County, Idaho



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification			Classification	D10	D30	D60
●	SS#05	GS	0.0	SILTY SAND (SM)	--	--	0.31
⊠	SS#10	GS	0.0	SANDY SILT (ML)	--	--	0.081
▲	SS#11	GS	0.0	SANDY SILT (ML)	--	--	0.142

	Specimen Identification			%Gravel	%Sand	%Fines	D15	D50	D85	Cc	Cu	MC	LL	PL	PI
●	SS#05	GS	0.0	13.5	48.0	38.5	--	0.145	3.91	--	--	23	NV	NV	NP
⊠	SS#10	GS	0.0	2.0	39.2	58.8	--	--	0.556	--	--	21	33	25	8
▲	SS#11	GS	0.0	7.4	41.8	50.8	--	0.069	1.477	--	--	20	36	31	5

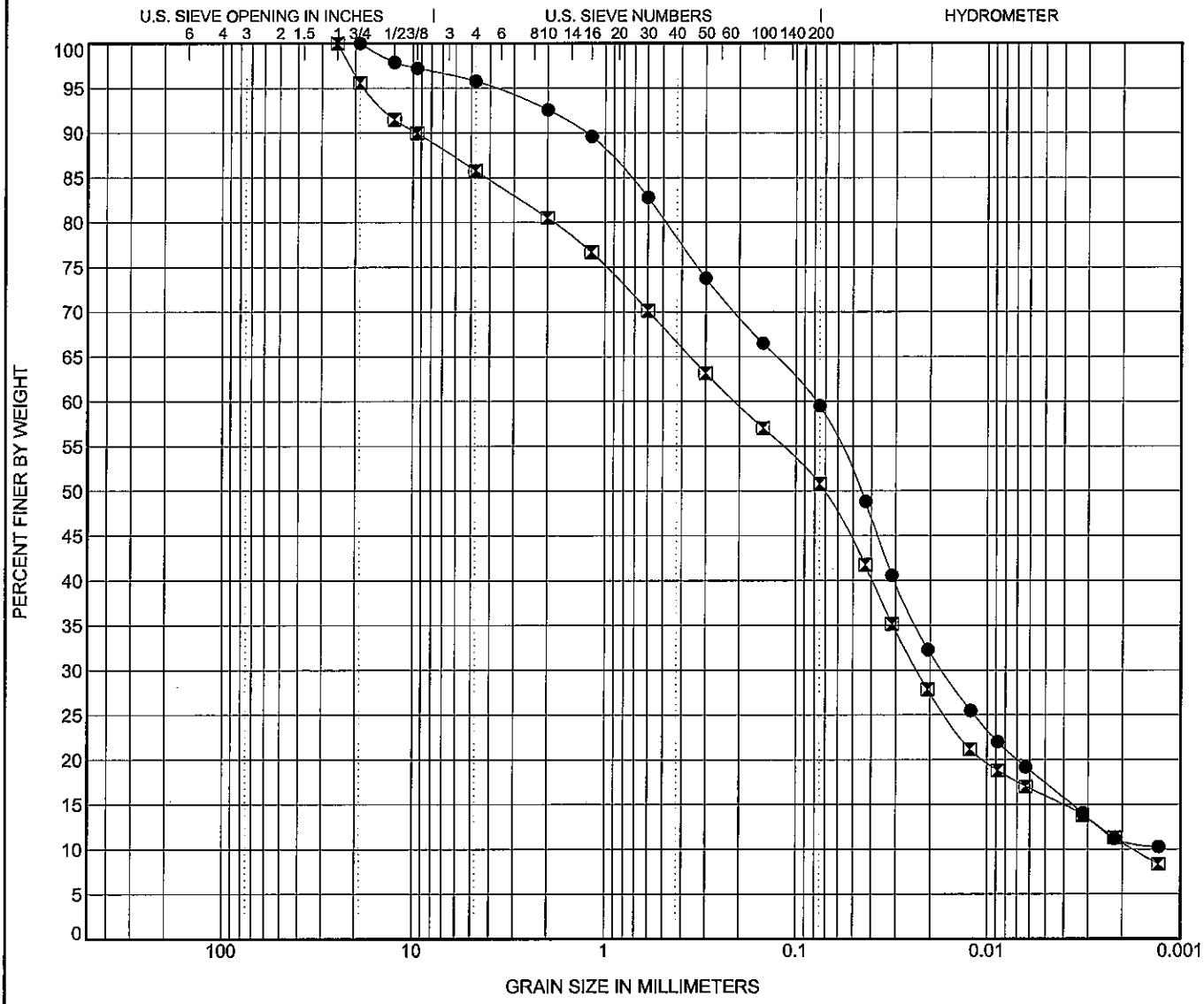
Prepared By: Travis Thomsen

American Geotechnics

PARTICLE-SIZE DISTRIBUTION REPORT

CLIENT: Holladay Engineering
FILE NUMBER: 11B-G2230

PROJECT NAME: Payette County Landfill Cell#1 closure
PROJECT LOCATION: Payette County, Idaho



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification			Classification	D10	D30	D60
●	SS#2N	GS	0.0	SANDY SILT (ML)	--	0.017	0.079
⊠	SS#2S	GS	0.0	SANDY SILT (ML)	0.002	0.023	0.21

	Specimen Identification			%Gravel	%Sand	%Fines	D15	D50	D85	Cc	Cu	MC	LL	PL	PI
●	SS#2N	GS	0.0	4.2	36.3	59.5	0.004	0.046	0.748	--	--	18	33	25	8
⊠	SS#2S	GS	0.0	14.2	35.0	50.8	0.004	0.071	4.185	1.49	120.81	19	33	30	3

Prepared By: Travis Thomsen

American Geotechnics

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5260 Chinden Blvd.
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Phone:(208) 658-8700
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Report to: Holladay Engineering
Project: Payette County Landfill Cell #1 Cover
Report Date: 6/16/11
Project No.: 11B-G2230

Material Information

Date Tested: 6/9 through 6/10/11
Tested By: American Geotechnics
Weather Condition: Fair

Test Results

In-Situ Permeability, Guelph Permeameter Method (Constant Head)

Location	Soil Description	Well Depth	Hydraulic Conductivity cm/sec
SS#1	Sandy Silt (ML); Loam	24"	3.4×10^{-4}
SS#3	Silty Sand (SM);Sandy Loam	22"	*NR
SS#5	Silty Sand (SM);Sandy Loam	24"	2.5×10^{-4}

* Material sloughing into hole during test, soil unsuitable for test method.

Reviewed By: VT

DCP TEST DATA

File Name: DCP

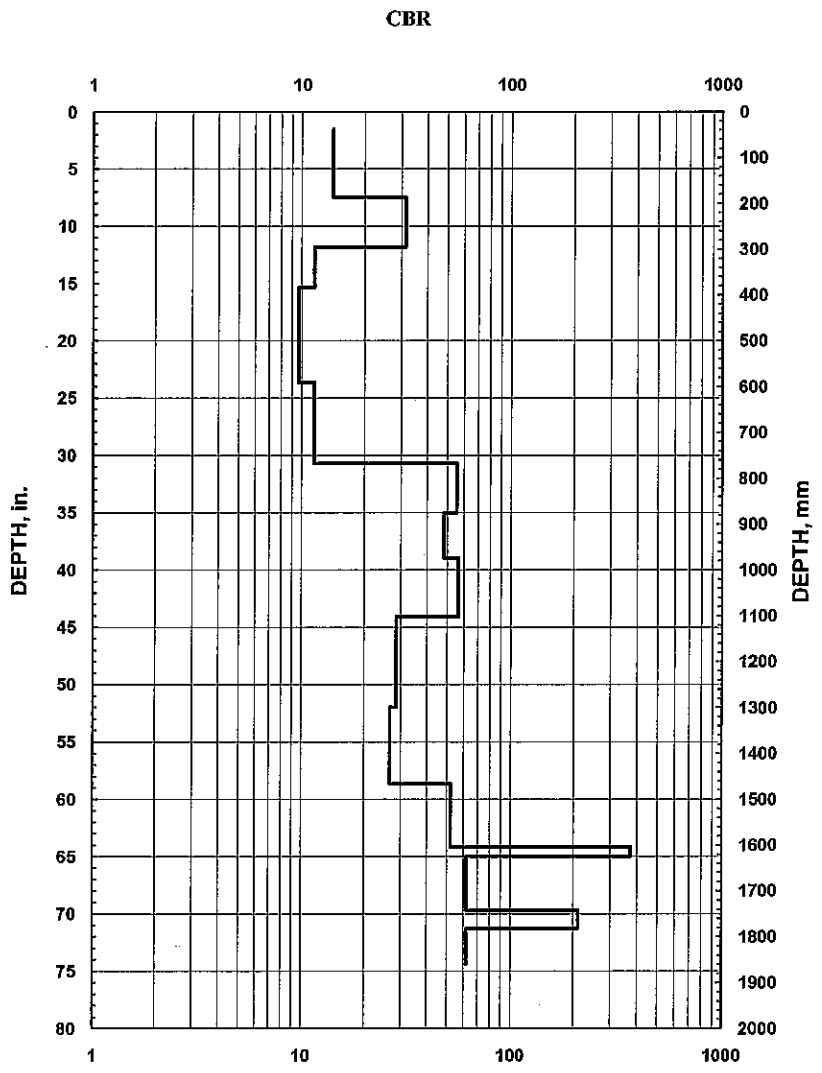
Project: *Payette Co. Landfill* **Date:** 9-Jun-11

Location: SS#1 **Soil Type(s):** Silty Sand (SM)

Hammer
- ○ 10.1 lbs.
- ◉ 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ◉ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	40	1
10	190	1
15	300	1
5	390	1
10	600	1
10	780	1
25	890	1
20	990	1
30	1120	1
25	1320	1
20	1490	1
30	1630	1
25	1650	1
30	1770	1
30	1810	1
20	1890	1



DCP TEST DATA

File Name: DCP

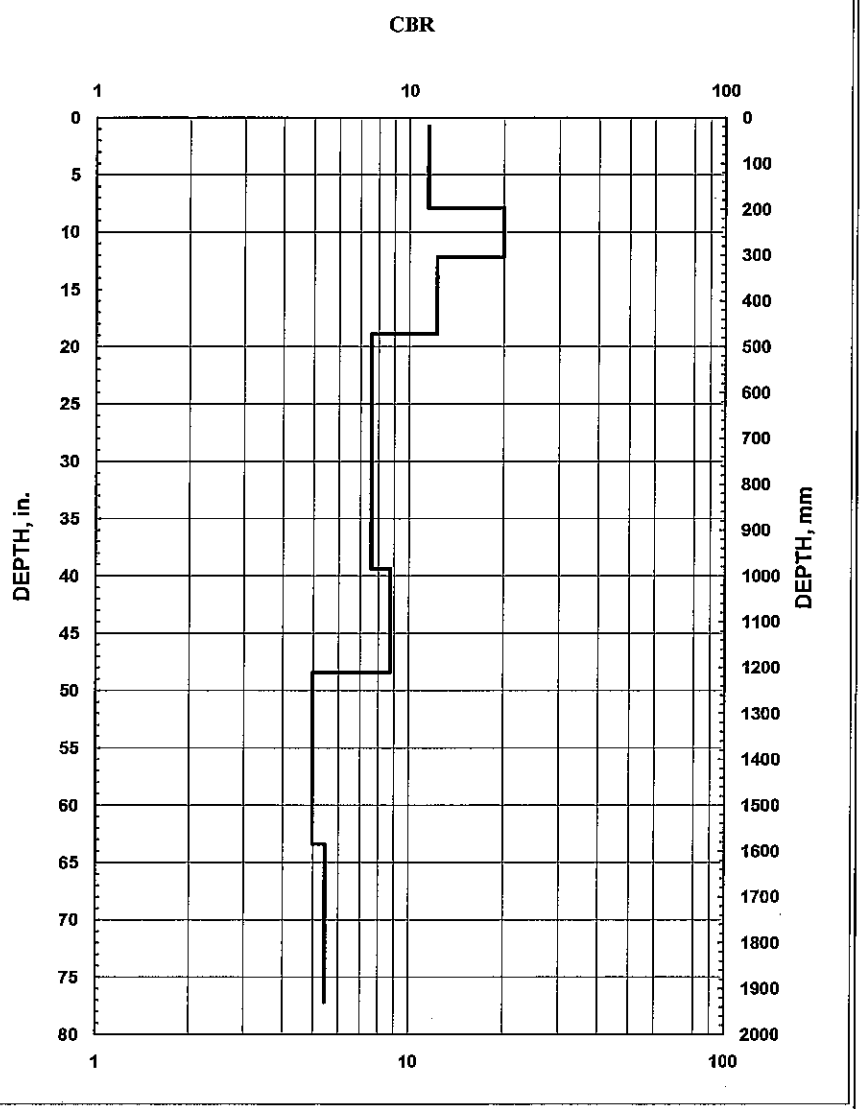
Project: *Payette Co. Landfill* **Date:** 9-Jun-11

Location: SS#2 **Soil Type(s):** Silty Sand (SM)

Hammer
- ○ 10.1 lbs.
- ◉ 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ◉ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	20	1
10	200	1
10	310	1
10	480	1
10	740	1
10	1000	1
10	1230	1
10	1610	1
10	1960	1



DCP TEST DATA

File Name: DCP

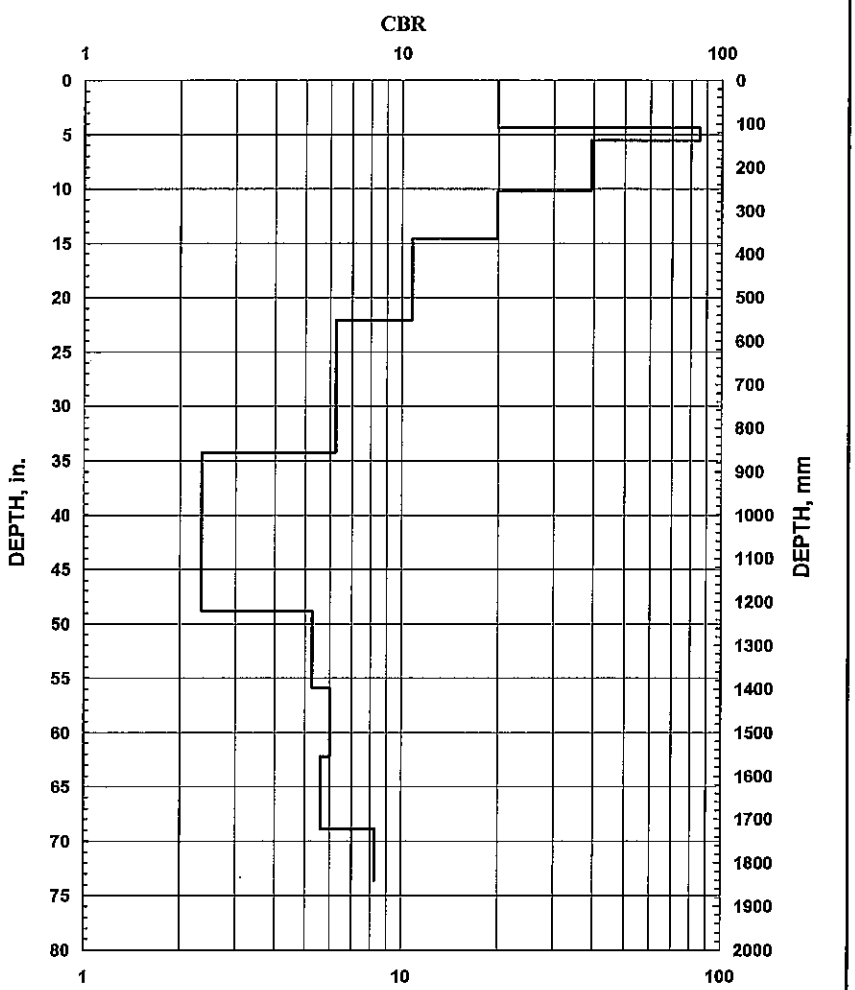
Project: Payette County Landfill **Date:** 21-Jul-11

Location: SS#2N 75' North of SS#2 **Soil Type(s):** Silty Sand (SM)

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
10	110	1
10	140	1
20	260	1
10	370	1
10	560	1
10	870	1
5	1240	1
5	1420	1
5	1580	1
5	1750	1
5	1870	1



DCP TEST DATA

File Name: DCP

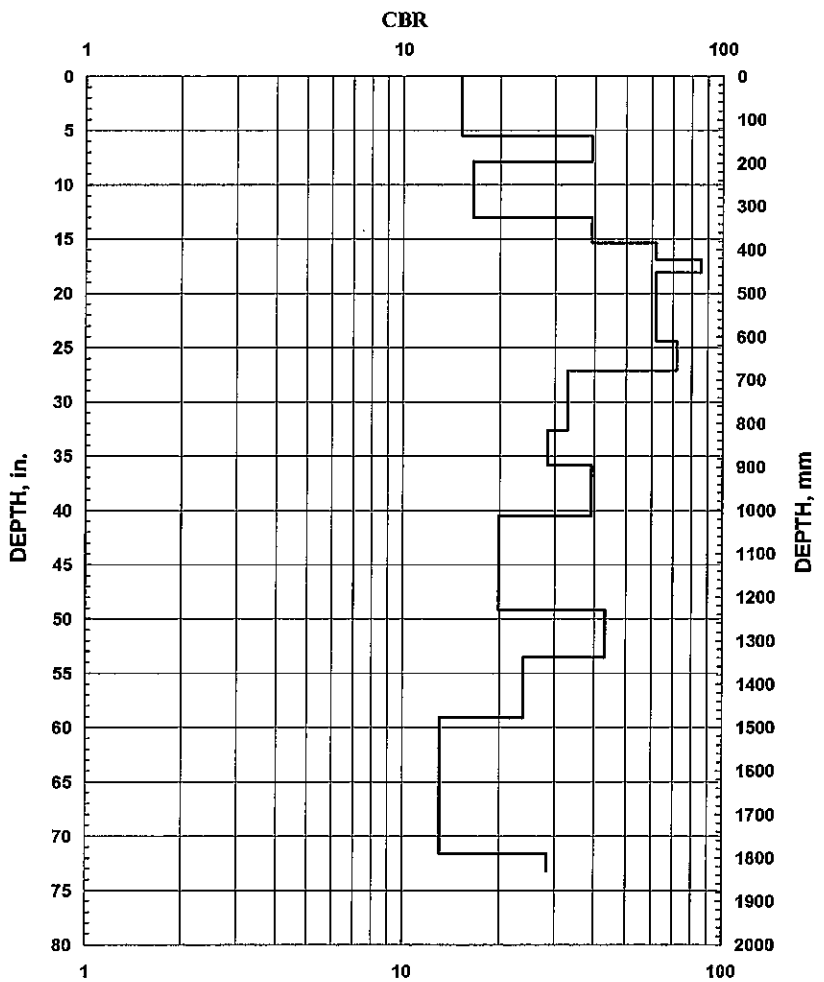
Project: Payette County Landfill **Date:** 21-Jul-11

Location: SS#2S 75' South of SS#2 **Soil Type(s):** Silty Sand (SM)

Hammer
- ○ 10.1 lbs.
- ● 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
10	140	1
10	200	1
10	330	1
10	390	1
10	430	1
10	460	1
20	540	1
20	620	1
20	690	1
20	830	1
10	910	1
20	1030	1
20	1250	1
20	1360	1
15	1500	1
10	1660	1
10	1820	1
5	1860	1



DCP TEST DATA

File Name: DCP

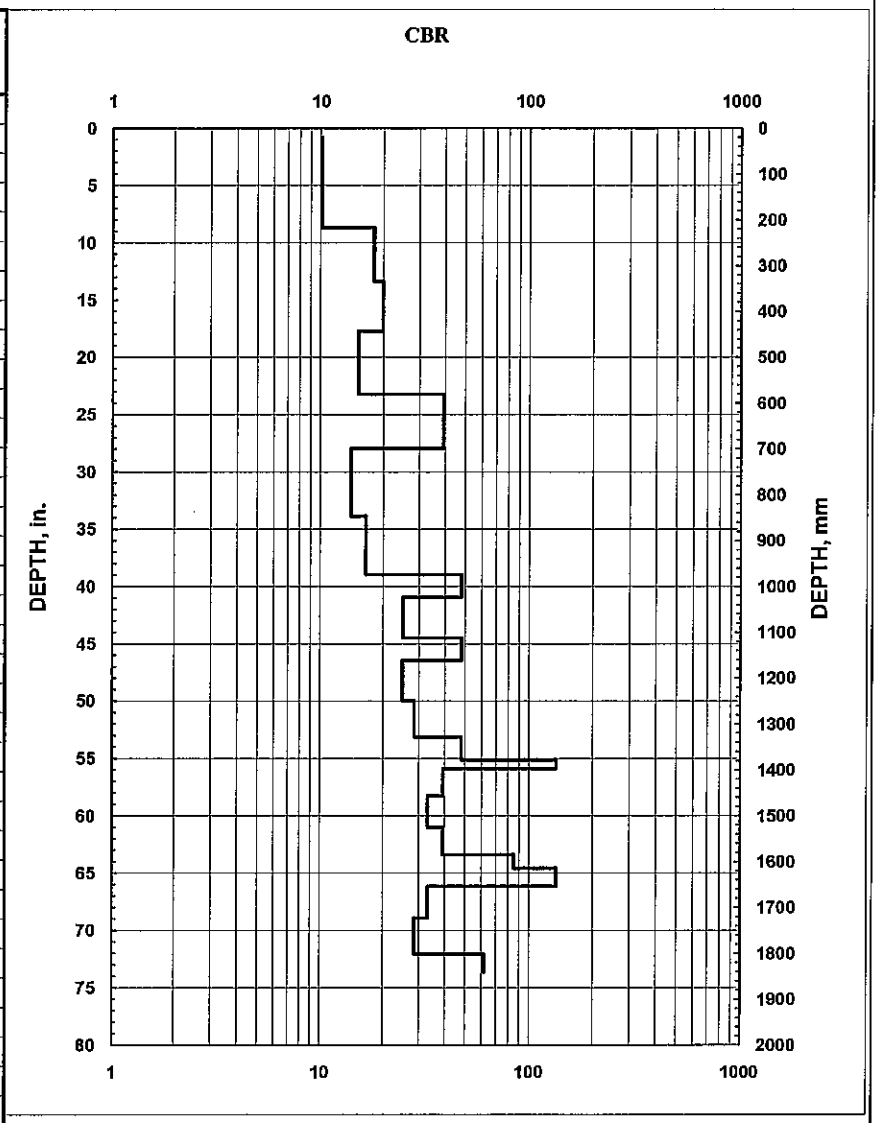
Project: *Payette Co. Landfill* **Date:** 9-Jun-11

Location: SS#3 **Soil Type(s):** Silty Sand (SM)

Hammer
- ○ 10.1 lbs.
- ◉ 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ◉ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	20	1
10	220	1
10	340	1
10	450	1
10	590	1
10	650	1
10	710	1
10	860	1
10	990	1
10	1040	1
10	1130	1
10	1180	1
10	1270	1
10	1350	1
10	1400	1
10	1420	1
10	1480	1
10	1550	1
10	1610	1
10	1640	1
10	1660	1
10	1680	1
10	1750	1
10	1830	1
10	1870	1



DCP TEST DATA

File Name: DCP

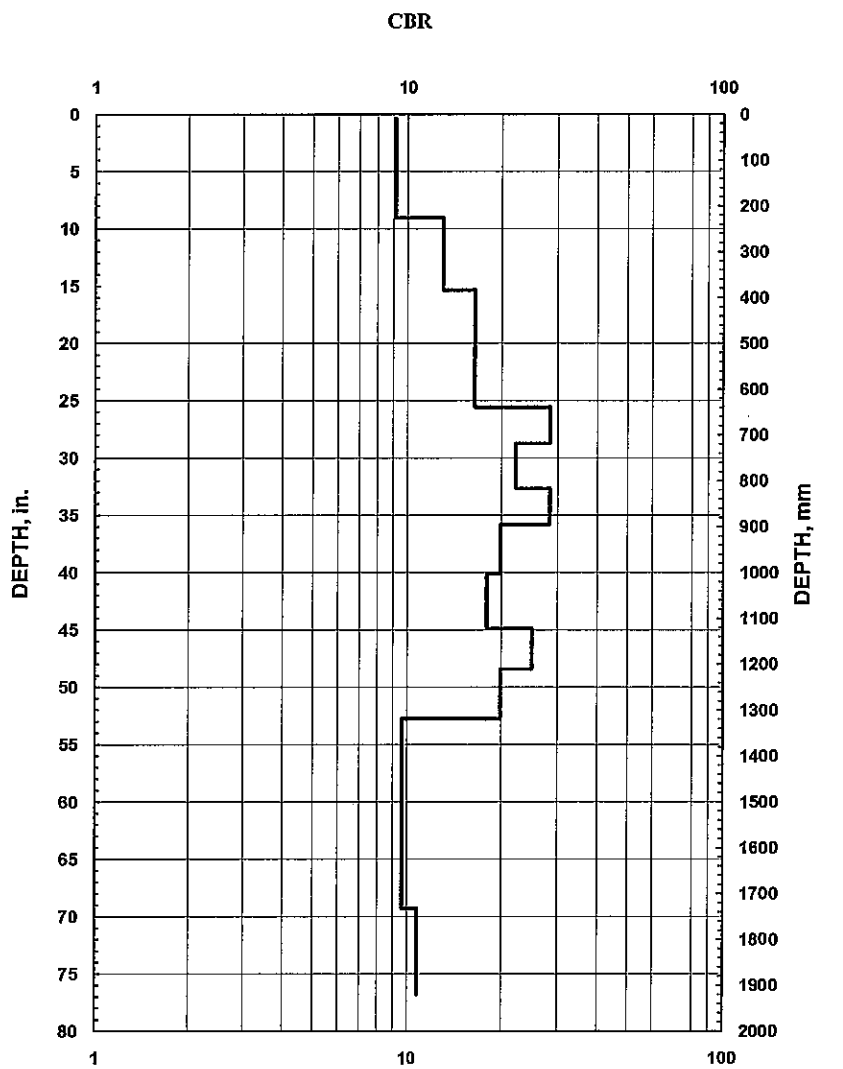
Project: *Payette Co. Landfill* **Date:** 9-Jun-11

Location: SS#4 **Soil Type(s):** Silty Sand (SM)

Hammer
- ○ 10.1 lbs.
- ◉ 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ◉ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	10	1
10	230	1
10	390	1
10	520	1
10	650	1
10	730	1
10	830	1
10	910	1
10	1020	1
10	1140	1
10	1230	1
10	1340	1
10	1550	1
10	1760	1
10	1950	1



DCP TEST DATA

File Name: DCP

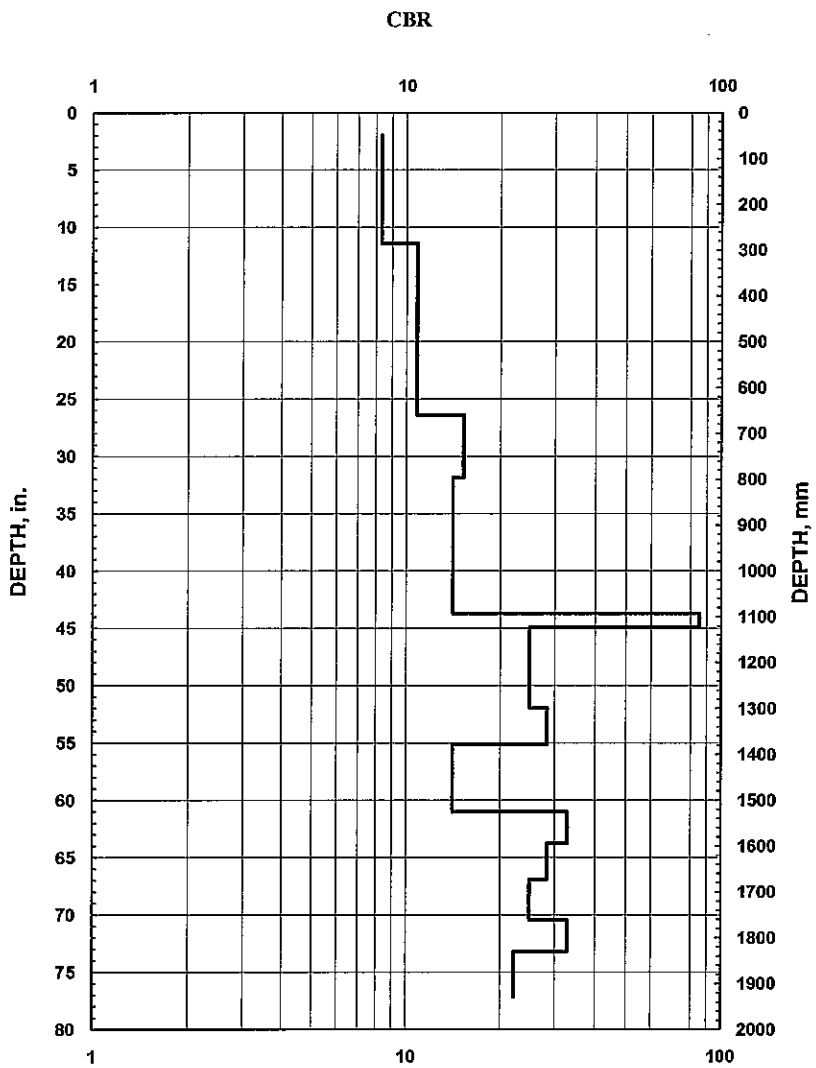
Project: *Payette Co. Landfill* **Date:** 9-Jun-11

Location: SS#5 **Soil Type(s):** Silty Sand (SM)

Hammer
- ○ 10.1 lbs.
- ◉ 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ◉ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	50	1
10	290	1
10	480	1
10	670	1
10	810	1
10	960	1
10	1110	1
10	1140	1
10	1230	1
10	1320	1
10	1400	1
10	1550	1
10	1620	1
10	1700	1
10	1790	1
10	1860	1
10	1960	1



DCP TEST DATA

File Name: DCP

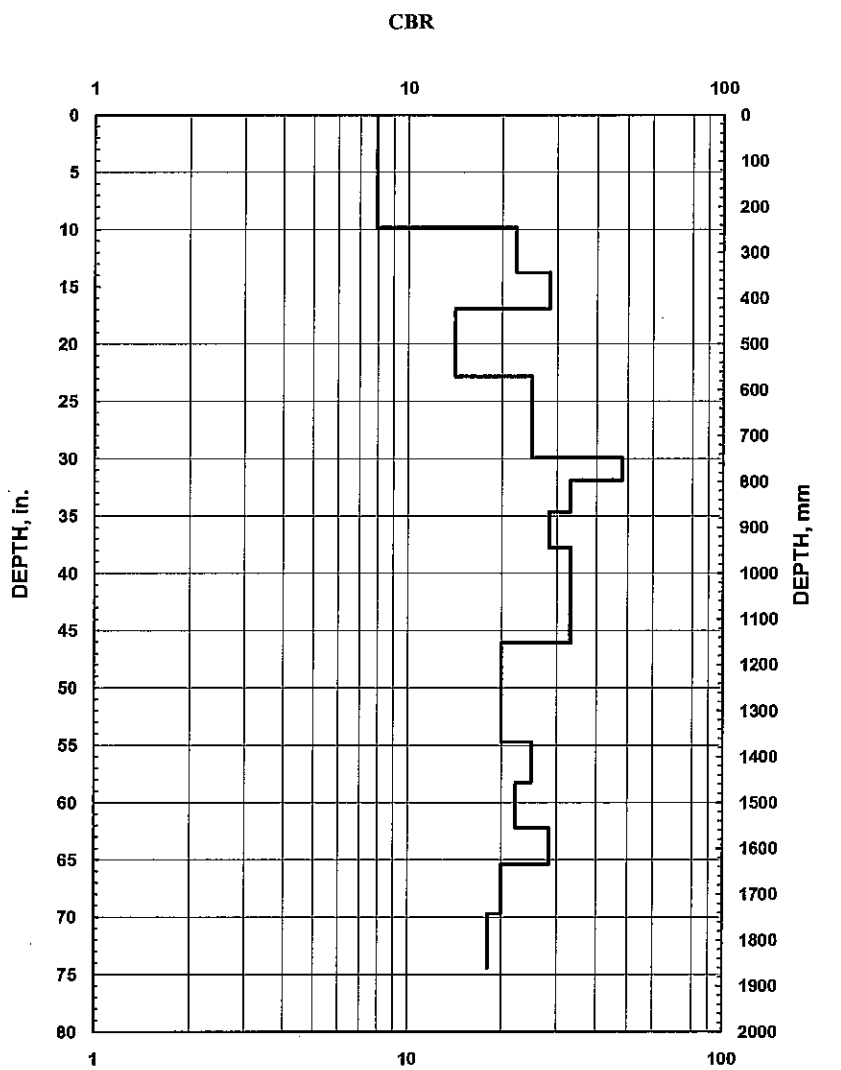
Project: *Payette Co. Landfill* **Date:** 9-Jun-11

Location: SS#10 **Soil Type(s):** Silty Sand (SM)

Hammer
- ○ 10.1 lbs.
- ◉ 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ◉ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
10	250	1
10	350	1
10	430	1
10	580	1
10	670	1
10	760	1
10	810	1
10	880	1
10	960	1
10	1030	1
10	1100	1
10	1170	1
10	1280	1
10	1390	1
10	1480	1
10	1580	1
10	1660	1
10	1770	1
10	1890	1



DCP TEST DATA

File Name: DCP

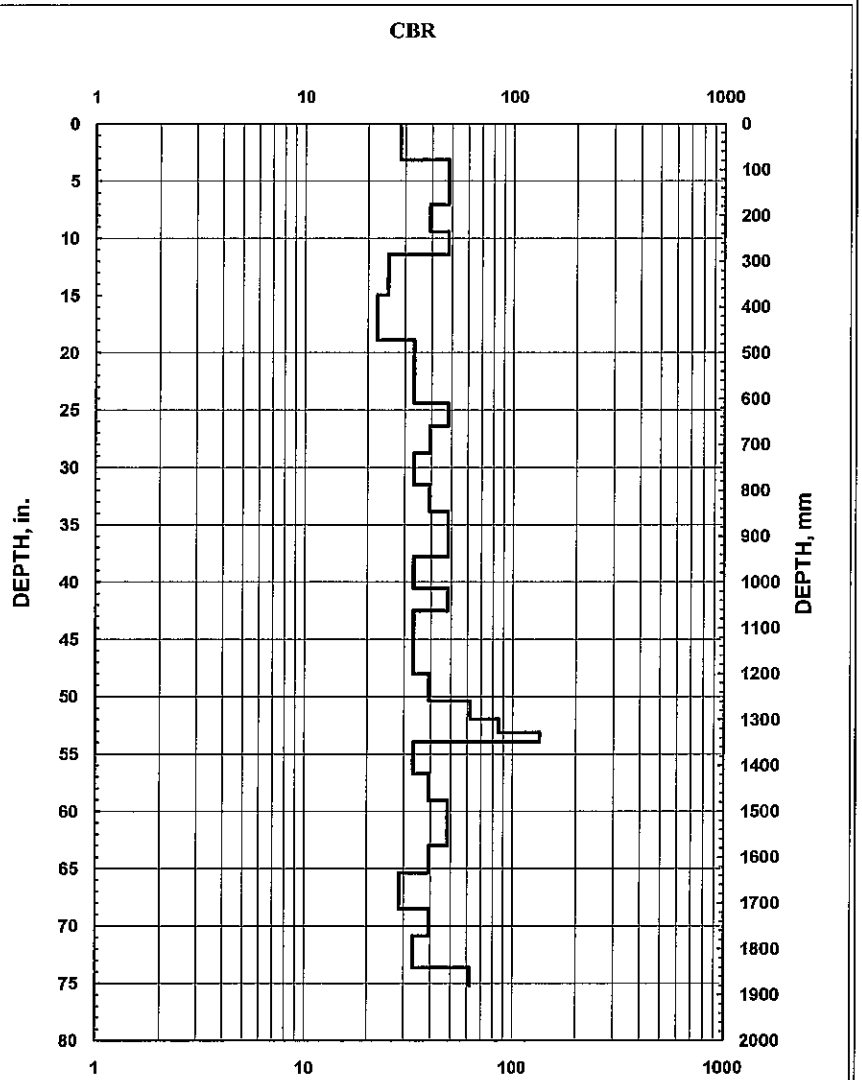
Project: *Payette Co. Landfill* **Date:** 9-Jun-11

Location: SS#11 **Soil Type(s):** Silty Sand (SM)

Hammer
- ○ 10.1 lbs.
- ◉ 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ◉ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
10	80	1
10	130	1
10	180	1
10	240	1
10	290	1
10	380	1
10	480	1
10	550	1
10	620	1
10	670	1
10	730	1
10	800	1
10	860	1
10	910	1
10	960	1
10	1030	1
10	1080	1
10	1150	1
10	1220	1
10	1280	1
10	1320	1
10	1350	1
10	1370	1
10	1440	1
10	1500	1
10	1550	1
10	1600	1
10	1660	1
10	1740	1
10	1800	1
10	1870	1
10	1910	1



PROJECT: Payette County Landfill Cell#1 closure
LOCATION: Payete County, Idaho

BORING NO. SS#01

METHOD: Hand Auger
DATE LOGGED: 6/9/2011
LOGGED BY: Travis Thomsen, WAQTC

AMERICAN GEO TECHNICS

GROUNDWATER:

Groundwater not encountered on 6/9/2011

DEPTH (ft)	TYPE - No.	LITHOLOGY	MATERIAL DESCRIPTION (Stratification lines represent approximate boundaries between materials)	LAYER THICKNESS (ft.)	DEPTH (ft)	REMARKS
			Sandy Silt (ML)- 66% Fines; LL=37, PL=26, PI=11; 31% sand; 3% gravel; W=18%; light brown.			Surface organics.
0.5						
1.0	GS-1					
1.5						
2.0						
2.5						Organics in soil.
3.0	GS-2			6.00		
3.5						
4.0						
4.5						
5.0	GS-3					
5.5						
6.0					6.00	

Bottom of Boring at 6.0 ft.

PROJECT: Payette County Landfill Cell#1 closure
LOCATION: Payete County, Idaho

BORING NO. SS#02

METHOD: Hand Auger
DATE LOGGED: 6/10/2011
LOGGED BY: Travis Thomsen, WAQTC

AMERICAN GEO TECHNICS

GROUNDWATER:

Groundwater not encountered on 6/10/2011

DEPTH (ft)	TYPE - No.	LITHOLOGY	MATERIAL DESCRIPTION (Stratification lines represent approximate boundaries between materials)	LAYER THICKNESS (ft.)	DEPTH (ft)	REMARKS
			Sandy Silt (ML)- 51% Fines; LL=34, PL=24, PI=10; 45% sand; 4% gravel; W=17%; gray brown.			Surface organics.
0.5						
1.0	GS-7					
1.5						
2.0						
2.5						
3.0	GS-8			6.00		
3.5						
4.0						
4.5						
5.0	GS-9					
5.5						
6.0					6.00	

Bottom of Boring at 6.0 ft.

PROJECT: Payette County Landfill Cell#1 closure
LOCATION: Payette County, Idaho

BORING NO. SS#2N

METHOD: Hand Auger
DATE LOGGED: 7/21/2011
LOGGED BY: Travis Thomsen, WAQTC

AMERICAN GEO TECHNICS

GROUNDWATER:

Groundwater not encountered on 7/21/2011

DEPTH (ft)	TYPE - No.	LITHOLOGY	MATERIAL DESCRIPTION (Stratification lines represent approximate boundaries between materials)	LAYER THICKNESS (ft.)	DEPTH (ft)	REMARKS
0.5			Sandy Silt (ML)- 60% fines; LL= 33; PL= 25; PI = 8; 36% sand; 4% gravel (cemented particles); dry to moist; brown to gray.			Vegetation and cemented particles at surface.
1.0	GS-101					
1.5						
2.0						
2.5						
3.0	GS-102			6.00		
3.5						
4.0						
4.5						
5.0	GS-103					
5.5						
6.0					6.00	

Bottom of Boring at 6.0 ft.

PROJECT: Payette County Landfill Cell#1 closure
LOCATION: Payette County, Idaho

BORING NO. SS#2S

METHOD: Hand Auger
DATE LOGGED: 7/21/2011
LOGGED BY: Travis Thomsen, WAQTC

AMERICAN GEO TECHNICS

GROUNDWATER:

Groundwater not encountered on 7/21/2011

DEPTH (ft)	TYPE - No.	LITHOLOGY	MATERIAL DESCRIPTION (Stratification lines represent approximate boundaries between materials)	LAYER THICKNESS (ft.)	DEPTH (ft)	REMARKS
0.5			Sandy Silt (ML)- 51% fines; LL= 33; PL= 30; PI = 3; 35% sand; 14% gravel (cemented particles); dry to moist; brown to gray.			Vegetation and cemented particles at surface.
1.0	GS-104					
1.5						
2.0						
2.5						
3.0	GS-105			6.00		
3.5						
4.0						
4.5						
5.0	GS-106					
5.5						
6.0					6.00	

Bottom of Boring at 6.0 ft.

PROJECT: Payette County Landfill Cell#1 closure
LOCATION: Payete County, Idaho

BORING NO. SS#03

METHOD: Hand Auger
DATE LOGGED: 6/10/2011
LOGGED BY: Travis Thomsen, WAQTC

AMERICAN GEO TECHNICS

GROUNDWATER:

Groundwater not encountered on 6/10/2011

DEPTH (ft)	TYPE - No.	LITHOLOGY	MATERIAL DESCRIPTION (Stratification lines represent approximate boundaries between materials)	LAYER THICKNESS (ft.)	DEPTH (ft)	REMARKS
0.5			Silty Sand (SM)- 60% Sand; 25% fines; LL=NV, PL=NP, PI=NV; 14% gravel; W=14%; light brown.			
1.0	GS-10					
1.5						
2.0				4.50		
2.5						
3.0	GS-11					
3.5						Garbage intermixed with soil.
4.0						
	GS-12					
4.5					4.50	

Bottom of Boring at 4.5 ft.

Refusal on garbage.

PROJECT: Payette County Landfill Cell#1 closure
LOCATION: Payete County, Idaho

BORING NO. SS#04

METHOD: Hand Auger
DATE LOGGED: 6/9/2011
LOGGED BY: Travis Thomsen, WAQTC

AMERICAN GEO TECHNICS

GROUNDWATER:

Groundwater not encountered on 6/9/2011

DEPTH (ft)	TYPE - No.	LITHOLOGY	MATERIAL DESCRIPTION (Stratification lines represent approximate boundaries between materials)	LAYER THICKNESS (ft.)	DEPTH (ft)	REMARKS
0.5			Silty Sand with Gravel (SM)- 43% fines; LL=36, PL=33, PI=3; 40% Sand; 17% gravel; W=23%; light brown.			Light to moderate cementation of particles.
1.0	GS-4					
1.5						
2.0						
2.5						
3.0	GS-5			6.00		
3.5						
4.0						
4.5						
5.0	GS-6					
5.5						
6.0					6.00	

Bottom of Boring at 6.0 ft.

PROJECT: Payette County Landfill Cell#1 closure
LOCATION: Payete County, Idaho

BORING NO. SS#05

METHOD: Hand Auger
DATE LOGGED: 6/10/2011
LOGGED BY: Travis Thomsen, WAQTC

GROUNDWATER:

Groundwater not encountered on 6/10/2011

AMERICAN GEO TECHNICS

DEPTH (ft)	TYPE - No.	LITHOLOGY	MATERIAL DESCRIPTION (Stratification lines represent approximate boundaries between materials)	LAYER THICKNESS (ft.)	DEPTH (ft)	REMARKS
0.5			Silty Sand (SM)- 48% Sand; 39% fines; LL=NV, PL=NP, PI=NV; 13% gravel; W=23%; light brown.			Lightly cemented particles.
1.0	GS-13					
1.5						
2.0						
2.5						
3.0	GS-14			6.00		
3.5						
4.0						
4.5						
5.0	GS-15					
5.5						
6.0					6.00	

Bottom of Boring at 6.0 ft.

PROJECT: Payette County Landfill Cell#1 closure
LOCATION: Payete County, Idaho

BORING NO. SS#10

METHOD: Hand Auger
DATE LOGGED: 6/10/2011
LOGGED BY: Travis Thomsen, WAQTC

AMERICAN GEO TECHNICS

GROUNDWATER:

Groundwater not encountered on 6/10/2011

DEPTH (ft)	TYPE - No.	LITHOLOGY	MATERIAL DESCRIPTION (Stratification lines represent approximate boundaries between materials)	LAYER THICKNESS (ft.)	DEPTH (ft)	REMARKS
			Sandy Silt (ML)- 59% Fines; LL=33, PL=25, PI=8; 39% sand; 2% gravel; W=21%; light brown.			Surface organics.
0.5						
1.0	GS-19					
1.5						
2.0						
2.5						
3.0	GS-20			6.00		Organics in soil. Gray in color.
3.5						
4.0						
4.5						
5.0	GS-21					
5.5						Garbage intermixed with soil.
6.0					6.00	

Bottom of Boring at 6.0 ft.

PROJECT: Payette County Landfill Cell#1 closure
LOCATION: Payete County, Idaho

BORING NO. SS#11

AMERICAN GEO TECHNICS

METHOD: Hand Auger
DATE LOGGED: 6/10/2011
LOGGED BY: Travis Thomsen, WAQTC

GROUNDWATER:

Groundwater not encountered on 6/10/2011

DEPTH (ft)	TYPE - No.	LITHOLOGY	MATERIAL DESCRIPTION (Stratification lines represent approximate boundaries between materials)	LAYER THICKNESS (ft.)	DEPTH (ft)	REMARKS
			Sandy Silt (ML)- 51% Fines; LL=36, PL=31, PI=5; 42% sand; 7% gravel; W=20%; gray.			
0.5						
1.0	GS-16					
1.5						Organics in soil.
2.0				4.00		Garbage intermixed with soil.
2.5						
3.0	GS-17					
3.5						
4.0					4.00	

Bottom of Boring at 4.0 ft.

Refusal on garbage.

ATTACHMENT 2

Final Vegetative Cover – Seeding Plan

Recommended Grasses and Forbs (per USDA—NRCS 2000, 2001, 2006 and 2009)

- **Use a mixture of grass types with a forb mixed in a for variety of covers**
- **Broad cast each species separately to get most uniform distribution of seed**
- **Planting depth of ¼ to ½ inch**
- **Best time to seed is either 1) after October 20th and before winter rain or snow or 2) after March 1st and before final spring rains.**

Recommended Seeds and Type	Seedling Vigor	Seeding Rate
GRASSES		
Wheatgrass, Crested ('Hycrest') or Wheatgrass, Crested ('Nordan')	Rapid	3 lb per acre
Wheatgrass, Thickspike ('Bannock' or Critana') or Wheatgrass, Snake River ('Secar')	Medium	4 lb per acre
Rescue, Sheep ('Covar or Bighorn')	Slow	2 lb per acre
FORBS		
Alfalfa ('Ladak, Trevois, Ranger or Nomad')	Medium	1 to 3 lbs per acre in mixture with grasses
Keep All Seeds Cool and Dry Until Application		

Inocculate alfalfa seed the evening before or early on seeding day in order for seed to dry by seeding time. Reinocculate alfalfa seed coated over 30 days or if alfalfa seed has not been kept cool and dry.

A. Equipment and Materials Recommended for Hand Seeding

- **One hand operated cyclone seeder for each person doing seeding**
- **Weight measuring scale, say 20 pound capacity**
- **Two plastic buckets**
- **Paper bags, medium size**
- **Marker pens**

B. Seeding Procedures

- **Divide seed for each species into required amounts and label bags. Seed each species separately for most uniform seed distribution.**
- **Adjust cyclone seeder according to manufacturer's instructions based on seeding rate. Periodically check number of seeds per square foot.**
- **Broadcast seed in two directions to achieve uniform distribution of seed. For example, use half of the seed of a species and broadcast across the slope, starting at the top. When reaching the edge of the seeding area, move downslope a distance equal to the width of the seed broadcast or throw and walk back across the slope, trying to avoid gaps. Adjust walking pace to complete seeding the**

designated area. Use the remaining half of the seed to repeat the procedure going downhill or down the slope. If slopes are too steep for seeding, broadcast the remaining seed in same direction across the slope except walk midway between previous broadcasts or lines of travel. Repeat seeding process for each species.

C. Jute Netting Protection (If Necessary):

- **Apply individual rolls of jute up and down slopes – not along the contours**
- **Bury the upper end of the netting at the top of the disturbed area in a trench at least 6 to 8 inches depth.**
- **Lay out rolls so edges overlay each other by a least 4 inches across the slope.**
- **The netting should go beyond the edge of the seeded area and the sides at least 1 foot and 3 feet at the bottom.**
- **Anchor the netting to the soil surface with anchor, pins or staples. Staples or anchor pins need to be driven perpendicularly in to the slope face and should be spaced approximately 5 feet apart along the sides and center of the roll. Spacing between staples at the upper end of a roll and at the end should overlap of 2 rolls should not be greater than 1 foot.**

D. Local Seed Suppliers from USDA listing:

Name of Supplier	Address	Contact Telephone No.
Boise Valley Seed	Rural Route 10, Darrow Land Caldwell, Idaho	208.459.7211
Fruitland Nursery	301 South Hwy 95 Fruitland, Idaho	208.452.4204
Sand Hollow Nursery	Rurla Route 7 Caldwell, Idaho	208.459.7389
WR Baxter Wholesale Nursery	2615 Pioneer Ave Emmett, Idaho	208.365.6011

References:

- USDA –NRCS, Wildfire Recovery Tips for Southern and Western Idaho, July 2000 replaced with USDA – NRCS, Wildfire Recovery Tips for Idaho, August 2006 http://www.plant-materials.nrcs.usda.gov/pubs/idpmspu6988.pdf
- USDA –NRCS, Technical Note Plant Materials No. 24 Improved Grass, Forb, Legume, and Woody Seed Species for the Intermountain West. First used June 2001. Revised October 2009 http://www.plant-materials.nrcs.usda.gov/pubs/idpmctn4620.pdf

MATERIALS TESTING & INSPECTION

DENSITY OF SOIL AND SOIL-AGGREGATE IN PLACE BY NUCLEAR METHODS (SHALLOW DEPTH) (ASTM D-6938)

❑ Environmental Services ❑ Geotechnical Engineering ❑ Construction Materials Testing ❑ Special Inspections

Date: 5-9-12 MTI File #: C120034C Project Name: Clay Peak Land Fill

Contractor Name: IRVCO Permit #:

Inspector Name: Larry Whitten % Compaction Req d: 92 Weather: CLEAR

Material Description (#1): NATIVE Sandy Silt w/Cliche Source (#1): ON SITE Lab #: 120022

Material Description (#2): Source (#2): Lab #:

Circle One: ASTM D-698 or D-1557 / AASHTO T-99 or T-180 Gauge #: 26 DS: 2473 MS: 636

Test Number	Elevation	Wet Density	Pounds Moisture	Percent Moisture	Dry Density	Maximum Density	Optimum Moisture	Percent Compaction
# 1		111.5	16.9	17.9	94.6	101.3	18.7	93.4
Location & Depth 8"	CELL #1 30' EAST of WEST SIDE 100' SOUTH OF NORTH END ALL SHOTS ARE 3' BELOW FINISH GRADE							
# 2		108.4	14.0	14.8	94.4	"	"	93.2
Location & Depth 8"	CELL #1 300' SOUTH of NORTH END AT ℄ of CELL							
# 3		111.5	15.4	16.0	96.1	"	"	94.9
Location & Depth 8"	CELL #1 600' SOUTH of NORTH END 50' WEST OF EAST SIDE							
# 4		112.1	16.9	17.8	95.2	"	"	94.0
Location & Depth 8"	CELL #1 700' SOUTH of NORTH END 60' EAST of WEST SIDE							
# 5		110.9	16.2	17.1	94.7	"	"	93.5
Location & Depth 8"	CELL #1 80' EAST of WEST SIDE 300' ~~SOUTH~~ NORTH of SOUTH END							
# 6		112.5	17.9	18.9	94.6	"	"	93.4
Location & Depth 8"	CELL #1 150' NORTH of SOUTH END AT ℄ of CELL							
# 7		112.4	17.1	17.9	95.3	"	"	94.1
Location & Depth 8"	CELL #1 60' NORTH of SOUTH END 60' WEST of EAST SIDE. CELL 1							
#								
Location & Depth								
#								
Location & Depth								

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mtior@mti-id.com • www.mti-id.com

MATERIALS TESTING & INSPECTION

DENSITY OF SOIL AND SOIL-AGGREGATE IN PLACE BY NUCLEAR METHODS (SHALLOW DEPTH) (ASTM D-6938)

☐ Environmental Services ☐ Geotechnical Engineering ☐ Construction Materials Testing ☐ Special Inspections

Date: 5-11-12 MTI File #: 0-120034a Project Name: Clay Peak - Landfill

Contractor Name: Truco Permit #:

Inspector Name: Jason Plunkett % Compaction Req'd: 92 Weather: Clear

Material Description (#1): Native Sandy Silt Source (#1): On site Lab #: 12022

Material Description (#2): — Source (#2): — Lab #: —

Circle One: ASTM D-698 or D-1557 / AASHTO T-99 or T-180 Gauge #: 25 DS: 2370 MS: 666

Test Number	Elevation	Wet Density	Pounds Moisture	Percent Moisture	Dry Density	Maximum Density	Optimum Moisture	Percent Compaction
# 1	3' BG	114.3	14.7	14.8	99.6	101.3	18.7	98.3
Location & Depth 12"	Cell #1 450' South of North End and 50' East of West End							
# 2	3' BG	109.2	15.8	16.6	95.1	101.3	18.7	93.9
Location & Depth 12"	Cell #1 100' North of Previous							
# 3	3' BG	116.7	18.2	18.4	98.5	101.3	18.7	97.2
Location & Depth 12"	Cell #1 100' North of Previous							
# 4	3' BG	110.9	16.9	17.9	94.0	101.3	18.7	92.8
Location & Depth 12"	Cell #1 225' South of North End and 50' West of East End							
# 5	3' BG	105.8	12.1	12.9	93.7	101.3	18.7	92.5
Location & Depth 12"	Cell #1 100' South of Previous							
# 6	3' BG	110.9	15.8	16.6	95.1	101.3	18.7	93.9
Location & Depth 12"	Cell #1 100' South of Previous							
#								
Location & Depth								
#								
Location & Depth								
#								
Location & Depth								

American Geotechnics
5260 Chinden Blvd.
Boise, Idaho 83714
Phone:(208) 658-8700
Fax: (208) 658-8703

Report to: Holladay Engineering
Project: Payette County Landfill Cell #1 Cover
Report Date: 9/21/12
Project No.: 11B-G2230.1

Material Information

Date Tested: 8/15 and 9/4/12
Tested By: American Geotechnics
Weather Condition: Fair

Test Results

In-Situ Permeability, Guelph Permeameter Method (Constant Head)

Location	Soil Description	Well Depth	Hydraulic Conductivity cm/sec
SS#3	Sandy Silt (ML); Sandy Loam	24"	1.1×10^{-4}
SS#7	Silty Sand (SM);Sandy Loam	24"	7.0×10^{-5}

Reviewed By: _____

DCP TEST REPORT
(ASTM D6951)

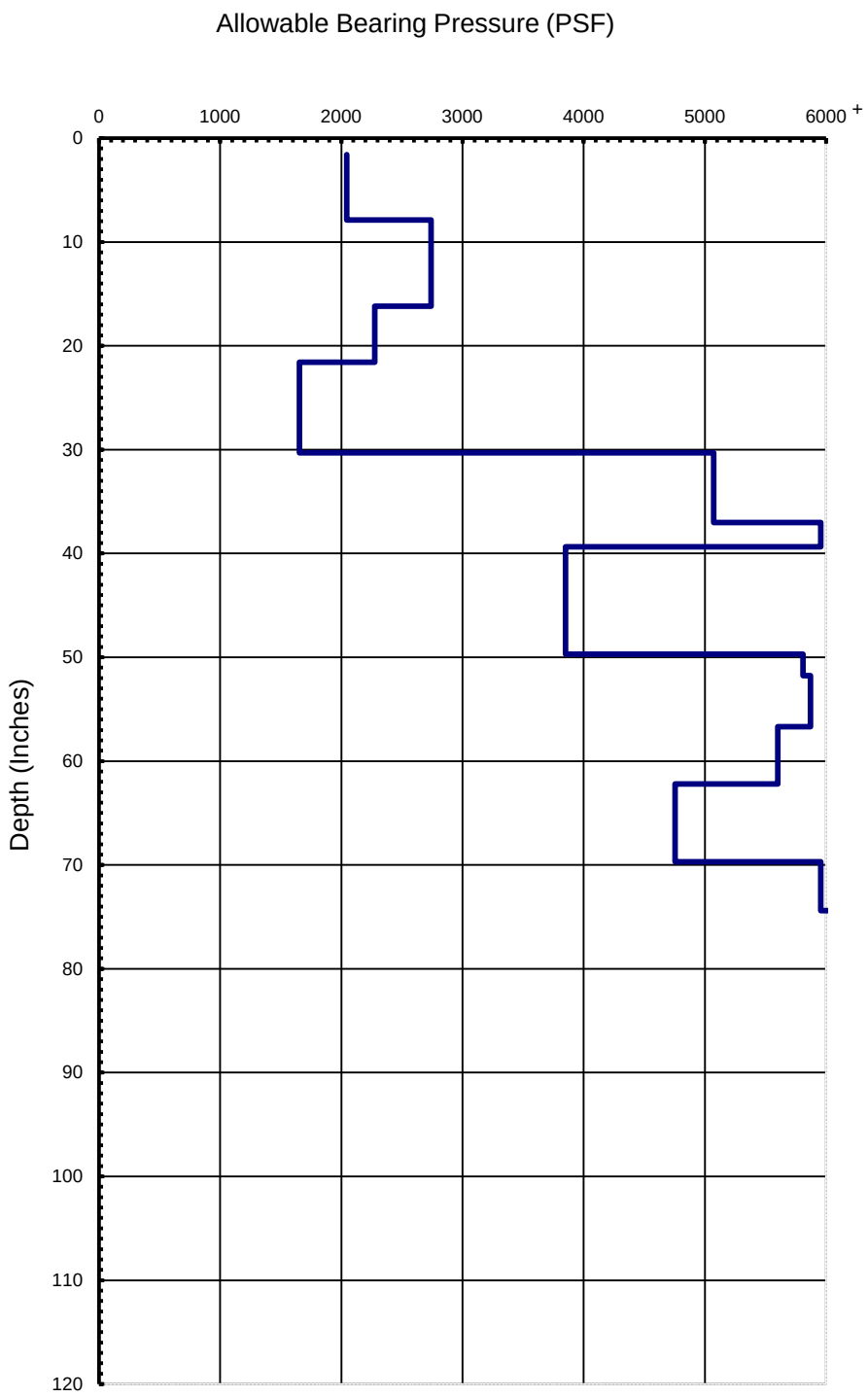
Project Name: Payette County Landfill
Test No. SS#3
Top Elevation: NR

Project No. 11B-G2230.1
Date: 4-Sep-12
Soil Type(s): Silty Sand (SM)

Hammer
- ○ 10.1 lbs.
- ◉ 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ◉ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer	Rod Correction Factor
0	40	1	1.0
5	200	1	1.0
10	411	1	1.0
5	548	1	1.0
5	770	1	1.0
20	940	1	1.0
10	1000	1	1.0
20	1262	1	1.0
20	1315	1	1.0
20	1440	1	1.0
20	1580	1	1.0
20	1770	1	1.0
20	1890	1	1.0
22	2000	1	1.0



DCP TEST REPORT
(ASTM D6951)

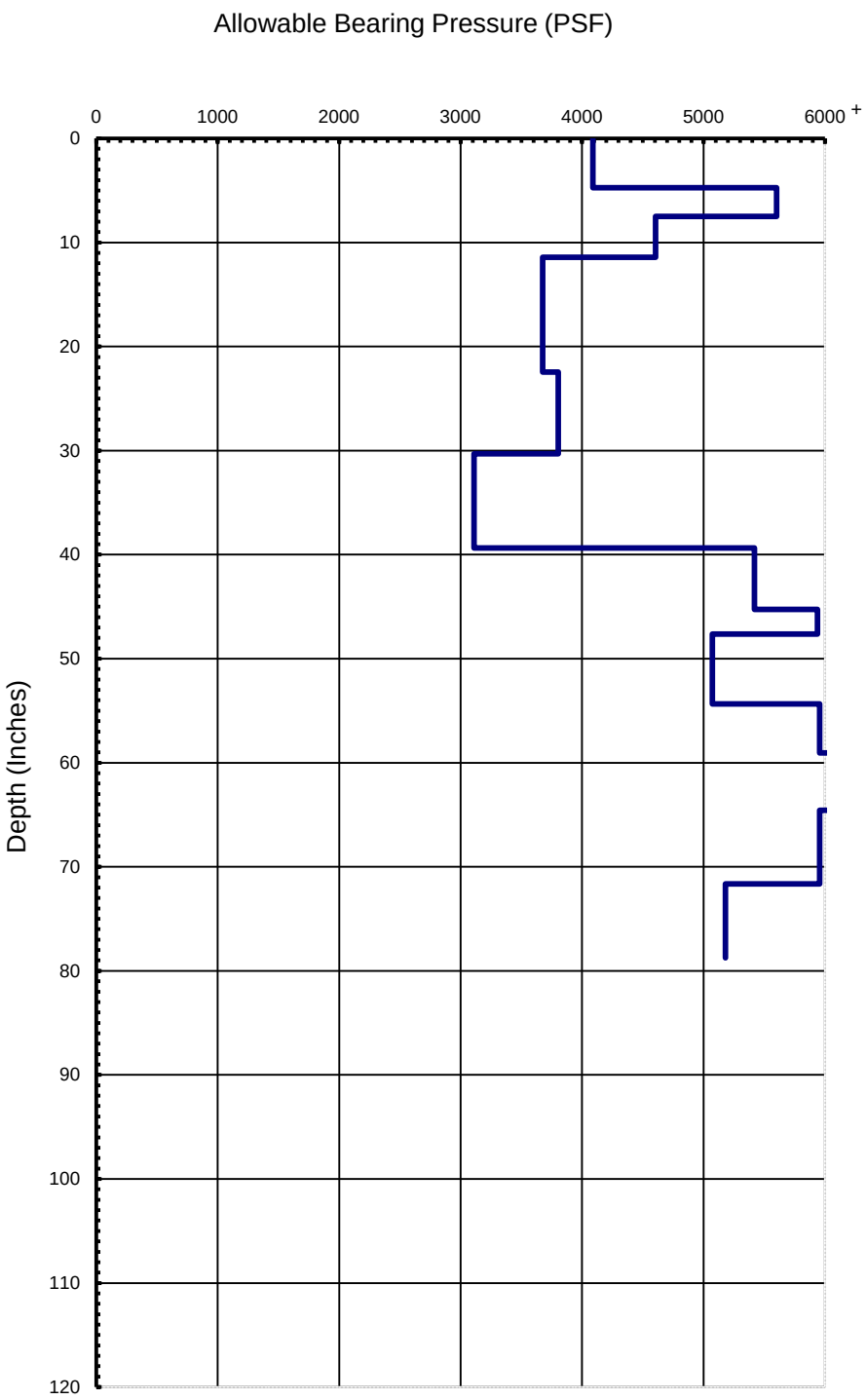
Project Name: Payette County Landfill
Test No. SS#6
Top Elevation: NR

Project No. 11B-G2230.1
Date: 15-Aug-12
Soil Type(s): Silty Sand (SM)

Hammer
- ○ 10.1 lbs.
- ◉ 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ◉ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer	Rod Correction Factor
0	0	1	1.0
10	120	1	1.0
10	190	1	1.0
10	290	1	1.0
20	570	1	1.0
15	770	1	1.0
13	1000	1	1.0
20	1150	1	1.0
20	1210	1	1.0
20	1380	1	1.0
20	1500	1	1.0
30	1640	1	1.0
30	1820	1	1.0
22	2000	1	1.0



DCP TEST REPORT
(ASTM D6951)

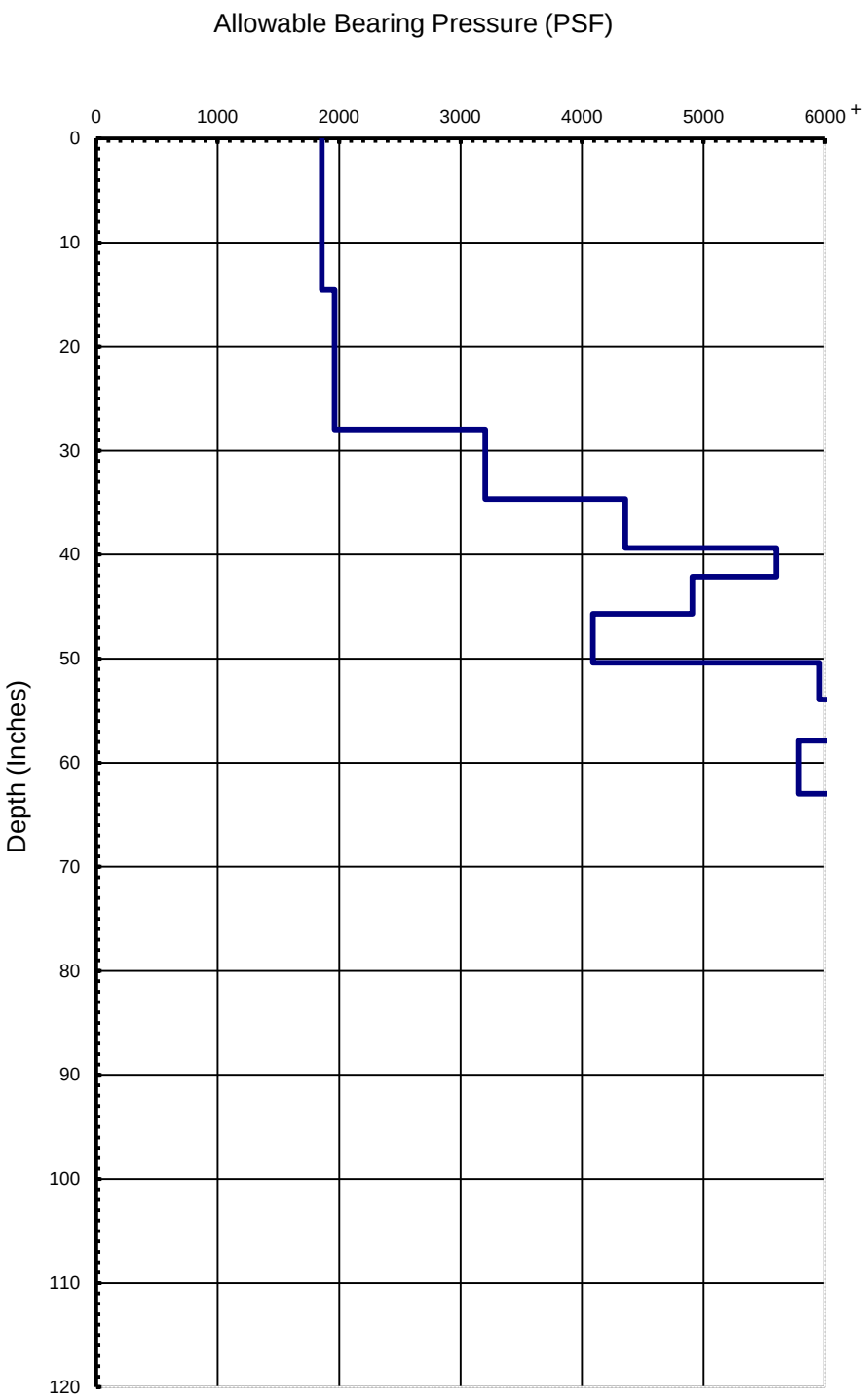
Project Name: Payette County Landfill
Test No. SS#7
Top Elevation: NR

Project No. 11B-G2230.1
Date: 15-Aug-12
Soil Type(s): Silty Sand (SM)

Hammer
- ○ 10.1 lbs.
- ◉ 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ◉ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer	Rod Correction Factor
0	0	1	1.0
10	370	1	1.0
10	710	1	1.0
10	880	1	1.0
11	1000	1	1.0
10	1070	1	1.0
10	1160	1	1.0
10	1280	1	1.0
15	1370	1	1.0
20	1470	1	1.0
20	1600	1	1.0
20	1690	1	1.0
20	1770	1	1.0
30	1900	1	1.0
25	1980	1	1.0
15	2000	1	1.0



DCP TEST REPORT
(ASTM D6951)

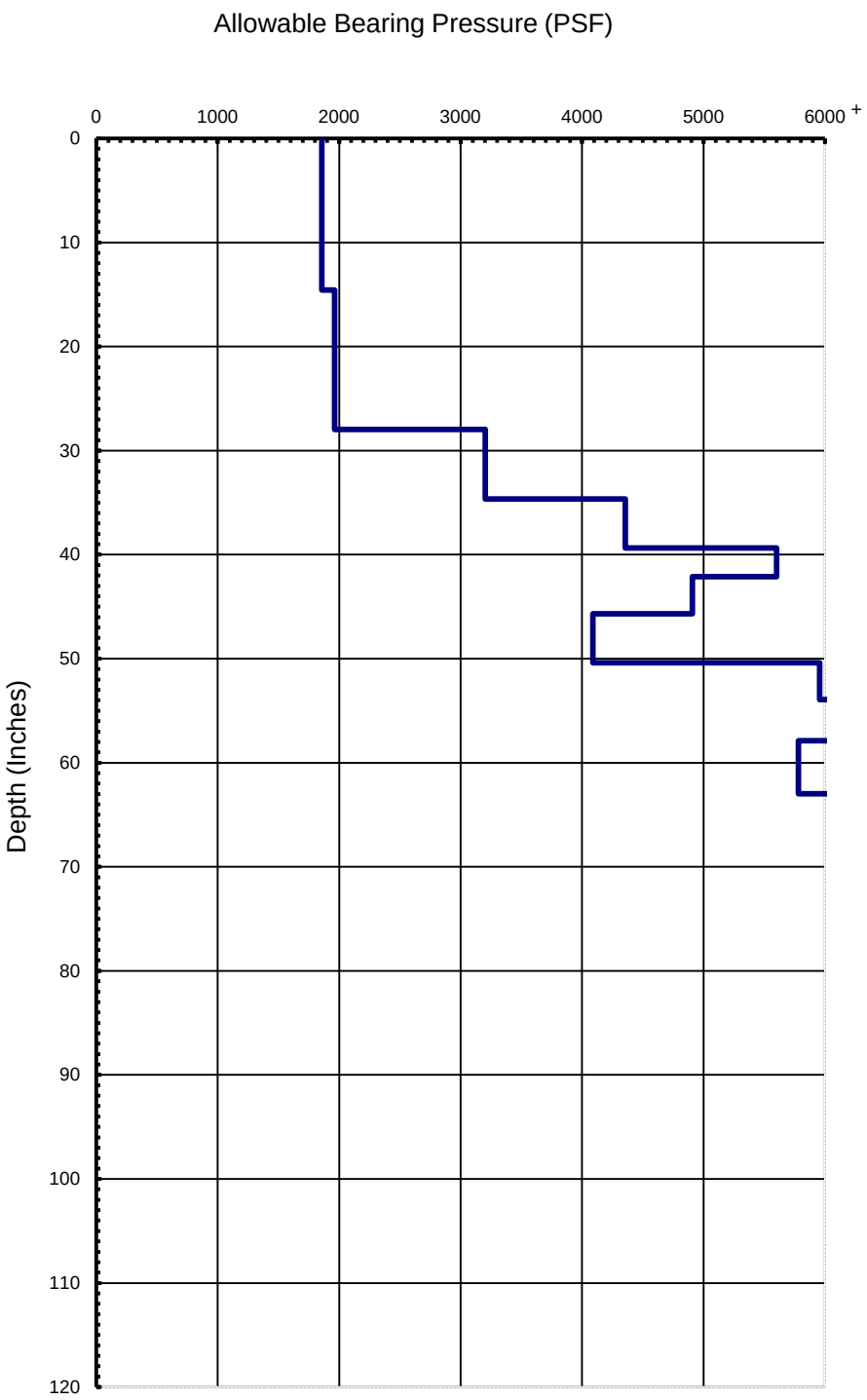
Project Name: Payette County Landfill
Test No. SS#7
Top Elevation: NR

Project No. 11B-G2230.1
Date: 15-Aug-12
Soil Type(s): Silty Sand (SM)

Hammer
- ○ 10.1 lbs.
- ◉ 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ◉ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer	Rod Correction Factor
0	0	1	1.0
10	370	1	1.0
10	710	1	1.0
10	880	1	1.0
11	1000	1	1.0
10	1070	1	1.0
10	1160	1	1.0
10	1280	1	1.0
15	1370	1	1.0
20	1470	1	1.0
20	1600	1	1.0
20	1690	1	1.0
20	1770	1	1.0
30	1900	1	1.0
25	1980	1	1.0
15	2000	1	1.0



DCP TEST REPORT
(ASTM D6951)

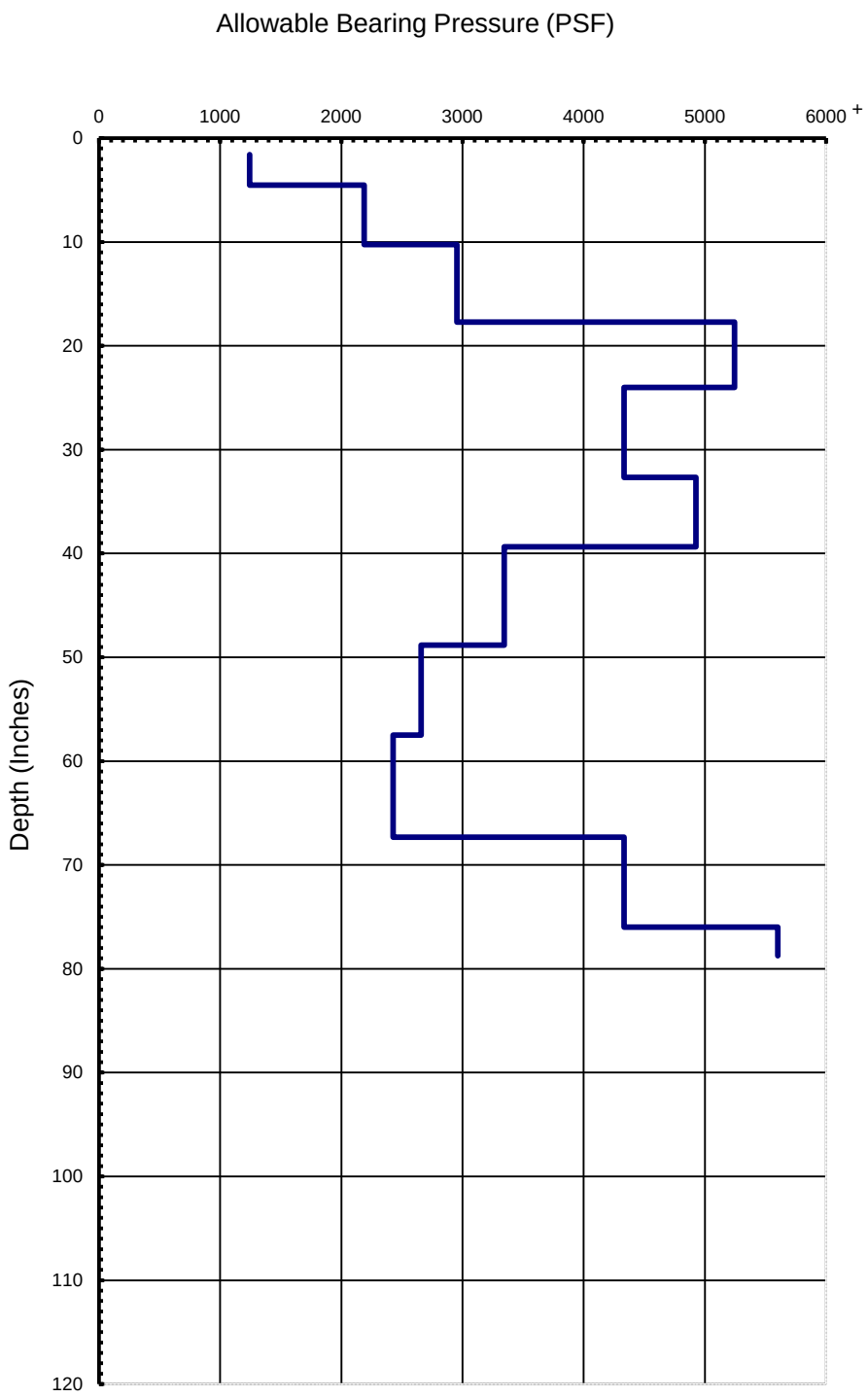
Project Name: Payette County Landfill
Test No. SS#10
Top Elevation: NR

Project No. 11B-G2230.1
Date: 4-Sep-12
Soil Type(s): Silty Sand (SM)

Hammer
- ○ 10.1 lbs.
- ◉ 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ◉ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer	Rod Correction Factor
0	40	1	1.0
1	115	1	1.0
5	260	1	1.0
10	450	1	1.0
20	610	1	1.0
20	830	1	1.0
19	1000	1	1.0
15	1240	1	1.0
10	1460	1	1.0
10	1710	1	1.0
20	1930	1	1.0
10	2000	1	1.0



DCP TEST REPORT
(ASTM D6951)

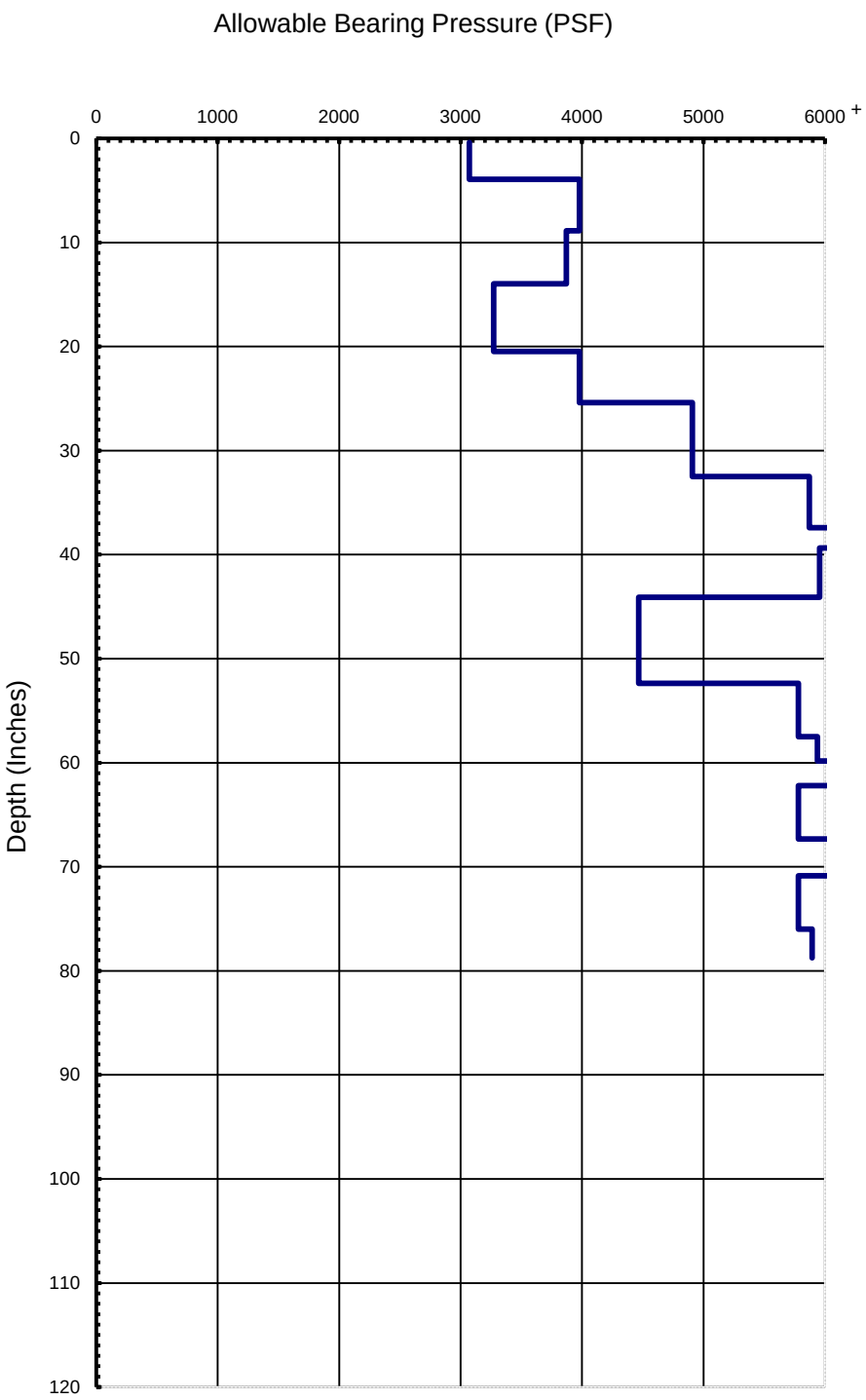
Project Name: Payette County Landfill
Test No. SS#11
Top Elevation: NR

Project No. 11B-G2230.1
Date: 4-Sep-12
Soil Type(s): Silty Sand (SM)

Hammer
- ○ 10.1 lbs.
- ◉ 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ◉ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer	Rod Correction Factor
0	10	1	1.0
5	100	1	1.0
10	225	1	1.0
10	355	1	1.0
10	520	1	1.0
10	645	1	1.0
20	825	1	1.0
20	950	1	1.0
12	1000	1	1.0
20	1120	1	1.0
20	1330	1	1.0
20	1460	1	1.0
20	1520	1	1.0
20	1550	1	1.0
20	1580	1	1.0
20	1710	1	1.0
20	1800	1	1.0
20	1930	1	1.0
24	2000	1	1.0



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Project Information

Report to: Holladay Engineering
Project: Payettte County Landfill
Report Date: 9/21/12
File No.: 11B-G2230.1

Material Information

Date Sampled: 8/15 & 9/4/12
Sampled By: American Geotechnics
Date Received: 9/4/12
Date Tested: 9/12 through 9/20/12

SUMMARY OF LABORATORY RESULTS

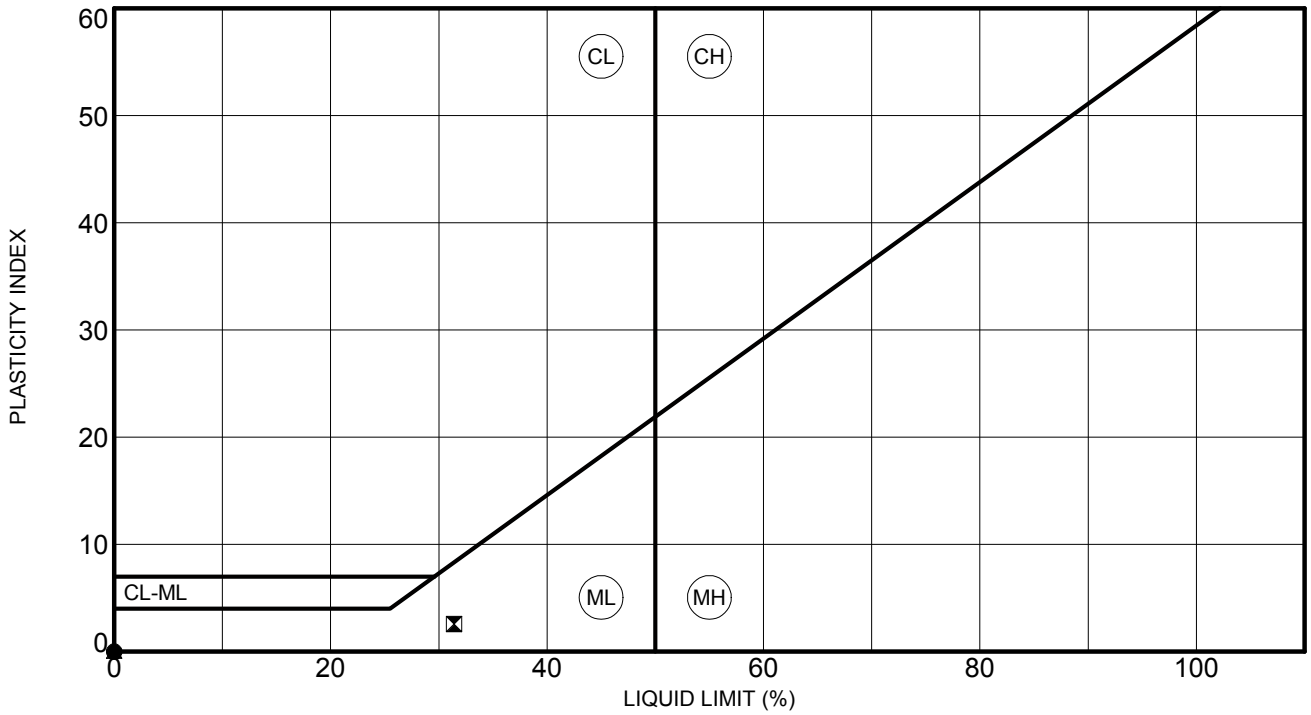
Lab Number	Borehole	Sample Type	Depth (ft)	Water Content (%)	% Passing #200 Sieve	Liquid Limit (%)	Plasticity Index	Soil Type	Remarks
12-0449	SS-06	GB-11	2.0'-4.0'	14.9	51.6	NV	NP	ML	Sandy Loam
12-0448	SS-07	GB-8	2.0'-4.0'	16.3	49.6	31	2	SM	Sandy Loam
12-0450	SS-10	GB-3	4.0'-6.0'	13.6	45.6	NV	NP	SM	Sandy Loam
12-0451	SS-11	GB-4	0.0'-2.0'	10.2	46.8	NV	NP	SM	Sandy Loam

Prepared By: Travis Thomsen

ATTERBERG LIMITS REPORT

CLIENT: Holladay Engineering
FILE NUMBER: 11B-G2230.1

PROJECT NAME: Payettte County Landfill
PROJECT LOCATION: Payette County



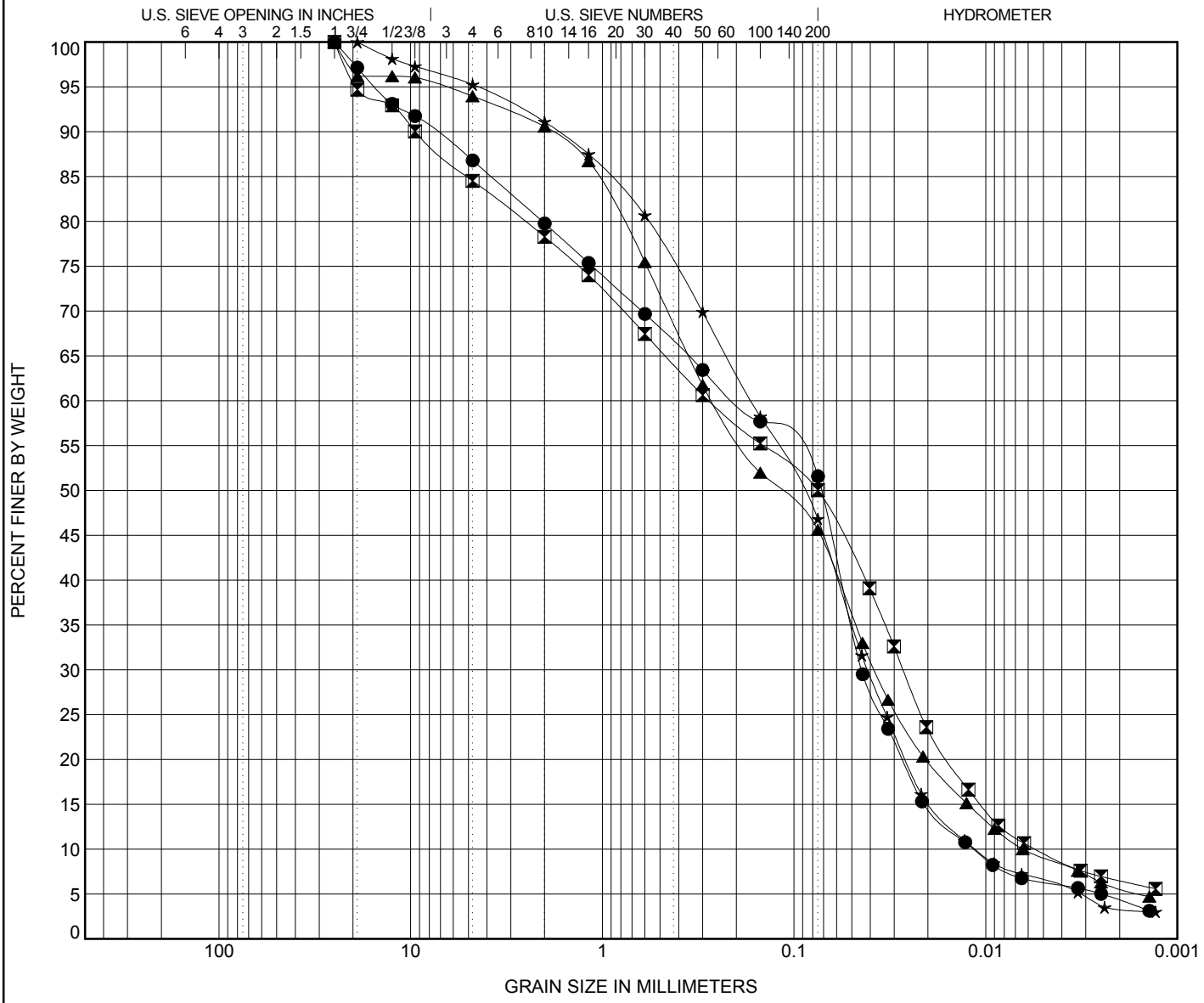
	Specimen Identification			MC	LL	PL	PI	Fines	Classification
●	SS-06	GB-11	2.0	14.9	NV	NV	NP	52	SANDY SILT (ML)
⧗	SS-07	GB-8	2.0	16.3	31	29	2	50	SANDY SILT with GRAVEL (ML)
▲	SS-10	GB-3	4.0	13.6	NV	NV	NP	46	SILTY SAND (SM)
★	SS-11	GB-4	0.0	10.2	NV	NV	NP	47	SILTY SAND (SM)

Prepared By: Travis Thomsen

PARTICLE-SIZE DISTRIBUTION REPORT

CLIENT: Holladay Engineering
FILE NUMBER: 11B-G2230.1

PROJECT NAME: Payettte County Landfill
PROJECT LOCATION: Payette County



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification			Classification	D10	D30	D60
●	SS-06	GB-11	2.0	SANDY SILT (ML)	0.012	0.044	0.198
⊠	SS-07	GB-8	2.0	SANDY SILT with GRAVEL (ML)	0.005	0.027	0.276
▲	SS-10	GB-3	4.0	SILTY SAND (SM)	0.006	0.038	0.265
★	SS-11	GB-4	0.0	SILTY SAND (SM)	0.011	0.041	0.167

	Specimen Identification			%Gravel	%Sand	%Fines	D15	D50	D85	Cc	Cu	MC	LL	PI
●	SS-06	GB-11	2.0	13.2	35.2	51.6	0.021	0.072	3.806	0.86	17.13	14.9	NV	NP
⊠	SS-07	GB-8	2.0	15.5	34.5	50.0	0.011	0.075	5.043	0.48	50.76	16.3	31	2
▲	SS-10	GB-3	4.0	6.0	48.4	45.6	0.012	0.121	1.063	0.85	41.33	13.6	NV	NP
★	SS-11	GB-4	0.0	4.7	48.5	46.8	0.019	0.091	0.921	0.90	14.75	10.2	NV	NP

Prepared By: Travis Thomsen

American Geotechnics

PROJECT: Payettte County Landfill
LOCATION: Payette County

METHOD: Cat 420 D Backhoe
DATE LOGGED: 9/4/2012
LOGGED BY: Ryan VanLeuven

BORING NO. SS-03

AMERICAN GEO TECHNICS

GROUNDWATER:

Groundwater not encountered on 9/4/2012

DEPTH (ft)	TYPE - No.	LITHOLOGY	MATERIAL DESCRIPTION (Stratification lines represent approximate boundaries between materials)	REMARKS
1	GB-13		Sandy Silt (ML) (Fill)- About 60% non-plastic fines; about 40% fine to coarse sand; trace of fragmented caliche and gravel to 1"; tan to dark brown; moist.	Located about 20 feet north of SS#3 survey marker on flat surface of landfill cover.
2				
3	GB-14			
4				
5				
			Bottom of Boring at 5.5 ft on 9/4/2012.	Trash encountered at 5.5 feet. Backfilled with cuttings wetted with water truck and compacted with backhoe bucket and backhoe traffic.

PROJECT: Payettte County Landfill
LOCATION: Payette County

METHOD: Cat 420 D Backhoe
DATE LOGGED: 9/4/2012
LOGGED BY: Ryan VanLeuven

BORING NO. SS-06

AMERICAN GEO TECHNICS

GROUNDWATER:

Groundwater not encountered on 9/4/2012

DEPTH (ft)	TYPE - No.	LITHOLOGY	MATERIAL DESCRIPTION (Stratification lines represent approximate boundaries between materials)	LAB DATA LL (%)	PI (%)	MC (%)	REMARKS
1	GB-10		Silty Sand (SM) (Fill)- About 55% fine to coarse sand; about 45% non-plastic fines; traces of fragmented caliche; moist; tan.				Located about 20 feet north of SS#6 survey marker on flat surface of landfill cover.
2			Sandy Silt (ML) (Fill)- 52% Fines; 35% fine to coarse sand; 13% fragmented caliche and gravel; tan to dark brown.				Layer transition gradual.
3	GB-11			NV	NP	15	
4							
5	GB-12						
6							
7							Trash particles observed at about 7.5 feet. Backfilled with cuttings wetted with water truck and compacted with backhoe bucket and backhoe traffic.

Bottom of Boring at 7.5 ft on 9/4/2012.

PROJECT: Payettte County Landfill
LOCATION: Payette County

METHOD: Cat 420 D Backhoe
DATE LOGGED: 9/4/2012
LOGGED BY: Ryan VanLeuven

BORING NO. SS-07

AMERICAN GEO TECHNICS

GROUNDWATER:

Groundwater not encountered on 9/4/2012

DEPTH (ft)	TYPE - No.	LITHOLOGY	MATERIAL DESCRIPTION (Stratification lines represent approximate boundaries between materials)	LAB DATA LL (%)	PI (%)	MC (%)	REMARKS
1	GB-7		Silty Sand (SM) (Fill)- About 55% fine to coarse sand; about 45% non-plastic fines; traces of fragmented caliche; moist; tan.				Located about 20 feet north of SS#7 survey marker on flat surface of landfill cover.
2							
3	GB-8		Sandy Silt with Gravel (ML) (Fill)- 50% Fines; 35% subrounded to subangular sand; 15% gravel with fragmented caliche; tan.	31	2	16	Layer transition gradual.
4							
5	GB-9		Sandy Silt (ML) (Fill)- About 60% non-plastic fines; about 40% fine to coarse sand; trace of fragmented caliche and gravel to 1"; tan to dark brown; moist.				
6							
7			Bottom of Boring at 7.0 ft on 9/4/2012.				Backfilled with cuttings wetted with water truck and compacted with backhoe bucket and backhoe traffic.

PROJECT: Payettte County Landfill
LOCATION: Payette County

METHOD: Cat 420 D Backhoe
DATE LOGGED: 9/4/2012
LOGGED BY: Ryan VanLeuven

BORING NO. SS-10

AMERICAN GEO TECHNICS

GROUNDWATER:

Groundwater not encountered on 9/4/2012

DEPTH (ft)	TYPE - No.	LITHOLOGY	MATERIAL DESCRIPTION (Stratification lines represent approximate boundaries between materials)	LAB DATA LL (%)	PI (%)	MC (%)	REMARKS
			Silty Sand (SM) (Fill)-				Located about 20 feet north of SS#10 survey marker on flat surface of landfill cover.
1	GB-1						Sidewalls of test pit appeared competant, did not collapse.
2							
3	GB-2						Slight organic ordor present in test pit.
4			48% Sand; 46% fines; 6% gravel with fragmented caliche; tan.				
5	GB-3			NV	NP	14	
6			Bottom of Boring at 6.0 ft on 9/4/2012.				Backfilled with cuttings wetted with water truck and compacted with backhoe bucket and backhoe traffic.

PROJECT: Payettte County Landfill
LOCATION: Payette County

METHOD: Cat 420 D Backhoe
DATE LOGGED: 9/4/2012
LOGGED BY: Ryan VanLeuven

BORING NO. SS-11

AMERICAN GEO TECHNICS

GROUNDWATER:

Groundwater not encountered on 9/4/2012

DEPTH (ft)	TYPE - No.	LITHOLOGY	MATERIAL DESCRIPTION (Stratification lines represent approximate boundaries between materials)	LAB DATA LL (%)	PI (%)	MC (%)	REMARKS
1	GB-4		Silty Sand (SM) (Fill)- 48% Sand; 47% fines; 5% gravel with fragmented caliche; tan.	NV	NP	10	Located about 20 feet north of SS#11 survey marker on flat surface of landfill cover.
2			Sandy Silt (ML) (Fill)- About 60% non-plastic fines; about 40% fine to coarse sand; trace of fragmented caliche and gravel to 1"; tan to dark brown; moist.				Layer transition gradual.
3	GB-5						Slight organic ordor present in test pit.
4							
5	GB-6						
6							
7			Bottom of Boring at 7.0 ft on 9/4/2012.				Backfilled with cuttings wetted with water truck and compacted with backhoe bucket and backhoe traffic.

PROJECT: Payette County Landfill
LOCATION: Payette County

BORING NO. SS-03A

METHOD: Hand Auger
DATE LOGGED: 11/14/2012
LOGGED BY: Travis Thomsen, WAQTC

GROUNDWATER:

Groundwater not encountered on 11/14/2012

DEPTH (ft)	TYPE - No.	RECOVERY %	LITHOLOGY	MATERIAL DESCRIPTION (Stratification lines represent approximate boundaries between materials)	LAB DATA LL (%)	PI (%)	MC (%)	REMARKS
				Sandy Silt (ML) (Fill)- 63% non-plastic fines; 36% fine to coarse sand; 1% fragmented caliche and gravel to 3/8"; tan to dark brown.				Located about 5 feet west of SS#3 survey marker on flat surface of landfill cover.
1	GB-106	100			NV	NP	15	
2								
3	GB-107	100						
4								
5	GB-108	100						
6								Grey sand debris in tip of auger at 6.0 feet.

Bottom of Boring at 6.0 ft on 11/14/2012.

PROJECT: Payette County Landfill
LOCATION: Payette County

BORING NO. SS-08

METHOD: Hand Auger
DATE LOGGED: 11/14/2012
LOGGED BY: Travis Thomsen, WAQTC

GROUNDWATER:

Groundwater not encountered on 11/14/2012

DEPTH (ft)	TYPE - No.	RECOVERY %	LITHOLOGY	MATERIAL DESCRIPTION (Stratification lines represent approximate boundaries between materials)	LAB DATA LL (%)	PI (%)	MC (%)	REMARKS
				Sandy Silt (ML) (Fill)- 68% non-plastic fines; 31% fine to coarse sand; 1% fragmented caliche and gravel to 3/4"; tan to dark brown.				Located about 3 feet north of SS#8 survey marker on flat surface of landfill cover.
1	GB-101	100			NV	NP	9	
2								
3	GB-102	100						
4								
5	GB-103	100						
6								Trash debris present in end of auger at 6.0 feet.

Bottom of Boring at 6.0 ft on 11/14/2012.

PROJECT: Payette County Landfill
LOCATION: Payette County

METHOD: Hand Auger
DATE LOGGED: 11/14/2012
LOGGED BY: Travis Thomsen, WAQTC

BORING NO. SS-09

AMERICAN GEO TECHNICS

GROUNDWATER:

Groundwater not encountered on 11/14/2012

DEPTH (ft)	TYPE - No.	RECOVERY %	LITHOLOGY	MATERIAL DESCRIPTION (Stratification lines represent approximate boundaries between materials)	REMARKS
1	GB-104	100		Sandy Silt (ML) (Fill)- About 65% non-plastic fines; about 35% fine to coarse sand; trace of fragmented caliche and gravel to 1/2"; tan to dark brown; moist.	Located about 3 feet north of SS#9 survey marker on flat surface of landfill cover.
2					
3	GB-105	100			
4				Bottom of Boring at 4.0 ft on 11/14/2012.	Trash debris encountered at 4.0 feet.

PROJECT: Payette County Landfill
LOCATION: Payette County

METHOD: Hand Auger
DATE LOGGED: 11/20/2012
LOGGED BY: Travis Thomsen, WAQTC

BORING NO. SS-09A

AMERICAN GEO TECHNICS

GROUNDWATER:

Groundwater not encountered on 11/20/2012

DEPTH (ft)	TYPE - No.	RECOVERY %	LITHOLOGY	MATERIAL DESCRIPTION (Stratification lines represent approximate boundaries between materials)	LAB DATA LL (%)	PI (%)	MC (%)	REMARKS
				Sandy Silt (ML) (Fill)- 67% non-plastic fines; 33% fine to coarse sand; tan to dark brown.				Located about 15 feet east of SS#9 survey marker on flat surface of landfill cover.
1	GB-109	100						
2								
3	GB-110	100						
4								
5	GB-111	100			NV	NP	12	
6								

Bottom of Boring at 6.0 ft on 11/20/2012.

American Geotechnics
5260 Chinden Blvd.
Boise, Idaho 83714
Phone:(208) 658-8700
Fax: (208) 658-8703

Report to: Holladay Engineering
Project: Payette County Landfill Cell #1 Cover
Report Date: 11/29/12
Project No.: 11B-G2230.1

Material Information

Date Tested: 11/14/12
Tested By: American Geotechnics
Weather Condition: Fair

Test Results

In-Situ Permeability, Guelph Permeameter Method (Constant Head)

Location	Soil Description	Well Depth	Hydraulic Conductivity cm/sec
SS#8	Sandy Silt (ML); Sandy Loam	22"	1.8×10^{-5}

Reviewed By: Rick Hansen

DCP TEST REPORT
(ASTM D6951)

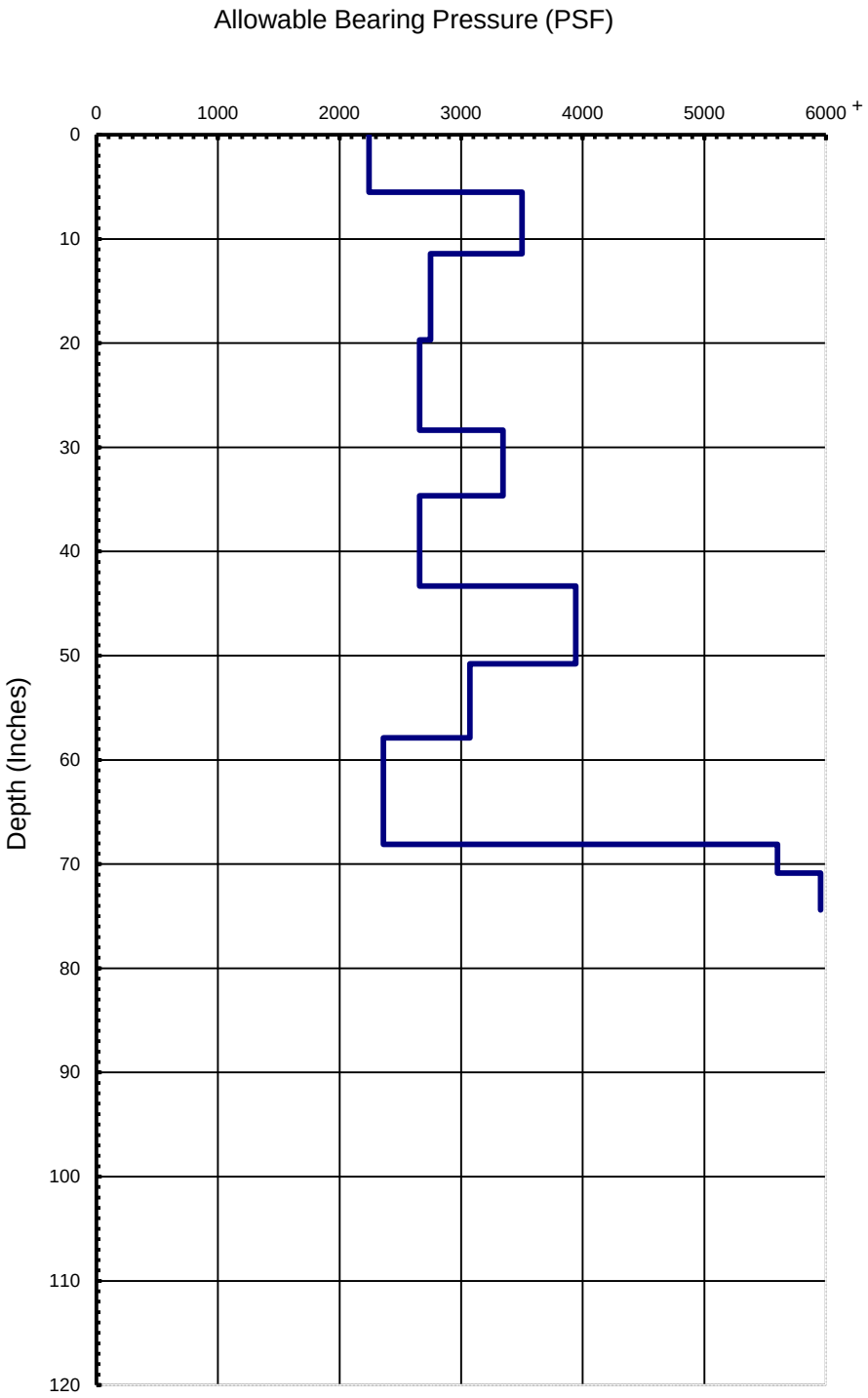
Project Name: Payette County Landfill
Test No. SS#3A
Top Elevation: NR

Project No. 11B-G2230.1
Date: 14-Nov-12
Soil Type(s): Sandy Silt (ML)

Hammer
- ○ 10.1 lbs.
- ◉ 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ◉ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer	Rod Correction Factor
0	0	1	1.0
5	140	1	1.0
10	290	1	1.0
10	500	1	1.0
10	720	1	1.0
10	880	1	1.0
10	1100	1	1.0
15	1290	1	1.0
10	1470	1	1.0
10	1730	1	1.0
10	1800	1	1.0
15	1890	1	1.0



DCP TEST REPORT
(ASTM D6951)

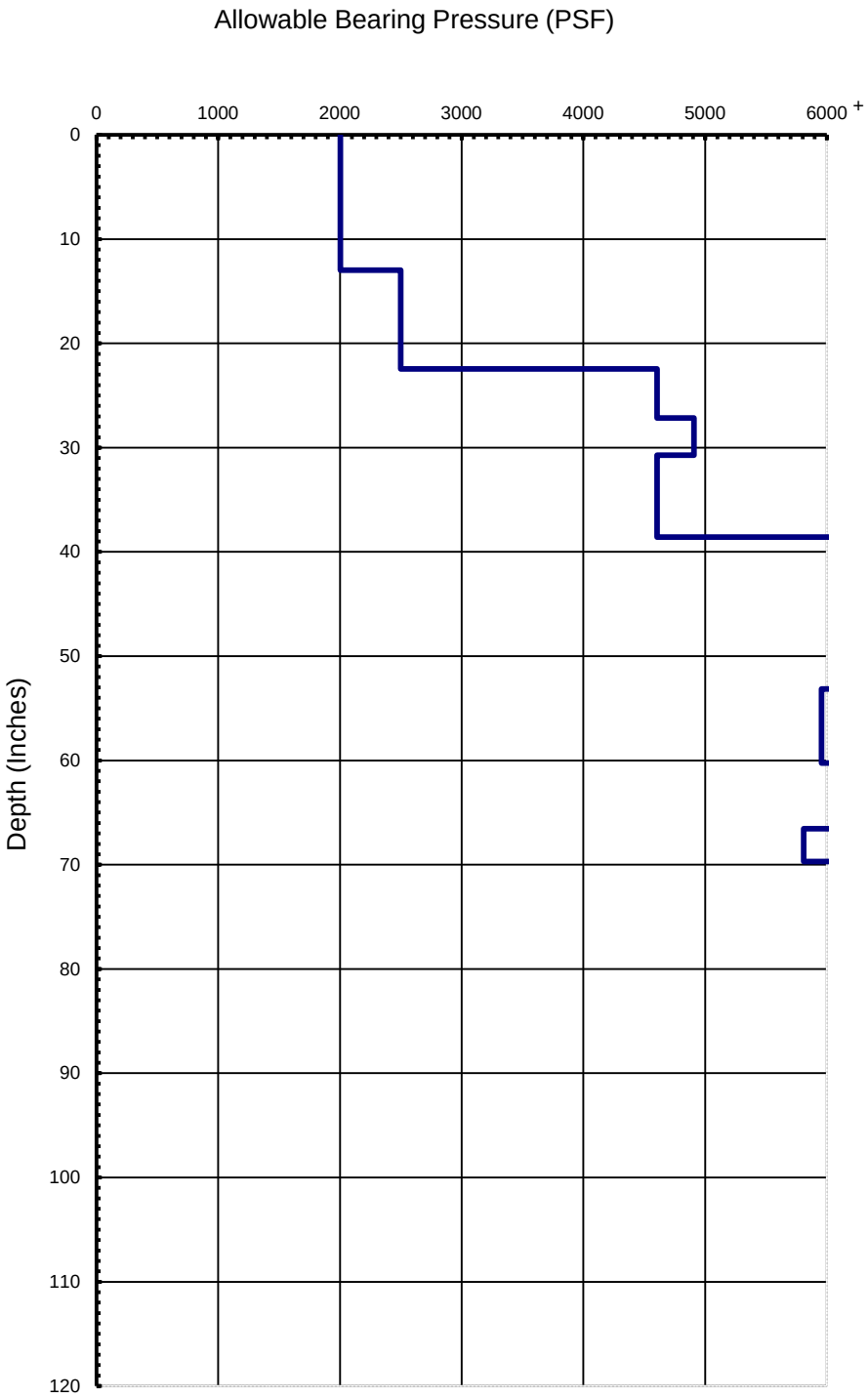
Project Name: Payette County Landfill
Test No. SS#8
Top Elevation: NR

Project No. 11B-G2230.1
Date: 14-Nov-12
Soil Type(s): Sandy Silt (ML)

Hammer
- ○ 10.1 lbs.
- ◉ 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ◉ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer	Rod Correction Factor
0	0	1	1.0
10	330	1	1.0
10	570	1	1.0
12	690	1	1.0
10	780	1	1.0
10	880	1	1.0
10	980	1	1.0
10	1030	1	1.0
30	1180	1	1.0
30	1350	1	1.0
30	1530	1	1.0
30	1690	1	1.0
30	1770	1	1.0
30	1790	1	1.0



DCP TEST REPORT
(ASTM D6951)

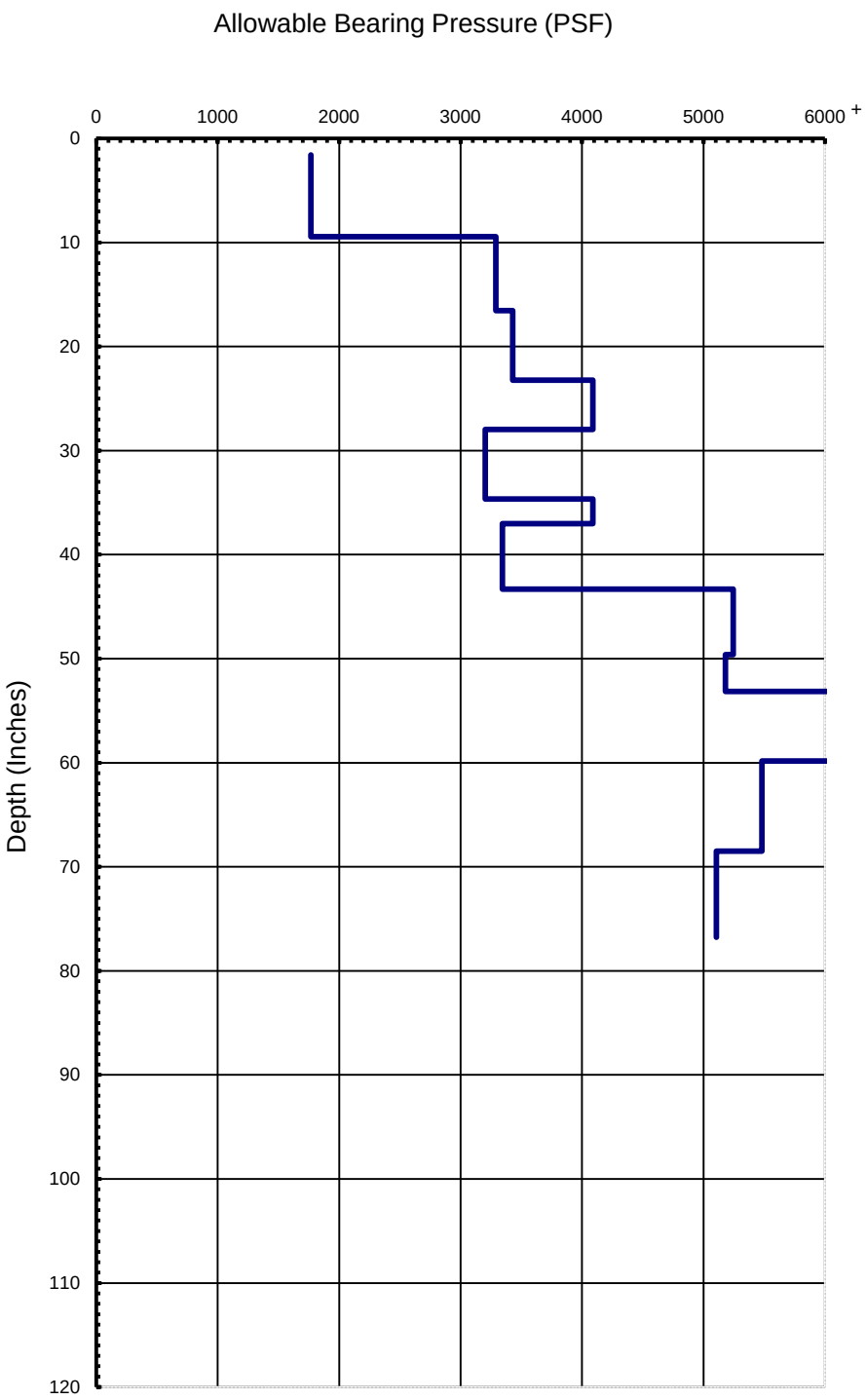
Project Name: Payette County Landfill
Test No. SS#9
Top Elevation: NR

Project No. 11B-G2230.1
Date: 14-Nov-12
Soil Type(s): Sandy Silt (ML)

Hammer
- ○ 10.1 lbs.
- ◉ 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ◉ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer	Rod Correction Factor
0	40	1	1.0
5	240	1	1.0
11	420	1	1.0
11	590	1	1.0
10	710	1	1.0
10	880	1	1.0
5	940	1	1.0
10	1100	1	1.0
10	1180	1	1.0
10	1260	1	1.0
11	1350	1	1.0
30	1520	1	1.0
30	1740	1	1.0
25	1950	1	1.0



DCP TEST REPORT
(ASTM D6951)

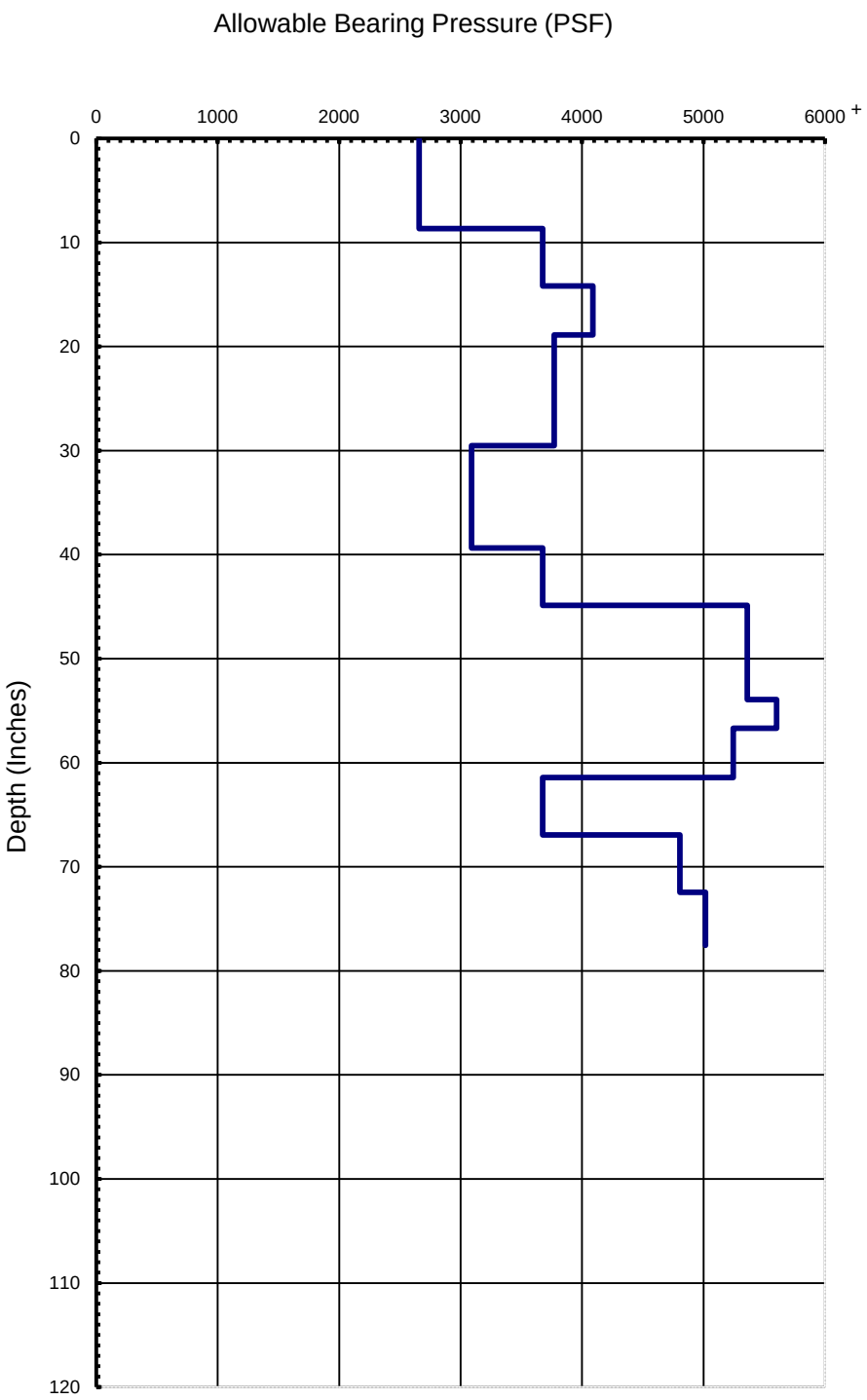
Project Name: Payette County Landfill
Test No. SS#9A
Top Elevation: NR

Project No. 11B-G2230.1
Date: 20-Nov-12
Soil Type(s): Sandy Silt (ML)

Hammer
- ○ 10.1 lbs.
- ◉ 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ◉ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer	Rod Correction Factor
0	0	1	1.0
10	220	1	1.0
10	360	1	1.0
10	480	1	1.0
20	750	1	1.0
14	1000	1	1.0
10	1140	1	1.0
30	1370	1	1.0
10	1440	1	1.0
15	1560	1	1.0
10	1700	1	1.0
15	1840	1	1.0
15	1970	1	1.0



American Geotechnics
5260 Chinden Blvd
83714
Telephone: 208-658-8700
Fax: 208-658-8703

Project Information

Report to: Holladay Engineering
Project: Payette County Landfill
Report Date: 11/30/12
File No.: 11B-G2230.1

Material Information

Date Sampled: 11/14 & 11/20/12
Sampled By: American Geotechnics
Date Received: 11/21/12
Date Tested: 11/26 through 11/29/12

SUMMARY OF LABORATORY RESULTS

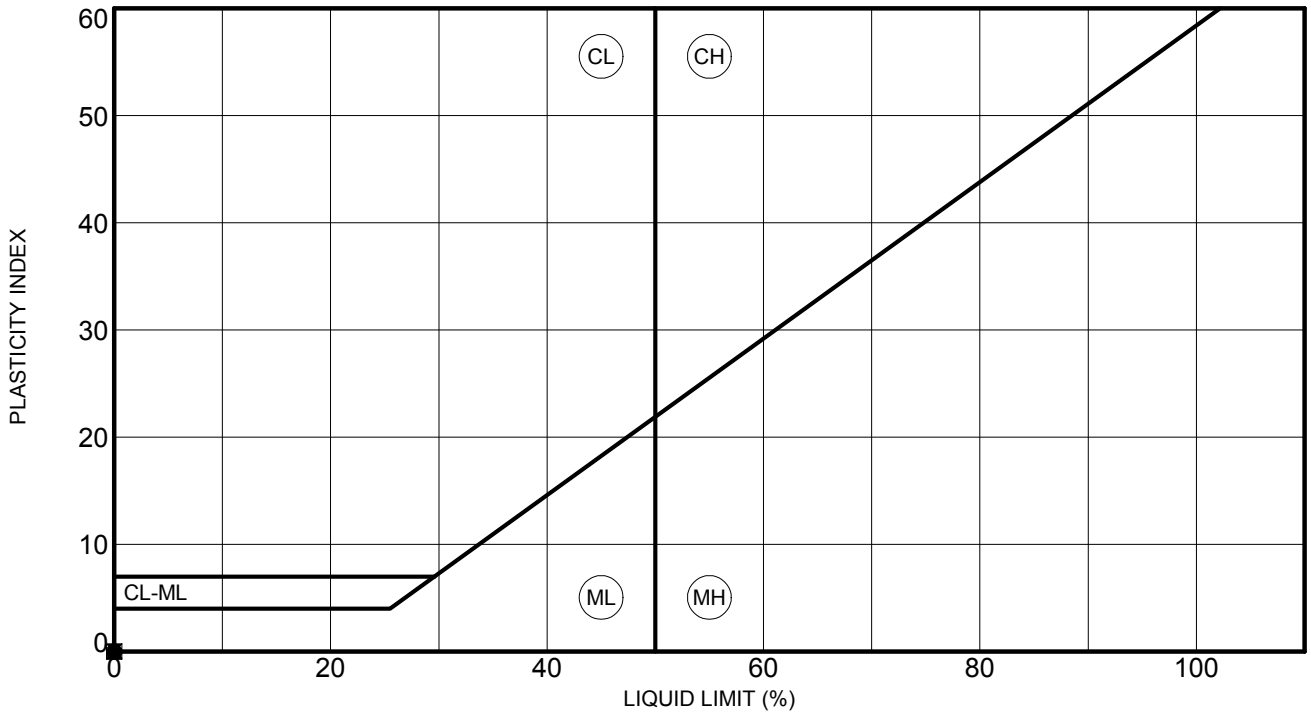
Lab Number	Borehole	Sample Type	Depth (ft)	Water Content (%)	% Passing #200 Sieve	Liquid Limit (%)	Plasticity Index	Soil Type	Remarks
12-0956	SS-03A	GB-106	0.0'-2.0'	15.4	62.6	NV	NP	ML	Sandy Loam
12-0957	SS-08	GB-101	0.0'-2.0'	8.5	67.7	NV	NP	ML	Sandy Loam
12-0958	SS-09A	GB-111	4.0'-6.0'	11.7	66.7	NV	NP	ML	Sandy Loam

Prepared By: Travis Thomsen

ATTERBERG LIMITS REPORT

CLIENT: Holladay Engineering
FILE NUMBER: 11B-G2230.1

PROJECT NAME: Payette County Landfill
PROJECT LOCATION: Payette County



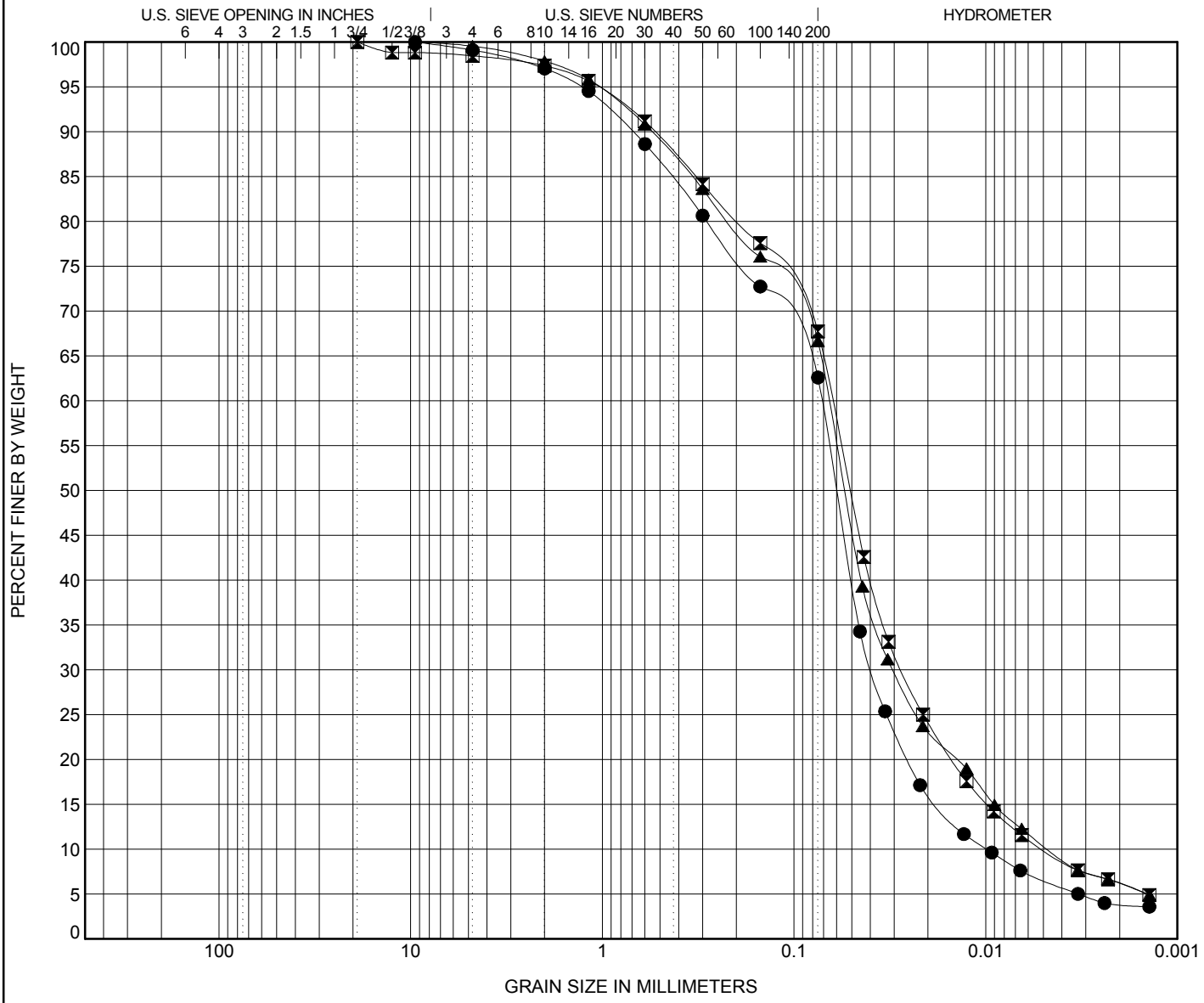
	Specimen Identification			MC	LL	PL	PI	Fines	Classification
●	SS-03A	GB-106	0.0	15.4	NV	NV	NP	63	SANDY SILT (ML)
⧗	SS-08	GB-101	0.0	8.5	NV	NV	NP	68	SANDY SILT (ML)
▲	SS-09A	GB-111	4.0	11.7	NV	NV	NP	67	SANDY SILT (ML)

Prepared By: Travis Thomsen

PARTICLE-SIZE DISTRIBUTION REPORT

CLIENT: Holladay Engineering
FILE NUMBER: 11B-G2230.1

PROJECT NAME: Payette County Landfill
PROJECT LOCATION: Payette County



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	D10	D30	D60
●	SS-03AGB-106	0.0	SANDY SILT (ML)	0.01	0.039	0.072
⧗	SS-08 GB-101	0.0	SANDY SILT (ML)	0.005	0.027	0.063
▲	SS-09AGB-111	4.0	SANDY SILT (ML)	0.005	0.03	0.066

	Specimen Identification		%Gravel	%Sand	%Fines	D15	D50	D85	Cc	Cu	MC	LL	PI
●	SS-03AGB-106	0.0	0.9	36.5	62.6	0.018	0.06	0.438	2.17	7.25	15.4	NV	NP
⧗	SS-08 GB-101	0.0	1.5	30.8	67.7	0.01	0.051	0.326	2.39	12.76	8.5	NV	NP
▲	SS-09AGB-111	4.0	0.5	32.8	66.7	0.009	0.054	0.343	3.02	14.16	11.7	NV	NP

Prepared By: Travis Thomsen

American Geotechnics

EXHIBIT D

Photo Log

EXHIBIT D

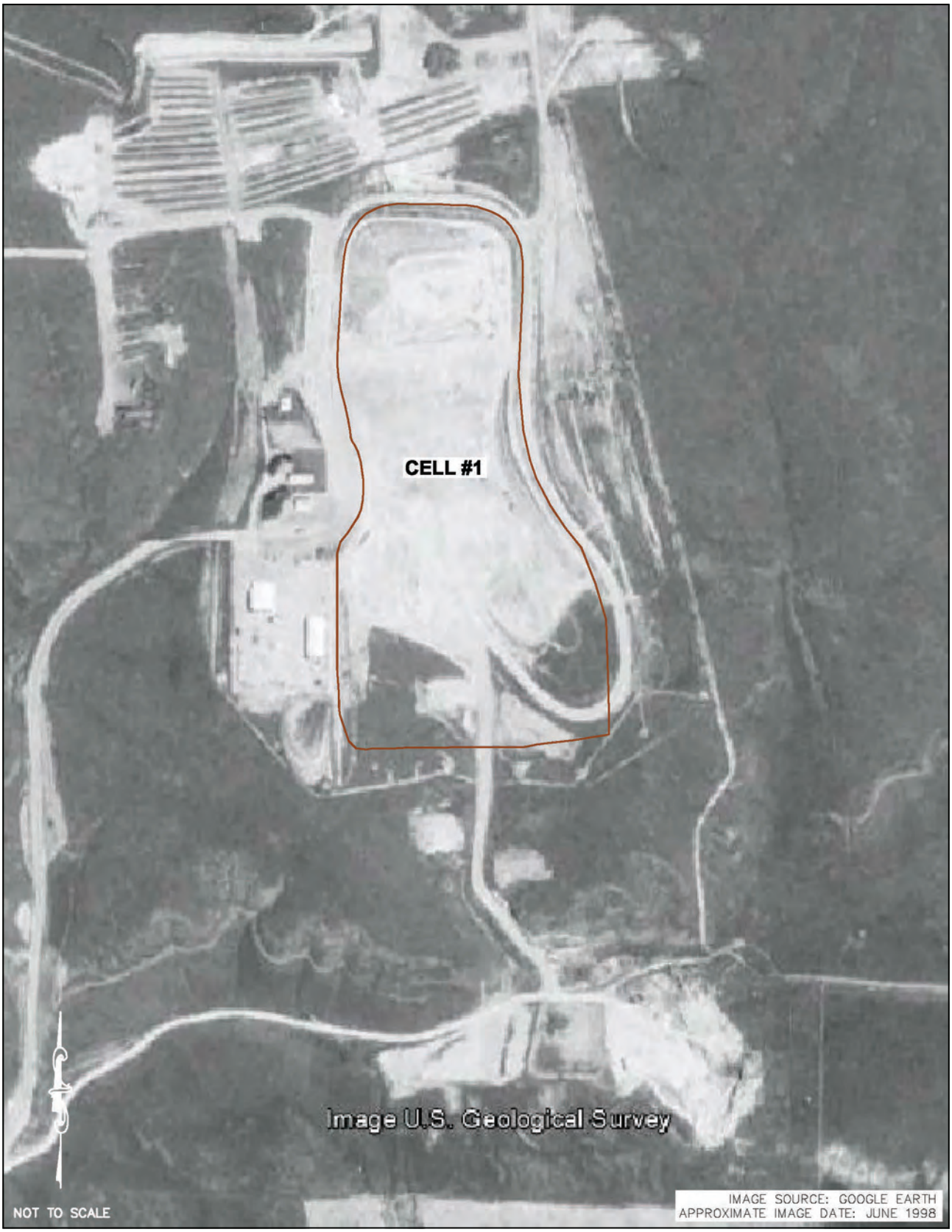


Photo 01: Aerial view of Landfill Cell #1, 1998

EXHIBIT D

Photo 02: Aerial view of Landfill Cell #1, 2010
(note site access roads to landfill crest)

EXHIBIT D

Photo 03: Aerial view of Landfill Cell #1, 2012
(note potholes to verify cover depth)

EXHIBIT D

Photo 04: Landfill scale house in 2002

Photo 05: Landfill scale house in February 2013
(note height of final cover for landfill Cell #1 in background)

EXHIBIT D

Photo 06: Landfill gas vent with Flare #1 and solar gas ignitor.

Photo 07: Landfill gas vent with flare #5

EXHIBIT D

Photo 08: Landfill Cell #1 operations in 2002, in SW corner of Cell #1.

Photo 09: Final lift for Landfill Cell #1 in 2010, waste compacting

EXHIBIT D

Photo 10: Final lift for Landfill Cell #1, waste compacting and cover

Photo 11: Final stages of landfill operations, July 2010, with daily cover being excavated from Landfill Cell #2

EXHIBIT D

Photo 12: Final stages of landfill operations, equipment compacts trash prior to daily cover

Photo 13: Final stages of landfill operations, equipment awaits to compact final cover for Landfill Cell #1

EXHIBIT D

Photo 14: IRVCO Asphalt earthwork equipment for final cover, May 2012

Photo 15: Earthwork and dust control measures

EXHIBIT D

Photo 16: Earthwork, backfill hauling and leveling of final cover

Photo 17: Earthwork, backfill hauling

EXHIBIT D

Photo 18: Dust control measures

Photo 19: Dust control measures and wetting compacted areas

EXHIBIT D

Photo 20: Earthwork on final south cover

Photo 21: Earthwork on final south cover

EXHIBIT D

Photo 22: Potholing to verify depth of final cover
(note water truck for re-compacting pothole)

Photo 23: Potholing to verify depth of final cover

EXHIBIT D

Photo 24: Source for topsoil

Photo 25: Soil sampling marker / settlement marker

EXHIBIT D

Photo 26: Dynamic Cone Penetrometer to determine insitu soil compaction

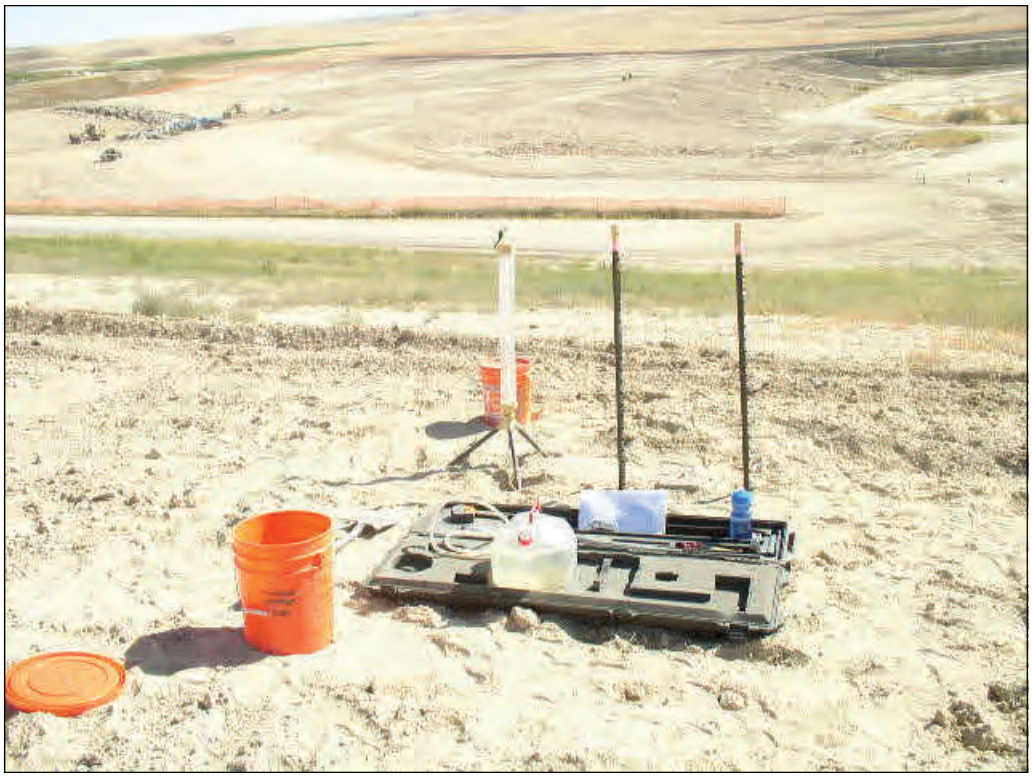


Photo 27: Guelph Permeameter testing for hydraulic conductivity

EXHIBIT D

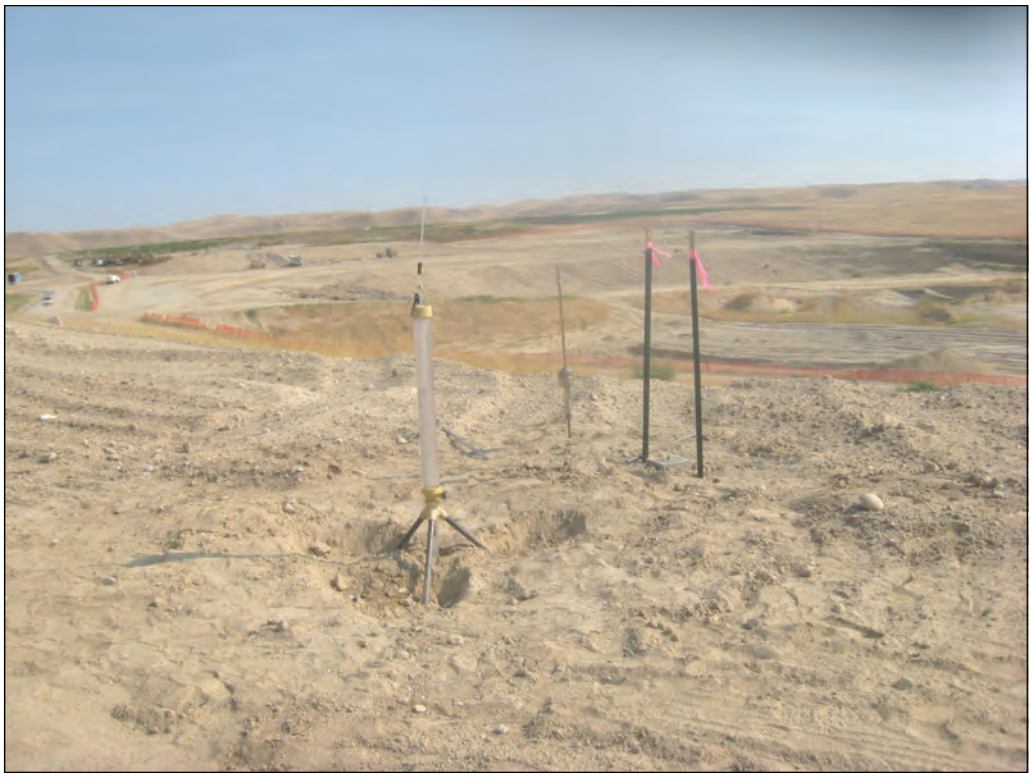


Photo 28: Both DCP and Guelph Permeameter equipment at SS#3

Photo 29: Soils characterization using pothole excavation

EXHIBIT D

Photo 30: Soils characterization

Photo 31: Soils characterization

EXHIBIT D

Photo 32: Final cover following roller harrowing

Photo 33: Final cover following roller harrowing

EXHIBIT D

Photo 34: Hydroseeding final cover

Photo 35: Hydroseeding final cover

EXHIBIT D

Photo 36: Final vegetative cover for "Close As You Go" sector of Landfill Cell #1 in February 2013

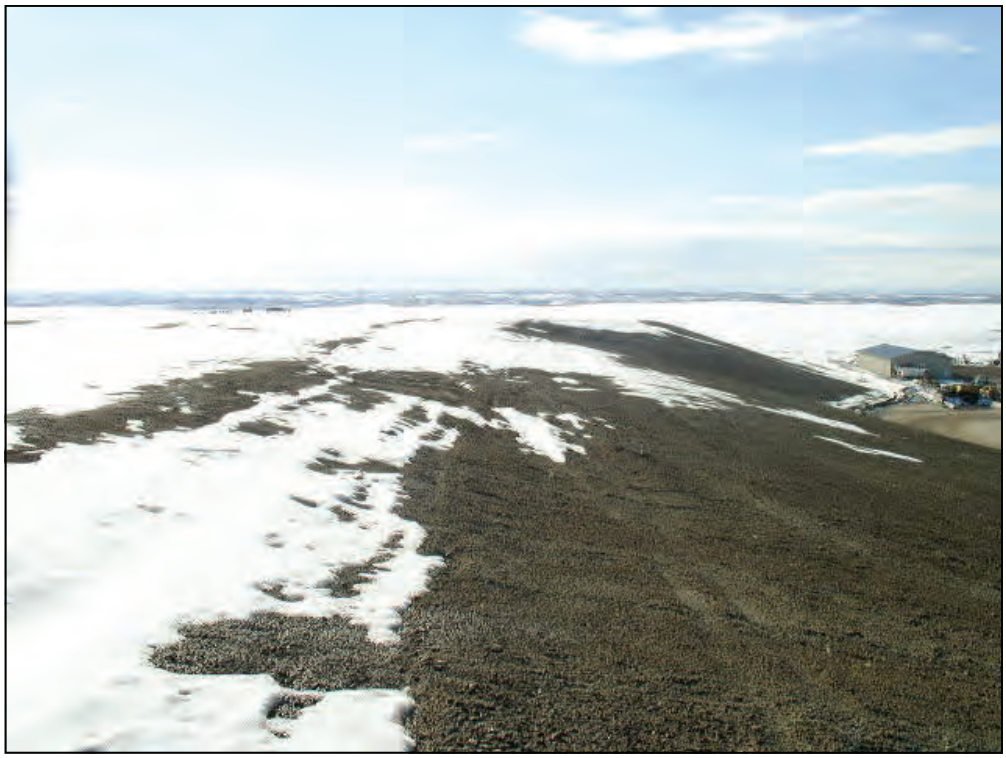


Photo 37: Final cover of Landfill Cell #1, February 2013

HOLLADAY ENGINEERING CO.
ENGINEERS • CONSULTANTS
32 N Main • PO Box 235 • Payette, ID 83661
(208) 642-3304 • hec@holladayengineering.com

AERIAL VIEW - 1998
CELL #1, CLAY PEAK LANDFILL
PAYETTE COUNTY, IDAHO

DRAWN BY: S. MCGEHEE | DRAWING DATE: JANUARY 2013 | G:\CLIENTS\PC\PC10-0354A\DWG\PC10-0354A_FIG-2_CELL 1 CLOSURE.dwg

NOT TO SCALE

IMAGE SOURCE: GOOGLE EARTH
APPROXIMATE IMAGE DATE: JULY 2010

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AERIAL VIEW - 2010
CELL #1, CLAY PEAK LANDFILL
PAYETTE COUNTY, IDAHO

DRAWN BY: S. MCGEHEE	DRAWING DATE: JULY 2011	G:\CLIENTS\PC\PC10-0354A\DWG\PC10-0354A_FIG-2_CELL 1 CLOSURE.dwg

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AERIAL VIEW - 2012
CELL #1, CLAY PEAK LANDFILL
PAYETTE COUNTY, IDAHO

DRAWN BY: S. MCGEHEE | DRAWING DATE: JANUARY 2013 | G:\CLIENTS\PC\PC10-0354A\DWG\PC10-0354A_FIG-2_CELL 1 CLOSURE.dwg

EXHIBIT E

Corrective Action Plan for the Clay Peak Landfill

Corrective Action Plan
For the Clay Peak Landfill, Payette, County

Prepared by Holladay Engineering Company

May 10, 2013

Purpose of Corrective Action Plan:

Landfill gas containing methane (CH_4) migrated into a telephone conduit that was ignited by telephone switch gear and relays. The instantaneous flash caused some damage to a room housing the telephone switch gear and water appurtenances, but the incident revealed conditions in the landfill gas monitoring and control program that are not specifically addressed in the landfill's Operation and Maintenance (O&M) Manual, last revised September 2007. Therefore, the purpose of this Corrective Action Plan is to detail the methane flash that occurred in January 2012 and report potential weaknesses in the existing landfill gas monitoring program, describe the adjustments made to the landfill gas monitoring program, and describe the engineering controls or corrective measures that have been implemented or will be implemented to ensure a safe environment is maintained for landfill workers and the general public that utilize landfill services.

Landfill Background Information:

Landfill Cell # 1 was utilized for municipal landfill disposal from 1993 to 2010. Final landfill cover construction was completed in 2012 and final landfill cover closure certification has been submitted for regulatory review. The volume of wastes landfilled in Cell #1is approximately 1.2 million tons of municipal and non-municipal wastes as reported in Table 1. The final landfill cover design is not expected to generate leachate; therefore, landfill gas generation will be limited to anaerobic waste decomposition at a rate based on the waste's natural moisture content. A methodical landfill gas control strategy was implemented to contain, collect, discharge, and "burn off" landfill gases generated from waste decomposition. The final landfill cover was designed with a maximum soil permeability of 1×10^{-5} cm/sec to ensure the buildup of landfill gas generated during waste degradation would not affect the integrity of the landfill cover and its water holding capacity.
The landfill gas collection system constructed for Cell 1 consists of gravel trenches, perforated polyvinylchloride (PVC) piping, and PVC manifolds that collect and pipe the landfill gases to atmospheric vents. The vents are piped to an automated gas flare when approximately 4000 linear feet of gas collection piping is installed. Landfill Cell #1 has seven automated gas flares that are permitted by an Idaho Department of Air Quality (IDEQ) air quality permit, Permit # P-2008-0078 that was last revised and issued on December 16, 2008. The gas flares are monitored monthly for operation, as stipulated in the O&M Manual.

Landfill gas typically contains 40 to 60 percent carbon dioxide (CO_2), 45 to 60 percent CH_4, and low concentrations of ammonia, nitrogen, hydrogen sulfide, carbon monoxide, volatile organic compounds (VOCs), and/or nonmethane organic compounds (NMOCs). Though methane is lighter than air and carbon dioxide is heavier than air; landfill gasses do not separate into their individual density but rather moves as a mass in accordance with the density of the mixture and other gradients such as temperature and partial pressure. Ultimately, landfill gas travels from the area of highest pressure via the path of least resistance, until the pressure and concentration gradient reaches

equilibrium with the surrounding environment. For this reason, impermeable or nearly impermeable final landfill covers prevent the landfill gas from escaping upward and the landfill gases move either to a gas collection system or laterally into adjacent, off-site areas and accumulate in trenches, excavations, and/or other enclosed spaces.

According to LANGEM modeling results attached to the IDEQ air quality permit, Landfill Cell #1 reached its maximum yearly landfill gas production rate in 2011 with ≈ 4,366 megagrams per year (mg/yr) or ≈1.203 (10^8) cubic feet per year (cf/yr). Estimated methane generation also peaked in 2011 with ≈1,249 Mg/yr of methane or 6.814 x (10^7) cf/yr of methane. Thereafter, landfill gas and methane gas production rates should be decreasing approximately 1 ½ to 2 percent each year after 2011.

Table 1
Summary of Solid Wastes and Asbestos Deposited in Landfill Cells 1 and 2
From 1993 to 2011

Year	Landfill Cell 1		Landfill Cell 2		Total Wastes	
	Solid Wastes (tons)	Asbestos (tons)	Solid Wastes (tons)	Asbestos (tons)	Solid Wastes (tons)	Asbestos (tons)
Oct 1993 – Sept 1998	350,000[a]	200[b]	0	0	350,000	200
Oct 1998 - 2001	248,165[c]	301	0	0	248,165	301
2002	76,854[d & e]	17	1,569	0	78,423	17
2003	78,912[d & e]	29	1,610	0	80,522	29
2004	77,650[d & e]	30	1,585	0	79,235	30
2005	74,227[d & e]	40	1,514	0	75,741	40
2006	80,149[d & e]	35	1,697	0	81,846	35
2007	79,653[d & e]	42	1,626	0	81,279	42
2008	75,485[d & e]	6	1,541	0	77,026	6
2009	17,277[f]	0	51,830	35	69,107	35
2010	17,331[f]	0	51,994	46	69,325	46
2011	0	0	68,451	39	68,451	39
Subtotal	1,175,703	700	183,417	120	1,359,120	820

source: waste receipts provided by Landfill Administrator

Notes

a: waste tonnage not measured, assumed 70,000 tons per year based on Report: Final Hydrogeologic Investigation and Waste Cell Design , Lateral Expansion of Clay Peak Sanitary Landfill, prepared March 2001 and DEQ approved on March 12, 2001.

b: asbestos not measured, assumed 40 tons per year

c: tonnage measured but not reported yearly

d: tonnage measured and reported yearly

e: assumed 2% of yearly wastes sent to Cell #2 during poor top access to Cell #1

f: assumed 75% of yearly wastes sent to Cell #2 and all asbestos sent to Cell #2

Existing Landfill Gas Monitoring Program

Methane is the primary explosive contaminant of concern with landfill gas, whereas methane has a lower explosive limit (LEL) of 5% by volume and an upper explosive limit (UEL) of 25% by volume. Other explosive gas contaminants may be present in landfill gas, but they are generally in low concentrations at less than 100 to 500 parts per million and will contribute little to the explosive character of landfill gas (e.g., hydrogen sulfide has an LEL of 4.3 percent or 43,000 ppm and a UEL of 45 percent by volume or 450,000 ppm.) However, the other gas contaminants may have worker exposure concerns as outlined by the Occupational Safety and Health Administration (OSHA).

There are no monitoring wells or gas vents located along the landfill property perimeter, but Payette County had the foresight to initially acquire more than 1300 acres for the 35 acre Landfill Cell #1 to ensure that there was adequate buffer between landfill operations and property perimeter. For example, the property perimeter is a minimum 1500 feet south of landfill cell #1 and the nearest neighboring residence is more than 5,000 feet south and west of landfill cell #1. The base elevation for Cell #1 begins at 2520 to 2550 feet mean sea level (msl) and the nearest south neighbors lie at 2350 to 2400 ft msl. Based on these conditions, landfill gases are not expected to migrate to the property perimeter; therefore, landfill gas monitoring focuses on site worker safety and the public utilizing the landfill site.

Landfill gases are measured quarterly at three distinct features around Landfill Cells #1 and #2 that includes 1) groundwater monitoring wells, 2) atmospheric vents, and 3) site facilities.

1. Groundwater Monitoring Wells: The groundwater monitoring wells that are also known as the "early alert system" were completed for groundwater assessment and not for landfill gas collection and monitoring. A profile design summary for the groundwater assessment or monitoring wells is presented in Table 1. Groundwater well CP-1 was abandoned and closed before waste placement in 1993 and wells CP-2 through CP-14 are still in place, whereas wells CP-2 through CP-14 are included in the monthly gas monitoring program as a cursory check for the presence of landfill gas because of their close proximity to Landfill Cell #1. However, the value for monitoring landfill gas contained in the groundwater monitoring wells is limited because the wells have no ventilation and the presence of landfill gas does not indicate at what depth landfill gas entered the well nor does it describe the gradient characteristics affecting gas movement.

Table 1
Profile Design Summary of Groundwater Monitoring Wells

Well No.	Drilling Procedure	Depth Drilled (feet)	Static Groundwater Elevation
CP-1	Core Hole	500	297.9 ft bgs or 2256.1 ft msl
CP-2	Rotary Air	380	334.9 ft bgs or 2257.8 ft msl
CP-3	Rotary Air	325	308.9 ft bgs or 2256.1 ft msl
CP-4	Rotary Air	95	No Static Groundwater Encountered
CP-5	Rotary Air	77	No Static Groundwater Encountered
CP-6	Rotary Air	57	No Static Groundwater Encountered
CP-7	Rotary Air	55	No Static Groundwater Encountered
CP-8	Rotary Air	71	No Static Groundwater Encountered

Table 1 Profile Design Summary of Groundwater Monitoring Wells			
Well No.	Drilling Procedure	Depth Drilled (feet)	Static Groundwater Elevation
CP-9	Rotary Air	103	No Static Groundwater Encountered
CP-10	Rotary Air	103	No Static Groundwater Encountered
CP-11	Hollow Stem Auger	97	No Static Groundwater Encountered
CP-12	Hollow Stem Auger	99	No Static Groundwater Encountered
CP-13	Hollow Stem Auger	104	No Static Groundwater Encountered
CP-14	Hollow Stem Auger	89	No Static Groundwater Encountered
Wells CP-2 through CP-14 were completed using 4 inch diameter, threaded 304 stainless steel casing with 0.020 inch wire wrap Johnson screen strategically placed, and 10/20 sand packs bgs: water level below ground surface msl: mean sea level			

2. Atmospheric Vents: Atmospheric vents passively exhaust landfill gas from the landfill base or landfill level. The atmospheric vents for Landfill Cell #1 have been connected and terminated with automated gas flares attached to the vent exhaust. There are no ports on the gas flares for measuring gas contaminant concentrations, but the regulatory permitted automated gas flares are visually inspected monthly for emissions. The atmospheric vents for Landfill Cell #2 are being installed as Landfill Cell #2 operates and expands to accommodate waste receipt, as part of the landfill's "close as you go" design. Automated gas flares will be installed onto the exhaust vents when 4,000 linear feet of gas collection piping has been installed. Gas concentrations from the atmospheric vents are monitored quarterly as directed by the O&M Manual whereas the gas concentrations reflect localized landfill gas concentrations and not landfill gas contaminant levels at the landfill property perimeter.

3. Site Facilities: Various site facilities to the west of Landfill Cell #1 are monitored for gas contaminants as outlined in the O&M Manual. Those facilities as reported in Figure 1 include crawl spaces or excavations beneath the scale house, administrative office, maintenance shop, and onsite residences. Additionally, the landfill's waste landing and roadways are included in the gas monitoring program. Continuous methane detectors with battery backup have also been installed at occupied facilities that include:

    - Administrative office building,
    - Both residences,
    - Scale house interior, and
    - Office in the maintenance facility.

Initial Problem Description and Mitigation Measures

Landfill gas was suspected to have migrated from the crawl space at the scale house into underground electrical conduit piping connected to the maintenance facility, when on January 21, 2012 (mid morning), the accumulated landfill gas within the conduit abruptly flashed and expanded when a telephone relay, located in the maintenance facility, was energized. This gas flash created a "shotgun" like heat blast that raised the ceiling of the room housing the telephone switch gear and

water appurtenances. This discrete heat blast damaged the ceiling of the wooden framed room, insulation, some telephone wiring, and some telephone switch gear, but the wooden framed room did not ignite or freely burn nor was there damage to the water appurtenances and the electrical conduit.

Landfill staff quickly assessed the methane flash and concluded that landfill gases migrated from the crawl space at the scale house via the electrical conduit to the maintenance facility when gas density and gradients were optimum for gas movement. A wall mounted continuous monitoring, 2 channel gas detection system, Beacon 200, was installed by Norco in the restroom of the administrative office to continuously monitor landfill gases in the crawl space at the scale house (sensor 1) and landfill gases that migrate into the office restroom (sensor 2). This continuous monitoring gas detector will forewarn site staff of potential elevated landfill gas concentrations at the administrative office and at the scale house which may migrate to the maintenance facility. Additionally, a 12-inch diameter explosion proof exhaust fan was installed to mechanically ventilate the crawl space at the scale house when LEL readings of 9% or greater are detected by the wall mounted continuous gas detection system. Note that 9% LEL readings on the Beacon 200 instrument reflects 0.45 percent methane by volume; therefore, providing a great safety factor that assures ignitable gas conditions will not occur. Installation of the Beacon 200 gas detector was completed during early Spring 2012.

Other Potential Gas Monitoring Program Concerns.

The landfill gas monitoring program was further evaluated to determine if there were other apparent program deficiencies that should be corrected to help mitigate future methane issues. It was found that the existing portable Ventis MX4 gas detection instrument was better designed for worker exposure protection and not for environmental compliance, because the LEL sensor would easily fail when reading LEL concentrations exceeding 50% or 2.5% methane by volume. Therefore, a second gas detection instrument manufactured by MSA was acquired that would read methane directly from 0 to 100 % by volume.

Landfill gas monitoring had been performed solely with the portable Ventis MX4 gas detection instrument manufactured by Industrial Scientific. The MX4 is designed for compliance with worker safety requirements as stipulated by OSHA and not for environmental compliance as stipulated in 40 CFR Part 258.23. The MX4 energizes sound alarms when instrument readings reach pre-designated set limits that may include OSHA permissible exposure limits (PEL) limits or other pre-designated alarms. The pre-designated MX4 alarm for LEL is set at 50% and the MX4 is calibrated using a standard calibration gas of 50% LEL (= 2.5% methane by volume), 19.0 % oxygen, 25 ppm hydrogen sulfide, and 100 ppm carbon monoxide. Therefore, an MX4 reading of 50 % LEL is reporting 2.5% methane by volume that will set off the instruments alarm and stop monitoring.

Payette County recently acquired the MSA Altair 5X gas detector for environmental landfill compliance as described in 40 CFR Part 258.32. The MSA Altair 5X is normally equipped with a combustible gas sensor that reads percent LEL; however, this MSA Altair 5X was custom built with a direct reading methane gas sensor that replaces the combustible gas sensor. The black MSA Altair 5X has four gas sensors that directly measures methane (CH_4) as percent by volume, oxygen (O_2) as percent by volume, hydrogen sulfide (H_2S) in parts per million (ppm), and carbon monoxide (CO) in ppm. Methane gas readings equal to or greater than 5% methane by volume can be directly read that indicate potential explosive gas conditions that requires landfill staff response and possible regulatory notification. Calibration gas specified by the manufacturer for this instrument has the

following specifications: Methane = 2.5% by volume, O_2 = 15% by volume, H_2S = 20 ppm, and CO = 60 ppm. Regulatory notification shall be made by the Landfill Director or designee when methane concentrations in facility structures exceed 25% of the methane LEL or 1.25 percent methane by volume. Regulatory contacts include Southwest District Health Department, attn: David Loper, at 208-455-5401.

Landfill gas migrates or moves when gas density, temperature gradients, and partial pressure gradients are optimum for landfill gas movement. Since these conditions are not instantaneous, discrete quarterly monitoring may not capture the gas density and gradients optimum for gas movement. Therefore, the landfill must rely on continuous gas monitors with quarterly periodic checks to ensure they are operating. No other apparent deficiencies were noted with the quarterly gas monitoring program, except landfill gas data from the groundwater monitoring wells has limited benefit because gas detector readings from the groundwater monitoring wells:

- do not necessarily reflect a safe or unsafe working environment,
- do not indicate the performance of the landfill gas collection system, and
- do not reflect property perimeter conditions.

Figure 1 describes the existing gas monitoring locations that are presently monitored quarterly. The quarterly monitoring of landfill gas from atmospheric vents and from facility crawl spaces or excavations has significant value because they reflect emission points that will require emission controls to protect the environment (i.e., automated gas flares) or emission controls to protect personnel safety (i.e., continuous monitors and/or room exhausts)

In summary, the following landfill gas monitoring and corrective measures are planned.

1. Discontinue monitoring of the ground water wells, but install signage at each well location for “No Smoking” and “No Parking” within 50 feet of the well head.
2. Continue quarterly monitoring of atmospheric vents with the black MSA Altair 5X as the vents are constructed. This condition will help identify the potential emissions that automated gas flares will destroy when automated gas flares are installed.
3. Continue quarterly monitoring of crawl spaces or excavations beneath the landfill facilities that may accumulate landfill gas with both the orange Ventis MX4 and black MSA Altair 5X. This monitoring will help confirm the performance of continuous methane detectors installed or to be installed.
4. Maintain continuous reading methane gas detectors at all facility crawl spaces or excavations where landfill gas may accumulate to include the administrative office, residences, scale house, and maintenance building.
5. There are no subsurface landfill gas monitoring locations at the property perimeter; but reporting of elevated methane concentrations at facility locations exceeding 1.25% methane by volume will be made to occupants and regulators when they are discovered.
6. Figure 1 will continue to be used by landfill staff for recordkeeping, except groundwater monitoring wells will not be monitored.

FIGURE 1. CLAY PEAK LANDFILL GAS MONITORING

Date of Monitoring: _____**Test Performed By**: _____

Barometric Pressure: _____rising / steady / falling local barometric pressures found at : http://www.localconditions.com/weather-payette-idaho/83661/past.php or from the Ontario Airport: https://airportview.net/wx/awos-detail.php?sid=KONO

Location [a]	Readings					
	Instrument [b]	Time	LEL [c] (%)	CO [d] (ppm)	O_2 [e] (%)	H_2S [f] (ppm)
area of CP-2	Orange MX4		% LEL			
area of CP-3	Orange MX4		% LEL			
area of CP-4	Orange MX4		% LEL			
area of CP-5	Orange MX4		% LEL			
area of CP-6	Orange MX4		% LEL			
area of CP-7	Orange MX4		% LEL			
area of CP-8	Orange MX4		% LEL			
area of CP-9	Orange MX4		% LEL			
area of CP-10	Orange MX4		% LEL			
area of CP-11	Orange MX4		% LEL			
area of CP-12	Orange MX4		% LEL			
area of CP-13	Orange MX4		% LEL			
area of CP-14	Orange MX4		% LEL			
Office Restroom Elect Conduit	Orange MX4		% LEL			
Office Restroom Elect Conduit	Beacon 200 wall unit		% LEL			
Office Crawl Space	Orange MX4		% LEL			
Scale House Crawl Space	Orange MX4		% LEL			
Scale House Crawl Space	Beacon 200 wall unit		% LEL			
Inbound Scale Crawl Space	Orange MX4		% LEL			
Outbound Scale Crawl Space	Orange MX4		% LEL			
Resident 1 Crawl Space	Orange MX4		% LEL			
Resident 2 Crawl Space	Orange MX4		% LEL			
Road to Cell 2	Orange MX4		% LEL			
Landing at Cell 2	Orange MX4		% LEL			
Telephone Relay Room at Shop	Orange MX4		% LEL			
Cell 1 – F-1 gas flare	No Instrument Readings		Emissions Observed:			
Cell 1 – F-2 gas flare	No Instrument Readings		Emissions Observed:			
Cell 1 – F-3 gas flare	No Instrument Readings		Emissions Observed:			
Cell 1 – F-4 gas flare	No Instrument Readings		Emissions Observed:			
Cell 1 – F-5 gas flare	No Instrument Readings		Emissions Observed:			
Cell 1 – F-6 gas flare	No Instrument Readings		Emissions Observed:			
Cell 1 – F-7 gas flare	No Instrument Readings		Emissions Observed:			
Location	**Instrument**	**Time** east/west	**CH_4** (% CH_4), east / west	**CO [d]** (ppm) east / west	**O_2 [e]** (%) east / west	**H_2S [f]** (ppm) east / west
Cell 2– V2 Level 1	Black MSA	/	/	/	/	/
Cell 2– V3 Level 1	Black MSA	/	/	/	/	/
Cell 2 – V4 Level 1	Black MSA	/	/	/	/	/
Cell 2 – V5 Level 1	Black MSA	/	/	/	/	/
Cell 2 – V6 Level 1	Black MSA	/	/	/	/	/
Cell 2– V7 Level 2	Black MSA	/	/	/	/	/
Cell 2 – V8 Level 2	Black MSA	/	/	/	/	/
		/	/	/	/	/

Note a:

- CP 2 – CP-14: Groundwater monitoring wells No 2 through No. 14, located within 200 feet of the landfill cell #1 perimeter.
- Cell 1 – F-1 - F-7: Gas Flares 1 through 7 installed around perimeter of Landfill Cell No. 1
- Permitted as : F-1 = NW FLR 1.2, F-2 = NW FLR 1.1; F-3 = NE FLR 1.1; F-4 = NE FLR 1.2; F-5 = SE Flare 1.1; F-5 = SW Flare 1.1; and F-7 = SE Flare 1.2
- Cell 2 – V1 Level 1 - V6 Level 1: gas vents 1 through 6 installed in first level of Landfill Cell No. 2
- Cell 2 – V7 Level 2 - V8 Level 2: gas vents 7 through 8 installed in second level of Landfill Cell No. 2

Note b:

- Black colored MSA Altair 5X gas detector is used for environmental compliance per Landfill O&M Manual requirements. The black MSA Altair 5X measures methane (CH_4) as percent by volume, oxygen (O_2) as percent by volume, hydrogen sulfide (H_2S) in parts per million (ppm), and carbon monoxide (CO) in ppm. Calibration gas specified by the manufacturer for this instrument has the following specifications: -Methane = 2.5% by volume, O_2 = 15% by volume, H_2S = 20 ppm, and CO = 60 ppm.~~– Manufacturer recommended a higher concentration methane by volume calibration gas on July 19th, 2013. New calibration gas has been ordered, but methane concentration still not yet known.~~ MSA Altair 5X shall be calibrated quarterly by the manufacturer's representative, David Malmberg, NORCONote the MSA Altair 5X is normally equipped with a combustible gas sensor that reads percent Lower Explosive Limit (% LEL); however, this MSA Altair 5X was custom built whereas the combustible gas sensor was replaced with a methane gas sensor. Therefore, methane gas readings equal to or greater than 5% methane by volume indicate potential explosive conditions and requires landfill staff response and possible regulatory notification. Regulatory notification shall be made by the Landfill Director or designee and includes contacting Southwest District Health Department, attn: David Loper, at 208-455-5200.
- Orange colored Ventis MX4 instrument gas detector is used for worker safety compliance per Occupational Safety and Health (OSHA) standards. The orange Ventis MX4 instrument measures % LEL, O_2 as percent by volume, H_2S in ppm, and CO in ppm. Calibration gas specified by the manufacturer for this instrument has the following specifications: 50 % LEL (methane = 2.5% by volume), O_2 = 19% by volume, H_2S = 25 ppm, CO = 100 ppm. Ventix MX4 shall be calibrated quarterly by the manufacturer's representative, David Malmberg, NORCO. Alarms will be energized when LEL exceeds 50%, which is 2.5% methane. If the MX4 gas detector alarm is energized, the MSA Altair 5X should be used to confirm landfill gas concentrations. DO NOT USE the Orange MX4 instrument in areas designed for the Black MSA because the Orange MX4 gas sensor will immediately fail and require replacement when LEL readings exceed 50% (or exceed 2½ % Methane).
- Beacon 200 is a wall-mounted, continuous-monitoring gas detection instrument located in the restroom wall in the administrative office. The Beacon 200 has two sensors. Sensor 1 monitors the air contaminants ≈12 inches below the Beacon 200 wall unit inside the office restroom. Sensor 2 monitors the air contaminants beneath the scale house. LEL readings exceeding 9% (or 0.5 % methane by volume) energizes an exhaust fan installed to ventilate the scale house crawl space. The Beacon 200 wall unit is calibrated using the same gas as used for the orange Ventis MX4: 50 % LEL (methane = 2.5% by volume), O_2 = 19% by volume, H_2S = 25 ppm, and CO = 100 ppm.

Note c:

This reading is either Methane (CH_4) or Lower Explosive Limit (LEL), based on instrument calibration. The black Altair 5X measures CH_4 as percent by volume and the orange Ventis MX4 and Beacon 200 measure percent LEL. Note the LEL for methane is five (5) percent or 50,000 ppm by volume and the upper explosive limit (UEL) for methane is fifteen (15) percent or 150,000 ppm by volume. However, the LEL values reported on the chart above need adjusted to the calibration gas utilized (i.e., 50 % LEL = 2.5% CH_4 by volume).

Note d:

Carbon Monoxide (CO): The maximum exposure allowed by the Occupational Safety and Health Administration (OSHA) in the workplace over an eight hour period is 35 ppm. A CO concentration of 12,000 to 13,000 ppm is deadly after 1-3 minutes. A CO concentration of 1600 ppm is deadly after one hour.

Note e:

Oxygen (0_2): An oxygen deficient environment is defined by OSHA as one that has less than nineteen and one-half (19.5) percent oxygen by volume. Ambient air contains approximately twenty-one (21) percent oxygen by volume.

Note f:

Hydrogen Sulfide (H_2S): The LEL for H_2S is 4.3 percent by volume or 43,000 ppm and the UEL for H_2S is forty-five (45) percent by volume or 450,000 ppm. The OSHA permissible exposure limit (PEL) for H_2S is 20 ppm. NIOSH Immediately Dangerous To Life or Health Concentration (IDLH) is 100 ppm.

Immediately Report to Landfill Supervisor or Landfill Foreman if

- CH_4 readings exceeding 2 ½ percent by volume
- LEL readings exceed 10% (calibrated to 2 ½ percent CH_4 by volume)
- CO values exceed 35 ppm.
- Oxygen values are less than 20 percent.
- Hydrogen Sulfide concentrations exceed 19 ppm.

NORCO Incorporated sold gas detection instruments to Payette County.
David Malmberg, Sales Representative, 400 SE 10th Street, Ontario, Oregon 97914
208.880.1760 (cell) email: davidm@norco-inc.com.
Therefore, David Malmberg is the manufacturer's representative for both the black MSA Altair 5X and orange Ventis MX4 gas detection instruments.

Southwest District Health

13307 Miami Lane • Caldwell, Idaho 83607 • (208) 455-5300 • Fax (208) 454-7722

1008 East Locust
Emmett, ID 83617
(208) 365-6371

1155 3rd Avenue North
Payette, ID 83661
(208) 642-9321

46 West Court Street
Weiser, ID 83672
(208) 549-2370

132 East Idaho St.
Homedale, ID 83628
(208) 337-4931

Administration
455-5317

Environmental Health
455-5400

Family Health
455-5395

General Support
455-5320

Nutrition and Health Promotion
455-5343

July 12, 2013

Commissioner Marc Shigeta, Chairman
Payette County Board of Commissioners
1130 Third Avenue North, Room 104
Payette, ID 83661

Dear Chairman Shigeta:

RE: Board of Payette County Commissioners letter dated May 20, 2013, regarding the landfill gas Corrective Action Plan for Clay Peak Landfill.

Southwest District Health (SWDH) has received the Payette County, Board of Commissioners, letter dated May 20, 2013. Overall, the Corrective Action Plan for gas monitoring is very thought out, and most importantly focuses on making the safety of the landfill personnel and general public the upmost priority. Please find the following comments:

Cover Letter:

- Item 1. SWDH agrees that monitoring the groundwater wells themselves is problematic and provides limited benefit. However, in addition to installing "No Smoking" and "No Parking" signs within 50 feet of the ground water monitoring wells, SWDH suggests that these buffer zone locations be included in the monitoring table under Figure 1 as a monitoring location to further promote safety.
- Item 3. "...methane detectors installed or to be installed." SWDH would like to be notified when new detectors are installed, and the information updated within the Operation and Maintenance Manual when convenient.

Figure 1.:

- Why is the "Office Crawl Space" being deleted as a monitoring location?
- One location merely states "Crawl Space". Please define its location.
- Note b, second bullet, second sentence. Should read "...Instrument measures methane as % LEL..."

Summary, Page 6.

- Item 3. This comment is the same one as noted above under the second bullet of the cover letter "...methane detectors installed or to be installed." SWDH would like to be notified when new detectors are installed and the information updated within the Operation and Maintenance Manual when convenient.

SWDH understands that Payette County is still working with Idaho Department of Environmental Quality on the final cover requirements for Cell 1. Once those efforts are successful, SWDH suggests public comment be made and all the changes incorporated in the Operation and Maintenance Manual.

If you need assistance or have questions concerning the inspection, you may contact me at 208.455.5401, or via email: David.Loper@phd3.idaho.gov.

Sincerely,

David M. Loper, REHS/RS
Director, Environmental Health Services

RECEIVED
JUL 16 2013
HOLLADAY ENGINEERING CO.
PAYETTE, ID

c Bruce Krosch, Director
Brian Crawford, Land Development Supervisor
Jack Gantz, P.E., IDEQ Regional Office
Dean Ehlert, IDEQ State Office
Basil Tupyi, P.E., Holladay Engineering Co. P.O. Box 235, Payette ID 83661
File copy

OFFICE OF
The Board of Payette County Commissioners

DISTRICT 2 MARC SHIGETA, CHAIRMAN
DISTRICT 1 RUDY ENDRIKAT
DISTRICT 3 LARRY CHURCH

1130 3RD AVENUE N., ROOM 104
PAYETTE, IDAHO 83661-2473
PHONE (208) 642-6000

COPY

RECEIVED
JUL 30 2013
HOLLADAY ENGINEERING CO.
PAYETTE, ID

July 29, 2013

Mr. David Loper, Director of Environmental Health Services
Southwest District Health Department
13307 Miami Lane
Caldwell, Idaho 83606

Subject: Response to SWDH Concerns Associated with Landfill Gas at Clay Peak Landfill

Dear Mr. Loper:

Thank you for your review and July 12th comments on the Corrective Action Plan associated with the landfill gas monitoring program for the Clay Peak Landfill.

The following engineer responses to your comments are provided to help clarify your concerns:

Southwest District Health (SWDH) comment:

Cover Letter dated May 20, 2013 from the Payette County Commissioners

Item 1. SWDH agrees that monitoring the groundwater wells themselves is problematic and provides limited benefit. However, in addition to installing "No Smoking" and "No Parking" signs within 50 feet of the ground water monitoring wells, SWDH suggests that these buffer zone locations be include in the monitoring table under Figure 1 as a monitoring location to further promote safety.

Engineer Response: We concur and have revised Figure 1 to reflect the monthly monitoring of landfill gases within 3 feet of ground surface around the monitoring wells CP-2 through CP-14. Gas monitoring inside of the groundwater monitoring wells will be discontinued.

SWDH comment:

Cover Letter dated May 20, 2013 from the Payette County Commissioners:

Item 3. "methane detectors installed or to be installed". SWDH would like to be notified when new detectors are installed, and the information updated within the Operation and Maintenance Manual when suitable.

Engineer Response: The landfill superintendent or his designee will notify the SWDH when new methane detectors are to be installed. The O&M Manual is expected to be revised during 2013 when regulatory closure of Landfill Cell No. 1 has been approved.

SWHD comment:

Figure 1: Why is the "Office Crawl Space" being deleted as a monitoring location? One location merely state "Crawl Space". Please define its location. Note b, second bullet, second sentence should read: Instrument measures methane as %LEL...".

Engineer Response: Figure 1 has been revised to more accurately describe the crawl spaces being monitored that includes the: administrative office, scale house, inbound scale, outbound scale, residence 1, and residence 2. The MSA Altair 5X has been custom built with a methane sensor to provide a direct reading of percent methane (CH4) by volume for environmental compliance and not a lower explosive limit (LEL) reading as reported by the orange Ventis MX4 gas detector which measures % LEL for worker safety compliance, based on Occupational Safety and Health (OSHA) standards. Payette County chose two gas detection instruments for their gas monitoring program to avoid inadvertent gas sensor failure and to help reduce the likelihood of operator error during instrument calibration, data recording, and data interpretation. For example, the Ventis MX4 LEL sensor may permanently fail or 'burn out' if used to measure methane gas concentrations greater than 2½ % methane by volume for environmental compliance. The manufacturer's representative for the MSA Altair 5X recommended on July 19th 2013 a higher methane gas concentration for instrument calibration, which has not yet been received. Figure 1 will be revised when the methane gas concentration is known for the new calibration gas used on the MSA Altair 5X.

SWDH Comment:

Summary, Page 6. Item 3. This comment is the same one as noted above under the second bullet of the cover letter "methane detectors installed or to be installed.: SWDH would like to be notified when new detectors are installed and information updated within the Operation and Maintenance Manual when convenient.

Engineer Response: The landfill superintendent or his designee will notify the SWDH when new methane detectors are to be installed. The O&M Manual is expected to be revised during 2013 when closure of Landfill Cell No. 1 has been regulatory approved.

Please contact Alan Scharbrough at 208.642.6036 or Basil Tupyi at 208.642.3304 if you have questions regarding this response.

Sincerely,

Payette County Board of Commissioners
Marc S. Shigeta, Chairman

Copies To: Bruce Krosch, SWDH Director
Brian Crawford, SWDH Land Development Supervisor
Jack Gantz, PE, IDEQ Regional Office
Dean Ehlert, IDEQ State Office
Basil Tupyi, PE, Holladay Engineering Co
Alan Scharbrough, Landfill Supervisor

FIGURE 1. CLAY PEAK LANDFILL GAS MONITORING

Date of Monitoring: _____ **Test Performed By:** _____

Barometric Pressure: _____ rising / steady / falling local barometric pressures found at : http://www.localconditions.com/weather-payette-idaho/83661/past.php or from the Ontario Airport: https://airportview.net/wx/awos-detail.php?sid=KONO

Location [a]	Readings					
	Instrument [b]	Time	LEL [c] (%)	CO [d] (ppm)	O_2 [e] (%)	H_2S [f] (ppm)
area of CP-2	Orange MX4		% LEL			
area of CP-3	Orange MX4		% LEL			
area of CP-4	Orange MX4		% LEL			
area of CP-5	Orange MX4		% LEL			
area of CP-6	Orange MX4		% LEL			
area of CP-7	Orange MX4		% LEL			
area of CP-8	Orange MX4		% LEL			
area of CP-9	Orange MX4		% LEL			
area of CP-10	Orange MX4		% LEL			
area of CP-11	Orange MX4		% LEL			
area of CP-12	Orange MX4		% LEL			
area of CP-13	Orange MX4		% LEL			
area of CP-14	Orange MX4		% LEL			
Office Restroom Elect Conduit	Orange MX4		% LEL			
Office Restroom Elect Conduit	Beacon 200 wall unit		% LEL			
Office Crawl Space	Orange MX4		% LEL			
Scale House Crawl Space	Orange MX4		% LEL			
Scale House Crawl Space	Beacon 200 wall unit		% LEL			
Inbound Scale Crawl Space	Orange MX4		% LEL			
Outbound Scale Crawl Space	Orange MX4		% LEL			
Resident 1 Crawl Space	Orange MX4		% LEL			
Resident 2 Crawl Space	Orange MX4		% LEL			
Road to Cell 2	Orange MX4		% LEL			
Landing at Cell 2	Orange MX4		% LEL			
Telephone Relay Room at Shop	Orange MX4		% LEL			
Cell 1 – F-1 gas flare	No Instrument Readings		Emissions Observed:			
Cell 1 – F-2 gas flare	No Instrument Readings		Emissions Observed:			
Cell 1 – F-3 gas flare	No Instrument Readings		Emissions Observed:			
Cell 1 – F-4 gas flare	No Instrument Readings		Emissions Observed:			
Cell 1 – F-5 gas flare	No Instrument Readings		Emissions Observed:			
Cell 1 – F-6 gas flare	No Instrument Readings		Emissions Observed:			
Cell 1 – F-7 gas flare	No Instrument Readings		Emissions Observed:			

Location	Instrument	Time east/west	CH_4 (% CH_4)) east / west	CO [d] (ppm) east / west	O_2 [e] (%) east / west	H_2S [f] (ppm) east / west
Cell 2– V2 Level 1	Black MSA	/	/	/	/	/
Cell 2– V3 Level 1	Black MSA	/	/	/	/	/
Cell 2 – V4 Level 1	Black MSA	/	/	/	/	/
Cell 2 – V5 Level 1	Black MSA	/	/	/	/	/
Cell 2 – V6 Level 1	Black MSA	/	/	/	/	/
Cell 2– V7 Level 2	Black MSA	/	/	/	/	/
Cell 2 – V8 Level 2	Black MSA	/	/	/	/	/
		/	/	/	/	/

Note a:

- CP 2 – CP-14: Groundwater monitoring wells No 2 through No. 14, located within 200 feet of the landfill cell #1 perimeter.
- Cell 1 – F-1 - F-7: Gas Flares 1 through 7 installed around perimeter of Landfill Cell No. 1
  Permitted as : F-1 = NW FLR 1.2, F-2 = NW FLR 1.1; F-3 = NE FLR 1.1; F-4 = NE FLR 1.2; F-5 = SE Flare 1.1; F-5 = SW Flare 1.1; and F-7 = SE Flare 1.2
- Cell 2 – V1 Level 1 - V6 Level 1: gas vents 1 through 6 installed in first level of Landfill Cell No. 2
- Cell 2 – V7 Level 2 - V8 Level 2: gas vents 7 through 8 installed in second level of Landfill Cell No. 2

Note b:

- Black colored MSA Altair 5X gas detector is used for environmental compliance per Landfill O&M Manual requirements. The black MSA Altair 5X measures methane (CH_4) as percent by volume, oxygen (O_2) as percent by volume, hydrogen sulfide (H_2S) in parts per million (ppm), and carbon monoxide (CO) in ppm. Calibration gas specified by the manufacturer for this instrument has the following specifications: Manufacturer recommended a higher concentration methane by volume calibration gas on July 19th, 2013. New calibration gas has been ordered, but methane concentration still not yet known. ~~Methane = 2.5% by volume, O_2 = 15% by volume, H_2S = 20 ppm, and CO = 60 ppm.~~ Note the MSA Altair 5X is normally equipped with a combustible gas sensor that reads percent Lower Explosive Limit (% LEL); however, this MSA Altair 5X was custom built whereas the combustible gas sensor was replaced with a methane gas sensor. Therefore, methane gas readings equal to or greater than 5% methane by volume indicate potential explosive conditions and requires landfill staff response and possible regulatory notification. Regulatory notification shall be made by the Landfill Director or designee and includes contacting Southwest District Health Department, attn: David Loper, at 208-455-5200.
- Orange colored Ventis MX4 instrument gas detector is used for worker safety compliance per Occupational Safety and Health (OSHA) standards. The orange Ventis MX4 instrument measures % LEL, O_2 as percent by volume, H_2S in ppm, and CO in ppm. Calibration gas specified by the manufacturer for this instrument has the following specifications: 50 % LEL (methane = 2.5% by volume), O_2 = 19% by volume, H_2S = 25 ppm, CO = 100 ppm. Alarms will be energized when LEL exceeds 50%, which is 2.5% methane. If the MX4 gas detector alarm is energized, the MSA Altair 5X should be used to confirm landfill gas concentrations. DO NOT USE the Orange MX4 instrument in areas designed for the Black MSA because the Orange MX4 gas sensor will immediately fail and require replacement when LEL readings exceed 50% (or exceed 2½ % Methane).
- Beacon 200 is a wall-mounted, continuous-monitoring gas detection instrument located in the restroom wall in the administrative office. The Beacon 200 has two sensors. Sensor 1 monitors the air contaminants ≈12 inches below the Beacon 200 wall unit inside the office restroom. Sensor 2 monitors the air contaminants beneath the scale house. LEL readings exceeding 9% (or 0.5 % methane by volume) energizes an exhaust fan installed to ventilate the scale house crawl space. The Beacon 200 wall unit is calibrated using the same gas as used for the orange Ventis MX4: 50 % LEL (methane = 2.5% by volume), O_2 = 19% by volume, H_2S = 25 ppm, and CO = 100 ppm.

Note c:

This reading is either Methane (CH_4) or Lower Explosive Limit (LEL), based on instrument calibration. The black Altair 5X measures CH_4 as percent by volume and the orange Ventis MX4 and Beacon 200 measure percent LEL. Note the LEL for methane is five (5) percent or 50,000 ppm by volume and the upper explosive limit (UEL) for methane is fifteen (15) percent or 150,000 ppm by volume. However, the LEL values reported on the chart above need adjusted to the calibration gas utilized (i.e., 50 % LEL = 2.5% CH_4 by volume).

Note d:

Carbon Monoxide (CO): The maximum exposure allowed by the Occupational Safety and Health Administration (OSHA) in the workplace over an eight hour period is 35 ppm. A CO concentration of 12,000 to 13,000 ppm is deadly after 1-3 minutes. A CO concentration of 1600 ppm is deadly after one hour.

Note e:

Oxygen (0_2): An oxygen deficient environment is defined by OSHA as one that has less than nineteen and one-half (19.5) percent oxygen by volume. Ambient air contains approximately twenty-one (21) percent oxygen by volume.

Note f:

Hydrogen Sulfide (H_2S): The LEL for H_2S is 4.3 percent by volume or 43,000 ppm and the UEL for H_2S is forty-five (45) percent by volume or 450,000 ppm. The OSHA permissible exposure limit (PEL) for H_2S is 20 ppm. NIOSH Immediately Dangerous To Life or Health Concentration (IDLH) is 100 ppm.

Immediately Report to Landfill Supervisor or Landfill Foreman if

- CH_4 readings exceeding 2 ½ percent by volume
- LEL readings exceed 10% (calibrated to 2 ½ percent CH_4 by volume)
- CO values exceed 35 ppm.
- Oxygen values are less than 20 percent.
- Hydrogen Sulfide concentrations exceed 19 ppm.

NORCO Incorporated sold gas detection instruments to Payette County. David Malmberg, Sales Representative, 400 SE 10th Street, Ontario, Oregon 97914 208.880.1760 (cell) email: davidm@norco-inc.com

EXHIBIT F

Regulatory Approval of Draft Quality Assurance Report

STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

1445 North Orchard • Boise, Idaho 83706 • (208) 373-0550
www.deq.idaho.gov

C.L. "Butch" Otter, Governor
Curt Fransen, Director

November 14, 2013

The Honorable Marc Shigeta, Chairman
Board of Payette County Commissioners
1130 3rd Avenue North
Payette, ID 83661

RE: Clay Peak Municipal Solid Waste Landfills/ Ada County
Draft Construction Quality Assurance Report for Closure of Cell #1

Dear Commissioner Shigeta:

We concur with the July 1, 2013 "Engineers Responses to DEQ Comments Dated April 30, 2013 on the Draft Construction Quality Assurance Report for the Closure of Landfill Cell #1, Clay Peak Landfill" from Payette County. Please provide the following to DEQ and SWDHD within 30 days of receipt of this letter:

- Final Quality Assurance Report stamped by a qualified professional as defined within the Idaho Solid Waste Facilities Act.

Please feel free to contact me if I can be of further assistance or if you have any questions or comments.

Sincerely,

Jack M. Gantz, P.E.
Technical I Engineer
DEQ Boise Regional Office

RECEIVED
SW.
NOV 18 2013
HOLLADAY ENGINEERING CO.
PAYETTE, ID

c: Basil Tupyi, P.E., Holladay Engineering Company
David Loper/ Brian Crawford, Southwest District Health Department

ec: Dean Ehlert/ Bruce Wicherski, DEQ State Office
Todd Crutcher, P.E., DEQ Boise Regional Office
TRIM 2013BAB372

STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

1445 North Orchard • Boise, Idaho 83706 • (208) 373-0550

C.L. "Butch" Otter, Governor
Curt Fransen, Director

April 30, 2013

RECEIVED
02 SW
MAY 01 2013
HOLLADAY ENGINEERING CO.
PAYETTE, ID

The Honorable Larry Church
Payette County Board of Commissioners
1130 Third Avenue North, Room 104
Payette, ID 83661

RE: Clay Peak Draft Construction Quality Assurance Report Prepared for the Closure of Landfill Cell #1

Dear Commissioner Church:

The Idaho Department of Environmental Quality (Department) has completed its review of the Draft Construction Quality Assurance Report for the closure of Cell #1 at the Clay Peak Landfills including additional comments on the report provided by Southwest District Health. Based on our review of the report and the review of Southwest District Health's comments, the Department provides the following comments.

1. Section 2.0, page 4. The minimum 2% slope requirement is to facilitate good drainage off of the cover and minimize infiltration from standing water. The 1.2% may be acceptable, but should be monitored, and if found that water is not running off, amended to do so.

2. Figure 1, page 5. According to the nomenclature on the plan view, there appears to be a 600 foot long trough or depression in the cover running north-south. Please explain the function of this feature.

3. Figure 1, page 5. Please provide cross section details to better illustrate the final cover configuration. We recommend at least one (1) north-south and three (3) east-west sections.

4. Section 4.0, page 7. Please provide a detailed discussion outlining the recent methane detection and mitigation measures.

5. Section 5.0, page 8. Please provide additional clarification as to why areas around SS #3, 9, 19 and 11 required additional earthwork and testing.

6. Section 6.0, page 9. Monitoring for alfalfa should be routine for the next several years to ensure that the broad-leaf herbicide is effective at removing the alfalfa and that it does not get re-established.

7. TABLE 2. Of the 18 soil sample locations, 10 locations indicate that the samples fall into the sandy loam USDA textural class, and several soil sample locations indicated higher gravel composition. The original HELP modeling used the silt loam USDA textural class to demonstrate that the proposed landfill cover would be protective of groundwater. In order to verify that this other material provides equivalent protection, the Department requests the HELP model be run again using the sandy loam USDA textural class with a gravel modifier to demonstrate the as-built cover will be as protective as the original design.

Should Payette County or Holladay Engineering Company have any questions regarding the comments above, please call me at 208.373.0550 or by email at jack.gantz@deq.idaho.gov.

Sincerely,

Jack Gantz

Jack Gantz, P.E.
Technical Engineer I

c: Basil Tupyi, P.E. - Holladay Engineering Company
David Loper – Southwest District Health Department

ec: Dean Ehlert – DEQ State Office
TRIM 2013BAB124

PAYETTE COUNTY LETTERHEAD

June 17, 2013

Mr. Jack Gantz, PE, Technical Engineer I
Idaho Department of Environmental Quality (IDEQ)
1445 North Orchard
Boise, Idaho 83706

Subject: Engineer Responses to DEQ Comments, dated April 30, 2013, on the Draft Construction Quality Assurance Report for the Closure of Landfill Cell #1, Clay Peak Landfill

Dear Mr. Gantz:

Thank you for your comments to the Draft Construction Quality Assurance Report (Draft QA Report) prepared for the closure of Landfill Cell #1. Our engineer responses to IDEQ comments below refer to 1) the "*original design*" as the design criteria and findings presented in the regulatory approved March 1993, Final Hydrogeologic Characterization, Monitoring System, and Facility Design of the Clay Peak Sanitary Landfill Report (1993 Design Report) and 2) the "*technical approach*" as the regulatory approved data and testing protocol necessary to demonstrate compliance with the *original design*. The IDEQ comments and engineer response are as follows:

IDEQ Comment 1. Section 2.0 page 4.

The minimum 2% slope requirement is to facilitate good drainage off of the cover and minimize infiltration from standing water. The 1.2% may be acceptable, but should be monitored, and if found that water is not running off, amended to do so.

Engineer Response: Concur, but as noted on page 5 of 21 in the Draft QA Report, this landfill sector is the highest point of the landfill cover and only needs to accommodate the direct precipitation onto the landfill surface and not stormwater runon. Therefore, standing water is not expected; but the final landfill cover inspection program will monitor for this condition to ensure standing water can be quickly mitigated. Figures 1, 2, and 3 attached to this letter show the plan view and vertical profiles that are expected to promote good stormwater runoff. These figures will be included in the final QA Report, following IDEQ concurrence.

IDEQ Comment 2. Figure 1, page 5.

According to the nomenclature on the plan view, there appears to be a 600 foot long trough or depression in the cover running north-south. Please explain the function of this feature.

Engineer Response: This trough-looking feature was incorrectly described on Figure 1 in the Draft QA Report. The crest of the final landfill cover between SS #1 and SS#4 received additional backfill material during 2012 to ensure that the 6 foot cover depth requirement and final surface grades were met, whereas we attempted to show the grade breaks along the sidewalls and landfill crest. Much of this area has more than 6 feet depth final cover and Figure 4 in this letter illustrates the

profile of the final cover at three cross sectional locations indicating there is no trough or depression to impede or channel surface water flow on the final landfill cover. The attached Figure 1 will replace the Figure 1 in the Draft QA Report.

IDEQ Comment 3. Figure 1, page 5.

Please provide cross section details to better illustrate the final cover configuration. We recommend at least one(1) north-south and three (3) east-west sections.

Engineer Response: Figures 1, 2, and 3 to this letter are provided to illustrate the final plan view and four profile views of the final cover. One north-south and three east-west profile or cross sectional views are provided in these figures. These figures will be included in the Final QA Report, following IDEQ concurrence.

IDEQ Comment 4. Section 4.0 page 7..

Please provide a detailed discussion outlining the recent methane detection and mitigation measures.

Engineer Response: A corrective action plan for mitigating landfill gas containing methane beneath facility structures was submitted to the Southwest District Health Department during mid May 2013. The final QA Report shall indicate the need to comply with the corrective action plan, following IDEQ concurrence.

IDEQ Comment 5. Section 5.0 page 8..

Please provide additional clarification as to why areas around SS #3, 9, 10, and 11 required additional earthwork and testing.

Engineer Response: The soils testing results highlighted in green on Table 2 in the Draft QA Report and attached to this letter for quick reference present the final soil analyses for each respective soil sample (SS) location demonstrating regulatory compliance with the *original design*. The discrete soil sample locations SS #1, #2, #4, #5, #6, #7, and #8 were found to have at least 6 feet cover depth when first tested with the dynamic cone penetrometer (DCP); therefore, meeting the minimum 6 foot cover depth requirement. The discrete soil sample locations SS # 3, #9, #10, and #11 were found to have less than 6 feet cover depth when first tested with the DCP; therefore, additional earthwork and testing was required to comply with the minimum 6 foot cover depth requirement. The additional earthwork included potholing to determine the areal extent of final cover not meeting the 6 foot cover depth requirement and the placement of additional backfill. Interestingly, <u>much of the crest of the landfill cell required backfill to 7 feet cover depth in order to maintain final surface grade requirements.</u> Note that the surface area around SS#3 required multiple earthwork and soils testing events in order to confirm compliance with the minimum 6 foot cover depth requirement. There are no changes to Table 2 in the Draft QA Report.

IDEQ Comment 6. Section 6.0 page 9.

Monitoring for alfalfa should be routine for the next several years to ensure that the broad-leaf herbicide is effective at removing the alfalfa and that it does not get re-established.

Engineer Response: Concur, the final landfill cover will be monitored for alfalfa to determine if broad-leaf herbicide application is necessary. However, the harsh 2012 – 2013 winter weather appears to have prevented the alfalfa from being established. There are no changes to the Draft QC Report.

IDEQ Comment 7. Table 2.

Of the 18 soil sample locations, 10 locations indicate that the samples fall into the sandy loam USDA textural class, and several soil sample locations indicated higher gravel composition. The original HELP modeling use the silt loam USDA textural class to demonstrate that the proposed landfill cover would be protective of groundwater. In order to verify that this other material provides equivalent protection, the Department request the HELP model be run again using the sandy loam USDA textural class with a gravel modifier to demonstrate that as-built cover will be as protective as the original design.

Engineer Response:

The final soils testing results reported for SS #1 through SS#11 in Table 2 of the QA Report indicate the *original design* criteria for the final cover as summarized in the *technical approach* was met and the final landfill cover is protective of groundwater; therefore, additional HELP modeling is not necessary.

The *original design* made reference to the Power-Elijah Silt Loams, but actual calculations in the *original design* more closely reflect characteristics of sandy silts, as detailed below. Table 1 to this letter summarizes and compares the default material characteristics of low density soils for the Hydrologic Evaluation of Landfill Performance (HELP) Model, USDA Soil Classification, and NRCS Soil Classification systems as published by the US Environmental Protection Agency for the development of the HELP Model. The final landfill cell cover was constructed with soils excavated onsite that were designated acceptable for final cell cover in the *original design*. Landfill construction employed the "close or cap as you go" construction practice that allowed the placement of the final cover consisting of 3 feet compacted and 3 feet uncompacted soil layers when the final waste layer was completed, while continuing to use other landfill cell areas for waste disposal. However, this landfill construction practice is limited to the perimeter slopes or sidewalls soon after the final waste lift is reached. The landfill crest was partly completed during the "close as you go" program with only the 3 foot compacted soil layer. A temporary gravel roadbase was added to the crest for all-weather landfill access until the landfill cell was fully constructed. It should be understood that the final 3 feet of uncompacted soil is not initially placed on the landfill crest during waste disposal because it would become compacted from site activity; and lower the effective water holding capacity of the final cover. Though the temporary gravel roadbase was removed from the crest when the landfill operations stopped, some of the gravels were inherently embedded into the compacted soil lense and may be noted in the analytical results. Therefore, to partly accommodate for this condition, much of the crest of landfill cell 1 was covered with an additional foot of landfill cover or soil.

The objective of the *original design* for the final cover as reported in Appendix D of the 1993 Design Report was to "*absorb seasonal excess precipitation and hold it until it is removed by evapotranspiration during the growing season.* The *original design* calculations used 11.4 inches of annual precipitation with a net precipitation of 6.46 inches based <u>on 30% pan evaporation and no evaporation during the winter months</u>. For conservatism, the *original design* set the water holding capacity at 150% (safety factor = 1.5) of the average net precipitation; therefore, the final cover should hold 9.69 inches of water to be protective of the aquifer. For additional conservatism, the *original design* set the available water holding capacity for uncompacted cover fill and compacted cover fill as 0.20 ft/ft and 0.15 ft/ft, respectively. These water holding capacities more closely reflect HELP soil classification #6 and #7, and not HELP #8 (or USDA silt loam) soil classification as shown in Table 1 for default material characteristics. Note that HELP #8 (or USDA silt loam) soil classification has a default water holding capacity near 0.284 ft/ft, per Table 1. The *original design* concluded that the water holding capacity of 36 inches compacted cover and 36 inches of uncompacted cover will contain 12.6 inches of water

that reflects a safety factor of 1.95 (or a water holding capacity of 195%). Soils sampled from the 11 soil sampling sites as reported in Table 2 in the Draft QA Report varied from HELP Soil Classification #6 to #8 (or USDA loam to sandy loam or USCS sandy silt to silty sand). Applying default water holding capacity for HELP soil classification #6, 0.19 ft/ft for uncompacted fill and 0.14 ft/ft for compacted fill, generates a safety factor of 1.84 or a water holding capacity of 184% that still exceeds the *original design* safety factor of 1.5.

Therefore, based on the soil sampling results presented in Table 2, the final landfill cell cover will result in a net drying of the waste layer under the final cover and will be protective of groundwater with a safety factor that exceeds the *original design* safety factor of 1.5. Therefore, no further data modeling or assessment is warranted to demonstrate the final cover is protective of groundwater.

Please direct your questions to Basil Tupyi at 208.642.3304 or basil@holladayengineering.com .

Sincerely,
Payette County Board of Commissioners

Marc Shigeta

Enclosures:
Figures 1 – 4 and Tables 1 and 2

Copies To: Dean Ehlert, IDEQ
David Loper, SWDH
Basil Tupyi, PE
Alan Scharbrough

TABLE 1 "HELP" DEFAULT MATERIAL CHARACTERISTICS						
Soils Texture Class			Total Porosity (vol/vol)	Field Capacity (vol/vol)	Wilting Point (vol/vol)	Saturated Hydraulic Conductivity (cm/sec)
HELP #	USDA	USCS				
Low Density Soil Characteristics						
1	CoS (coarse sand)	SP (sand poor graded)	0.417	0.045	0.018	1.0×10^{-2}
2	S (sand)	SW (sand well graded)	0.437	0.062	0.024	5.8×10^{-3}
3	FS (fine sand)	SW (sand well graded)	0.457	0.083	0.033	3.1×10^{-3}
4	LS (loam sand)	SM (sand silt)	0.437	0.105	0.047	1.7×10^{-3}
5	LFS (loam fine sand)	SM (sand silt)	0.457	0.131	0.058	1.0×10^{-3}
6	SL (sand loam)	SM (sand silt)	0.453	0.190	0.085	7.2×10^{-4}
7	FSL (fine sand loam)	SM (sand silt)	0.473	0.222	0.104	5.2×10^{-4}
8	L (loam)	ML (silt low plasticity)	0.463	0.232	0.116	3.7×10^{-4}
9	SiL (silt loam)	ML (silt low plasticity)	0.501	0.284	0.135	1.9×10^{-4}
10	SCL (sand clay loam)	SC (sand clay)	0.398	0.244	0.136	1.2×10^{-4}
11	CL (clay loam)	CL (clay loam)	0.464	0.310	0.187	6.4×10^{-5}
12	SiCL (silt clay loam)	CL (clay loam)	0.471	0.342	0.210	4.2×10^{-5}
13	SC (sand clay)	SC (sand clay)	0.430	0.321	0.221	3.3×10^{-5}
14	SiC (silt clay)	CH (clay high plasticity)	0.479	0.371	0.251	2.5×10^{-5}
15	C (clay)	CH (clay high plasticity)	0.475	0.378	0.251	2.5×10^{-5}

21	G (gravel)	GP (Gravel poorly graded)	0.397	0.032	0.013	3.0×10^{-1}
Moderate and High Density Soil Characteristics						
22	L (Moderate) (loam)	ML (silt low plasticity)	0.419	0.307	0.180	1.9×10^{-5}
23	SiL (Moderate) (silt loam)	ML (silt low plasticity)	0.461	0.360	0.203	9.0×10^{-6}
24	SCL (Moderate) (sand clay loam)	SC (sand clay)	0.365	0.305	0.202	2.7×10^{-6}
25	CL (Moderate) (clay loam)	CL (clay low plasticity)	0.437	0.373	0.266	3.6×10^{-6}
26	SiCL (Moderate) (silt clay loam)	CL (clay low plasticity)	0.445	0.393	0.277	1.9×10^{-6}
27	SC (sand clay)	SC (sand clay)	0.400	0.366	0.288	7.8×10^{-7}
28	SiC (Moderate) (silt clay)	CH (clay high plasticity)	0.452	0.411	0.311	1.2×10^{-6}
29	C (Moderate) (clay)	CH (clay high plasticity)	0.451	0.419	0.332	6.8×10^{-7}
16	Liner or Barrier Soil		0.427	0.418	0.367	1.0×10^{-7}
17	Bentonite Mat		0.750	0.747	0.400	3.0×10^{-9}
Waste Characteristics						
18	Municipal Waste		0.671	0.292	0.077	1.0×10^{-3}
19	Municipal Waste with Channeling		0.168	0.073	0.019	1.0×10^{-3}
30	High-Density Electric Plant Coal Fly Ash		0.541	0.187	0.047	5.0×10^{-5}
31	High-Density Electric Plant Coat Bottom Ash		0.578	0.076	0.025	4.1×10^{-3}
32	High-Density Municipal Solid Waste Incinerator Fly Ash		0.450	0.116	0.049	1.0×10^{-2}
33	High Density Fine Copper Slag		0.375	0.055	0.020	4.2×10^{-2}

Geosynthetic Material Characteristics				
20	Drainage Net (0.5 cm)			$1.0 \times 10^{+1}$
34	Drainage Net (0.6 cm)			$3.3 \times 10^{+1}$
35	High Density Polyethylene (HDPE) Membrane			2.0×10^{-13}
36	Low Density Polyethylene (LDPE) Membrane			4.0×10^{-13}
37	Polyvinyl Chloride (PVC) Membrane			2.0×10^{-11}
38	Butyl Rubber Membrane			1.0×10^{-12}
39	Chlorinated Polyethylene(CPE) Membrane			4.0×10^{-12}
40	Hypalon or Chlorosulfonated Polyethylene (CSPE) Membrane			3.0×10^{-12}
41	Ethylene-Propylene Diene Monomer (EPDM) Membrane			2.0×10^{-12}
42	Neoprene Membrane			3.0×10^{-12}

Source: The Hydrologic Evaluation of Landfill Performance (HELP) Model: User's Guide for Version 3, EPA /600/R-94/168a, September 1994, US EPA Office of Research and Development, and The Hydrologic Evaluation of Landfill Performance (HELP) Model: Engineering Documentation for Version 3, EPA /600/R-94/168b, September 1994, US EPA Office of Research and Development.

TABLE 2
Summary of Soil Characteristics for the Final Landfill Cover of Landfill Cell #1

Soil Sample Location or Marker No. (date of test)	Soil Classification [1]			Permeability [2] w/ Guelph Permeameter	DCP Testing Summary	Observations[3] During Soil Sampling	Holladay Engineer Observations [4]
	HELP #	USDA	USCS				
SS #1 Final Cover [June 2011]	8	Loam	Sandy Silt ML w/3% gravel	3.4×10^{-4} cm/sec	compaction increases with depth from 0 to 6 ft • ≈95 blows from 0-3ft • ≈210 blows from 3-6ft	no waste to 6 ft depth	Dried heavy vegetation with sand/silts on surface in 2011. Dyes used in hydro seeding illustrated good seed coverage in 2012.
SS #2 Final Cover [June 2011]	8	Loam	Sandy Silt ML w/4% gravel		compaction decreases with depth from 0 to 6 ft • ≈50 blows from 0-3½ft • ≈30 blows from 3½-6ft	no waste to 6 ft depth	Dried vegetation with sand/silts on surface in 2011. Dyes used in hydro seeding illustrated good seed coverage in 2012.
SS #2 N (75ft north of SS #2) [June 2011]	8	Loam	Sandy Silt ML w/4% gravel		compaction decreases with depth from 0 to 6 ft • ≈70 blows from 0-2½ft • ≈25 blows from 2½-6ft	no waste to 6 ft depth, vegetation and cemented particles at surface	Dried vegetation with sand/silts on surface in 2011.
SS #2 S (75 ft south of SS #2) [June 2011]	8	Loam	Sandy Silt ML w/14% gravel		well compacted at depth from 0 to 6 ft • ≈150 blows from 0-3ft • ≈100 blows from 3-6ft	no waste to 6 ft depth, vegetation and cemented particles at surface	Dried vegetation with sand/silts on surface in 2011.
SS #3 Not Final Cover [June 2011]	6 or 7	Sandy Loam	Silty Sand SM w/14% gravel	Note 5	compaction increases with depth from 0 to 6 ft • ≈ 80 blows from 0-3 ft • ≈160 blows from 3-6ft	no waste to ≈ 42 inch depth	no gravel on surface in 2011
SS #3 Not Final Cover [September 4, 2012]	6 or 7	Sandy Loam	Sandy Silt (ML) w/ trace of gravel	1.1×10^{-4} cm/sec	compaction increases with depth from 0 to 6 ft • ≈ 25 blows from 0-3 ft • ≈ 90 blows from 3-6ft	no waste to ≈ 56 inch depth at 20 ft north of SS #3	approximately 22 inches soil added to the area during summer 2012
SS # 3A Final Cover [November 14, 2012]	6 or 7	Sandy Loam	Sandy Silt (ML)		uniformly compacted at depth but heavily compacted at 5 ft to 5 ½ ft depth, cannot penetrate beyond 5 ½ ft • ≈50 blows from 0-3 ft	no waste to 5 ½ ft depth	Area built up or backfilled approximately 12 inches to 16 inches since September 4, 2012. Seedbed prepared with a roller harrow in 2012. Dyes used in hydro seeding illustrated

TABLE 2
Summary of Soil Characteristics for the Final Landfill Cover of Landfill Cell #1

Soil Sample Location or Marker No. (date of test)	Soil Classification [1]			Permeability [2] w/ Guelph Permeameter	DCP Testing Summary	Observations[3] During Soil Sampling	Holladay Engineer Observations [4]
	HELP #	USDA	USCS				
					• ≈65 blows from 3- 5 ½ ft		good seed coverage in 2012.
SS #4 Final Cover [June 2011]	7	Loam	Silty Sand with Gravel SM w/17% gravel		compaction uniform with depth from 0 to 6 ft • ≈70 blows from 0-3 ft • ≈70 blows from 3-6 ft	no waste to 6 ft depth	Cementitious particles (like caliche) on the surface in 2011. Roller harrowed to prepare seed bed. Dyes used in hydro seeding illustrated good seed coverage.
SS #5 Final Cover [June 2011]	6 or 7	Sandy Loam	Silty Sand SM w/13% gravel	$2.5x10^{-4}$cm/sec	compaction increases with depth from ≈ 0 to 4.5 ft • ≈50 blows from 0-3 ft • ≈110 blows from 3-6ft	no waste to 6 ft depth	Test Pit ≈ 50 feet northwest of marker: no gravels but cementitious particles (like caliche) noted on the surface, cementitious particles found in excavated soil with minimum 7 feet soil cover and no waste in 2012. Surface roller harrowed for seed bed. Dyes used in hydro seeding illustrated good seed coverage in 2012.
SS # 6 Final Cover [August 15, 2012]	6 or 7	Sandy Loam	Sandy Silt (ML) w/13.2 % gravel		well compacted throughout depth from ≈ 0 to 6 ft • ≈70 blows from 0-3 ft • ≈150 blows from 3-6ft	no waste to 6 ft depth	Backhoe pit 20 ft north of marker indicated no waste to 7 ½ ft depth in 2012. Surface roller harrowed for seed bed. Dyes used in hydro seeding illustrated good seed coverage in 2012.
SS #7 Final Cover [August 15, 2012]	6 or 7	Sandy Loam	Sandy Silt ML w/ 15 % gravel on Sept 4th	$7.0x10^{-5}$cm/sec	compaction increases with depth from ≈ 0 to 6 ft • ≈40 blows from 0-3 ft • ≈175 blows from 3-6ft	no waste to 6 ft depth	Backhoe pit 20 ft north of marker indicated no waste to 7 ft depth in 2012. Surface roller harrowed for seed bed. Dyes used in hydro seeding illustrated good seed coverage in 2012.
SS #8 Final Cover [November 14, 2012]	6 or 7	Sandy Loam	Sandy Silt (ML) w/ 1% gravel	$1.8 x10^{-5}$cm/sec	compaction increases with depth from ≈ 0 to 6 ft • ≈60 blows from 0-3 ft • ≈190 blows from 3-6ft	no waste to 6 ft depth	Surface roller harrowed for seed bed. Dyes used in hydro seeding illustrated good seed coverage in 2012.
SS #9	6 or 7	Sandy	Sandy Silt		compaction increases with depth from ≈ 0 to 6 ft	trash debris encountered at 4	

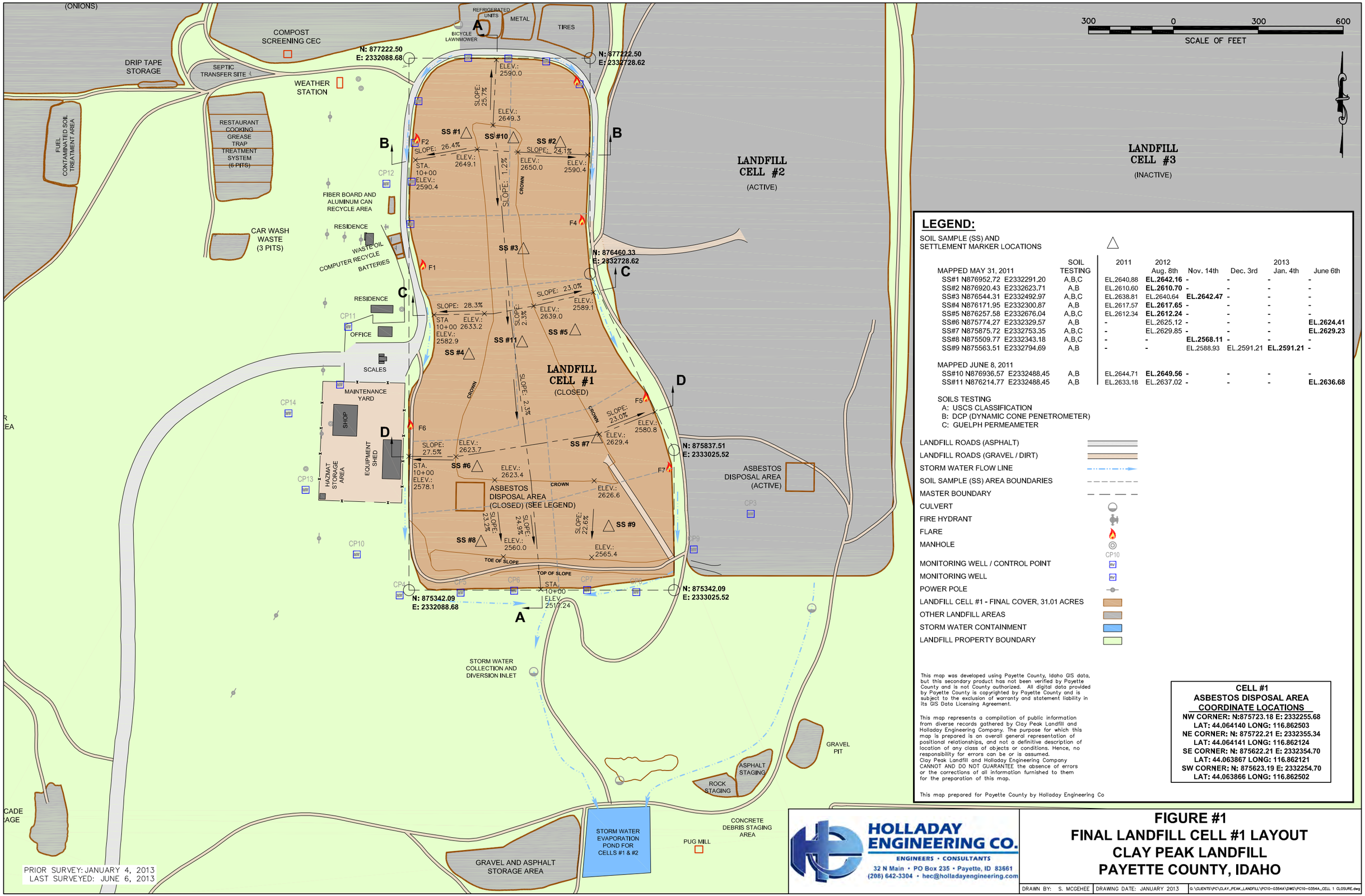
TABLE 2
Summary of Soil Characteristics for the Final Landfill Cover of Landfill Cell #1

Soil Sample Location or Marker No. (date of test)	Soil Classification [1]			Permeability [2] w/ Guelph Permeameter	DCP Testing Summary	Observations[3] During Soil Sampling	Holladay Engineer Observations [4]
	HELP #	USDA	USCS				
Not Final Cover [November 14, 2012]		Loam	(ML) trace of gravel		• ≈50 blows from 0-3 ft • ≈125 blows from 3-6ft	ft	
SS # 9A Final Cover [November 20, 2012]	6 or 7	Sandy Loam	Sandy Silt (ML) w/ 1% gravel		compaction increases with depth from ≈ 0 to 6 ft • ≈50 blows from 0-3 ft • ≈ 100 blows from 3-6 ft	located 15 ft east of SS#9 marker no waste to 6 ft depth	Area build up or backfilled approximately 36 inches since November 2012. Surface roller harrowed for seed bed. Dyes used in hydro seeding illustrated good seed coverage in 2012.
SS #10 Not Final Cover [June 2011]	8	Loam	Sandy Silt (ML) w/ 2% gravel		well compacted uniformly with depth from 0 to 6 ft • ≈ 90 blows from 0-3ft • ≈100 blows from 3-6ft	no waste to ≈ 66 inches depth	vegetation with sand/silts on surface
SS # 10 Final Cover [Sept 4, 2012]		Sandy Loam	Silty Sand (SM) w/ 6% gravel		compaction increases with depth and then stabilizes • ≈ 75 blows from 0-3ft • ≈65 blows from 3-6ft	no waste to 6 ft depth	Backhoe pit located 20 ft north of marker indicated no waste to at least 84 inches depth in 2012. Surface roller harrowed for seed bed. Dyes used in hydro seeding illustrated good seed coverage in 2012.
SS #11 Not Final Cover [June 2011]	8	Loam	Sandy Silt (ML) w/ 7% gravel		well compacted uniformly with depth from 0 to 6 ft • ≈140 blows from 0-3ft • ≈180 blows from 3-6ft	no waste to ≈ 24 inches depth	Test Pit ≈ 50 feet west of marker: sand/silt, sprinkled with ¾ minus gravel on surface, 1 inch depth gravel road base with waste noted at ≈ 24 inch depth
SS# 11 Final Cover [Sept 4, 2012]	6 or 7	Sandy Loam	Sandy Silt (ML) w/ trace of gravel		compaction increases with depth to 30 inches and then compaction well maintained from 30 inches to 80 inches depth • ≈85 blows from 0-3ft • ≈190 blows from 3-6ft	no waste to ≈ 6 ½ ft depth	Backhoe pit approximately 20 ft north of SS#11 indicated no waste to 7 ft depth in 2012. Surface roller harrowed for seed bed. Dyes used in hydro seeding illustrated good seed coverage in 2012.

TABLE 2
Summary of Soil Characteristics for the Final Landfill Cover of Landfill Cell #1

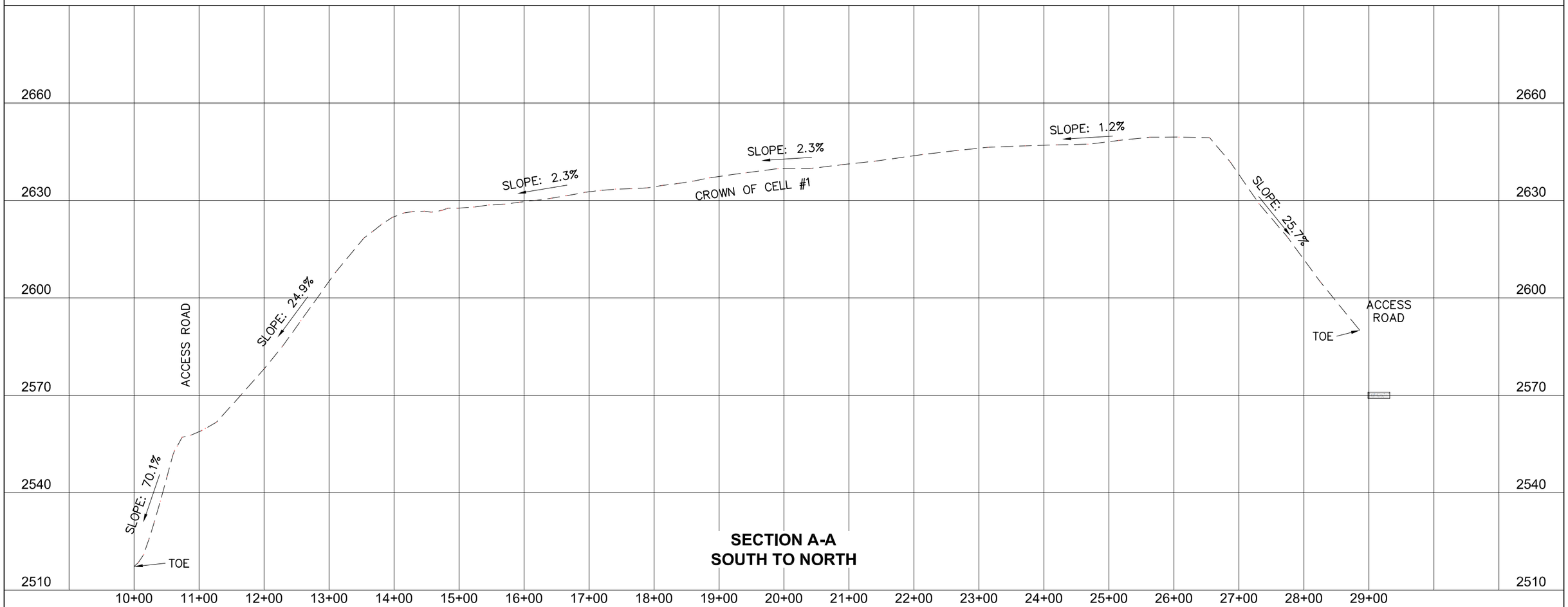
Soil Sample Location or Marker No. (date of test)	Soil Classification [1]			Permeability [2] w/ Guelph Permeameter	DCP Testing Summary	Observations[3] During Soil Sampling	Holladay Engineer Observations [4]
	HELP #	USDA	USCS				

Note 1: Soil Classifications per Hydrologic Evaluation of Landfill Performance (HELP) Model, US Department of Agriculture (USDA), and Unified Soil Classification System (USCS)
Note 2: Soil sample collected at ≈ 22 to 24 inch depth
Note 3: Observations by Travis Thomsen, American Geotechnics,
Note 4: Observations by Basil Tupyi, PE, Holladay Engineering Co.
Note 5: Soil unsuitable for test method because soil sloughing into hole during testing.

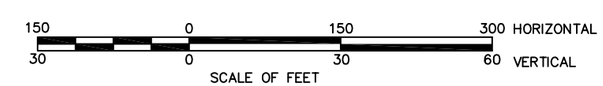


	SOIL TESTING	2011	2012 Aug. 8th	Nov. 14th	Dec. 3rd	2013 Jan. 4th	June 6th
MAPPED MAY 31, 2011							
SS#1 N876952.72 E2332291.20	A,B,C	EL.2640.88	**EL.2642.16**	-	-	-	-
SS#2 N876920.43 E2332623.71	A,B	EL.2610.60	**EL.2610.70**	-	-	-	-
SS#3 N876544.31 E2332492.97	A,B,C	EL.2638.81	EL.2640.64	**EL.2642.47**	-	-	-
SS#4 N876171.95 E2332300.87	A,B	EL.2617.57	**EL.2617.65**	-	-	-	-
SS#5 N876257.58 E2332676.04	A,B,C	EL.2612.34	**EL.2612.24**	-	-	-	-
SS#6 N875774.27 E2332329.57	A,B	-	EL.2625.12	-	-	-	**EL.2624.41**
SS#7 N875875.72 E2332753.35	A,B,C	-	EL.2629.85	-	-	-	**EL.2629.23**
SS#8 N875509.77 E2332343.18	A,B,C	-	-	**EL.2568.11**	-	-	-
SS#9 N875563.51 E2332794.69	A,B	-	-	EL.2588.93	EL.2591.21	**EL.2591.21**	-
MAPPED JUNE 8, 2011							
SS#10 N876936.57 E2332488.45	A,B	EL.2644.71	**EL.2649.56**	-	-	-	-
SS#11 N876214.77 E2332488.45	A,B	EL.2633.18	EL.2637.02	-	-	-	**EL.2636.68**

SOILS TESTING
A: USCS CLASSIFICATION
B: DCP (DYNAMIC CONE PENETROMETER)
C: GUELPH PERMEAMETER



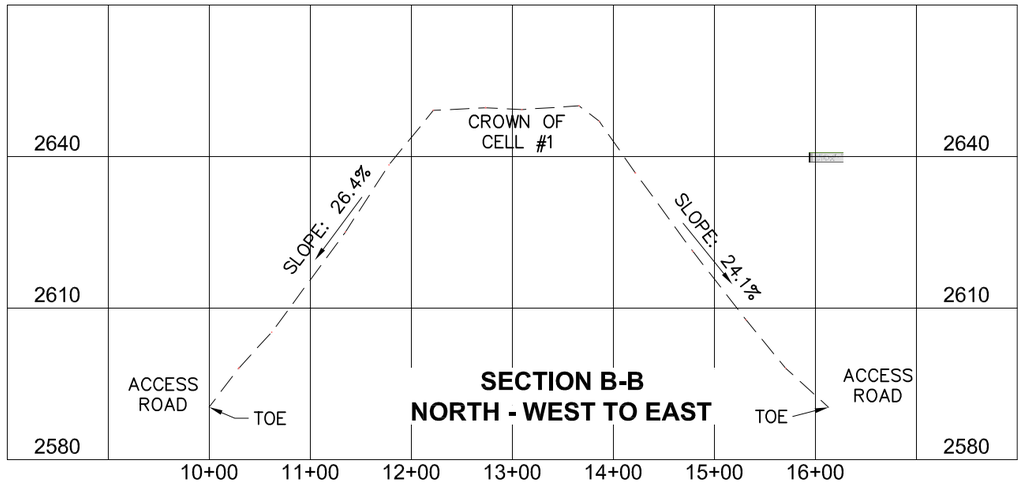
SECTION A-A
SOUTH TO NORTH

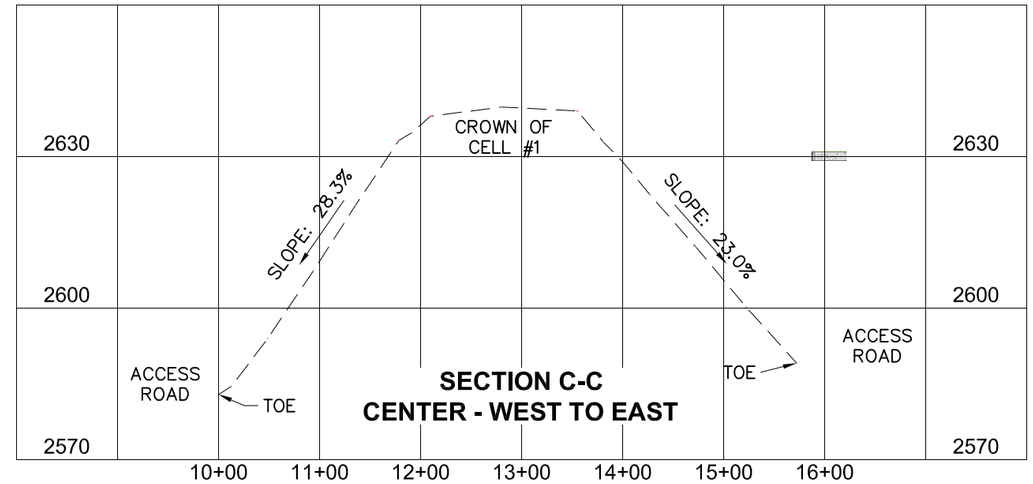


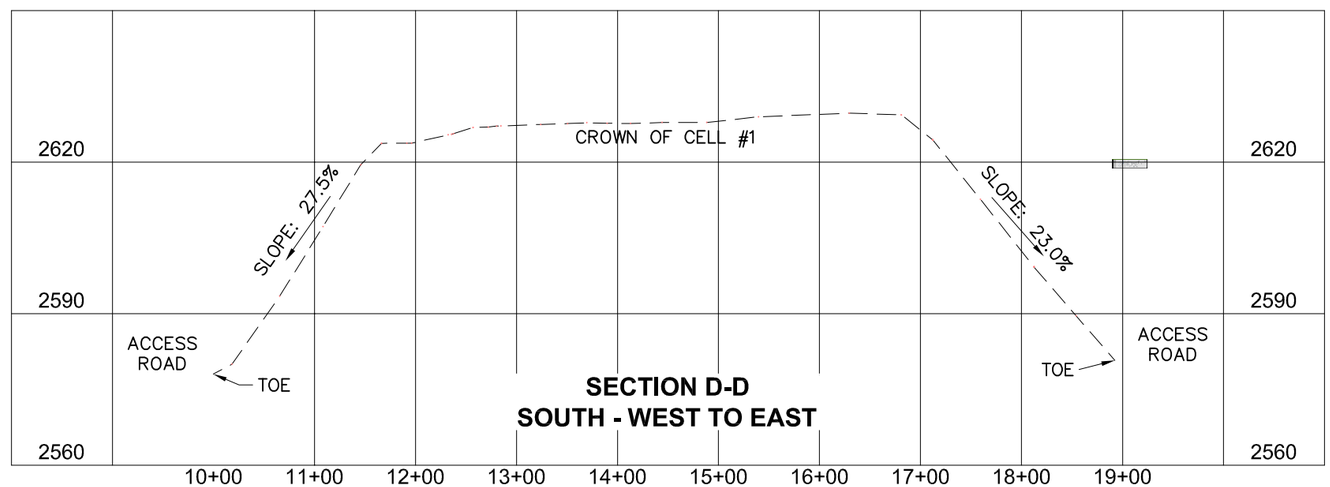
HOLLADAY ENGINEERING CO.
ENGINEERS • CONSULTANTS
32 N Main • PO Box 235 • Payette, ID 83661
(208) 642-3304 • hec@holladayengineering.com

FIGURE #2
FINAL LANDFILL CELL #1 CROSS SECTIONS
CLAY PEAK LANDFILL
PAYETTE COUNTY, IDAHO

DRAWN BY: S. MCGEHEE | DRAWING DATE: JUNE 2013 | G:\CLIENTS\PC\CLAY_PEAK_LANDFILL\PC10-0354A\DWG\PC10-0354A_CELL 1 CLOSURE.dwg







150 0 150 300 HORIZONTAL
30 0 30 60 VERTICAL
SCALE OF FEET

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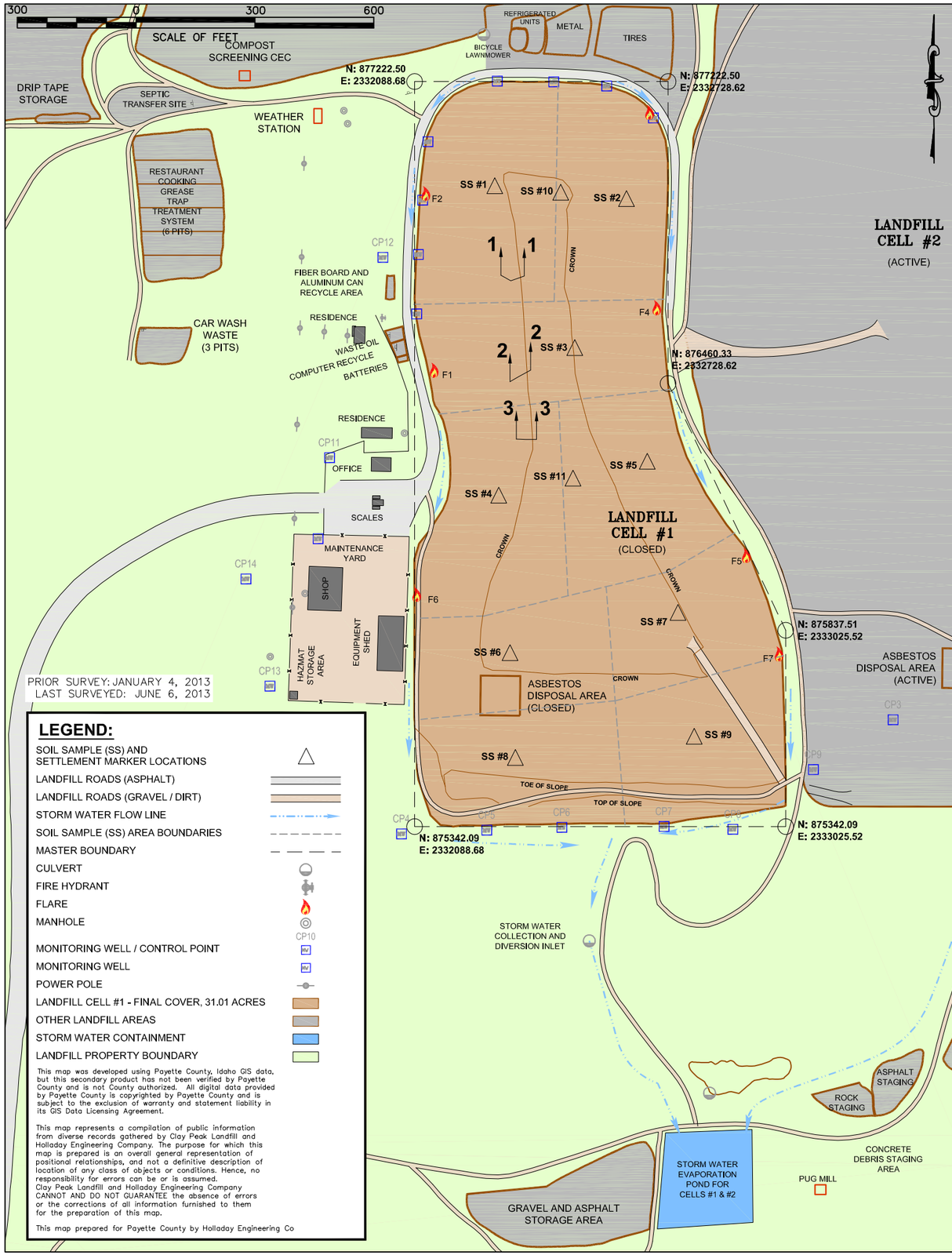
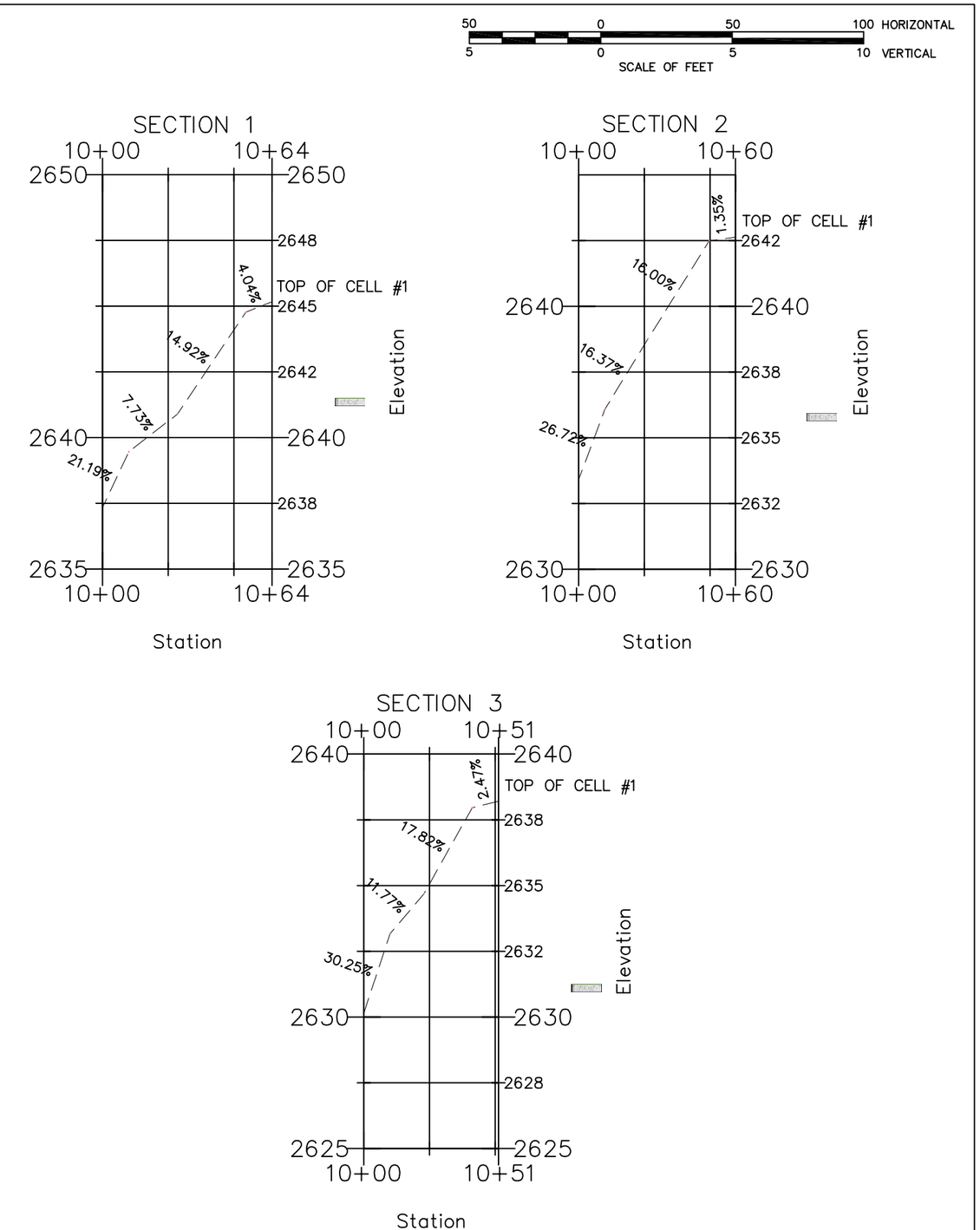
FIGURE #3
FINAL LANDFILL CELL #1 CROSS SECTIONS
CLAY PEAK LANDFILL
PAYETTE COUNTY, IDAHO

DRAWN BY: S. MCGEHEE | DRAWING DATE: JUNE 2013 | G:\CLIENTS\PC\CLAY_PEAK_LANDFILL\PC10-0354A\DWG\PC10-0354A_CELL 1 CLOSURE.dwg





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(208) 642-3304 • hec@holladayengineering.com

FIGURE #4
CELL #1 NORTH WEST SIDE SLOPE
CLAY PEAK LANDFILL
PAYETTE COUNTY, IDAHO

DRAWN BY: S. MCGEHEE | DRAWING DATE: JUNE 2013 | G:\CLIENTS\PC\CLAY_PEAK_LANDFILL\PC10-0354A\DWG\PC10-0354A_CELL 1 CLOSURE.dwg

APPENDIX B

AIR QUALITY PERMIT TO CONSTRUCT
Issued December 16, 2008

STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

1410 North Hilton • Boise, Idaho 83706 • (208) 373-0502

C.L. "Butch" Otter, Governor
Toni Hardesty, Director

December 16, 2008

Certified Mail No. 7190 0596 0014 0000 4776

Alan Scharbrough, Landfill Supervisor
Clay Peak Municipal Solid Waste Landfill
Payette County, 2560 Hwy. 52
Payette, ID 83661

RE: Facility ID No. 075-00009, Clay Peak Municipal Solid Waste Landfill, Payette
Final Permit Letter

Dear Mr. Scharbrough:

The Department of Environmental Quality (DEQ) is issuing Permit to Construct (PTC) No. P-2008.0078 to Clay Peak Municipal Solid Waste Landfill (Clay Peak) for the installation of three additional flares on the landfill gas collection system located at Payette, in accordance with IDAPA 58.01.01.200 through 228 (Rules for the Control of Air Pollution in Idaho).

This permit is based on your permit application received on May 15, 2008. This permit is effective immediately and replaces PTC No. P-020034, issued on February 27, 2004, the terms and conditions of which no longer apply. This permit does not release Clay Peak from compliance with all other applicable federal, state, or local laws, regulations, permits, or ordinances.

Pursuant to General Provision 5 of your permit, it is required that Construction and Operation Notification be provided. Please provide this information as listed to DEQ's Boise Regional Office, 1445 N. Orchard, Boise, ID 83706-2239, Fax (208) 373-0287.

In order to fully understand the compliance requirements of this permit, DEQ highly recommends that you schedule a meeting with Tom Krinke, Air Quality Compliance Officer, at (208) 373-0419 to review and discuss the terms and conditions of this permit. Should you choose to schedule this meeting, DEQ recommends the following representatives attend the meeting: your facility's plant manager, responsible official, environmental contact, and any other staff responsible for day-to-day compliance with permit conditions.

Pursuant to IDAPA 58.01.23, you, as well as any other entity, may have the right to appeal this final agency action within 35 days of the date of this decision. However, prior to filing a petition for a contested case, I encourage you to contact Darrin Pampaian at (208) 373-0502 or darrin.pampaian@deq.idaho.gov to address any questions or concerns you may have with the enclosed permit.

Sincerely,

Mike Simon
Stationary Source Program Manager
Air Quality Division

MS\DRP\hp Project No. P-2008.0078

Enclosures

Air Quality **PERMIT TO CONSTRUCT** **State of Idaho** **Department of Environmental Quality**	**PERMIT No.:** P-2008.0078 **FACILITY ID No.:** 075-00009 **AQCR:** 63 **CLASS:** B **ZONE:** 11 **SIC:** 4953 **NAICS:** 562212 **UTM COORDINATE (km):** 510.8, 4879.2

1. **PERMITTEE**
   Clay Peak Municipal Solid Waste Landfill

2. **PROJECT**
   Permit to Construct (PTC) Modification – Connect three new flares (for a total of seven flares) to the landfill gas collection system to control VOC emissions from an existing landfill

3. **MAILING ADDRESS** 2560 Hwy. 52	**CITY** Payette	**STATE** ID	**ZIP** 83661
4. **FACILITY CONTACT** Alan Scharbrough	**TITLE** Landfill Supervisor	**TELEPHONE** (208) 642-6036	
5. **RESPONSIBLE OFFICIAL** Alan Scharbrough	**TITLE** Landfill Supervisor	**TELEPHONE** (208) 642-6036	
6. **EXACT PLANT LOCATION** 2560 Hwy. 52, Payette, ID		**COUNTY** Payette	

7. **GENERAL NATURE OF BUSINESS & KINDS OF PRODUCTS**
   Municipal Solid Waste Landfill

8. **PERMIT AUTHORITY**

This permit is issued according to the Rules for the Control of Air Pollution in Idaho, IDAPA 58.01.01.200 through 228, and pertains only to emissions of air contaminants regulated by the state of Idaho and to the sources specifically allowed to be constructed or modified by this permit.

This permit (a) does not affect the title of the premises upon which the equipment is to be located; (b) does not release the permittee from any liability for any loss due to damage to person or property caused by, resulting from, or arising out of the design, installation, maintenance, or operation of the proposed equipment; (c) does not release the permittee from compliance with other applicable federal, state, tribal, or local laws, regulations, or ordinances; (d) in no manner implies or suggests that the Department of Environmental Quality (DEQ) or its officers, agents, or employees, assume any liability, directly or indirectly, for any loss due to damage to person or property caused by, resulting from, or arising out of design, installation, maintenance, or operation of the proposed equipment.

This permit will expire if construction has not begun within two years of its issue date or if construction is suspended for one year.

This permit has been granted on the basis of design information presented with its application. Changes in design, equipment or operations may be considered a modification. Modifications are subject to DEQ review in accordance with IDAPA 58.01.01.200 through 228 of the Rules for the Control of Air Pollution in Idaho.

Darrin Pampaian

DARRIN PAMPAIAN, PERMIT WRITER
DEPARTMENT OF ENVIRONMENTAL QUALITY

DATE MODIFIED/REVISED:	December 16, 2008
DATE ISSUED:	February 27, 2004

Mike Simon

MIKE SIMON, STATIONARY SOURCE PROGRAM MANAGER
DEPARTMENT OF ENVIRONMENTAL QUALITY

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3. PERMIT TO CONSTRUCT GENERAL PROVISIONS 9

Acronyms, Units, and Chemical Nomenclature

acfm	actual cubic feet per minute
AFS	AIRS Facility Subsystem
AIRS	Aerometric Information Retrieval System
AQCR	Air Quality Control Region
ASTM	American Society for Testing and Materials
BACT	Best Available Control Technology
Btu	British thermal unit
CAA	Clean Air Act
CFR	Code of Federal Regulations
CO	carbon monoxide
DEQ	Department of Environmental Quality
dscf	dry standard cubic feet
EPA	U.S. Environmental Protection Agency
gpm	gallons per minute
gr	grain (1 lb = 7,000 grains)
HAPs	hazardous air pollutants
hp	horsepower
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
km	kilometer
landfill gas	gas formed by the decomposition of trash deposited in a landfill
lb/hr	pound per hour
m	meter(s)
MACT	Maximum Achievable Control Technology
MMBtu	million British thermal units
NESHAP	Nation Emission Standards for Hazardous Air Pollutants
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
NSPS	New Source Performance Standards
PM	particulate matter
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
ppm	parts per million
PSD	Prevention of Significant Deterioration
PTC	permit to construct
PTE	potential to emit
PVC	polyvinyl chloride, a common thermoplastic resin used to make plastic pipe
scf	standard cubic feet
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SM	synthetic minor
SO_2	sulfur dioxide
SO_x	sulfur oxides
T/yr	tons per year
$\mu g/m^3$	micrograms per cubic meter
UTM	Universal Transverse Mercator
VOC	volatile organic compound

1. PERMIT TO CONSTRUCT SCOPE

Purpose

1.1 The purpose of this permitting action is to allow for the installation of three new landfill gas flares and the expansion of the landfill gas collection system at Clay Peak Municipal Solid Waste Landfill (Clay Peak). This permitting action modifies the facility's existing permit, which established enforceable requirements for the facility's operations involving the flares and the landfill gas collection system, and the other significant emission sources at the facility in accordance with the *Rules for the Control of Air Pollution in Idaho*.

1.2 Those permit conditions that have been modified or revised by this permitting action are identified by a date citation located directly under the permit condition and on the right hand margin.

1.3 This PTC replaces PTC No. P-020034, issued on February 27, 2004, the terms and conditions of which shall no longer apply.

Regulated Sources

1.4 Table 1.1 lists all sources of regulated emissions in this PTC.

Table 1.1 SUMMARY OF REGULATED SOURCES

Permit Section	Source Description	Emissions Controls
2.	LANDFILL GAS FLARE: NW Flare 1.1 - Landfill Services Corp. model CF-5 flares with a heat input rating of 2.160 MMBtu/hr installed in 2001	None (considered an emission control device when combusting landfill gas)
	LANDFILL GAS FLARE: NE Flare 1.1 - Landfill Services Corp. model CF-5 flares with a heat input rating of 2.160 MMBtu/hr installed in 2001	None (considered an emission control device when combusting landfill gas)
	LANDFILL GAS FLARE: NW Flare 1.2 - Landfill Services Corp. model CF-5 flares with a heat input rating of 2.160 MMBtu/hr installed in 2004	None (considered an emission control device when combusting landfill gas)
	LANDFILL GAS FLARE: NE Flare 1.2 - Landfill Services Corp. model CF-5 flares with a heat input rating of 2.160 MMBtu/hr installed in 2005	None (considered an emission control device when combusting landfill gas)
	LANDFILL GAS FLARE: SW Flare 1.1 - Landfill Services Corp. model CF-5 flares with a heat input rating of 2.160 MMBtu/hr installed in 2007	None (considered an emission control device when combusting landfill gas)
	LANDFILL GAS FLARE: SE Flare 1.1 - Landfill Services Corp. model CF-5 flares with a heat input rating of 2.160 MMBtu/hr installed in 2007	None (considered an emission control device when combusting landfill gas)
	LANDFILL GAS FLARE: SE Flare 1.2 - Landfill Services Corp. model CF-5 flares with a heat input rating of 2.160 MMBtu/hr to be installed in 2008	None (considered an emission control device when combusting landfill gas)

[December 16, 2008]

2. SEVEN LANDFILL GAS FLARES

2.1 Process Description

Four existing flares and three proposed flares will be used at Clay Peak to combust landfill gas from the gas collection system. The four existing flares are connected to a manifold system which consists of perforated PVC pipes running directly from within landfill Cell No. 1. The flares are passively fed systems located on the periphery of Cell No. 1. The three proposed flares will be connected by a new manifold system to the existing flares. The manifold will service the existing PVC pipes and also the proposed gas collection wells that will be drilled across the north and south faces of Cell No. 1. Cell No. 1 will reach its waste acceptance capacity in 2009 at nearly one million tons of garbage.

Each flare has a solar panel that charges a battery pack. The batteries are used to power an arc which continuously fires at the discharge of the flare. This system ensures that the flares continuously combust the collected landfill gas. The landfill gas flow rates are variable. When there is a sufficient gas flow rate, the arc ignites the gas within the flare.

The landfill gas is composed of approximately 55% methane (CH_4), 40 % carbon dioxide (CO_2), 5% nitrogen (N_2), and a small amount of non-methane organic compounds (NMOC). Within the NMOC are some hazardous air pollutants (HAPs) and toxic air pollutants (TAPs). A trace amount of hydrogen sulfide (H_2S) gas is also found in the landfill gas.

[December 16, 2008]

2.2 Emissions Control Description

Particulate matter emissions from the flares are uncontrolled. The NMOC and methane are combusted by the flares at a temperature between 900 – 1,300 °F. The combusted gases have a residence time of 0.6 seconds at low flow and 0.3 seconds at high flow, and the flare achieves a destruction efficiency of greater than 98%.

Table 2.1 SEVEN LANDFILL GAS FLARES DESCRIPTION

Emissions Units/Processes	Emissions Control Device	Emissions Point
Landfill Gas Flare (NW Flare 1.1)	N/A (Note: Is considered an emission control device when combusting biogas)	Exhaust stack NW FLARE 1.1 Exit height: 12.00 ft Exit diameter: N/A Exit flow rate: 30 cfm Exit temperature: 1,832 °F
Landfill Gas Flare (NE Flare 1.1)	N/A (Note: Is considered an emission control device when combusting biogas)	Exhaust stack NE FLARE 1.1 Exit height: 12.00 ft Exit diameter: N/A Exit flow rate: 30 cfm Exit temperature: 1,832 °F
Landfill Gas Flare (NW Flare 1.2)	N/A (Note: Is considered an emission control device when combusting biogas)	Exhaust stack NW FLARE 1.2 Exit height: 12.00 ft Exit diameter: N/A Exit flow rate: 30 cfm Exit temperature: 1,832 °F
Landfill Gas Flare (NE Flare 1.2)	N/A (Note: Is considered an emission control device when combusting biogas)	Exhaust stack NE FLARE 1.2 Exit height: 12.00 ft Exit diameter: N/A Exit flow rate: 30 cfm Exit temperature: 1,832 °F
Landfill Gas Flare (SW Flare 1.1)	N/A (Note: Is considered an emission control device when combusting biogas)	Exhaust stack SW FLARE 1.1 Exit height: 12.00 ft Exit diameter: N/A Exit flow rate: 30 cfm Exit temperature: 1,832 °F
Landfill Gas Flare (SE Flare 1.1)	N/A (Note: Is considered an emission control device when combusting biogas)	Exhaust stack SE FLARE 1.1 Exit height: 12.00 ft Exit diameter: N/A Exit flow rate: 30 cfm Exit temperature: 1,832 °F
Landfill Gas Flare (SE Flare 1.2)	N/A (Note: Is considered an emission control device when combusting biogas)	Exhaust stack SE FLARE 1.2 Exit height: 12.00 ft Exit diameter: N/A Exit flow rate: 30 cfm Exit temperature: 1,832 °F

[December 16, 2008]

Emissions Limits

2.3 Opacity Limit

A person shall not discharge any air pollutant into the atmosphere from any point of emission for a period or periods aggregating more than three minutes in any 60-minute period which is greater than 20% opacity as required by IDAPA 58.01.01.625. Opacity shall be determined by the procedures contained in IDAPA 58.01.01.625.

2.4 Odors

No person shall allow, suffer, cause, or permit the emissions of odorous gases, liquids, or solids to the atmosphere in such quantities as to cause air pollution in accordance with IDAPA 58.01.01.775-776.

2.5 Excess Emissions

The permittee shall comply with the procedures and requirements of IDAPA 58.01.01.130-136 for excess emissions due to startup, shutdown, scheduled maintenance, safety measures, upsets and breakdowns.

2.6 Open Burning

The permittee shall comply with provisions of IDAPA 58.01.01.600-616, *Rules for Control of Open Burning*.

Operating Requirements

2.7 Operations and Maintenance Manual

The permittee shall maintain an O&M manual for the landfill gas flares which describes the procedures that will be followed to comply with General Provision 2 and the manufacturer specifications for the flares. This manual shall remain onsite at all times and shall be made available to DEQ representatives upon request.

[December 16, 2008]

Monitoring and Recordkeeping Requirements

2.8 Visible Emissions Monitoring

The permittee shall conduct a quarterly inspection of visible emissions from each of the flares during daylight hours and under normal operating conditions to demonstrate compliance with Permit Condition 2.4. The inspection shall consist of a see/no see evaluation of each flare for visible emissions. If any visible emissions are present from any flare, the permittee shall either take appropriate corrective action as expeditiously as practicable, or perform a Method 9 opacity test in accordance with the procedures outlined in IDAPA 58.01.01.625. A minimum of 30 observations shall be recorded when conducting the opacity test. If opacity is greater than 20% for a period or periods aggregating more than three minutes in any 60-minute period, the permittee shall take all necessary corrective action and report the exceedance in accordance with IDAPA 58.01.01.130-136.

The permittee shall maintain records of the results of each visible emissions inspection and each opacity test when conducted. The records shall include, at a minimum, the date and results of each inspection and test and a description of the following: the permittee's assessment of the conditions existing at the time visible emissions are present (if observed), any corrective action taken in response to the visible emissions, and the date corrective action was taken.

2.9 Odor Complaints

The permittee shall maintain records of all odor complaints received to demonstrate compliance with Permit Condition 2.5. The permittee shall take appropriate corrective action as expeditiously as practicable. The records shall include, at a minimum, the date each complaint was received and a description of the following: the complaint, the permittee's assessment of the validity of the complaint, any corrective action taken, and the date the corrective action was taken.

2.10 Recordkeeping

The permittee shall comply with the recordkeeping requirements of General Provision 7.

[December 16, 2008]

3. PERMIT TO CONSTRUCT GENERAL PROVISIONS

General Compliance

1. The permittee has a continuing duty to comply with all terms and conditions of this permit. All emissions authorized herein shall be consistent with the terms and conditions of this permit and the Rules for the Control of Air Pollution in Idaho. The emissions of any pollutant in excess of the limitations specified herein, or noncompliance with any other condition or limitation contained in this permit, shall constitute a violation of this permit and the Rules for the Control of Air Pollution in Idaho, and the Environmental Protection and Health Act, Idaho Code §39-101, et seq.

[Idaho Code §39-101, et seq.]

2. The permittee shall at all times (except as provided in the Rules for the Control of Air Pollution in Idaho) maintain in good working order and operate as efficiently as practicable, all treatment or control facilities or systems installed or used to achieve compliance with the terms and conditions of this permit and other applicable Idaho laws for the control of air pollution.

[IDAPA 58.01.01.211, 5/1/94]

3. Nothing in this permit is intended to relieve or exempt the permittee from the responsibility to comply with all applicable local, state, or federal statutes, rules and regulations.

[IDAPA 58.01.01.212.01, 5/1/94]

Inspection and Entry

4. Upon presentation of credentials, the permittee shall allow DEQ or an authorized representative of DEQ to do the following:

   a. Enter upon the permittee's premises where an emissions source is located or emissions related activity is conducted, or where records are kept under conditions of this permit;

   b. Have access to and copy, at reasonable times, any records that are kept under the conditions of this permit;

   c. Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit; and

   d. As authorized by the Idaho Environmental Protection and Health Act, sample or monitor, at reasonable times, substances or parameters for the purpose of determining or ensuring compliance with this permit or applicable requirements.

[Idaho Code §39-108]

Construction and Operation Notification

5. The permittee shall furnish DEQ written notifications as follows in accordance with IDAPA 58.01.01.211:

   a. A notification of the date of initiation of construction, within five working days after occurrence;

   b. A notification of the date of any suspension of construction, if such suspension lasts for one year or more;

   c. A notification of the anticipated date of initial start-up of the stationary source or facility not more than sixty days or less than thirty days prior to such date;

d. A notification of the actual date of initial start-up of the stationary source or facility within fifteen days after such date; and

e. A notification of the initial date of achieving the maximum production rate, within five working days after occurrence - production rate and date.

[IDAPA 58.01.01.211, 5/1/94]

Performance Testing

6. If performance testing (air emissions source test) is required by this permit, the permittee shall provide notice of intent to test to DEQ at least 15 days prior to the scheduled test date or shorter time period as approved by DEQ. DEQ may, at its option, have an observer present at any emissions tests conducted on a source. DEQ requests that such testing not be performed on weekends or state holidays.

   All performance testing shall be conducted in accordance with the procedures in IDAPA 58.01.01.157. Without prior DEQ approval, any alternative testing is conducted solely at the permittee's risk. If the permittee fails to obtain prior written approval by DEQ for any testing deviations, DEQ may determine that the testing does not satisfy the testing requirements. Therefore, at least 30 days prior to conducting any performance test, the permittee is encouraged to submit a performance test protocol to DEQ for approval. The written protocol shall include a description of the test method(s) to be used, an explanation of any or unusual circumstances regarding the proposed test, and the proposed test schedule for conducting and reporting the test.

   Within 30 days following the date in which a performance test required by this permit is concluded, the permittee shall submit to DEQ a performance test report. The written report shall include a description of the process, identification of the test method(s) used, equipment used, all process operating data collected during the test period, and test results, as well as raw test data and associated documentation, including any approved test protocol.

[IDAPA 58.01.01.157, 4/5/00]

Monitoring and Recordkeeping

7. The permittee shall maintain sufficient records to ensure compliance with all of the terms and conditions of this permit. Records of monitoring information shall include, but not be limited to the following: (a) the date, place, and times of sampling or measurements; (b) the date analyses were performed; (c) the company or entity that performed the analyses; (d) the analytical techniques or methods used; (e) the results of such analyses; and (f) the operating conditions existing at the time of sampling or measurement. All monitoring records and support information shall be retained for a period of at least five years from the date of the monitoring sample, measurement, report, or application. Supporting information includes, but is not limited to, all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation and copies of all reports required by this permit. All records required to be maintained by this permit shall be made available in either hard copy or electronic format to DEQ representatives upon request.

[IDAPA 58.01.01.211, 5/1/94]

Excess Emissions

8. The permittee shall comply with the procedures and requirements of IDAPA 58.01.01.130-136 for excess emissions due to startup, shutdown, scheduled maintenance, safety measures, upsets and breakdowns.

[IDAPA 58.01.01.130-136, 4/5/00]

Certification

9. All documents submitted to DEQ, including, but not limited to, records, monitoring data, supporting information, requests for confidential treatment, testing reports, or compliance certification shall contain a certification by a responsible official. The certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document(s) are true, accurate, and complete.

[IDAPA 58.01.01.123, 5/1/94]

False Statements

10. No person shall knowingly make any false statement, representation, or certification in any form, notice, or report required under this permit, or any applicable rule or order in force pursuant thereto.

[IDAPA 58.01.01.125, 3/23/98]

Tampering

11. No person shall knowingly render inaccurate any monitoring device or method required under this permit or any applicable rule or order in force pursuant thereto.

[IDAPA 58.01.01.126, 3/23/98]

Transferability

12. This permit is transferable in accordance with procedures listed in IDAPA 58.01.01.209.06.

[IDAPA 58.01.01.209.06, 4/11/06]

Severability

13. The provisions of this permit are severable, and if any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

[IDAPA 58.01.01.322.15.h, 5/1/94; 40 CFR 70.6(a)(5)]

State of Idaho
Department of Environmental Quality
Air Quality Division

AIR QUALITY PERMIT
STATEMENT OF BASIS

Permit to Construct No. P-2008.0078

Final

Payette County

Clay Peak Municipal Solid Waste Landfill

Payette, Idaho

Facility ID No. 075-00009

December 12, 2008

Darrin Pampaian D.P.

Permit Writer

The purpose of this Statement of Basis is to satisfy the requirements of IDAPA 58.01.01.et seq, Rules for the Control of Air Pollution in Idaho, for issuing air permits.

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Acronyms, Units, and Chemical Nomenclature

acfm	actual cubic feet per minute
AFS	AIRS Facility Subsystem
AIRS	Aerometric Information Retrieval System
AQCR	Air Quality Control Region
Btu	British thermal unit
CAA	Clean Air Act
CFR	Code of Federal Regulations
CO	carbon monoxide
DEQ	Department of Environmental Quality
dscf	dry standard cubic feet
EPA	U.S. Environmental Protection Agency
HAP	Hazardous Air Pollutant
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
lb/hr	pounds per hour
m	meter(s)
Mg	Megagram(s), equivalent to 1.102 tons
$\mu g/m^3$	micrograms per cubic meter
MMBtu	million British thermal units
MSW	Municipal Solid Waste
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
NSPS	New Source Performance Standards
PC	permit condition
PM	particulate matter
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
ppm	parts per million
PSD	Prevention of Significant Deterioration
PTC	permit to construct
PTE	potential to emit
Rules	Rules for the Control of Air Pollution in Idaho
scf	standard cubic feet
SIC	Standard Industrial Classification
SM	Synthetic Minor
SO_2	sulfur dioxide
SO_x	sulfur oxides
TAP	Toxic Air Pollutant
T2	Tier II operating permit
T2/PTC	Tier II operating permit and permit to construct
T/yr	tons per year
UTM	Universal Transverse Mercator
VOC	volatile organic compound

1. FACILITY INFORMATION

1.1 Facility Description

The Clay Peak Municipal Solid Waste Landfill (Clay Peak) is located at 2560 Highway 52 in Payette, ID. The landfill is owned and operated by Payette County. The landfill commenced operations in October 1993. The landfill is a portion of a rural 1,340 acre site of semi-arid mountainous terrain. The landfill has a maximum design capacity of approximately 27.6 million cubic yards which is divided into three cells. On average, the landfill receives 300 to 550 tons of garbage per day. At Clay Peak, it is estimated that approximately four acres of surface soil is disturbed at any one time during normal operations. This cumulative four acres involves three main activities at the landfill:

1) Covering garbage with dirt at the working face of the landfill,
2) Surface mining of dirt for use as cover, and
3) Aerating compost rows and screening compost.

Water trucks are used continuously to suppress fugitive dust emissions from vehicles driving on unpaved roads at the landfill.

1.2 Permitting Action and Facility Permitting History

This PTC is a modification of existing PTC P-020034 at an existing facility.

The following information was derived from a review of the permit files available to DEQ. Permit status is noted as active and in effect (A) or superseded (S).

February 24, 2004 PTC permit P-020034 was issued (S).

2. APPLICATION SCOPE AND APPLICATION CHRONOLOGY

2.1 Application Scope

This application modifies PTC No. P-020034 by allowing the installation of three new landfill gas flares (for a total of seven flares) and the expansion of the landfill gas collection system.

2.2 Application Chronology

May 15, 2008	DEQ Received Permit to Construct application.
May 21, 2008	DEQ declared the application incomplete.
September 2, 2008	DEQ declared the application complete.
October 27, 2008	DEQ sent a draft PTC to the facility for review.
November 6, 2008	$5,000 PTC processing fee was received.
December 16, 2008	Final permit and statement of basis were issued.

3. TECHNICAL ANALYSIS

3.1 Emission Unit and Control Device

Table 3.1 EMISSION UNIT AND CONTROL DEVICE INFORMATION

Emission Unit /ID No.	Emissions Unit Description	Control Device Description	Emissions Discharge Point ID No. and/or Description
Municipal Waste Landfill	Landfill gas: 505,000 cubic feet per day	Seven flares	N/A
Landfill Gas Flare/NW Flare 1.1	Manufacturer: Landfill Services Corp. Model No.: CF-5 Rated Heat Input: 2.160 MMBtu/hr Date of Installation: 2001	N/A (Note: Is considered an emission control device when combusting landfill gas)	NW FLARE 1.1 Exit height: 12.00 ft Exit diameter: N/A[1] Exit flow rate: 30 acfm Exit temperature: 1,832 °F
Landfill Gas Flare/NE Flare 1.1	Manufacturer: Landfill Services Corp. Model No.: CF-5 Rated Heat Input: 2.160 MMBtu/hr Date of Installation: 2001	N/A (Note: Is considered an emission control device when combusting landfill gas)	NE FLARE 1.1 Exit height: 12.00 ft Exit diameter: N/A Exit flow rate: 30 acfm Exit temperature: 1,832 °F
Landfill Gas Flare/NW Flare 1.2	Manufacturer: Landfill Services Corp. Model No.: CF-5 Rated Heat Input: 2.160 MMBtu/hr Date of Installation: 2004	N/A (Note: Is considered an emission control device when combusting landfill gas)	NW FLARE 1.2 Exit height: 12.00 ft Exit diameter: N/A Exit flow rate: 30 acfm Exit temperature: 1,832 °F
Landfill Gas Flare/NE Flare 1.2	Manufacturer: Landfill Services Corp. Model No.: CF-5 Rated Heat Input: 2.160 MMBtu/hr Date of Installation: 2005	N/A (Note: Is considered an emission control device when combusting landfill gas)	NE FLARE 1.2 Exit height: 12.00 ft Exit diameter: N/A Exit flow rate: 30 acfm Exit temperature: 1,832 °F
Landfill Gas Flare/SW Flare 1.1	Manufacturer: Landfill Services Corp. Model No.: CF-5 Rated Heat Input: 2.160 MMBtu/hr Date of Installation: 2007	N/A (Note: Is considered an emission control device when combusting landfill gas)	SW FLARE 1.1 Exit height: 12.00 ft Exit diameter: N/A Exit flow rate: 30 acfm Exit temperature: 1,832 °F
Landfill Gas Flare/SE Flare 1.1	Manufacturer: Landfill Services Corp. Model No.: CF-5 Rated Heat Input: 2.160 MMBtu/hr Date of Installation: 2007	N/A (Note: Is considered an emission control device when combusting landfill gas)	SE FLARE 1.1 Exit height: 12.00 ft Exit diameter: N/A Exit flow rate: 30 acfm Exit temperature: 1,832 °F
Landfill Gas Flare/SE Flare 1.2	Manufacturer: Landfill Services Corp. Model No.: CF-5 Rated Heat Input: 2.160 MMBtu/hr Date of Installation: proposed for 2008	N/A (Note: Is considered an emission control device when combusting landfill gas)	SE FLARE 1.2 Exit height: 12.00 ft Exit diameter: N/A Exit flow rate: 30 acfm Exit temperature: 1,832 °F

[1] – The opening of a flare is not considered a stack since combustion takes place beyond the tip of the flare.

3.2 Emissions Inventory

An emissions inventory for the landfill and the flares was developed and submitted by the facility. The emissions inventory is based on landfill gas estimates using LandGEM, emission factors from sections in AP-42 (section 2.4-5), the sources and emission controls descriptions summarized in the application, and the following operational limits: a maximum H_2S concentration of 46.9 ppmv for the landfill gas, a maximum methane gas flow rate of 17.98 cfm, a total maximum gas flow rate of 46.9 cfm, a maximum NMOC flow rate of 0.0194 cfm (all determined using LandGEM), and worst-case maximum operation of the equipment of 8,760 hours per year.

A summary of the uncontrolled and controlled point source emissions are shown in Tables 3.2, 3.3, and 3.4. The controlled emissions inventories are provided in Appendix C.

Table 3.2 POST PROJECT UNCONTROLLED EMISSIONS ESTIMATES OF CRITERIA POLLUTANTS

Emissions Unit	PM_{10}	SO_2	NOx	CO	VOC	Lead
	T/yr	T/yr	T/yr	T/yr	T/yr	lb/quarter
Point Sources Affected by this Permitting Action						
Landfill (Total gas sent to the flares to be combusted)[1]	0	0	0	0	8.005	0
Total, Point Sources	**0.0**	**0.0**	**0.0**	**0.0**	**8.005**	**0**
Process Fugitive/Volume Sources Affected by this Permitting Action						
Heavy Equipment Operation (Hvy Equip)	1.11	5.79	57.24	4.18	0	0
Landfill Road Dust (Road-1)	4.59	0	0	0	0	0
Earthwork activity (Dirt-1)	57.60	0	0	0	0	0
Wood chip/Grinding (Chip-1)	0.71	1.25	8.95	1.42	0	0
Rock and compost screening (SCR-1)	0.05	0.32	3.03	0.22	0	0
Rock and compost screening (SCR-2)	0.05	0.32	3.03	0.22	0	0
Total, Process Fugitives	**64.11**	**7.68**	**72.25**	**6.04**	**0.0**	**0**

[1] – Calculated using LandGEM to determine maximum uncontrolled NMOC emissions from the landfill (see Appendix B). Note: Worst-case (highest) VOC emissions from the landfill will occur in year 2011. This worst-case scenario was used to determine potential emissions from the flares.

Table 3.3 PRE-PROJECT CONTROLLED EMISSIONS ESTIMATES OF CRITERIA POLLUTANTS

Emissions Unit	PM_{10}		SO_2		NO_x		CO		VOC		Lead	
	lb/hr[1]	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Point Sources Affected by the Permitting Action												
NW Flare 1.1	0.033	0.146	0.00552	0.0242	0.079	0.344	1.473	6.450	0.0019	0.008	0	0
NE Flare 1.1	0.033	0.146	0.00552	0.0242	0.079	0.344	1.473	6.450	0.0019	0.008	0	0
NW Flare 1.2	0.033	0.146	0.00552	0.0242	0.079	0.344	1.473	6.450	0.0019	0.008	0	0
NE Flare 1.2	0.033	0.146	0.00552	0.0242	0.079	0.344	1.473	6.450	0.0019	0.008	0	0
Pre-Project Totals	**0.13**	**0.58**	**0.02**	**0.10**	**0.32**	**1.38**	**5.89**	**25.80**	**0.01**	**0.03**	**0.0**	**0.0**

Table 3.4 POST PROJECT CONTROLLED EMISSIONS ESTIMATES OF CRITERIA POLLUTANTS

Emissions Unit	PM_{10}		SO_2		NO_x		CO		VOC		Lead	
	lb/hr[1]	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Point Sources Affected by the Permitting Action												
NW Flare 1.1	0.033	0.146	0.00552	0.0242	0.079	0.344	1.472	6.449	0.0019	0.008	0	0
NE Flare 1.1	0.033	0.146	0.00552	0.0242	0.079	0.344	1.472	6.449	0.0019	0.008	0	0
NW Flare 1.2	0.033	0.146	0.00552	0.0242	0.079	0.344	1.472	6.449	0.0019	0.008	0	0
NE Flare 1.2	0.033	0.146	0.00552	0.0242	0.079	0.344	1.472	6.449	0.0019	0.008	0	0
SW Flare 1.1	0.033	0.146	0.00552	0.0242	0.079	0.344	1.472	6.449	0.0019	0.008	0	0
SE Flare 1.1	0.033	0.146	0.00552	0.0242	0.079	0.344	1.472	6.449	0.0019	0.008	0	0
SE Flare 1.2	0.033	0.146	0.00552	0.0242	0.079	0.344	1.472	6.449	0.0019	0.008	0	0
Post Project Totals	**0.23**	**1.02**	**0.04**	**0.17**	**0.55**	**2.41**	**10.30**	**45.14**	**0.01**	**0.06**	**0.0**	**0.0**

Table 3.5 CHANGES IN EMISSIONS ESTIMATES OF CRITERIA POLLUTANTS

Emissions Unit	PM_{10}		SO_2		NO_x		CO		VOC		Lead	
	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Point Sources Affected by the Permitting Action												
Pre-Project Totals	0.13	0.58	0.02	0.10	0.32	1.38	5.89	25.80	0.01	0.03	0	0
Post Project Totals	0.23	1.02	0.04	0.17	0.55	2.41	10.30	45.14	0.01	0.06	0	0
Facility Total Change in Emissions	**0.10**	**0.44**	**0.02**	**0.07**	**0.23**	**1.03**	**4.41**	**19.34**	**0.00**	**0.03**	**0**	**0**

Table 3.6 CONTROLLED TAP AND HAP EMISSIONS SUMMARY

Non-Carcinogenic Toxic Air Pollutants	24-hour Average Emissions Rates for Units at the Facility[1,2] (lb/hr)	Non-Carcinogenic Screening Emission Level[3] (lb/hr)	Exceeds Screening Level? (Y/N)
Acetone	2.898E-04	1.67	N
Carbon disulfide	3.148E-05	2	N
Carbonyl sulfide	2.098E-05	0.027	N
Chlorobenzene	2.006E-05	23.3	N
Dichlorobenzene	2.200E-05	20	N
Dichlorofluoromethane	1.908E-04	2.67	N
Ethylbenzene	3.482E-04	29	N
Ethyl chloride	5.980E-05	176	N
Ethyl mercaptan	1.019E-04	0.067	N
Hexane	4.054E-04	12	N
Hydrogen sulfide	8.748E-04	0.933	N
Isopropyl alcohol	2.14E-03	65.3	N
Mercury (total)	4.148E-08	0.001	N
Methyl chloroform	4.566E-05	127	N
Methyl ethyl ketone	3.650E-04	39.3	N
Methyl isobutyl ketone	1.356E-04	13.7	N
Methyl mercaptan	8.572E-05	0.033	N
Pentane	1.697E-04	118	N
Propylene dichloride	1.450E-05	23.133	N
Toluene - No or Unknown Co-disposal	2.562E-03	25	N
Toluene - Co-disposal	1.116E-02	25	N
Trichloroethylene	2.622E-04	17.93	N
Xylenes	9.080E-04	29	N

[1] – The facility modeled total emissions for all units located at the facility.

[2] – These emissions were calculated using LandGEM to determine maximum uncontrolled emissions from the landfill (see Appendix B). The flare is assumed to provide 98% control. Therefore, the emission levels presented have been reduced by 98%.

Table 3.7 CONTROLLED TAP AND HAP EMISSIONS SUMMARY

Carcinogenic Toxic Air Pollutants	Annual Average Emissions Rates for Units at the Facility[1,2] (lb/hr)	Carcinogenic Screening Emission Level[2] (lb/hr)	Exceeds Screening Level? (Y/N)
Acrylonitrile	2.38E-04	9.8E-05	Y
Benzene - No or Unknown Co-disposal	1.058E-04	8.0E-04	N
Benzene - Co-disposal	6.12E-04	8.0E-04	N
Carbon tetrachloride	4.386E-07	4.4E-04	N
Chloroform	2.560E-06	2.8E-04	N
1,1-Dichloroethane (ethylidene dichloride)	1.693E-04	2.5E-04	N
1,2-Dichloroethane (ethylene dichloride)	2.892E-05	2.5E-04	N
t-1 ,2-Dichloroethene	1.935E-04	2.5E-04	N
Dichloromethane (Methylene chloride)	8.476E-04	1.6E-03	N
Ethylene dibromide	1.339E-07	3.0E-05	N
Tetrachloroethylene	4.374E-04	1.3E-02	N
1,1,2,2-Tetrachloro-ethane	1.316E-04	1.1E-05	Y
Vinyl chloride	3.252E-04	9.4E-04	N

[1] – The facility modeled total emissions for all units located at the facility.
[2] – These emissions were calculated using LandGEM to determine maximum uncontrolled emissions from the landfill (see Appendix B). The flare is assumed to provide 98% control. Therefore, the emission levels presented have been reduced by 98%.

3.3 Ambient Air Quality Impact Analysis

Table 3.8 FULL IMPACT ANALYSIS RESULTS FOR CRITERIA POLLUTANTS

Pollutant	Averaging Period	Facility Ambient Impact ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Ambient Concentration ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	Percent of NAAQS
PM_{10}	24-hour	< 5.0	N/A	N/A	150	N/A
	Annual	< 1.0	N/A	N/A	50	N/A
NO_2	Annual	< 1.0	N/A	N/A	100	N/A
SO_2	3-hr	< 25	N/A	N/A	1,300	N/A
	24-hr	< 5	N/A	N/A	365	N/A
	Annual	< 1.0	N/A	N/A	80	N/A
CO	1-hour	< 2,000	N/A	N/A	40,000	N/A
	8-hour	< 500	N/A	N/A	10,000	N/A
Pb	Quarterly	N/A	N/A	N/A	1.5	N/A

N/A: The emissions rate is below the modeling threshold; modeling is not required in accordance with State of Idaho Air Quality Modeling Guidance DEQ Publication, December 2002, or alternative threshold approved by DEQ Modeling Coordinator.

Table 3.9 FULL IMPACT ANALYSIS RESULTS FOR TAPs

Pollutant	Average Period	Concentration (mg/m^3 or $\mu g/m^3$)	Regulatory AAC/AACC (mg/m^3 or $\mu g/m^3$)	Percent of Limit
Acrylonitrile	Annual	1.13E-3	1.5E-2	7.5%
1,1,2,2-Tetrachloro-ethane	Annual	6.24E-4	1.7E-2	3.7%

Note: AACs are in units of milligrams per meter cubed whereas AACCs are in units of micrograms per meter cubed. Convert AACs from milligrams per meter cubed to micrograms per meter cubed.

4. REGULATORY REVIEW

4.1 Attainment Designation (40 CFR 81.313)

Clay Peak is located in Payette County (AQCR 63) which is designated as unclassifiable/attainment for $PM_{2.5}$, PM_{10}, SO_2, NO_x, CO, and ozone for federal and state criteria air pollutants. Reference 40 CFR 81.313.

4.2 Permit to Construct (IDAPA 58.01.01.201)

IDAPA 58.01.01.201 ..... Permit to Construct Required

The facility's proposed project does not meet the permit to construct exemption criteria contained in Sections 220 through 223 of the Rules. Therefore, a PTC is required.

4.3 Tier II Operating Permit (IDAPA 58.01.01.401)

IDAPA 58.01.01.401 ..... Tier II Operating Permit

The facility does not have or is required to have a Tier II permit in accordance with IDAPA 58.01.01.401. Therefore, the requirements of IDAPA 58.01.01.401 do not apply.

4.4 Title V Classification (IDAPA 58.01.01.300, 40 CFR Part 70)

IDAPA 58.01.01.301 ..... Tier I Operating Permit

The facility is not a Tier I source in accordance with IDAPA 58.01.01.006.113. Therefore, the requirements of IDAPA 58.01.01.301 do not apply.

4.5 Visible Emissions (IDAPA 58.01.01.625)

IDAPA 58.01.01.312..... Visible Emissions

The flares located at this facility are subject to the state of Idaho visible emissions standard of 20% opacity. This requirement is assured by Permit Condition 2.3.

4.6 Rules for the Control of Odors (IDAPA 58.01.01.775-776)

IDAPA 58.01.01.775-776..... Rules for the Control of Odors

The facility is subject to the general restrictions for the control of odors from the Clay Peak facility. This requirement is assured by Permit Condition 2.4.

4.7 Rules for Control of Incinerators-Emissions Limits (IDAPA 58.01.01.785)

IDAPA 58.01.01.785..... Rules for Control of Incinerators-Emissions Limits

The flares at this facility were previously determined to be subject to the particulate matter emission rate standard for refuse incinerators. This was because an incinerator is defined by IDAPA 58.01.01.006.55, which reads in part:

> "Any source consisting of a furnace and all appurtenances thereto designed for the destruction of refuse by burning. For purposes of these rules, the destruction of any combustible liquid or gaseous material by burning in a flare stack shall be considered incineration."

However, the intent of this Rule is to limit particulate matter emissions from the combustion of refuse. Refuse is not defined in IDAPA 58.01.01.006; therefore, the common definition is applied as follows.

> "Refuse: Something that is discarded as worthless or useless; rubbish; trash; garbage."

Since the flares at this facility combust landfill gas exclusively and do not combust "refuse," it was determined that this Rule does not apply.

4.8 Startup, Shutdown, Scheduled Maintenance, Safety Measures, Upset, and Breakdown (IDAPA 58.01.01.130-136)

IDAPA 58.01.01.312..... Startup, Shutdown, Scheduled Maintenance, Safety Measures, Upset, and Breakdown

The flares located at this facility are subject to the state of Idaho procedures and requirements to be implemented in all excess emissions events when the excess emissions are caused by startup, shutdown, scheduled maintenance, upset, or breakdown of any emissions unit or which occur as a direct result of the implementation of any safety measure. This requirement is assured by Permit Condition 2.5.

4.9 Rules for the Control of Open Burning - Flares (IDAPA 58.01.01.610)

IDAPA 58.01.01.610..... Rules for the Control of Open Burning - Flares

The flares located at this facility are subject to the rules for open burning, specifically IDAPA 58.01.01.610, which reads, in part:

> "Industrial flares, used for the combustion of flammable gases are allowable forms of open burning. Industrial flares are subject to permitting requirements in Sections 200 through 223."

IDAPA 58.01.01.200 - 223 establishes uniform procedures and requirements for the issuance of "Permits to Construct." This requirement is assured by Permit Condition 2.6.

4.10 PSD Classification (40 CFR 52.21)

40 CFR 52.21 ..... Prevention of Significant Deterioration Of Air Quality

The facility is not a major stationary source as defined in 40 CFR 52.21(b)(1), nor is it undergoing any physical change at a stationary source, not otherwise qualifying under paragraph 40 CFR 52.21(b)(1) as a major stationary source, that would constitute a major stationary source by itself as defined in 40 CFR 52. Therefore, in accordance with 40 CFR 52.21(a)(2), the PSD requirements do not apply.

4.11 NSPS Applicability (40 CFR 60)

40 CFR 60-Subpart WWW Standards of Performance for Municipal Solid Waste Landfills

To be subject to Subpart WWW the MSW landfill must meet the requirements set forth in Subpart Cc - Emissions Guidelines and Compliance Times for MSW Landfills. In accordance with 40 CFR 60.33c of Subpart Cc, the MSW landfill must meet all of the following conditions to be applicable to this section. These conditions are:

- The landfill has accepted waste at any time since November 8, 1987,
- The landfill has a design capacity greater than or equal to 2.5 million Mg, and
- The landfill has a NMOC emission rate of 50 Mg per year or more.

Only the first condition applies to Clay Peak, as this facility was opened in October 1993. However, the second and third requirements do not apply to this landfill. The garbage design capacity for Clay Peak is 0.909 million Mg, which is less than the threshold of this subpart of 2.5 million Mg. Also, the third condition doesn't apply to Clay Peak because the NMOC emissions rate from Clay Peak is estimated to be 7.262 Mg/yr (this maximum emissions rate will occur in 2011), which is less than the 50 Mg/yr of this subpart requirement. The NMOC emissions rate for Clay Peak was determined using LandGEM v. 3.02 (see Appendix B).

Therefore, the requirements of 40 CFR 60, Subpart WWW, do not apply to Clay Peak.

4.12 NESHAP Applicability (40 CFR 61)

No NESHAP applies to this facility.

4.13 MACT Applicability (40 CFR 63)

No MACT applies to this facility because it is a minor source of HAPs.

4.14 CAM Applicability (40 CFR 64)

The facility is a minor facility for purposes of Title V, and is therefore not subject to CAM requirements.

4.15 Permit Conditions Review

This section describes the permit conditions for this initial permit or only those permit conditions that have been added, revised, modified or deleted as a result of this permitting action.

Old Table 1.1 from PTC No. P-020034 has been updated per current DEQ practices.

Old Permit Condition 2.1 from PTC No. P-020034 has been updated to reflect the addition of three flares per the Applicant.

Table 2.1 has been added to properly identify the sources of emissions at the facility per current DEQ practices.

Old Permit Condition 2.3 from PTC No. P-020034 has been removed since the requirements of IDAPA 58.01.01.786, *Emissions Limits*, are no longer applicable.

Old Permit Condition 2.8 from PTC No. P-020034 has been removed since the requirements of IDAPA 58.01.01.550, *Air Pollution Emergency Rule*, are no longer applicable.

Old Permit Conditions 2.9 through 2.11 from PTC No. P-020034 have been renumbered to new permit conditions 2.7 through 2.9. In addition, the language of new permit condition 2.7 has been updated to reflect that the flares have been operating at the facility since 2004.

New Permit Condition 2.10 has been added to require recordkeeping per General Condition 7 of the updated permit.

5. PERMIT FEES

Table 5.1 lists the processing fee associated with this permitting action. The facility is subject to a processing fee of $5,000.00 because its permitted annual change in emissions is 20.91 T/yr. Refer to the chronology for fee receipt dates.

Table 5.1 PTC PROCESSING FEE TABLE

Emissions Inventory			
Pollutant	**Annual Emissions Increase (T/yr)**	**Annual Emissions Reduction (T/yr)**	**Annual Emissions Change (T/yr)**
PM_{10}	0.44	0	0.44
SO_2	0.07	0	0.07
NO_x	1.03	0	1.03
CO	19.34	0	19.34
VOC	0.03	0	0.03
HAPS[1]	0	0	0
Totals:	**20.91**	**0.00**	**20.91**
Fee Due	**$5,000.00 Based upon an annual increase in emissions of > 10 T/yr to < 100 t/yr for a modification to an existing source**		

6. PUBLIC COMMENT

An opportunity for public comment period on the PTC application was provided from May 21, 2008, to June 5, 2008, in accordance with IDAPA 58.01.01.209.01.c. During this time, there were no comments on the application, and there was not a request for a public comment period on DEQ's proposed action.

Appendix A – AIRS Information

AIRS/AFS Facility-wide Classification Form

Facility Name: Clay Peak Municipal Solid Waste Landfill

Facility Location: 2560 Hwy. 52, Payette, ID 83661

Facility ID: 075-00009 **Date:** October 30, 2008

Project/Permit No.: P-2008.0078 **Completed By:** Darrin Pampaian

☒ Check if there are no changes to the facilitywide classification resulting from this action. (compare to form with last permit)

☐ Yes, this facility is an SM80 source.

Identify the facility's area classification as A (attainment), N (nonattainment), or U (unclassified) for the following pollutants:

	SO2	PM10	VOC
Area Classification:	U	U	U

DO NOT LEAVE ANY BLANK

Check one of the following:

☒ **SIP** [0] - Yes, this facility is subject to SIP requirements. (do not use if facility is Title V)

OR

☐ **Title V** [V] - Yes, this facility is subject to Title V requirements. (If yes, do not also use SIP listed above.)

For SIP or TV, identify the classification (A, SM, B, C, or ND) for the pollutants listed below. Leave box blank if pollutant is not applicable to facility.

	SO2	NOx	CO	PM10	PT (PM)	VOC	THAP
Classification:	B	B	B	B	B	B	B

☐ **PSD** [6] - Yes, this facility has a PSD permit.

If yes, identify the pollutant(s) listed below that apply to PSD. Leave box blank if pollutant does not apply to PSD.

	SO2	NOx	CO	PM10	PT (PM)	VOC	THAP
Classification:	☐	☐	☐	☐	☐	☐	☐

☐ **NSR - NAA** [7] - Yes, this facility is subject to NSR nonattainment area (IDAPA 58.01.01.204) requirements.

Note: As of 9/12/08, Idaho has no facility in this category.

If yes, identify the pollutant(s) listed below that apply to NSR-NAA. Leave box blank if pollutant does not apply to NSR - NAA.

	SO2	NOx	CO	PM10	PT (PM)	VOC	THAP
Classification:	☐	☐	☐	☐	☐	☐	☐

☐ **NESHAP** [8] - Yes, this facility is subject to NESHAP (Part 61) requirements. (THAP only)

If yes, what CFR Subpart(s) is applicable?

☐ **NSPS** [9] - Yes, this facility is subject to NSPS (Part 60) requirements.

If yes, what CFR Subpart(s) is applicable?

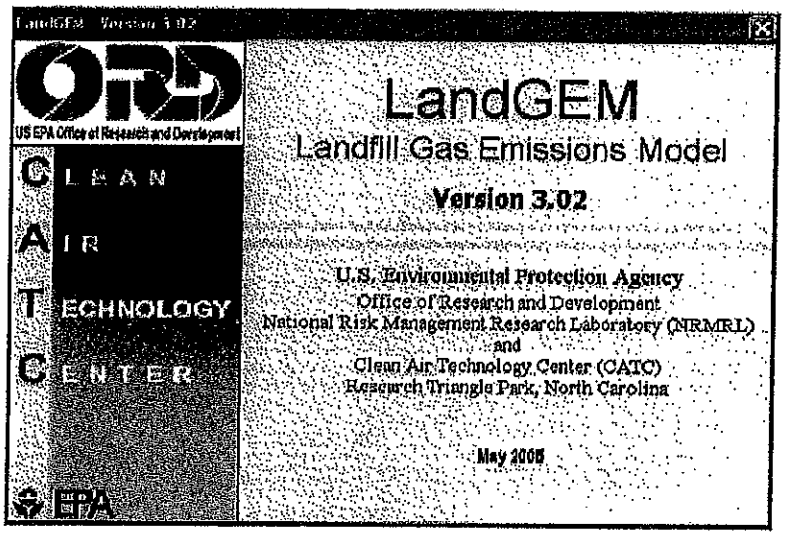
If yes, identify the pollutant(s) regulated by the subpart(s) listed above. Leave box blank if pollutant does not apply to the NSPS.

	SO2	NOx	CO	PM10	PT (PM)	VOC	THAP
Classification:	☐	☐	☐	☐	☐	☐	☐

☐ **MACT** [M] - Yes, this facility is subject to MACT (Part 63) requirements. (THAP only)

If yes, what CFR Subpart(s) is applicable?

Appendix B – LandGEM Calculations



Summary Report

Landfill Name or Identifier: Clay Peak Landfill, Payette County, Idaho

Date: Thursday, July 03, 2008

Description/Comments:

About LandGEM:

First-Order Decomposition Rate Equation:

$$Q_{CH_4} = \sum_{i=1}^{n} \sum_{j=0.1}^{1} k L_o \left(\frac{M_i}{10} \right) e^{-k t_{ij}}$$

Where,

Q_{CH_4} = annual methane generation in the year of the calculation ($m^3/year$)
i = 1-year time increment
n = (year of the calculation) - (initial year of waste acceptance)
j = 0.1-year time increment
k = methane generation rate ($year^{-1}$)
L_o = potential methane generation capacity (m^3/Mg)
M_i = mass of waste accepted in the ith year (Mg)
t_{ij} = age of the jth section of waste mass M_i accepted in the ith year (*decimal years*, e.g., 3.2 years)

LandGEM is based on a first-order decomposition rate equation for quantifying emissions from the decomposition of landfilled waste in municipal solid waste (MSW) landfills. The software provides a relatively simple approach to estimating landfill gas emissions. Model defaults are based on empirical data from U.S. landfills. Field test data can also be used in place of model defaults when available. Further guidance on EPA test methods, Clean Air Act (CAA) regulations, and other guidance regarding landfill gas emissions and control technology requirements can be found at http://www.epa.gov/ttnatw01/landfill/landflpg.html.

LandGEM is considered a screening tool — the better the input data, the better the estimates. Often, there are limitations with the available data regarding waste quantity and composition, variation in design and operating practices over time, and changes occurring over time that impact the emissions potential. Changes to landfill operation, such as operating under wet conditions through leachate recirculation or other liquid additions, will result in generating more gas at a faster rate. Defaults for estimating emissions for this type of operation are being developed to include in LandGEM along with defaults for convential landfills (no leachate or liquid additions) for developing emission inventories and determining CAA applicability. Refer to the Web site identified above for future updates.

Input Review

LANDFILL CHARACTERISTICS

Landfill Open Year	1994	
Landfill Closure Year (with 80-year limit)	2010	
Actual Closure Year (without limit)	*2010*	
Have Model Calculate Closure Year?	Yes	
Waste Design Capacity	1,200,000	*short tons*

MODEL PARAMETERS

Methane Generation Rate, k	0.020	*year^{-1}*
Potential Methane Generation Capacity, L_o	100	*m^3/Mg*
NMOC Concentration	595	*ppmv as hexane*
Methane Content	55	*% by volume*

GASES / POLLUTANTS SELECTED

Gas / Pollutant #1:	**Total landfill gas**
Gas / Pollutant #2:	**Methane**
Gas / Pollutant #3:	**Carbon dioxide**
Gas / Pollutant #4:	**NMOC**

WASTE ACCEPTANCE RATES

Year	Waste Accepted		Waste-In-Place	
	(Mg/year)	*(short tons/year)*	*(Mg)*	*(short tons)*
1994	34,000	37,400	0	0
1995	49,500	54,450	34,000	37,400
1996	51,500	56,650	83,500	91,850
1997	52,000	57,200	135,000	148,500
1998	58,000	63,800	187,000	205,700
1999	69,000	75,900	245,000	269,500
2000	71,000	78,100	314,000	345,400
2001	71,000	78,100	385,000	423,500
2002	71,190	78,309	456,000	501,600
2003	73,296	80,626	527,190	579,909
2004	72,510	79,761	600,486	660,535
2005	70,064	77,070	672,996	740,296
2006	72,909	80,200	743,060	817,366
2007	72,652	79,917	815,969	897,566
2008	68,349	75,184	888,621	977,483
2009	68,349	75,184	956,970	1,052,667
2010	65,590	72,149	1,025,319	1,127,851
2011	0	0	1,090,909	1,200,000
2012	0	0	1,090,909	1,200,000
2013	0	0	1,090,909	1,200,000
2014	0	0	1,090,909	1,200,000
2015	0	0	1,090,909	1,200,000
2016	0	0	1,090,909	1,200,000
2017	0	0	1,090,909	1,200,000
2018	0	0	1,090,909	1,200,000
2019	0	0	1,090,909	1,200,000
2020	0	0	1,090,909	1,200,000
2021	0	0	1,090,909	1,200,000
2022	0	0	1,090,909	1,200,000
2023	0	0	1,090,909	1,200,000
2024	0	0	1,090,909	1,200,000
2025	0	0	1,090,909	1,200,000
2026	0	0	1,090,909	1,200,000
2027	0	0	1,090,909	1,200,000
2028	0	0	1,090,909	1,200,000
2029	0	0	1,090,909	1,200,000
2030	0	0	1,090,909	1,200,000
2031	0	0	1,090,909	1,200,000
2032	0	0	1,090,909	1,200,000
2033	0	0	1,090,909	1,200,000

WASTE ACCEPTANCE RATES (Continued)

Year	Waste Accepted		Waste-In-Place	
	(Mg/year)	*(short tons/year)*	*(Mg)*	*(short tons)*
2034	0	0	1,090,909	1,200,000
2035	0	0	1,090,909	1,200,000
2036	0	0	1,090,909	1,200,000
2037	0	0	1,090,909	1,200,000
2038	0	0	1,090,909	1,200,000
2039	0	0	1,090,909	1,200,000
2040	0	0	1,090,909	1,200,000
2041	0	0	1,090,909	1,200,000
2042	0	0	1,090,909	1,200,000
2043	0	0	1,090,909	1,200,000
2044	0	0	1,090,909	1,200,000
2045	0	0	1,090,909	1,200,000
2046	0	0	1,090,909	1,200,000
2047	0	0	1,090,909	1,200,000
2048	0	0	1,090,909	1,200,000
2049	0	0	1,090,909	1,200,000
2050	0	0	1,090,909	1,200,000
2051	0	0	1,090,909	1,200,000
2052	0	0	1,090,909	1,200,000
2053	0	0	1,090,909	1,200,000
2054	0	0	1,090,909	1,200,000
2055	0	0	1,090,909	1,200,000
2056	0	0	1,090,909	1,200,000
2057	0	0	1,090,909	1,200,000
2058	0	0	1,090,909	1,200,000
2059	0	0	1,090,909	1,200,000
2060	0	0	1,090,909	1,200,000
2061	0	0	1,090,909	1,200,000
2062	0	0	1,090,909	1,200,000
2063	0	0	1,090,909	1,200,000
2064	0	0	1,090,909	1,200,000
2065	0	0	1,090,909	1,200,000
2066	0	0	1,090,909	1,200,000
2067	0	0	1,090,909	1,200,000
2068	0	0	1,090,909	1,200,000
2069	0	0	1,090,909	1,200,000
2070	0	0	1,090,909	1,200,000
2071	0	0	1,090,909	1,200,000
2072	0	0	1,090,909	1,200,000
2073	0	0	1,090,909	1,200,000

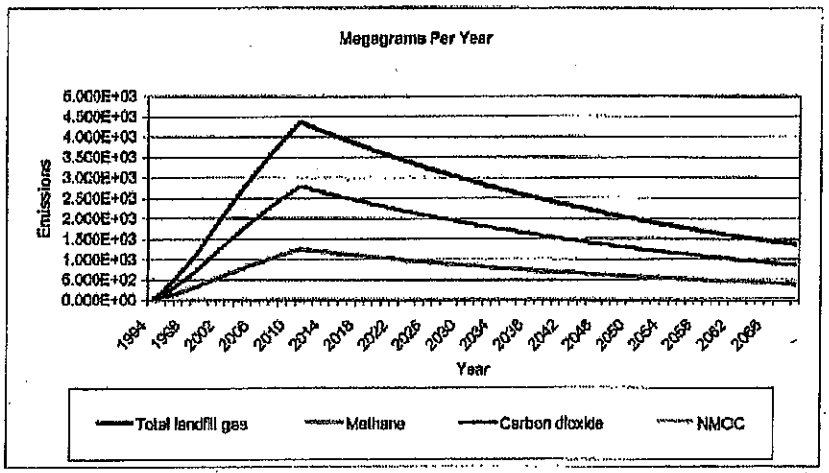
Pollutant Parameters

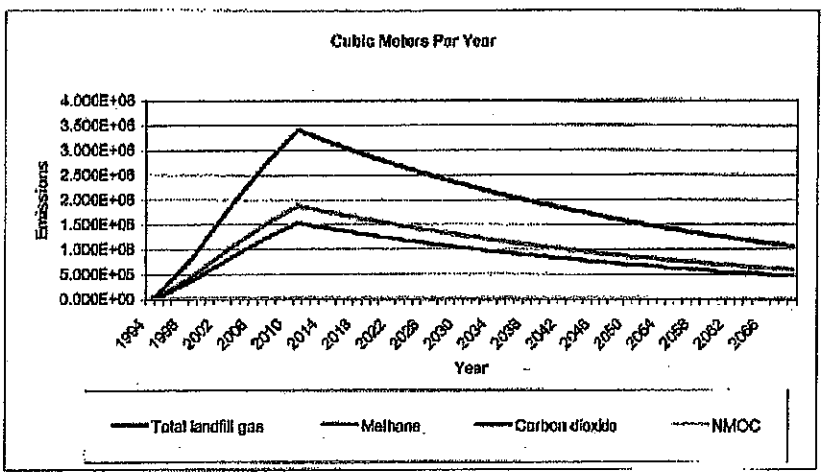
	Compound	Gas / Pollutant Default Parameters: Concentration (ppmv)	Molecular Weight	User-specified Pollutant Parameters: Concentration (ppmv)	Molecular Weight
Gases	Total landfill gas		0.00		
	Methane		16.04		
	Carbon dioxide		44.01		
	NMOC	4,000	86.18		
Pollutants	1,1,1-Trichloroethane (methyl chloroform) - HAP	0.48	133.41		
	1,1,2,2-Tetrachloroethane - HAP/VOC	1.1	167.85		
	1,1-Dichloroethane (ethylidene dichloride) - HAP/VOC	2.4	98.97		
	1,1-Dichloroethene (vinylidene chloride) - HAP/VOC	0.20	96.94		
	1,2-Dichloroethane (ethylene dichloride) - HAP/VOC	0.41	98.96		
	1,2-Dichloropropane (propylene dichloride) - HAP/VOC	0.18	112.99		
	2-Propanol (isopropyl alcohol) - VOC	50	60.11		
	Acetone	7.0	58.08		
	Acrylonitrile - HAP/VOC	6.3	53.06		
	Benzene - No or Unknown Co-disposal - HAP/VOC	1.9	78.11		
	Benzene - Co-disposal - HAP/VOC	11	78.11		
	Bromodichloromethane - VOC	3.1	163.83		
	Butane - VOC	5.0	58.12		
	Carbon disulfide - HAP/VOC	0.58	76.13		
	Carbon monoxide	140	28.01		
	Carbon tetrachloride - HAP/VOC	4.0E-03	153.84		
	Carbonyl sulfide - HAP/VOC	0.49	60.07		
	Chlorobenzene - HAP/VOC	0.25	112.56		
	Chlorodifluoromethane	1.3	86.47		
	Chloroethane (ethyl chloride) - HAP/VOC	1.3	64.52		
	Chloroform - HAP/VOC	0.03	119.39		
	Chloromethane - VOC	1.2	50.49		
	Dichlorobenzene - (HAP for para isomer/VOC)	0.21	147		
	Dichlorodifluoromethane	16	120.91		
	Dichlorofluoromethane - VOC	2.6	102.92		
	Dichloromethane (methylene chloride) - HAP	14	84.94		
	Dimethyl sulfide (methyl sulfide) - VOC	7.8	62.13		
	Ethane	890	30.07		
	Ethanol - VOC	27	46.08		

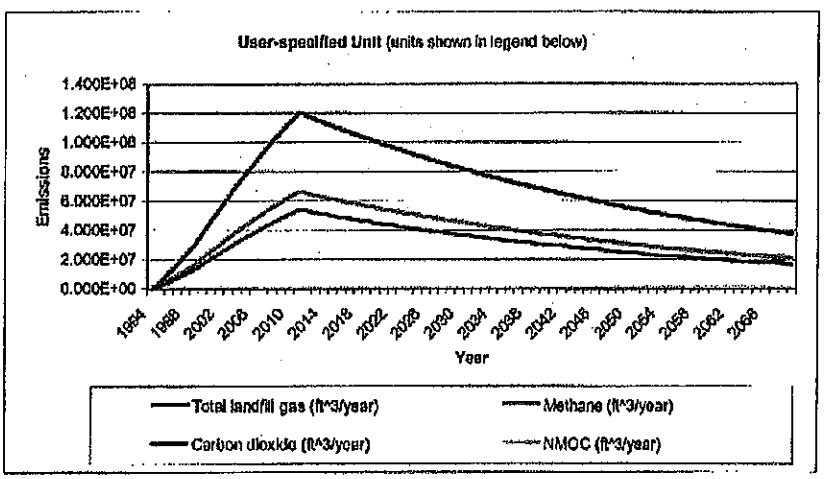
Pollutant Parameters (Continued)

	Gas / Pollutant Default Parameters:			User-specified Pollutant Parameters:	
	Compound	Concentration (ppmv)	Molecular Weight	Concentration (ppmv)	Molecular Weight
Pollutants	Ethyl mercaptan (ethanethiol) - VOC	2.3	62.13		
	Ethylbenzene - HAP/VOC	4.6	106.16		
	Ethylene dibromide - HAP/VOC	1.0E-03	187.88		
	Fluorotrichloromethane - VOC	0.76	137.38		
	Hexane - HAP/VOC	6.6	86.18		
	Hydrogen sulfide	36	34.08		
	Mercury (total) - HAP	2.9E-04	200.61		
	Methyl ethyl ketone - HAP/VOC	7.1	72.11		
	Methyl isobutyl ketone - HAP/VOC	1.9	100.16		
	Methyl mercaptan - VOC	2.5	48.11		
	Pentane - VOC	3.3	72.15		
	Perchloroethylene (tetrachloroethylene) - HAP	3.7	165.83		
	Propane - VOC	11	44.09		
	t-1,2-Dichloroethene - VOC	2.8	96.94		
	Toluene - No or Unknown Co-disposal - HAP/VOC	39	92.13		
	Toluene - Co-disposal - HAP/VOC	170	92.13		
	Trichloroethylene (trichloroethene) - HAP/VOC	2.8	131.40		
	Vinyl chloride - HAP/VOC	7.3	62.50		
	Xylenes - HAP/VOC	12	106.16		

Graphs


Megagrams Per Year
Emissions
Year
Total landfill gas
Methane
Carbon dioxide
NMOC


Cubic Meters Per Year
Emissions
Year
Total landfill gas
Methane
Carbon dioxide
NMOC


User-specified Unit (units shown in legend below)
Emissions
Year
Total landfill gas (ft^3/year)
Methane (ft^3/year)
Carbon dioxide (ft^3/year)
NMOC (ft^3/year)

Results

Year	Total landfill gas			Methane		
	(Mg/year)	(m^3/year)	(ft^3/year)	(Mg/year)	(m^3/year)	(ft^3/year)
1994	0	0	0	0	0	0
1995	1.571E+02	1.225E+05	4.327E+06	4.496E+01	6.739E+04	2.380E+06
1996	3.827E+02	2.985E+05	1.054E+07	1.095E+02	1.642E+05	5.798E+06
1997	6.131E+02	4.782E+05	1.689E+07	1.755E+02	2.630E+05	9.288E+06
1998	8.413E+02	6.561E+05	2.317E+07	2.407E+02	3.609E+05	1.274E+07
1999	1.093E+03	8.521E+05	3.009E+07	3.127E+02	4.687E+05	1.655E+07
2000	1.390E+03	1.084E+06	3.828E+07	3.977E+02	5.962E+05	2.105E+07
2001	1.690E+03	1.318E+06	4.656E+07	4.837E+02	7.251E+05	2.561E+07
2002	1.985E+03	1.548E+06	5.467E+07	5.681E+02	8.515E+05	3.007E+07
2003	2.275E+03	1.774E+06	6.265E+07	6.509E+02	9.757E+05	3.446E+07
2004	2.568E+03	2.003E+06	7.074E+07	7.350E+02	1.102E+06	3.891E+07
2005	2.862E+03	2.225E+06	7.856E+07	8.163E+02	1.224E+06	4.321E+07
2006	3.120E+03	2.433E+06	8.593E+07	8.928E+02	1.338E+06	4.726E+07
2007	3.395E+03	2.648E+06	9.350E+07	9.715E+02	1.456E+06	5.143E+07
2008	3.663E+03	2.857E+06	1.009E+08	1.048E+03	1.571E+06	5.549E+07
2009	3.907E+03	3.047E+06	1.076E+08	1.118E+03	1.676E+06	5.918E+07
2010	4.146E+03	3.233E+06	1.142E+08	1.186E+03	1.778E+06	6.279E+07
2011	4.366E+03	3.405E+06	1.203E+08	1.249E+03	1.873E+06	6.614E+07
2012	4.280E+03	3.338E+06	1.179E+08	1.225E+03	1.836E+06	6.483E+07
2013	4.195E+03	3.272E+06	1.155E+08	1.200E+03	1.799E+06	6.355E+07
2014	4.112E+03	3.207E+06	1.133E+08	1.177E+03	1.764E+06	6.229E+07
2015	4.030E+03	3.143E+06	1.110E+08	1.153E+03	1.729E+06	6.105E+07
2016	3.951E+03	3.081E+06	1.088E+08	1.131E+03	1.695E+06	5.985E+07
2017	3.872E+03	3.020E+06	1.067E+08	1.108E+03	1.661E+06	5.866E+07
2018	3.796E+03	2.960E+06	1.045E+08	1.086E+03	1.628E+06	5.750E+07
2019	3.721E+03	2.902E+06	1.025E+08	1.065E+03	1.596E+06	5.636E+07
2020	3.647E+03	2.844E+06	1.004E+08	1.044E+03	1.564E+06	5.524E+07
2021	3.575E+03	2.788E+06	9.846E+07	1.023E+03	1.533E+06	5.415E+07
2022	3.504E+03	2.733E+06	9.651E+07	1.003E+03	1.503E+06	5.308E+07
2023	3.434E+03	2.679E+06	9.460E+07	9.829E+02	1.473E+06	5.203E+07
2024	3.366E+03	2.626E+06	9.272E+07	9.634E+02	1.444E+06	5.100E+07
2025	3.300E+03	2.574E+06	9.089E+07	9.443E+02	1.415E+06	4.999E+07
2026	3.234E+03	2.523E+06	8.909E+07	9.256E+02	1.387E+06	4.900E+07
2027	3.170E+03	2.473E+06	8.732E+07	9.073E+02	1.360E+06	4.803E+07
2028	3.108E+03	2.424E+06	8.559E+07	8.893E+02	1.333E+06	4.708E+07
2029	3.046E+03	2.376E+06	8.390E+07	8.717E+02	1.307E+06	4.614E+07
2030	2.986E+03	2.329E+06	8.224E+07	8.545E+02	1.281E+06	4.523E+07
2031	2.927E+03	2.283E+06	8.061E+07	8.375E+02	1.255E+06	4.434E+07
2032	2.869E+03	2.237E+06	7.901E+07	8.210E+02	1.231E+06	4.346E+07
2033	2.812E+03	2.193E+06	7.745E+07	8.047E+02	1.206E+06	4.260E+07
2034	2.756E+03	2.150E+06	7.591E+07	7.888E+02	1.182E+06	4.175E+07
2035	2.702E+03	2.107E+06	7.441E+07	7.732E+02	1.159E+06	4.093E+07
2036	2.648E+03	2.065E+06	7.294E+07	7.578E+02	1.136E+06	4.012E+07
2037	2.596E+03	2.024E+06	7.149E+07	7.428E+02	1.113E+06	3.932E+07
2038	2.544E+03	1.984E+06	7.008E+07	7.281E+02	1.091E+06	3.854E+07
2039	2.494E+03	1.945E+06	6.869E+07	7.137E+02	1.070E+06	3.778E+07
2040	2.445E+03	1.907E+06	6.733E+07	6.996E+02	1.049E+06	3.703E+07
2041	2.396E+03	1.869E+06	6.600E+07	6.857E+02	1.028E+06	3.630E+07
2042	2.349E+03	1.832E+06	6.469E+07	6.721E+02	1.007E+06	3.558E+07
2043	2.302E+03	1.796E+06	6.341E+07	6.588E+02	9.875E+05	3.488E+07

Results (Continued)

Year	Total landfill gas			Methane		
	(Mg/year)	(m^3/year)	(ft^3/year)	(Mg/year)	(m^3/year)	(ft^3/year)
2044	2.257E+03	1.760E+06	6.215E+07	6.458E+02	9.680E+05	3.418E+07
2045	2.212E+03	1.725E+06	6.092E+07	6.330E+02	9.488E+05	3.351E+07
2046	2.168E+03	1.691E+06	5.972E+07	6.205E+02	9.300E+05	3.284E+07
2047	2.125E+03	1.657E+06	5.853E+07	6.082E+02	9.116E+05	3.219E+07
2048	2.083E+03	1.625E+06	5.738E+07	5.961E+02	8.936E+05	3.156E+07
2049	2.042E+03	1.592E+06	5.624E+07	5.843E+02	8.759E+05	3.093E+07
2050	2.001E+03	1.561E+06	5.513E+07	5.728E+02	8.585E+05	3.032E+07
2051	1.962E+03	1.530E+06	5.403E+07	5.614E+02	8.415E+05	2.972E+07
2052	1.923E+03	1.500E+06	5.296E+07	5.503E+02	8.249E+05	2.913E+07
2053	1.885E+03	1.470E+06	5.192E+07	5.394E+02	8.085E+05	2.855E+07
2054	1.848E+03	1.441E+06	5.089E+07	5.287E+02	7.925E+05	2.799E+07
2055	1.811E+03	1.412E+06	4.988E+07	5.183E+02	7.768E+05	2.743E+07
2056	1.775E+03	1.384E+06	4.889E+07	5.080E+02	7.614E+05	2.689E+07
2057	1.740E+03	1.357E+06	4.792E+07	4.979E+02	7.464E+05	2.636E+07
2058	1.706E+03	1.330E+06	4.697E+07	4.881E+02	7.316E+05	2.584E+07
2059	1.672E+03	1.304E+06	4.604E+07	4.784E+02	7.171E+05	2.532E+07
2060	1.639E+03	1.278E+06	4.513E+07	4.689E+02	7.029E+05	2.482E+07
2061	1.606E+03	1.253E+06	4.424E+07	4.597E+02	6.890E+05	2.433E+07
2062	1.574E+03	1.228E+06	4.336E+07	4.506E+02	6.753E+05	2.385E+07
2063	1.543E+03	1.204E+06	4.250E+07	4.416E+02	6.620E+05	2.338E+07
2064	1.513E+03	1.180E+06	4.166E+07	4.329E+02	6.489E+05	2.291E+07
2065	1.483E+03	1.156E+06	4.084E+07	4.243E+02	6.360E+05	2.246E+07
2066	1.453E+03	1.133E+06	4.003E+07	4.159E+02	6.234E+05	2.202E+07
2067	1.425E+03	1.111E+06	3.924E+07	4.077E+02	6.111E+05	2.158E+07
2068	1.396E+03	1.089E+06	3.846E+07	3.996E+02	5.990E+05	2.115E+07
2069	1.369E+03	1.067E+06	3.770E+07	3.917E+02	5.871E+05	2.073E+07
2070	1.342E+03	1.046E+06	3.695E+07	3.839E+02	5.755E+05	2.032E+07
2071	1.315E+03	1.026E+06	3.622E+07	3.763E+02	5.641E+05	1.992E+07
2072	1.289E+03	1.005E+06	3.550E+07	3.689E+02	5.529E+05	1.953E+07
2073	1.263E+03	9.854E+05	3.480E+07	3.616E+02	5.420E+05	1.914E+07
2074	1.238E+03	9.659E+05	3.411E+07	3.544E+02	5.312E+05	1.876E+07
2075	1.214E+03	9.468E+05	3.344E+07	3.474E+02	5.207E+05	1.839E+07
2076	1.190E+03	9.280E+05	3.277E+07	3.405E+02	5.104E+05	1.803E+07
2077	1.166E+03	9.096E+05	3.212E+07	3.338E+02	5.003E+05	1.767E+07
2078	1.143E+03	8.916E+05	3.149E+07	3.272E+02	4.904E+05	1.732E+07
2079	1.121E+03	8.740E+05	3.086E+07	3.207E+02	4.807E+05	1.698E+07
2080	1.098E+03	8.567E+05	3.025E+07	3.143E+02	4.712E+05	1.664E+07
2081	1.077E+03	8.397E+05	2.965E+07	3.081E+02	4.618E+05	1.631E+07
2082	1.055E+03	8.231E+05	2.907E+07	3.020E+02	4.527E+05	1.599E+07
2083	1.034E+03	8.068E+05	2.849E+07	2.960E+02	4.437E+05	1.567E+07
2084	1.014E+03	7.908E+05	2.793E+07	2.902E+02	4.349E+05	1.536E+07
2085	9.939E+02	7.752E+05	2.737E+07	2.844E+02	4.263E+05	1.506E+07
2086	9.742E+02	7.598E+05	2.683E+07	2.788E+02	4.179E+05	1.476E+07
2087	9.549E+02	7.448E+05	2.630E+07	2.733E+02	4.096E+05	1.447E+07
2088	9.360E+02	7.300E+05	2.578E+07	2.679E+02	4.015E+05	1.418E+07
2089	9.175E+02	7.156E+05	2.527E+07	2.626E+02	3.936E+05	1.390E+07
2090	8.993E+02	7.014E+05	2.477E+07	2.574E+02	3.858E+05	1.362E+07
2091	8.815E+02	6.875E+05	2.428E+07	2.523E+02	3.781E+05	1.335E+07
2092	8.640E+02	6.739E+05	2.380E+07	2.473E+02	3.706E+05	1.309E+07
2093	8.469E+02	6.605E+05	2.333E+07	2.424E+02	3.633E+05	1.283E+07
2094	8.302E+02	6.475E+05	2.287E+07	2.376E+02	3.561E+05	1.258E+07

Results (Continued)

Year	Total landfill gas			Methane		
	(Mg/year)	(m^3/year)	(ft^3/year)	(Mg/year)	(m^3/year)	(ft^3/year)
2095	8.137E+02	6.346E+05	2.241E+07	2.329E+02	3.491E+05	1.233E+07
2096	7.976E+02	6.221E+05	2.197E+07	2.283E+02	3.421E+05	1.208E+07
2097	7.818E+02	6.098E+05	2.153E+07	2.237E+02	3.354E+05	1.184E+07
2098	7.663E+02	5.977E+05	2.111E+07	2.193E+02	3.287E+05	1.161E+07
2099	7.512E+02	5.858E+05	2.069E+07	2.150E+02	3.222E+05	1.138E+07
2100	7.363E+02	5.742E+05	2.028E+07	2.107E+02	3.158E+05	1.115E+07
2101	7.217E+02	5.629E+05	1.988E+07	2.065E+02	3.096E+05	1.093E+07
2102	7.074E+02	5.517E+05	1.948E+07	2.024E+02	3.035E+05	1.072E+07
2103	6.934E+02	5.408E+05	1.910E+07	1.984E+02	2.974E+05	1.050E+07
2104	6.797E+02	5.301E+05	1.872E+07	1.945E+02	2.916E+05	1.030E+07
2105	6.662E+02	5.196E+05	1.835E+07	1.907E+02	2.858E+05	1.009E+07
2106	6.530E+02	5.093E+05	1.799E+07	1.869E+02	2.801E+05	9.892E+06
2107	6.401E+02	4.992E+05	1.763E+07	1.832E+02	2.746E+05	9.697E+06
2108	6.274E+02	4.893E+05	1.728E+07	1.796E+02	2.691E+05	9.505E+06
2109	6.150E+02	4.797E+05	1.694E+07	1.760E+02	2.638E+05	9.316E+06
2110	6.028E+02	4.702E+05	1.660E+07	1.725E+02	2.586E+05	9.132E+06
2111	5.909E+02	4.608E+05	1.627E+07	1.691E+02	2.535E+05	8.951E+06
2112	5.792E+02	4.517E+05	1.595E+07	1.657E+02	2.484E+05	8.774E+06
2113	5.677E+02	4.428E+05	1.564E+07	1.625E+02	2.436E+05	8.600E+06
2114	5.565E+02	4.340E+05	1.533E+07	1.593E+02	2.387E+05	8.430E+06
2115	5.455E+02	4.254E+05	1.502E+07	1.561E+02	2.340E+05	8.263E+06
2116	5.347E+02	4.170E+05	1.473E+07	1.530E+02	2.293E+05	8.099E+06
2117	5.241E+02	4.087E+05	1.443E+07	1.500E+02	2.248E+05	7.939E+06
2118	5.137E+02	4.006E+05	1.415E+07	1.470E+02	2.204E+05	7.782E+06
2119	5.035E+02	3.927E+05	1.387E+07	1.441E+02	2.160E+05	7.628E+06
2120	4.935E+02	3.849E+05	1.359E+07	1.412E+02	2.117E+05	7.477E+06
2121	4.838E+02	3.773E+05	1.332E+07	1.384E+02	2.075E+05	7.329E+06
2122	4.742E+02	3.698E+05	1.306E+07	1.357E+02	2.034E+05	7.183E+06
2123	4.648E+02	3.625E+05	1.280E+07	1.330E+02	1.994E+05	7.041E+06
2124	4.556E+02	3.553E+05	1.255E+07	1.304E+02	1.954E+05	6.902E+06
2125	4.466E+02	3.483E+05	1.230E+07	1.278E+02	1.916E+05	6.765E+06
2126	4.377E+02	3.414E+05	1.206E+07	1.253E+02	1.878E+05	6.631E+06
2127	4.291E+02	3.346E+05	1.182E+07	1.228E+02	1.841E+05	6.500E+06
2128	4.206E+02	3.280E+05	1.158E+07	1.204E+02	1.804E+05	6.371E+06
2129	4.122E+02	3.215E+05	1.135E+07	1.180E+02	1.768E+05	6.245E+06
2130	4.041E+02	3.152E+05	1.113E+07	1.156E+02	1.733E+05	6.121E+06
2131	3.961E+02	3.089E+05	1.091E+07	1.133E+02	1.699E+05	6.000E+06
2132	3.882E+02	3.028E+05	1.069E+07	1.111E+02	1.665E+05	5.881E+06
2133	3.806E+02	2.968E+05	1.048E+07	1.089E+02	1.632E+05	5.765E+06
2134	3.730E+02	2.909E+05	1.027E+07	1.067E+02	1.600E+05	5.651E+06

Results (Continued)

Year	Carbon dioxide			NMOC		
	(Mg/year)	(m^3/year)	(ft^3/year)	(Mg/year)	(m^3/year)	(ft^3/year)
1994	0	0	0	0	0	0
1995	1.009E+02	5.514E+04	1.947E+06	2.613E-01	7.291E+01	2.575E+03
1996	2.459E+02	1.343E+05	4.744E+06	6.366E-01	1.776E+02	6.272E+03
1997	3.939E+02	2.152E+05	7.599E+06	1.020E+00	2.845E+02	1.005E+04
1998	5.405E+02	2.953E+05	1.043E+07	1.399E+00	3.904E+02	1.379E+04
1999	7.019E+02	3.835E+05	1.354E+07	1.817E+00	5.070E+02	1.791E+04
2000	8.929E+02	4.878E+05	1.723E+07	2.312E+00	6.449E+02	2.278E+04
2001	1.086E+03	5.933E+05	2.095E+07	2.812E+00	7.844E+02	2.770E+04
2002	1.275E+03	6.967E+05	2.460E+07	3.302E+00	9.211E+02	3.253E+04
2003	1.461E+03	7.983E+05	2.819E+07	3.784E+00	1.056E+03	3.728E+04
2004	1.650E+03	9.014E+05	3.183E+07	4.272E+00	1.192E+03	4.209E+04
2005	1.833E+03	1.001E+06	3.535E+07	4.745E+00	1.324E+03	4.675E+04
2006	2.004E+03	1.095E+06	3.867E+07	5.189E+00	1.448E+03	5.113E+04
2007	2.181E+03	1.191E+06	4.208E+07	5.647E+00	1.575E+03	5.563E+04
2008	2.353E+03	1.286E+06	4.540E+07	6.094E+00	1.700E+03	6.003E+04
2009	2.510E+03	1.371E+06	4.842E+07	6.498E+00	1.813E+03	6.402E+04
2010	2.663E+03	1.455E+06	5.138E+07	6.895E+00	1.924E+03	6.793E+04
2011	2.805E+03	1.532E+06	5.411E+07	7.262E+00	2.026E+03	7.155E+04
2012	2.749E+03	1.502E+06	5.304E+07	7.119E+00	1.986E+03	7.013E+04
2013	2.695E+03	1.472E+06	5.199E+07	6.978E+00	1.947E+03	6.875E+04
2014	2.642E+03	1.443E+06	5.096E+07	6.840E+00	1.908E+03	6.738E+04
2015	2.589E+03	1.415E+06	4.995E+07	6.704E+00	1.870E+03	6.605E+04
2016	2.538E+03	1.387E+06	4.896E+07	6.571E+00	1.833E+03	6.474E+04
2017	2.488E+03	1.359E+06	4.800E+07	6.441E+00	1.797E+03	6.346E+04
2018	2.439E+03	1.332E+06	4.704E+07	6.314E+00	1.761E+03	6.220E+04
2019	2.390E+03	1.306E+06	4.611E+07	6.189E+00	1.727E+03	6.097E+04
2020	2.343E+03	1.280E+06	4.520E+07	6.066E+00	1.692E+03	5.976E+04
2021	2.296E+03	1.255E+06	4.431E+07	5.946E+00	1.659E+03	5.858E+04
2022	2.251E+03	1.230E+06	4.343E+07	5.828E+00	1.626E+03	5.742E+04
2023	2.206E+03	1.205E+06	4.257E+07	5.713E+00	1.594E+03	5.628E+04
2024	2.163E+03	1.182E+06	4.173E+07	5.600E+00	1.562E+03	5.517E+04
2025	2.120E+03	1.158E+06	4.090E+07	5.489E+00	1.531E+03	5.408E+04
2026	2.078E+03	1.135E+06	4.009E+07	5.380E+00	1.501E+03	5.301E+04
2027	2.037E+03	1.113E+06	3.930E+07	5.274E+00	1.471E+03	5.196E+04
2028	1.996E+03	1.091E+06	3.852E+07	5.169E+00	1.442E+03	5.093E+04
2029	1.957E+03	1.069E+06	3.775E+07	5.067E+00	1.414E+03	4.992E+04
2030	1.918E+03	1.048E+06	3.701E+07	4.967E+00	1.386E+03	4.893E+04
2031	1.880E+03	1.027E+06	3.627E+07	4.868E+00	1.358E+03	4.796E+04
2032	1.843E+03	1.007E+06	3.556E+07	4.772E+00	1.331E+03	4.701E+04
2033	1.806E+03	9.869E+05	3.485E+07	4.677E+00	1.305E+03	4.608E+04
2034	1.771E+03	9.673E+05	3.416E+07	4.585E+00	1.279E+03	4.517E+04
2035	1.736E+03	9.482E+05	3.349E+07	4.494E+00	1.254E+03	4.427E+04
2036	1.701E+03	9.294E+05	3.282E+07	4.405E+00	1.229E+03	4.340E+04
2037	1.668E+03	9.110E+05	3.217E+07	4.318E+00	1.205E+03	4.254E+04
2038	1.635E+03	8.930E+05	3.154E+07	4.232E+00	1.181E+03	4.170E+04
2039	1.602E+03	8.753E+05	3.091E+07	4.148E+00	1.157E+03	4.087E+04
2040	1.570E+03	8.580E+05	3.030E+07	4.066E+00	1.134E+03	4.006E+04
2041	1.539E+03	8.410E+05	2.970E+07	3.986E+00	1.112E+03	3.927E+04
2042	1.509E+03	8.243E+05	2.911E+07	3.907E+00	1.090E+03	3.849E+04
2043	1.479E+03	8.080E+05	2.853E+07	3.829E+00	1.068E+03	3.773E+04

Results (Continued)

Year	Carbon dioxide			NMOC		
	(Mg/year)	(m^3/year)	(ft^3/year)	(Mg/year)	(m^3/year)	(ft^3/year)
2044	1.450E+03	7.920E+05	2.797E+07	3.754E+00	1.047E+03	3.698E+04
2045	1.421E+03	7.763E+05	2.742E+07	3.679E+00	1.026E+03	3.625E+04
2046	1.393E+03	7.609E+05	2.687E+07	3.606E+00	1.006E+03	3.553E+04
2047	1.365E+03	7.459E+05	2.634E+07	3.535E+00	9.862E+02	3.483E+04
2048	1.338E+03	7.311E+05	2.582E+07	3.465E+00	9.667E+02	3.414E+04
2049	1.312E+03	7.166E+05	2.531E+07	3.396E+00	9.475E+02	3.346E+04
2050	1.286E+03	7.024E+05	2.481E+07	3.329E+00	9.288E+02	3.280E+04
2051	1.260E+03	6.885E+05	2.432E+07	3.263E+00	9.104E+02	3.215E+04
2052	1.235E+03	6.749E+05	2.383E+07	3.199E+00	8.924E+02	3.151E+04
2053	1.211E+03	6.615E+05	2.336E+07	3.135E+00	8.747E+02	3.089E+04
2054	1.187E+03	6.484E+05	2.290E+07	3.073E+00	8.574E+02	3.028E+04
2055	1.163E+03	6.356E+05	2.245E+07	3.012E+00	8.404E+02	2.968E+04
2056	1.140E+03	6.230E+05	2.200E+07	2.953E+00	8.237E+02	2.909E+04
2057	1.118E+03	6.107E+05	2.157E+07	2.894E+00	8.074E+02	2.851E+04
2058	1.096E+03	5.986E+05	2.114E+07	2.837E+00	7.914E+02	2.795E+04
2059	1.074E+03	5.867E+05	2.072E+07	2.781E+00	7.758E+02	2.740E+04
2060	1.053E+03	5.751E+05	2.031E+07	2.726E+00	7.604E+02	2.685E+04
2061	1.032E+03	5.637E+05	1.991E+07	2.672E+00	7.454E+02	2.632E+04
2062	1.011E+03	5.526E+05	1.951E+07	2.619E+00	7.306E+02	2.580E+04
2063	9.914E+02	5.416E+05	1.913E+07	2.567E+00	7.161E+02	2.529E+04
2064	9.718E+02	5.309E+05	1.875E+07	2.516E+00	7.020E+02	2.479E+04
2065	9.525E+02	5.204E+05	1.838E+07	2.466E+00	6.881E+02	2.430E+04
2066	9.337E+02	5.101E+05	1.801E+07	2.417E+00	6.744E+02	2.382E+04
2067	9.152E+02	5.000E+05	1.766E+07	2.370E+00	6.611E+02	2.335E+04
2068	8.971E+02	4.901E+05	1.731E+07	2.323E+00	6.480E+02	2.288E+04
2069	8.793E+02	4.804E+05	1.696E+07	2.277E+00	6.352E+02	2.243E+04
2070	8.619E+02	4.709E+05	1.663E+07	2.232E+00	6.226E+02	2.199E+04
2071	8.448E+02	4.615E+05	1.630E+07	2.187E+00	6.102E+02	2.155E+04
2072	8.281E+02	4.524E+05	1.598E+07	2.144E+00	5.982E+02	2.112E+04
2073	8.117E+02	4.434E+05	1.566E+07	2.102E+00	5.863E+02	2.071E+04
2074	7.956E+02	4.347E+05	1.535E+07	2.060E+00	5.747E+02	2.030E+04
2075	7.799E+02	4.260E+05	1.505E+07	2.019E+00	5.633E+02	1.989E+04
2076	7.644E+02	4.176E+05	1.475E+07	1.979E+00	5.522E+02	1.950E+04
2077	7.493E+02	4.093E+05	1.446E+07	1.940E+00	5.412E+02	1.911E+04
2078	7.345E+02	4.012E+05	1.417E+07	1.902E+00	5.305E+02	1.874E+04
2079	7.199E+02	3.933E+05	1.389E+07	1.864E+00	5.200E+02	1.836E+04
2080	7.057E+02	3.855E+05	1.361E+07	1.827E+00	5.097E+02	1.800E+04
2081	6.917E+02	3.779E+05	1.334E+07	1.791E+00	4.996E+02	1.764E+04
2082	6.780E+02	3.704E+05	1.308E+07	1.755E+00	4.897E+02	1.730E+04
2083	6.646E+02	3.631E+05	1.282E+07	1.721E+00	4.800E+02	1.695E+04
2084	6.514E+02	3.559E+05	1.257E+07	1.687E+00	4.705E+02	1.662E+04
2085	6.385E+02	3.488E+05	1.232E+07	1.653E+00	4.612E+02	1.629E+04
2086	6.259E+02	3.419E+05	1.207E+07	1.620E+00	4.521E+02	1.597E+04
2087	6.135E+02	3.351E+05	1.184E+07	1.588E+00	4.431E+02	1.565E+04
2088	6.013E+02	3.285E+05	1.160E+07	1.557E+00	4.344E+02	1.534E+04
2089	5.894E+02	3.220E+05	1.137E+07	1.526E+00	4.258E+02	1.504E+04
2090	5.777E+02	3.156E+05	1.115E+07	1.496E+00	4.173E+02	1.474E+04
2091	5.663E+02	3.094E+05	1.093E+07	1.466E+00	4.091E+02	1.445E+04
2092	5.551E+02	3.032E+05	1.071E+07	1.437E+00	4.010E+02	1.416E+04
2093	5.441E+02	2.972E+05	1.050E+07	1.409E+00	3.930E+02	1.388E+04
2094	5.333E+02	2.914E+05	1.029E+07	1.381E+00	3.852E+02	1.360E+04

Results (Continued)

Year	Carbon dioxide			NMOC		
	(Mg/year)	(m^3/year)	(ft^3/year)	(Mg/year)	(m^3/year)	(ft^3/year)
2095	5.228E+02	2.856E+05	1.009E+07	1.354E+00	3.776E+02	1.334E+04
2096	5.124E+02	2.799E+05	9.886E+06	1.327E+00	3.701E+02	1.307E+04
2097	5.023E+02	2.744E+05	9.690E+06	1.300E+00	3.628E+02	1.281E+04
2098	4.923E+02	2.690E+05	9.498E+06	1.275E+00	3.556E+02	1.256E+04
2099	4.826E+02	2.636E+05	9.310E+06	1.249E+00	3.486E+02	1.231E+04
2100	4.730E+02	2.584E+05	9.126E+06	1.225E+00	3.417E+02	1.207E+04
2101	4.637E+02	2.533E+05	8.945E+06	1.200E+00	3.349E+02	1.183E+04
2102	4.545E+02	2.483E+05	8.768E+06	1.177E+00	3.283E+02	1.159E+04
2103	4.455E+02	2.434E+05	8.594E+06	1.153E+00	3.218E+02	1.136E+04
2104	4.367E+02	2.385E+05	8.424E+06	1.131E+00	3.154E+02	1.114E+04
2105	4.280E+02	2.338E+05	8.257E+06	1.108E+00	3.092E+02	1.092E+04
2106	4.195E+02	2.292E+05	8.094E+06	1.086E+00	3.030E+02	1.070E+04
2107	4.112E+02	2.247E+05	7.934E+06	1.065E+00	2.970E+02	1.049E+04
2108	4.031E+02	2.202E+05	7.776E+06	1.044E+00	2.912E+02	1.028E+04
2109	3.951E+02	2.158E+05	7.622E+06	1.023E+00	2.854E+02	1.008E+04
2110	3.873E+02	2.116E+05	7.472E+06	1.003E+00	2.797E+02	9.879E+03
2111	3.796E+02	2.074E+05	7.324E+06	9.829E-01	2.742E+02	9.683E+03
2112	3.721E+02	2.033E+05	7.179E+06	9.634E-01	2.688E+02	9.492E+03
2113	3.647E+02	1.992E+05	7.036E+06	9.443E-01	2.635E+02	9.304E+03
2114	3.575E+02	1.953E+05	6.897E+06	9.256E-01	2.582E+02	9.120E+03
2115	3.504E+02	1.914E+05	6.761E+06	9.073E-01	2.531E+02	8.939E+03
2116	3.435E+02	1.876E+05	6.627E+06	8.893E-01	2.481E+02	8.762E+03
2117	3.367E+02	1.839E+05	6.495E+06	8.717E-01	2.432E+02	8.588E+03
2118	3.300E+02	1.803E+05	6.367E+06	8.545E-01	2.384E+02	8.418E+03
2119	3.235E+02	1.767E+05	6.241E+06	8.375E-01	2.337E+02	8.252E+03
2120	3.171E+02	1.732E+05	6.117E+06	8.210E-01	2.290E+02	8.088E+03
2121	3.108E+02	1.698E+05	5.996E+06	8.047E-01	2.245E+02	7.928E+03
2122	3.046E+02	1.664E+05	5.877E+06	7.888E-01	2.201E+02	7.771E+03
2123	2.986E+02	1.631E+05	5.761E+06	7.732E-01	2.157E+02	7.617E+03
2124	2.927E+02	1.599E+05	5.647E+06	7.578E-01	2.114E+02	7.466E+03
2125	2.869E+02	1.567E+05	5.535E+06	7.428E-01	2.072E+02	7.319E+03
2126	2.812E+02	1.536E+05	5.425E+06	7.281E-01	2.031E+02	7.174E+03
2127	2.757E+02	1.506E+05	5.318E+06	7.137E-01	1.991E+02	7.032E+03
2128	2.702E+02	1.476E+05	5.213E+06	6.996E-01	1.952E+02	6.892E+03
2129	2.648E+02	1.447E+05	5.110E+06	6.857E-01	1.913E+02	6.756E+03
2130	2.596E+02	1.418E+05	5.008E+06	6.721E-01	1.875E+02	6.622E+03
2131	2.545E+02	1.390E+05	4.909E+06	6.588E-01	1.838E+02	6.491E+03
2132	2.494E+02	1.363E+05	4.812E+06	6.458E-01	1.802E+02	6.362E+03
2133	2.445E+02	1.336E+05	4.717E+06	6.330E-01	1.766E+02	6.236E+03
2134	2.396E+02	1.309E+05	4.623E+06	6.205E-01	1.731E+02	6.113E+03

Appendix C – Emissions Inventory

Flares PTE Emissions Calculations:

Table C.1 FLARES 1-7 PRE- AND POST PROJECT HOURLY AND ANNUAL PTE FOR PM_{10}, NO_x, AND CO EMISSIONS

Emissions Unit	Methane Gas Flow[1] (cfm)	Annual Hours of Operation (hrs/yr)	Criteria Pollutant	Emissions Factors (lb/MMdscf)[2]	Hourly Emissions (lb/hr)	Annual Emissions (ton/yr)
Flares 1-7	17.98	8,760	PM_{10}	17	0.033	0.146
			NO_x	40	0.079	0.344
			CO	750	1.473	6.450

[1] – Estimated using LandGEM (see Appendix B) to determine the methane gas to be combusted in each flare. Note: The highest estimated landfill gas flow rate is in year 2011.
[2] – Based on AP-42 Table 2.4-5 (11/98) for PM_{10}, NO_x, and CO.

Table C.2 FLARES 1-7 PRE- AND POST PROJECT HOURLY AND ANNUAL PTE FOR SO_2 EMISSIONS

Emissions Unit	Total Gas Flow[1] (cfm)	Sulfur Concetration[2] (ppmv)	Molecular weight of SO_2 (lb/lb-mol)	Stack Temperature (°R)	Hourly SO_2 Emissions (lb/hr)	Annual SO_2 Emissions (ton/yr)
Flares 1-7	32.68	46.9	64	1,460	0.00552	0.0242

[1] – Estimated using LandGEM (see Appendix B) to determine the total gas to be combusted in each flare. Note: The highest estimated landfill gas flow rate is in year 2011.
[2] – Because site specific sulfur content is not available, the value of 46.9ppmv was used as recommended by AP-42 2.4 (11/98), pg. 8, for the concentration of total reduced sulfur compounds.

Table C.3 FLARES 1-7 PRE- AND POST PROJECT HOURLY AND ANNUAL PTE FOR VOC EMISSIONS

Emissions Unit	NMOC Gas Flow[1] (cfm)	Molecular weight of NMOC (as Hexane) (lb/lb-mol)	Stack Temperature (°R)	Control Efficiency %[2]	Hourly VOC Emissions (lb/hr)	Annual VOC Emissions (T/yr)
Flares 1-7	0.0194	86.18	1,460	98	0.0019	0.008

[1] – Estimated using LandGEM (see Appendix B) to determine the total NMOC gas to be combusted in each flare. Note: The highest estimated landfill gas flow rate is in year 2011.
[2] – 98% control efficiency for the flare is assumed by the Applicant.

Appendix D – Ambient Air Quality Impact Analysis

MEMORANDUM

DATE: October 25, 2008

TO: Darrin Pampaian, Air Quality Analyst, Air Program

FROM: Kevin Schilling, Stationary Source Modeling Coordinator, Air Program

PROJECT NUMBER: P-2008.0078

SUBJECT: Modeling Review for the Payette County Permit to Construct Application for Modifications to the Clay Peak Municipal Solid Waste Landfill, located near Payette, Idaho

1.0 SUMMARY

Payette County submitted a Permit to Construct (PTC) application for operation of three new landfill gas flares to be operated at the Clay Peak Municipal Solid Waste Landfill, located near Payette, Idaho. Air quality analyses involving atmospheric dispersion modeling of emissions associated with the proposed project were performed to demonstrate the new facility would not cause or significantly contribute to a violation of any ambient air quality standard (IDAPA 58.01.01.203.02 [Idaho Air Rules Section 203.02]). DEQ dispersion modeling staff performed the ambient air quality impact analyses using the data and information submitted with the application.

The air impact analyses : 1) utilized appropriate methods and models; 2) was conducted using reasonably accurate or conservative model parameters and input data; 3) adhered to established DEQ guidelines for new source review dispersion modeling; 4) showed either a) that predicted pollutant concentrations from emissions associated with the proposed facility were below significant contribution levels (SCLs) or other applicable regulatory thresholds; or b) that predicted pollutant concentrations from emissions associated with the facility, when appropriately combined with background concentrations, were below applicable air quality standards at all locations outside of the required setback distance (closest distance from pollutant emission points to the property boundary). Table 1 presents key assumptions and results that should be considered in the development of the permit.

Table 1. KEY CONDITIONS USED IN MODELING ANALYSES

Criteria/Assumption/Result	Explanation/Consideration
Criteria pollutant emissions increases associated with the proposed modification were below DEQ modeling thresholds, and project specific dispersion modeling was not required.	DEQ contends that when emissions are below established modeling thresholds, impacts of criteria pollutants are assured to be below significant contribution levels.
Modeled TAP concentrations of controlled emissions were below applicable TAP increments.	Since controlled emissions rates were used in the modeling analyses, the permit must require that all landfill gas emissions be controlled by the flares.

2.0 BACKGROUND INFORMATION

2.1 Applicable Air Quality Impact Limits and Modeling Requirements

This section identifies applicable ambient air quality limits and analyses used to demonstrate compliance.

2.1.1 Area Classification

The Clay Peak Municipal Solid Waste Landfill is located near Payette, Idaho. The area is designated as attainment or unclassifiable for all criteria pollutants.

2.1.2 Significant and Cumulative NAAQS Impact Analyses

If estimated maximum pollutant impacts to ambient air from the emissions sources associated with the proposed modifications exceed the significant contribution levels (SCLs) of Idaho Air Rules Section 006.102, then a cumulative NAAQS impact analysis is necessary to demonstrate compliance with National Ambient Air Quality Standards (NAAQS) and Idaho Air Rules Section 203.02. A cumulative NAAQS impact analysis for attainment area pollutants involves adding ambient impacts from facility-wide emissions, and emissions from any nearby co-contributing sources, to DEQ-approved background concentration values that are appropriate for the criteria pollutant/averaging-time at the facility location and the area of significant impact. The resulting maximum pollutant concentrations in ambient air are then compared to the NAAQS listed in Table 2. Table 2 also lists SCLs and specifies the modeled value that must be used for comparison to the NAAQS.

Table 2. APPLICABLE REGULATORY LIMITS

Pollutant	Averaging Period	Significant Contribution Levels[a] ($\mu g/m^3$)[b]	Regulatory Limit[c] ($\mu g/m^3$)	Modeled Value Used[d]
PM_{10}[e]	Annual[f]	1.0	50[g]	Maximum 1st highest[h]
	24-hour	5.0	150[i]	Maximum 6th highest[j]
$PM_{2.5}$[k]	Annual	Not established	15	Use PM_{10} as surrogate
	24-hour	Not established	35	Use PM_{10} as surrogate
Carbon monoxide (CO)	8-hour	500	10,000[l]	Maximum 2nd highest[h]
	1-hour	2,000	40,000[l]	Maximum 2nd highest[h]
Sulfur Dioxide (SO_2)	Annual	1.0	80[g]	Maximum 1st highest[h]
	24-hour	5	365[l]	Maximum 2nd highest[h]
	3-hour	25	1,300[l]	Maximum 2nd highest[h]
Nitrogen Dioxide (NO_2)	Annual	1.0	100[g]	Maximum 1st highest[h]
Lead (Pb)	Quarterly	NA	1.5[i]	Maximum 1st highest[h]

[a]Idaho Air Rules Section 006.102
[b]Micrograms per cubic meter
[c]Idaho Air Rules Section 577 for criteria pollutants
[d]The maximum 1st highest modeled value is always used for the significant impact analysis or analyses using the model SCREEN3
[e]Particulate matter with an aerodynamic diameter less than or equal to a nominal ten micrometers
[f]The annual PM_{10} standard was revoked in 2006. The standard is still listed because compliance with the annual $PM_{2.5}$ standard is demonstrated by a PM_{10} analysis that demonstrates compliance with the revoked PM_{10} standard.
[g]Never expected to be exceeded in any calendar year
[h]Concentration at any modeled receptor
[i]Never expected to be exceeded more than once in any calendar year
[j]Concentration at any modeled receptor when using five years of meteorological data
[k]Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers
[l]Not to be exceeded more than once per year

New source review requirements for assuring compliance with $PM_{2.5}$ standards have not yet been completed and promulgated into regulation. EPA has asserted through a policy memorandum that compliance with $PM_{2.5}$ standards will be assured through an air quality analysis for the corresponding PM_{10} standard. Although the PM_{10} annual standard was revoked in 2006, compliance with the revoked PM_{10} annual standard must be demonstrated as a surrogate to the annual $PM_{2.5}$ standard.

2.1.3 Toxic Air Pollutant Analyses

Emissions of toxic substances are generally addressed by Idaho Air Rules Section 161:

> *Any contaminant which is by its nature toxic to human or animal life or vegetation shall not be emitted in such quantities or concentrations as to alone, or in combination with other contaminants, injure or unreasonably affect human or animal life or vegetation.*

Permit requirements for toxic air pollutants from new or modified sources are specifically addressed by Idaho Air Rules Section 203.03 and require the applicant to demonstrate to the satisfaction of DEQ the following:

> *Using the methods provided in Section 210, the emissions of toxic air pollutants from the stationary source or modification would not injure or unreasonably affect human or animal life or vegetation as required by Section 161. Compliance with all applicable toxic air pollutant carcinogenic increments and toxic air pollutant non-carcinogenic increments will also demonstrate preconstruction compliance with Section 161 with regards to the pollutants listed in Sections 585 and 586.*

Per Section 210, if the emissions increase associated with a new source or modification exceeds screening emission levels (ELs) of Idaho Air Rules Section 585 or 586, then the ambient impact of the emissions increase must be estimated. If ambient impacts are less than applicable Acceptable Ambient Concentrations (AACs) for non-carcinogens of Idaho Air Rules Section 585 and Acceptable Ambient Concentrations for Carcinogens (AACCs) of Idaho Air Rules Section 586, then compliance with TAP requirements has been demonstrated. If DEQ determines T-RACT is used to control emissions of carcinogenic TAPs, then modeled concentrations of 10 times the AACC are considered acceptable, as per Idaho Air Rules Section 210.12.

2.2 Background Concentrations

Background concentrations are used in the cumulative NAAQS impact analyses to account for impacts from sources not explicitly modeled. Background concentrations were not needed for the air impact analyses, since emissions associated with the proposed modification were below DEQ modeling thresholds, assuring impacts are below significant contribution levels,.

3.0 MODELING IMPACT ASSESSMENT

3.1 Modeling Methodology

This section describes the modeling methods used by the applicant to demonstrate compliance with applicable air quality standards.

3.1.1 Overview of Analyses

SCREEN3 was used for the air impact analyses. SCREEN3 generates maximum one-hour concentrations for a single source. Since there are three identical flares, impacts were evaluated by multiplying the emissions from one flare by three. The model was then run, using the stack characteristics associated with a single flare.

Persistence factors are used to convert one-hour concentrations from SCREEN3 output to concentrations associated with other averaging periods. The following are readily accepted persistence factors that were used (as specified in the *State of Idaho Air Quality Modeling Guideline*):

1-hour to 3-hour	0.9
1-hour to 8-hour	0.7
1-hour to 24-hour	0.4
1-hour to quarterly	0.13
1-hour to annual (criteria pollutants)	0.08
1-hour to annual (carcinogenic TAPs)	0.125 (specified by Idaho Air Rules)

Table 3 provides a brief description of parameters used in the modeling analyses.

Table 3. MODELING PARAMETERS

Parameter	Description/Values	Documentation/Addition Description
General facility location	Near Payette	
Model	SCREEN3	
Meteorological data	Worst Case	Used the "Full Meteorology" option in SCREEN3
Terrain	Not Considered	Terrain effects are not anticipated to substantially affect modeled impacts for these sources.
Building downwash	Not Considered	
Receptor Grid	Automated distance	SCREEN3 determines the maximum concentration between two specified downwind distances

3.1.2 Modeling protocol and Methodology

Screening-level air impact analyses were performed by DEQ dispersion modeling staff. Modeling was generally conducted using data and methods described in *State of Idaho Air Quality Modeling Guideline*.

3.1.3 Model Selection

SCREEN3 was used for the air impact analyses. SCREEN3 is an acceptable model until EPA promulgates AERSCREEN as a replacement for SCREEN3.

3.1.4 Meteorological Data

SCREEN3 was run using the "Full Meteorology" option. The model uses an algorithm that generates worst-case meteorology for the specific source/receptor characteristics that results in highest concentrations.

3.1.5 Terrain Effects

Terrain effects were not considered in the analyses. For sources with relatively low emissions release heights, such as the proposed flares, maximum impacts will be relatively close to the source and will not be substantially affected by small terrain features.

3.1.6 Facility Layout

The only critical facility layout criteria is the distance to the nearest ambient air boundary, since SCREEN3 only assesses plume centerline concentrations in the horizontal dimension and only assesses single source impacts. Ambient air was assumed to be all locations inside the landfill. Therefore, the location of the flares does not affect the air impact analyses.

3.1.7 Building Downwash

Building downwash was not considered in the analyses. There are few buildings at the landfill and most flares are located far from those buildings and any downwash effects potentially caused by them.

3.1.8 Ambient Air Boundary

Ambient air was assumed to be all locations within and outside of the landfill property boundary. Therefore, an ambient air boundary was not used in the analyses.

3.1.9 Receptor Network and Generation of Setback Distances

SCREEN3 was run to calculate the maximum concentration at a distance between 1.0 meters and 1,000 meters downwind of the flare modeled.

3.2 Emission Rates

Emissions rates used in the modeling analyses for the proposed project were equal to those presented in other sections of the permit application or the DEQ Statement of Basis.

3.2.1 Criteria Pollutant Emissions Rates

Table 4 provides criteria pollutant emissions rates used in the modeling analyses for short-term and long-term averaging periods. All emissions rates of criteria pollutants were below DEQ modeling thresholds. Therefore, no additional analyses were necessary to demonstrate compliance with NAAQS.

Table 4. EMISSIONS RATES USED FOR FULL NAAQS IMPACT MODELING

Emissions Point	Description	Emissions Rates (lb/hr)			
		PM_{10}[a]	Sulfur Dioxide	Carbon Monoxide	Oxides of Nitrogen
Flares	Total emissions increase for the three flares	0.033	0.0055	1.47	0.079

[a]Particulate matter with an aerodynamic diameter less than or equal to a nominal ten micrometers

3.2.2 TAP Emissions Rates

Table 5 provides controlled TAP emissions used in the modeling analyses. Modeling was performed using total TAP emissions from all seven flares, not just the emissions associated with the proposed three flares. The table only includes those TAPs having total emissions exceeding emissions screening levels (ELs) of Idaho Air Rules Section 585 and 586.

Table 5. EMISSIONS RATES USED FOR TAPS IMPACT MODELING

TAP	Averaging Period	Emissions Rates (lb/hr)
		All Seven Flares
acrylonitrile	Annual	2.8E-2
1,1,2,2 – tetrachloroethane	Annual	4.2E-3

3.3 Emission Release Parameters

Table 6 provides emissions release parameters used in the modeling analyses, including stack height, stack diameter, exhaust temperature, and exhaust velocity. The flare algorithm within SCREEN3 was used to model impacts. This algorithm uses the physical flare height and the heat release rate when operating (in calories per second) to calculate an effective stack height. The model assigns an exit velocity of 20 meters per second and a stack temperature of 1,273 Kelvin.

Table 6. EMISSIONS RELEASE PARAMETERS						
Release Point	*Source Type*	*Flare Height (m)*[a]	*Heat Release Rate (cal/sec)*[b]	*Effective Stack Height (m)*[c]	*Stack Gas Flow Velocity (m/sec)*[d]	*Stack Gas Temp. (K)*[e]
Flare	Flare	3.66	75,600	4.64	20	1,273

[a]Meters
[b]Calories per second
[c]Calculated by SCREEN3
[d]Automatically selected by SCREEN3 for the Flare algorithm
[e]Kelvin

3.4 Results for Significant and Cumulative NAAQS Impact Analyses

A significant impact analysis was not required for any criteria pollutants because emissions rates for all criteria pollutants were below DEQ established modeling thresholds.

3.5 Results for TAPs Analyses

DEQ performed TAPs impact analyses to evaluate compliance with applicable increments for those TAPs having emissions above screening emissions levels (ELs) of Idaho Air Rules Section 585 and 586. Table 7 provides SCREEN3 modeling results. The dispersion factor for the flares' impact on flat terrain, in combination with the emissions rates and a 0.125 persistence factor to convert 1-hour concentrations to annual concentrations, were used to calculate all TAP impacts. Results of the TAPs impact analyses are provided in Table 8. All maximum modeled impacts are below applicable AACCs.

Table 7. SCREEN3 MODEL RESULTS FOR 1.0 GRAM PER SECOND EMISSIONS		
Scenario	**Dispersion Factor**[a] **($\mu g/m^3$ / g/sec)**[b]	**Location of Maximum Impact**
Flares impact	301.0	88 m downwind

[a]SCREEN3 maximum 1-hour output divided by the emissions rate used in the model (1.0 g/sec)
[b]Micrograms per cubic meter concentration per gram per second emissions

Table 8. RESULTS FOR TAP IMPACT ANALYSES			
Pollutant	**Averaging Period**	**Modeled Impact ($\mu g/m^3$)**[a]	**AAC/AACC**[b] **($\mu g/m^3$)**
Acrylonitrile	Annual	1.13E-3	1.5E-2
1,1,2,2-tetrachloroethane	Annual	6.24E-4	1.7E-2

[a]Micrograms per cubic meter.
[b]Defined in Idaho Air Rules Section 585 and 586

4.0 CONCLUSIONS

The ambient air impact analyses demonstrated to DEQ's satisfaction that emissions from the facility will not cause or significantly contribute to a violation of any air quality standard.

Appendix E – Facility Comments

The following comments were received from the facility on November 11, 2008:

Facility Comment: After reviewing the Statement of Basis for the permit, I [Patti S. Nitz] do not find any need for comment or correction.

DEQ Response: The final permit will be issued with no changes being requested by the facility.

APPENDIX C

SPECIFICATIONS AND INSTALLATION REQUIREMENTS FOR LANDFILL GAS VENT FLARES

LANDFILL TECHNOLOGIES, INC.

PRODUCT SPECIFICATION DATA
U. S. PATENT NOs. 5,957,681; 5, 984,668
Revised: 1 SEP 00

PRODUCT

CF-5 Landfill Gas Vent Flare with SFI-100 Solar Igniter for 6-volt system or SFI-200 Solar Igniter for 12-volt system.

APPLICATIONS

For use on landfill gas vents, wells or leachate system cleanout lines to combust flammable gases at low ambient pressure without need for blowers or external power. Similar applications exist on wastewater treatment and biogas facilities and petroleum or natural gas production and transmission installations.

BRIEF DESCRIPTION

Standard unit includes solar-powered, continuous ignition system, all-weather variable flow flarehead, inline flame arrester, 1½" stainless steel ball valve, Schedule 40 black steel piping and 4" black steel bushing at base. Optional equipment includes various flange base adapters and cold weather insulation kits. Guy wire kits are also available. Pre-engineered flarehead modification parts can be provided to handle elevated gas pressures or flow rates.

RELATED PRODUCTS

Similar gas flaring systems are produced by Landfill Technologies, Inc. (LTI) for application on mechanically pressurized gas lines for higher flow rates. These systems typically include automatic safety shutoff features.

REGULATORY APPROVAL STATUS

The CF-5 vent flare has received approvals for use at landfills in many states. Regulations vary from state to state; however, environmental comparisons always favor combustion over release of raw gas.

When properly maintained and operated, this unit is consistent with USEPA requirements specified at 40 CFR 60.18 and 40 CFR 60.33c.

ENGINEERING SPECIFICATIONS

I. SFI-100 SOLAR IGNITION SYSTEM (6-volt system)

SOLAR COLLECTOR: 6" X 13" Solar-electric trickle charge plate; 5W panel providing 10V peak with 8V at 300mA normal charging power

BATTERY TYPE & VOLTAGE: 6-volt rechargeable gel cell

SHIPPING WEIGHT: 21 lbs.

DARK TIME ENDURANCE: Fully-charged system will function for 21 days in darkness.

SPARK INTERVAL: 1.5 seconds

SPARK PLUG TYPE: LTI SparkPilot®;

SPARKPILOT® GAP: 0.045 - 0.050 inch

SPARKPILOT® REPLACEMENT FREQUENCY (average):
greater than 1 year

IGNITION WIRE: 7 mm metallic wire insulated ignition cable with crimped eyelet terminals

IGNITION WIRE INSULATORS: Molded polyethylene with stainless steel clamps

FLAME ZONE SPARK STRAP: 1/8" stainless steel

GROUNDING STAKE: Galvanized steel with eyelet terminal

II. SFI-200 SOLAR IGNITION SYSTEM (12-volt system)

SOLAR COLLECTOR: 13" X 13" Solar-electric trickle charge plate; 6W panel providing 18V peak with 13V at 300mA normal charging power

BATTERY TYPE & VOLTAGE: 12-volt rechargeable gel cell

SHIPPING WEIGHT: 31 lbs.

DARK TIME ENDURANCE: Fully-charged system will function for 14 days in darkness.

SPARK INTERVAL: 1.25 seconds

SPARK PLUG TYPE: LTI SparkPilot®;

SPARKPILOT® GAP: 0.045 - 0.050 inch

SPARKPILOT® REPLACEMENT FREQUENCY (average):
greater than 1 year

IGNITION WIRE: 7 mm metallic wire insulated ignition cable with crimped eyelet terminals

IGNITION WIRE INSULATORS: Molded polyethylene with stainless steel clamps

FLAME ZONE SPARK STRAP: 1/8" stainless steel

GROUNDING STAKE: Galvanized steel with eyelet terminal

III. CF-5 GAS VENT FLARE

SHIPPING WEIGHT: 75 lbs.

COMBUSTION FLAREHEAD: Patented double expansion gas/air mixing chamber; 2" inlet, 8" outlet. Heavy carbon steel construction with high-wind carburetion profile. Two SparkPilot® taps for extra low or normal gas flows and for optional redundant safety ignition system.

FLAME ARRESTER: Three-inch diameter inline stainless steel wire-gauge flame arrester. Flame arrester elements should be replaced approximately every twelve months depending upon gas moisture and corrosivity.

HEIGHT: 96" inlet to top of flarehead (add ground height of flange to determine ground height of flame).

TRANSMISSION PIPES: 1½" ID Black steel Schedule 40 standard pipes with NPT thread.

BALL VALVE: 1½" ID Carbon steel body with stainless steel inner trim and ball valve.

BASE BUSHING: Schedule 40 black steel reducer bushing to 4" male NPT threads. This bushing is subsequently mated to the specific flange adapter required for local application.

IV. FLARE WARRANTY: One-year warranty on all parts.

RECOMMENDED PERFORMANCE RANGES

I. GAS FLOW RATE

The standard CF-5 unit is designed for effective combustion and reignition over a range of 2-60 SCFM of landfill gas or other low-grade biogas. Inlet gas pressure corresponding to these flow rates is typically 0.5 to 5 inches of water column. Higher flow rates can be accommodated if methane concentrations are adequate for flame stability.

II. GAS QUALITY

Combusted gas should have an equivalent methane concentration between approximately 30% - 60% of total gas at the above-recommended flow rates.

III. FLAME TEMPERATURE

Average readings approximately 900°F. - 1300°F. depending upon gas quality, flow rate and wind velocity. This will normally produce thermal destruction efficiencies of greater than 99% for volatile compounds.

IV. REIGNITION LIMITS

A properly operating CF-5 unit should provide continuous reignition of gases in less than 60 seconds after flameout regardless of wind direction or velocity. The flarehead is designed for high efficiency in windy conditions. No external windshields are recommended.

LTI LANDFILL TECHNOLOGIES, INCORPORATED

P.O. Box 519 West Sand Lake, New York 12196 (518) 674-8694

FAX (518) 674-8695

CF-5 LANDFILL GAS VENT FLARE

Installation Instructions

Revised: 28 APR 00

IMPORTANT! READ ALL INSTRUCTIONS AND REVIEW ASSEMBLY PICTURES BEFORE STARTING INSTALLATION.

Check gas flow and quality to assure satisfactory flare performance. Gas quality should be between approximately 30% and 80% methane and flow at a rate of 2 to 60 CFM at an inlet pressure between approximately 0.5 to 5 inches water column. Clearly visible waves of exiting gas usually indicate sufficient flow and pressure.

CAUTION! ALWAYS CARRY A METHANE-IN-AIR SAFETY ALARM METER while working near landfill gas. Explosive and flammable conditions may cause injury or death. Do not cause a spark or flame in the presence of ambient flammable gas concentrations.

CAUTION! This appliance weighs approximately 95 lbs. Vent riser must be sturdy enough to support flare during windy conditions. Guy wires may be required.

CAUTION! The solar igniter produces a high-voltage sparking current. Do not touch metal spark strap or SparkPilot® while unit is operating; an electrical shock could result.

CAUTION! This work must be performed only by skilled technicians in accordance with OSHA regulations and standard industry safety practices.

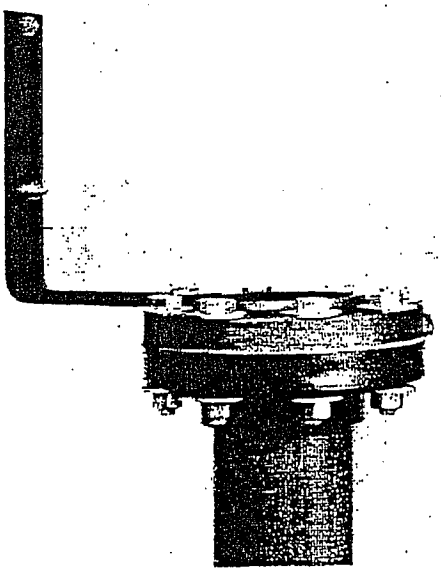
Installation Instructions

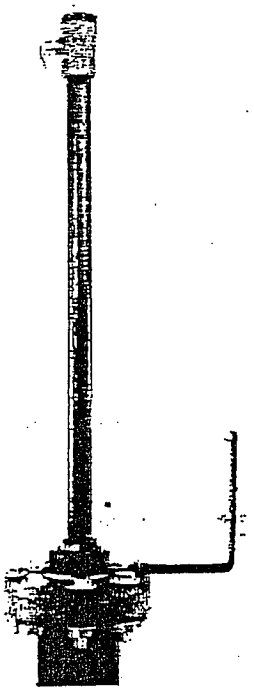
GENERAL NOTE: Pipe thread sealant (pipe dope) is provided and should be used at all threaded joints.

1) Well or vent riser should be cut approximately 24" above ground level. Install flange adapters as necessary to mate with 4" inlet bushing at flare base. All connections must be gas-tight and leakproof.

2) Bolt the igniter mounting bracket and mounting plate onto the companion flange facing in a southerly direction.

3) Mount stainless steel valve on top of 1½" dia. pipe section with four-inch bushings at base. Four-inch inlet bushing threads into companion flange. Close valve after pipe assembly is mounted into flange bushing.

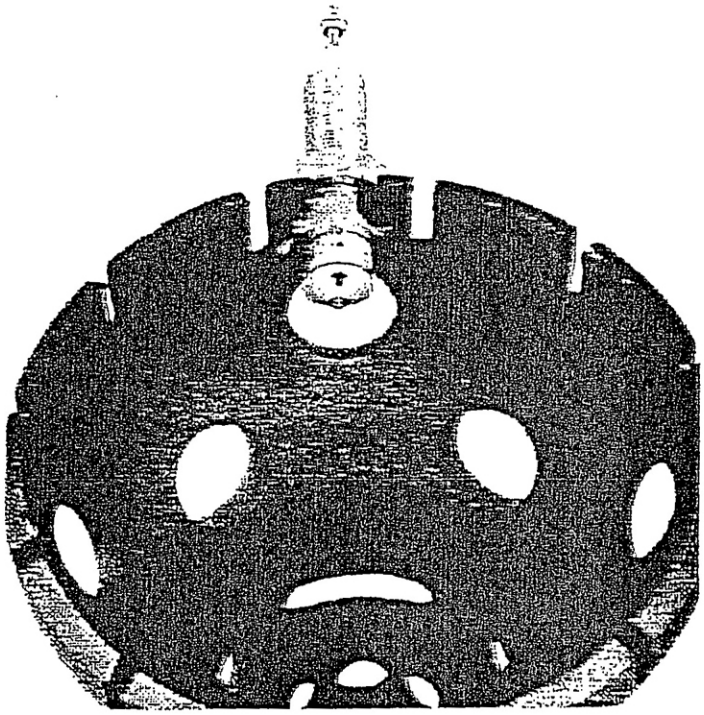


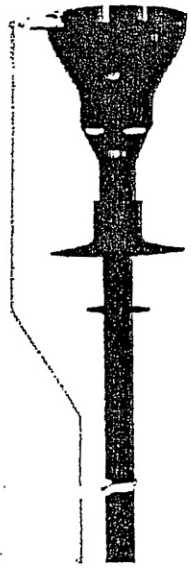


4) Connect the other 1½" dia. pipe section (with the welded guy wire bracket) to the heat shield coupling which connects to the flarehead

5) Install the SparkPilot® into the 7/8" slot at the upper rim of the flarehead; make sure drainage slots in SparkPilot® body are facing downward. The black arrow on the SparkPilot® face electrode points in the upward direction. Install spark strap (bend as shown) from SparkPilot® to insulated pipe clamp. Then install this entire assembly (flarehead, heat shield, pipe) into the valve.

6) Tighten all pipe connections and position the SparkPilot® 90° (crosswise) to the prevailing wind direction.



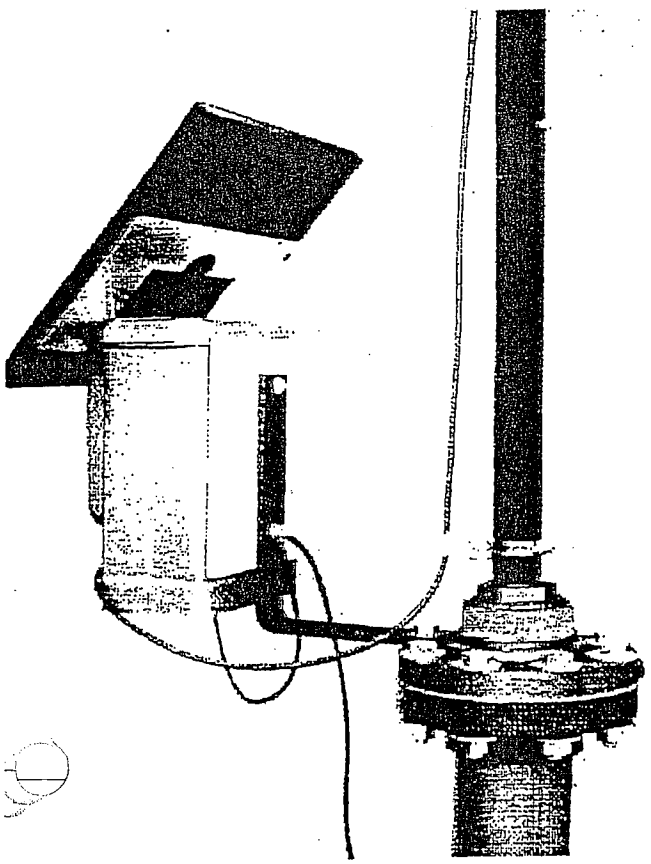


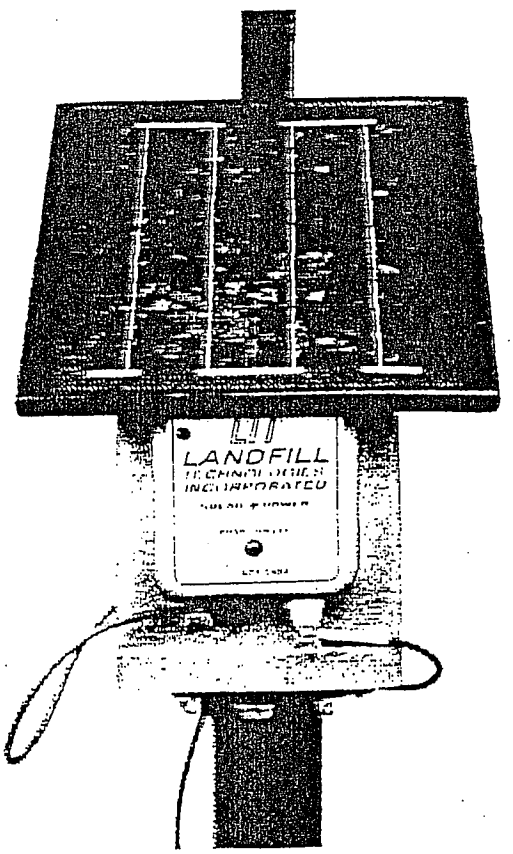
7) Mount the fully charged solar flare igniter on the two projecting mounting screws. These screw heads fit into the holes in the back of the igniter case, and the unit slips slightly downward into the mounting slots. Do not attempt to tighten mounting screws or disassemble igniter unit.

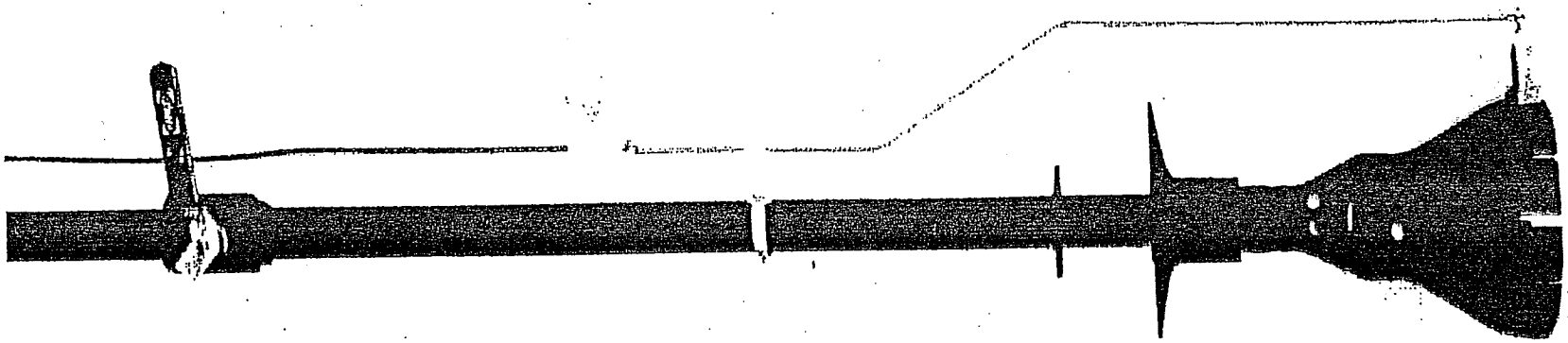
8) Attach the eyelet end of the 6' ignition cable (yellow end) to the bottom of the spark strap. Connect the other snap-on end of the ignition cable to the hot line terminal (beneath white ceramic insulator). The rubber boot will cover the bottom of the white ceramic insulator. Coil and secure any excess cable.

9) Connect one eyelet of the 2' ground cable to the nearest fastening bolt at rear of mounting plate. An extra nut and washers are placed on this bolt for connecting the eyelets. Also connect an eyelet of the 5' ground cable to the same bolt. Both eyelets should be fastened beneath the double washers and then tighten the terminal nut.

10) Push the grounding stake into the soil near the riser pipe, within reach of the 5' grounding cable. Connect the other eyelet of the 5' grounding cable to the bolt at the top of the grounding stake. Coil and secure any excess cable.







11) After checking completion and security of all above steps, open gas valve and let the gas purge the system for a few minutes.

12) Push "ON" button of solar igniter and listen for "snapping" sound of a spark plug. Verify that red spark indicator light is flashing. Flare should ignite within 60 seconds.

IF FLARE DOES NOT IGNITE, first, close gas valve; then:

A. Verify spark is occurring. Check SparkPilot® gap (0.045" to 0.050") and visually inspect spark. You will see a flash across the gap and hear a snapping sound. DO NOT TOUCH SPARKPILOT® OR SPARK STRAP TO AVOID ELECTRICAL SHOCK.

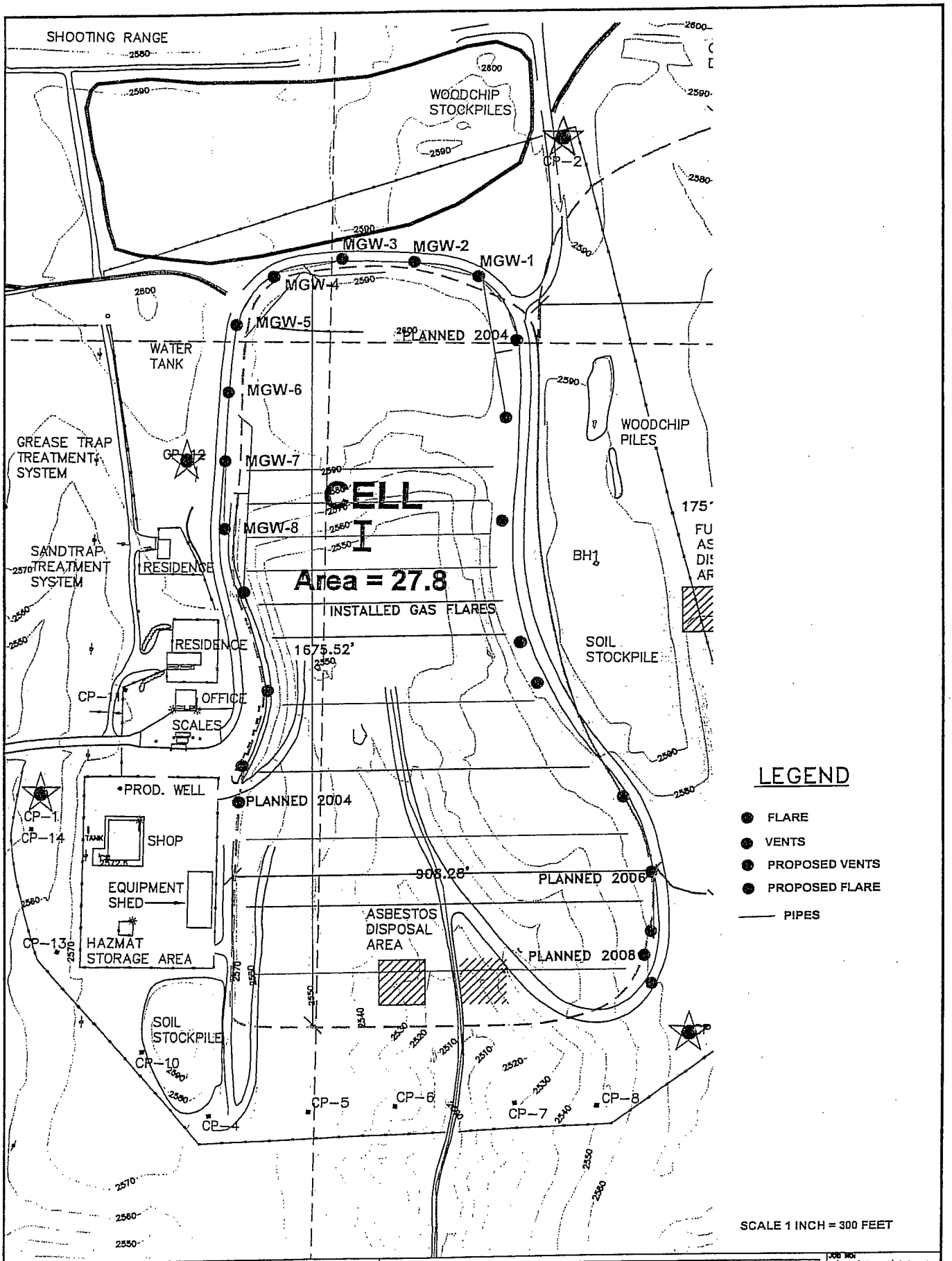
B. Open valve very slowly to check for "rich" condition. Flare may ignite at partial open setting. Experiment with a few trial settings.

IF FLARE STILL WON'T IGNITE, turn off spark igniter; then:

C. Verify gas quality with meter. If gas quality is between 30% and 80% methane, then:

D. Close gas valve; make sure spark igniter is "OFF"; then: Readjust SparkPilot® vertical location or radial position to optimize ignition with flow rate and prevailing wind. Return to Step 12.

If problems persist, contact LTI technicians AT (518) 674-8694 for help with unresolved questions or problems.



HOLLADAY ENGINEERING CO.

ENGINEERS · CONSULTANTS

32 N. MAIN P.O. BOX 235 PAYETTE, ID 83661
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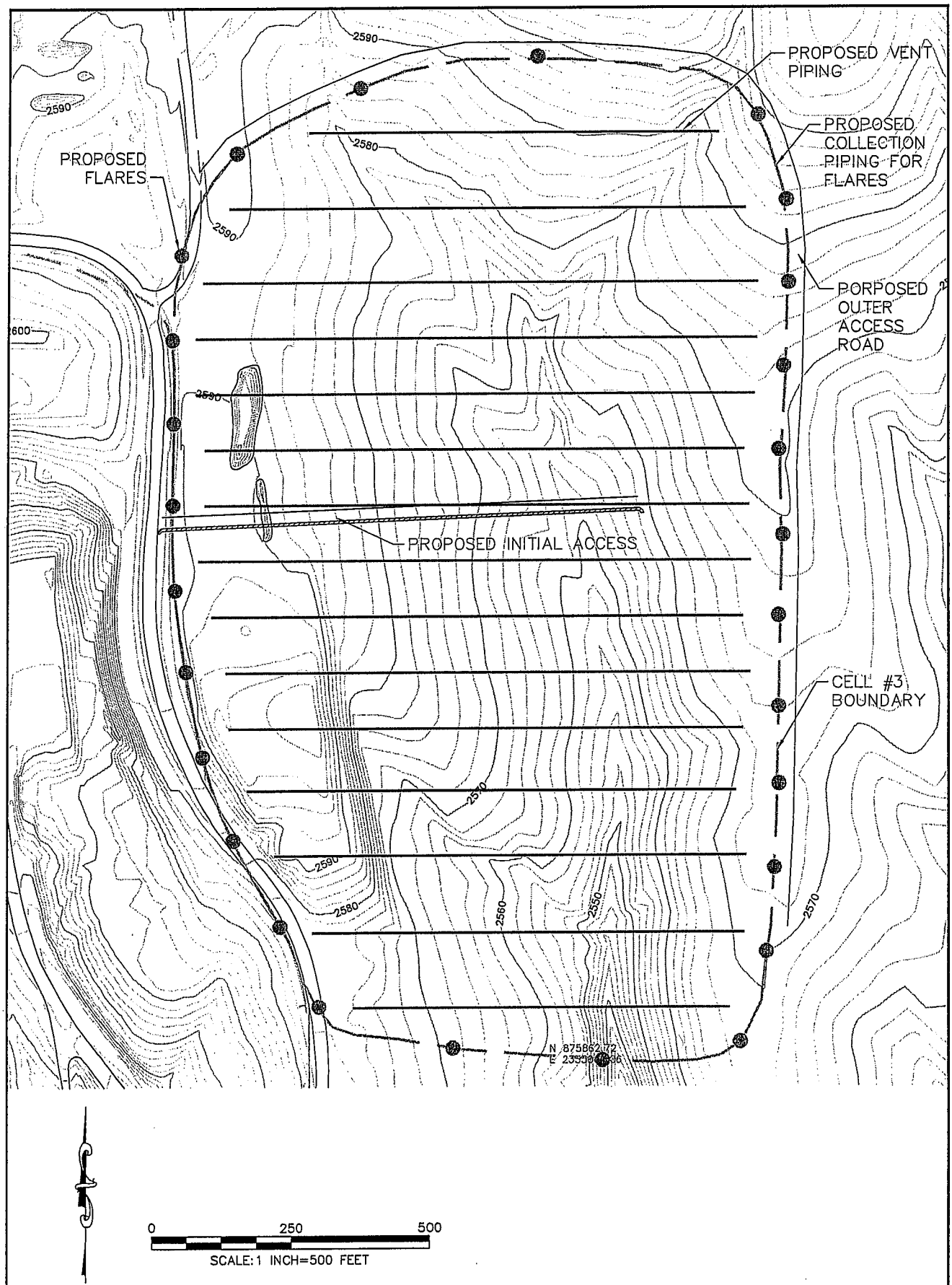
CELL 1
GAS FLARES
2003

JOB NO.	
DATE	6/13/03
REVISION	
PLOTTED	2/24/05
DRAWN BY	RB
CHECKED BY	JW



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CELL #2 METHANE GAS COLLECTION SYSTEM
CLAY PEAK SANITARY LANDFILL
PAYETTE COUNTY, IDAHO

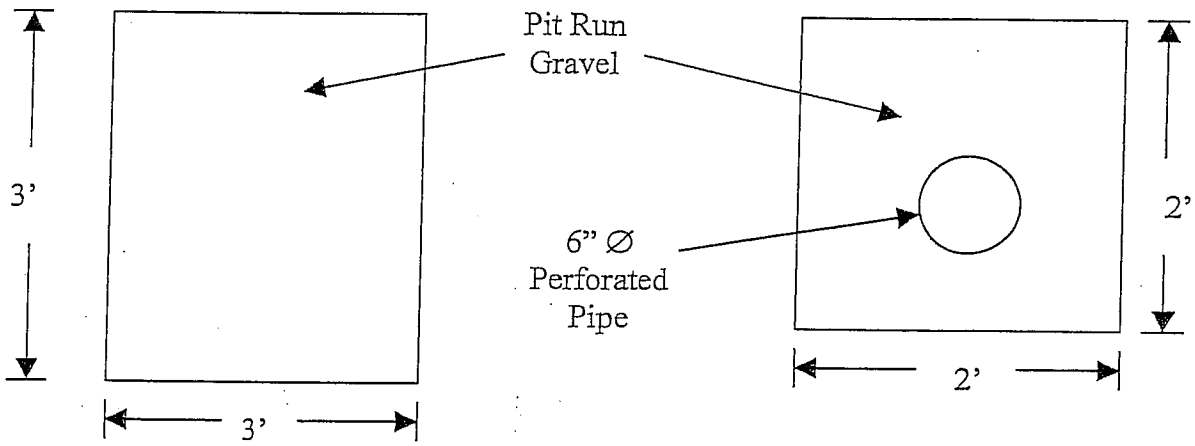
JOB NO:	PC 101406
DATE:	2-1-07
PLOTTED:	2-20-07
CADD FILE:	G:\PC\101406\C2 GAS MON.dwg
DRAWN BY:	MGM
CHECKED BY:	MEH
PAGE	

CLAY PEAK LANDFILL

METHANE MANAGEMENT

COMPARE GAS VENT DESIGNS

Compare Transmissive Capacity (as conduit) of 3' x 3' section packed with pit run gravel to that of 2' x 2' gravel-packed section with 6" ∅ perforated pipe replacing part of gravel.



SECTION A

General Discussion:

1. Pit run gravel is about 25% sand. Essentially, sand fills all voids between stones. It can be analyzed as a sand cross-section with 25% of the area of the gross cross-sections.

2. Flow of gas in sand is laminar.

3. Flow of gas in pipe is turbulent in all practical cases, and will follow the Darcy-Weisbach equation:

$$h_f + f \frac{L}{D} \frac{V^2}{2g} \qquad (= \Delta H)$$

REGISTERED PROFESSIONAL ENGINEER 3052 STATE OF IDAHO KENNETH R. RICE

Kenneth R. Rice
2-26-2003

4. Laminar flow in sand has been described by the Kozeiry-Carman equation:

$$\frac{\Delta H}{L} = \frac{180\,(-\Sigma_o)^2}{\Sigma_o^3\, d_m^2}\,\frac{\mu_L V_o}{\rho_L\, g}$$

For parallelism, the Darcy-Weisbach equation can be restated as:

$$\frac{\Delta H}{L} = \frac{f}{D}\,\frac{V^2}{2g}$$

Where

1. Units are metric
2. V_o = fluid velocity based on gross (adjusted gross, for pit run!) cross-sectional area.
3. Σ_o = porosity of media (for this, the sand fraction).

Data and coefficient values (properties of gravel assumed are typical of local pit runs, which are quite variable. Properties of gas assume equal molecular counts of CO_2 and CH_4, even though some possible processes in the landfill can distort this ratio, since bacteria generate the two in approximately equal numbers.):

Gas properties: @ use sea-level $T° = 20°$ C

Molecular weight = (44 + 16)/2 = 30 Molecular weight of air = approximately 29:

$$\rho = \frac{30}{29} \quad \rho \cong 1.035\ \rho_{air}$$

$$\mu_{co2} = 30.91$$

$$\mu_{CH4} = 22.70$$

$$\mu_{air} = 39.16$$

$$\mu_{landfil\ gas} = \frac{30.91 + 22.70}{2} = 26.81$$

Conclusion:

$\mu \approx 2/3\ \mu_{air}$ in metric units (Roberson & Crowe, p. A-21)

$\rho_{air} = 1.20\ kg/m^3$; $\mu_{landfil\ gas} = .24\ \frac{kg}{m^3}$

$\mu_{air} = 1.81 \times 10^{-5}\ \frac{N_{-5}}{m^2}$; $\mu_{gas} \cong 1.2\ \frac{N_5}{m^2}$

In pipe:

$$V_o = \sqrt{\frac{(\Delta H/L)\ 2gD}{f}}$$

Where $D = 6" = 0.152$ m

$$V_o = \sqrt{\frac{(\Delta H/L)\ 2 \times 9.8 \times 0.152}{0.025}}$$

$$= 10.91 \sqrt{(\Delta H/L)}$$

$\Delta H/L$ = about 0.0001, or less – use $\Delta H/L = 0.0001$

V_o in pipe $= 10.91 \sqrt{0.0001} = 0.109$ m/sec

V'_o in media $= 9.14 \times 10^{-5} \times 1 \times 10^{-4} = 9.14 \times 10^{-9}$ m/sec

Flow rates:

3' x 3' media = 0.836 m^2

6" pipe = $\pi \times 0.076^2 = 0.01815\ m^2$

2' x 2' media around pipe = 0.372 - 0.018 = 0.354 m^2

Flow in pipe, at $\Delta H/L = 0.0001$

$Q = 0.01815 \times 0.109 = 1.978 \times 10^{-3}\ m^3/sec$

Flow at $\Delta H/L = 0.0001$, in 3' x 3' media

$Q = 9.14 \times 10^{-9} \times 0.25 \times 0.836\ m^2 = 1.91 \times 10^{-9}\ m^3/sec$

Flow in 3' x 3' gravel, compared to flow in 6" pipe

$$\frac{Q\ gravel}{Q\ pipe} = \frac{1.91 \times 10^{-9}}{1.978 \times 10^{-3}} = 10^{-6}, \text{ approximately}$$

$$\text{Inverse} = \frac{Q\ pipe}{Q\ gravel} \cong 10^6$$

A factor of 1 million to 1 (with pipe in place, gravel in 2' x 2' is insignificant)

Other properties and coefficients:

Σ_o = approximately 0.35 based on sand alone, or 0.09 for gross cross-section – use 0.35 and adjust area to 25% of gross.

d_m = 0.04 cm = 0.0004m for typical Payette – area inter-stitial sands.

$g = 9.80\ m/sec^2$

For comparison if pipe and media transmissivities, hold $\Delta H/L$ constant for both – solve for V_o in terms of $\Delta H/L$ for both equations:

Transforms of equations:

Pipe: $$V_o^2 = \left(\frac{\Delta H}{L}\right)\frac{2gD}{f}$$

$$V_o = \sqrt{\frac{(\Delta H/L)\ 2gD}{f}}$$

Laminar flow in granular medium:

$$\frac{\Delta H}{L} = \frac{180\,(1-\Sigma_o)^2\ \mu_2\ V'_o}{\Sigma_o^3\ d_m^2\ \rho_L\ g}$$

Becomes:

$$V'_o = \left(\frac{\Delta H}{L}\right)\frac{\Sigma_o^3\ d_m^2\ \rho_L\ g}{180\,(1-\Sigma_o)^2\ \mu_2}$$

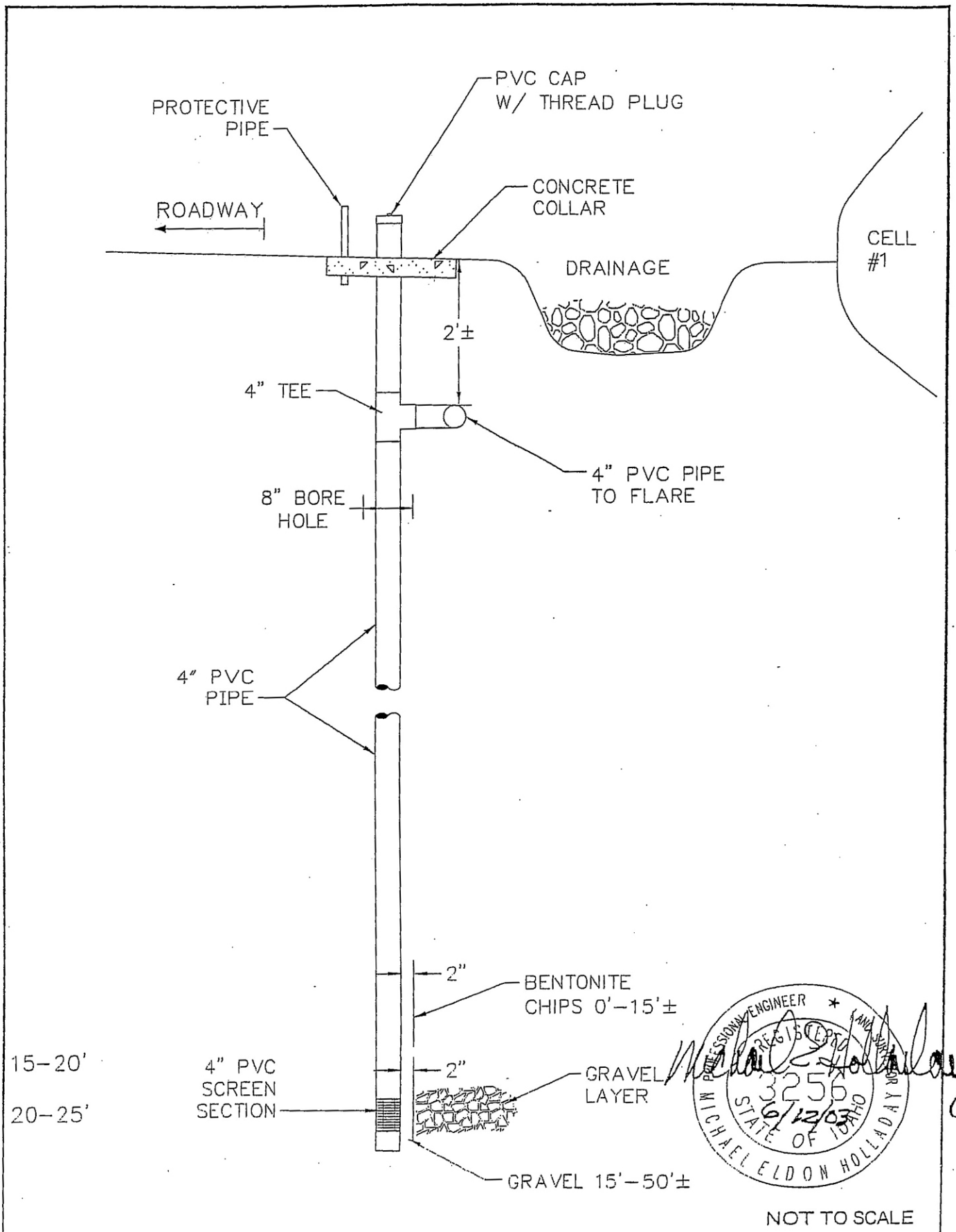
f must be estimated. Plastic pipe is smooth, velocity is low – probably $N_{RE} \cong 6 \times 10^3 \pm$, giving $f \cong 0.025$ (a probably – high estimate, based on Moody diagram).

Substituting property values:

In media:

$$V'_o = \frac{(\Delta H/L)\ 0.35^3 \times 0.0004^2 \times 1.24 \times 9.8}{(0.65)^2 \times 180 \times 1.2 \times 10^{-5}}$$

$$V_o' = 9.14 \times 10^{-5}\left(\frac{\Delta H}{L}\right)\ m/sec \text{ (on ¼ of gross area)}$$



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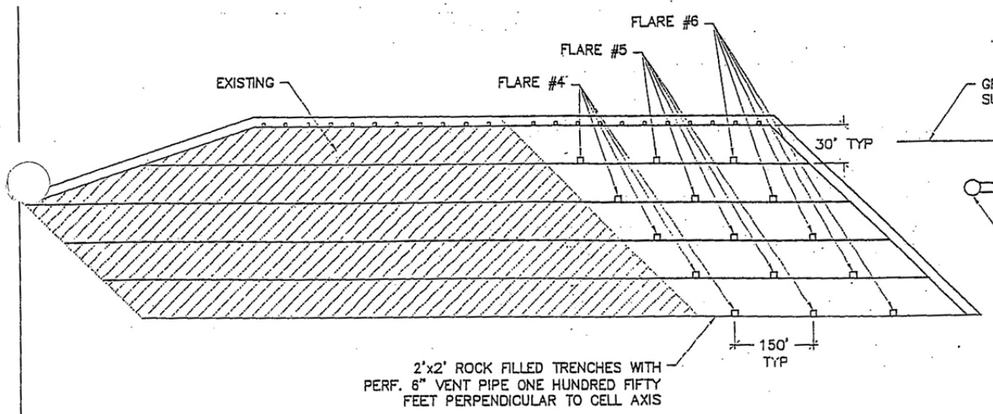
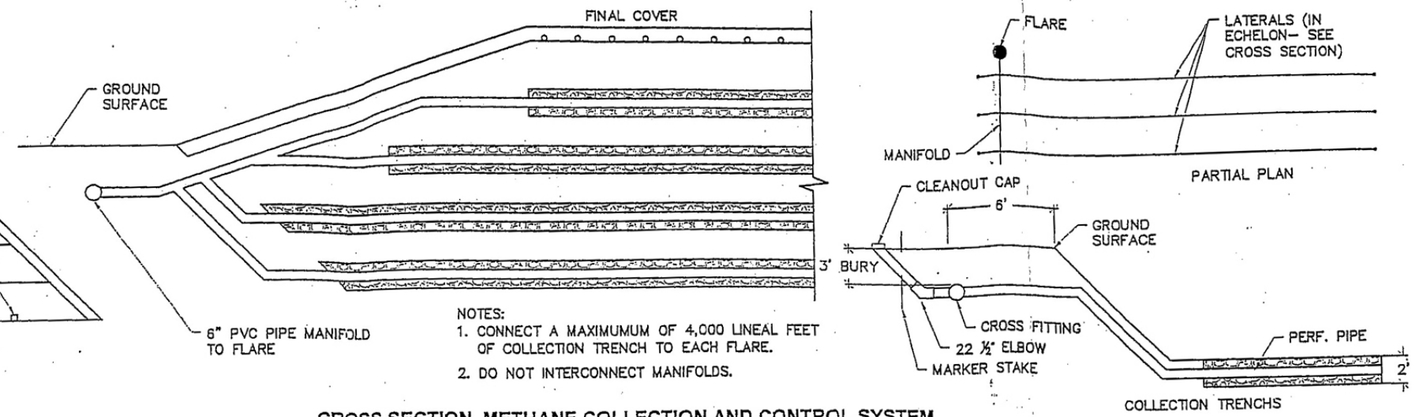
VERTICAL GAS COLLECTING WELL DETAIL
PAYETTE COUNTY, ID
CLAY PEAK SANITARY LANDFILL

JOB NO:	PC 091202
DATE:	02-07-03
REVISED:	03-19-03
PLOTTED:	03-19-03
DRAWN BY:	MGM
CHECKED BY:	MEH
PAGE	

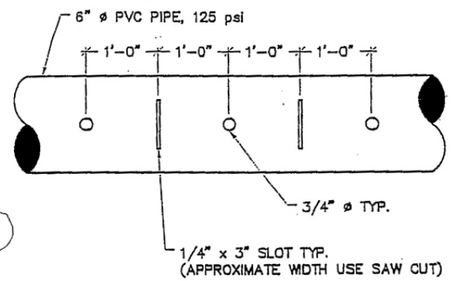


LATTERAL SECTION METHANE COLLECTION AND CONTROL SYSTEM
NOT TO SCALE



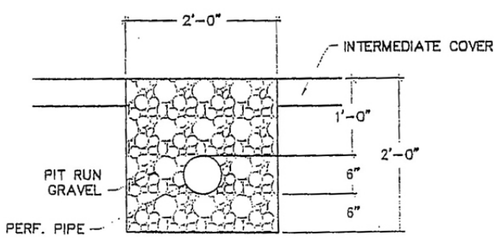
NOTES:
1. CONNECT A MAXIMUMUM OF 4,000 LINEAL FEET OF COLLECTION TRENCH TO EACH FLARE.
2. DO NOT INTERCONNECT MANIFOLDS.

CROSS SECTION METHANE COLLECTION AND CONTROL SYSTEM
NOT TO SCALE

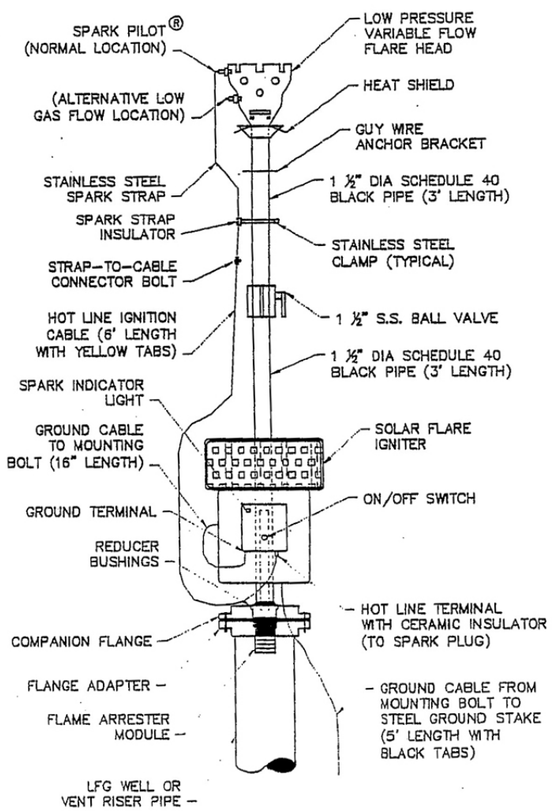


NOTE: PERFORATIONS IN TOP OF PIPE ONLY EXCEPT 1/2" WEEP HOLES IN BOTTOM @ 10' O.C.

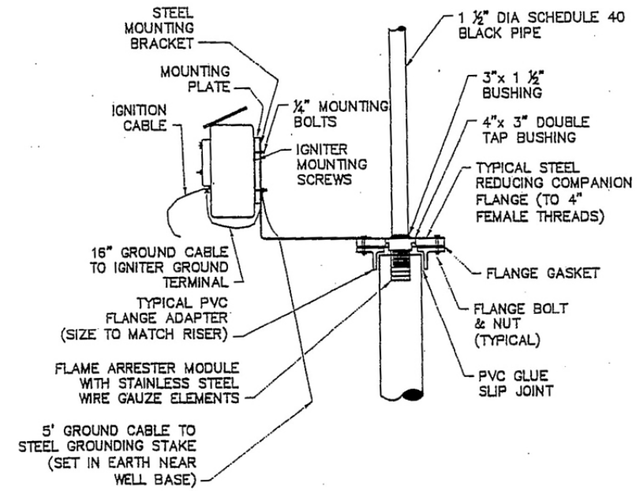
(A) DETAIL 6" PIPE PERFORATION PATTERN
NOT TO SCALE



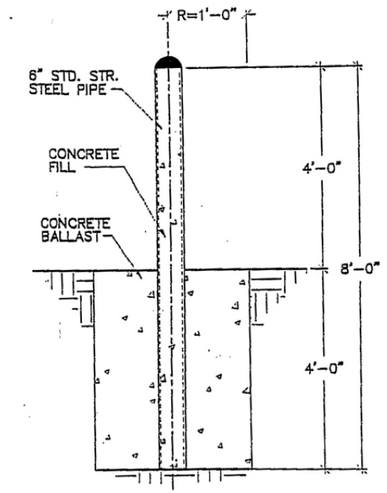
(B) COLLECTION TRENCH CROSS SECTION
NOT TO SCALE



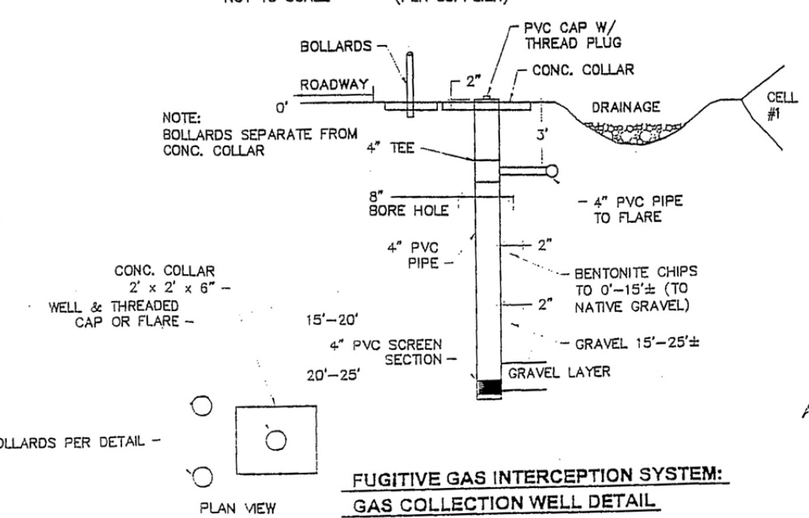
CF-5 LFG VENT FLARE TYPICAL INSTALLATION
NOT TO SCALE (PER SUPPLIER)



SFI-100 SOLAR IGNITER TYPICAL MOUNTING DETAIL
NOT TO SCALE (PER SUPPLIER)

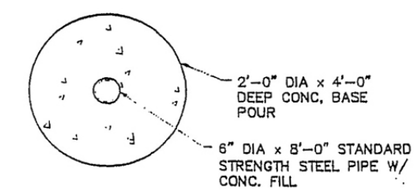


NOTE:
PAINT OR TAPE YELLOW/BLACK STRIPED SAFETY PATTERN ON PROJECTING PART OF STEEL PIPE.



NOTE:
BOLLARDS SEPARATE FROM CONC. COLLAR

FUGITIVE GAS INTERCEPTION SYSTEM: GAS COLLECTION WELL DETAIL
NOT TO SCALE



NOTE:
PLACE AT LEAST 3 FEET AWAY FROM WELL HEAD OR FLARE BASE.

PROTECTIVE BOLLARD
NOT TO SCALE

REGISTERED PROFESSIONAL ENGINEER
3032
STATE OF IDAHO
KENNETH R. RICE

Kenneth R. Rice
5-12-04

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METHANE GAS CONTROL SYSTEM
PAYETTE COUNTY, IDAHO

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JOB NO:	091202
CADD FILE:	DETAILS
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DATE:	11/19/03
REVISED:	
PLOTTED:	11/19/03
DRAWN BY:	DLM
SHEET	
CHECKED BY:	KRR

APPENDIX D
WASTE DISPOSAL FEE SCHEDULE

CLAY PEAK LANDFILL RATES
June 3, 2014

Municipal Solid (Non-Hazardous) Waste		Payette County		$17.25 ton
		Out of County		$30.00 ton
Brush, grass, wood scraps & limbs; Christmas trees		Payette County		$17.25 ton
		Out of County		$30.00 ton
Appliances (refrigerated)				$12.00 each
Tire (no rim)				$2.00 each
Tire (with rim)				$4.00 each
Truck tire (no rim)				$5.70 each
Truck tire (with rim)				$15.50 each
Motorcycle tires				$1.50 each
Asbestos		Payette County		$50.00 ton
		Out of County		$100.00 ton
Septage				$47.00 ton
Grease traps and car wash liquids				$25.00 ton
Petroleum contaminated soil		Payette County		$17.25 ton
		Out of County		$25.00 ton
Petroleum contaminated soil treatment fee		Payette County		$1,250.00 acre/year
		Out of County		$1,400.00 acre/year
Flood cleanup		Payette County		$17.25 ton
		Out of County		$30.00 ton
Demolition waste		Payette County		$17.25 ton
		Out of County		$30.00 ton
Frozen/Compacted Load Removal				$25.00 each

****Pricing for tires not listed available upon request.**

CLAY PEAK LANDFILL
Dead Animal Disposal Rates

Horses				$75.00 Each
Cattle		Over 500 LB		$35.00 Each
Hogs, Sheep, Calves				$20.00 Each
Additional hogs, sheep and calves				$5.00 Each

CLAY PEAK LANDFILL RATES
June 3, 2014

Municipal Solid (Non-Hazardous) Waste		Payette County		$17.25 ton
		Out of County		$30.00 ton
Brush, grass, wood scraps & limbs; Christmas trees		Payette County		$17.25 ton
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		Out of County		$30.00 ton
Demolition waste		Payette County		$17.25 ton
		Out of County		$30.00 ton
Frozen/Compacted Load Removal				$25.00 each

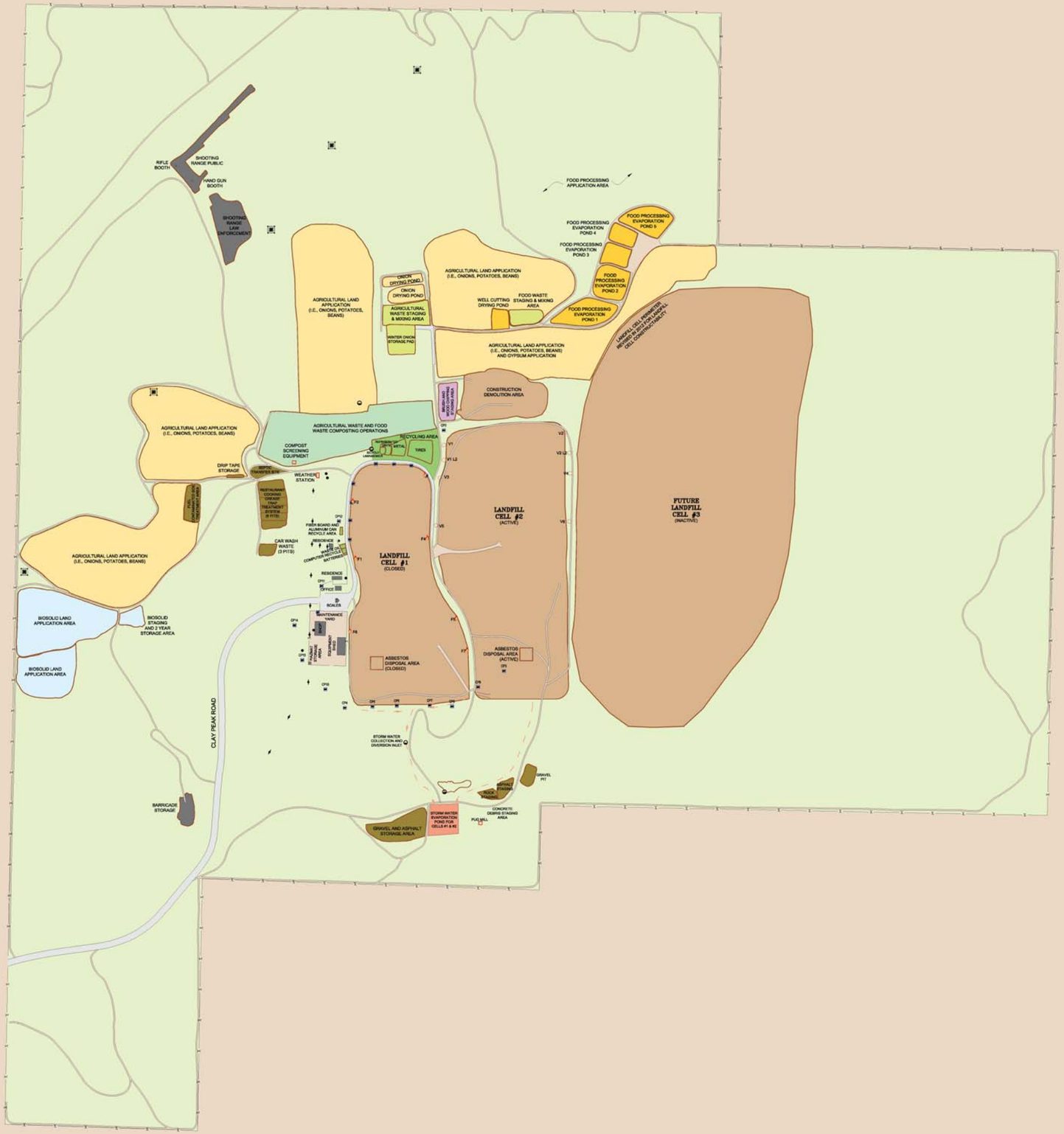
****Pricing for tires not listed available upon request.**

CLAY PEAK LANDFILL
Dead Animal Disposal Rates

Horses				$75.00 Each
Cattle		Over 500 LB		$35.00 Each
Hogs, Sheep, Calves				$20.00 Each
Additional hogs, sheep and calves				$5.00 Each

APPENDIX E-1

LANDFILL FACILITY MAP
ENTIRE SITE



CELL #2 ASBESTOS
DISPOSAL AREA COORDINATE
LOCATIONS
NW CORNER: 44.064384,-116.858063
NE CORNER: 44.064385,-116.857684
SE CORNER: 44.064110,-116.857682
SW CORNER: 44.064109,-116.85806

Clay Peak Landfill
Payette County, Idaho

Facility Map

400 0 400 800
SCALE: 1 INCH=400 FEET (FOR 24x36 SHEETS ONLY)

Legend:

- LANDFILL ROADS (ASPHALT)
- LANDFILL ROADS (GRAVEL / DIRT)
- FENCE LINE
- STORM WATER FLOW LINE
- CULVERT
- FIRE HYDRANT
- FLARE
- VENT
- MANHOLE
- MONITORING WELL / CONTROL POINT (CP10)
- MONITORING WELL
- POWER POLE
- POWER TOWER
- LANDFILL CELLS
- RECYCLING
- AGRICULTURAL STAGING & MIXING
- WOOD CHIPPING & STAGING
- COMPOSTING OPERATIONS
- AGRICULTURAL APPLICATION
- FOOD PROCESSING
- BIOSOLIDS
- OTHER PROCESSES
- OTHER USE AREAS
- STORM WATER CONTAINMENT
- LANDFILL PROPERTY BOUNDARY
- PAYETTE COUNTY

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Revised October 2013

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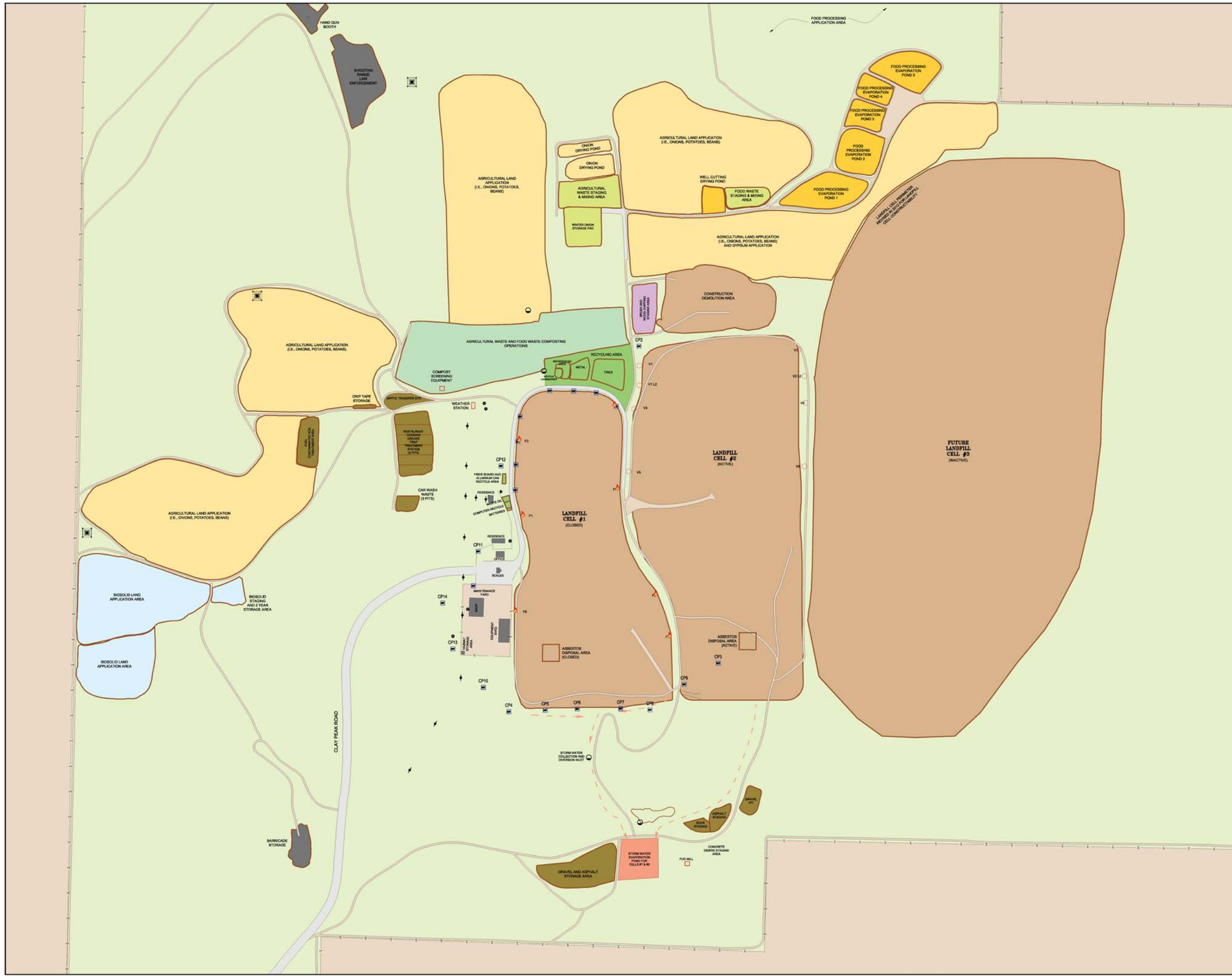
G:\MAPS\PC\CLAY_PEAK_LANDFILL\PC_CLAY-PEAK_FACILITY.dwg

APPENDIX E-2

LANDFILL FACILITY MAP
FACILITY OPERATIONS

Clay Peak Landfill
Payette County, Idaho

Facility Map



Legend:

- LANDFILL ROADS (ASPHALT)
- LANDFILL ROADS (GRAVEL / DIRT)
- FENCE LINE
- STORM WATER FLOW LINE
- CULVERT
- FIRE HYDRANT
- FLARE
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- MONITORING WELL
- POWER POLE
- POWER TOWER
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- AGRICULTURAL STAGING & MIXING
- WOOD CHIPPING & STAGING
- COMPOSTING OPERATIONS
- AGRICULTURAL APPLICATION
- FOOD PROCESSING
- BIOSOLIDS
- OTHER PROCESSES
- OTHER USE AREAS
- STORM WATER CONTAINMENT
- LANDFILL PROPERTY BOUNDARY
- PAYETTE COUNTY

250 0 250 500
SCALE: 1 INCH=250 FEET (FOR 24x36 SHEETS ONLY)

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