Attachment 9
Closure and Post-Closure Plans
Table of Contents

I.1 Introduction 5

I.1.a General 5

I.1.b Facility Description 5
I.1.b.(1) Background 5
I.1.b.(2) RCRA Unit Locations and Descriptions 6
I.1.b.(2)(a) Tanks 6
I.1.b.(2)(b) Pug Mill Mixing System 7
I.1.b.(2)(c) Surface Impoundments 8
I.1.b.(2)(d) Containment Building (Stabilization and Debris Treatment portion) 9
I.1.b.(2)(e) Landfills 10
I.1.b.(3) Site Geology 12
I.1.b.(4) Site Operation 13

I.1.c Facility Contacts 13
I.1.c.(1) Primary Contact 13
I.1.c.(2) Other Facility Contacts 13

I.1.d Site Equipment 14

I.1.e Facility Record keeping 14
I.1.e.(1) General Facility Records Policy 14
I.1.e.(2) Record Submittals 14
I.1.e.(3) Deed Notation 14

I.2 Closure Plan 15

I.2.a Closure Schedule 15
I.2.a.(1) Final Closure Year 15
I.2.a.(2) Partial Facility Closure 15
I.2.a.(3) Closure Schedule 16

I.2.b Facility Closure and Post-Closure Notifications 16

I.2.c Closure of Container Management Units 17
I.2.c.(1) Maximum Inventory 17
I.2.c.(2) Closure Schedule 17
I.2.c.(3) Partial Facility Closure 17
I.2.c.(4) Container Management Unit Closure Activities 17
I.2.c.(4)(a) Container Storage Units Storing Liquid Wastes 18
I.2.c.(4)(b) Container Storage Units Storing Non-Liquid Wastes 19

I.2.d Closure of Tanks 19
I.2.d.(1) Maximum Inventory 19
I.2.d.(2) Closure Schedule 20
I.2.d.(3) Partial Facility Closure 20
I.2.d.(4) Tank Closure Activities 20

I.2.d.(5) Tank Area Closure Activities 20

I.2.e Closure of Pug Mill Mixing System 20
I.2.e.(1) Maximum Inventory 21
I.2.e.(2) Closure Schedule 21
I.2.e.(3) Partial Facility Closure 21
I.2.e.(4) Pug Mill Mixing System Closure Activities 21

I.2.f Closure of Surface Impoundments 21
I.2.f.(1) Maximum Inventory 21
I.2.f.(2) Closure Schedule 21
I.2.f.(3) Partial Facility Closure 22
I.2.f.(4) Surface Impoundment Closure Activities 22
I.2.f.(4)(a) Liquid Removal 22
I.2.f.(4)(b) Characterization and Removal of Waste Residues 22
I.2.f.(4)(c) Characterization and Removal of Liner Systems 23
I.2.f.(4)(d) Backfilling 24

I.2.g Closure of Containment Building (Stabilization and Debris Portions) 24
I.2.g.(1) Maximum Inventory 24
I.2.g.(2) Closure Schedule 25
I.2.g.(3) Partial Facility Closure 25
I.2.g.(4) Containment Building Closure Activities 25
I.2.g.(4)(a) Process Equipment 26
I.2.g.(4)(b) Buildings 26
I.2.g.(4)(c) Air Pollution Control Equipment and Feed Additive Silos 26
I.2.g.(4)(d) Concrete Slabs 26

I.2.h Closure of Landfills 27
I.2.h.(1) Maximum Inventory 27
Table I.3 Landfill Areas Closure Schedule 27
I.2.h.(2) Closure Schedule 27
I.2.h.(3) Partial Facility Closure 28
I.2.h.(4) Landfill Closure Activities 28
I.2.h.(5) Final Landfill Cover 28
I.2.h.(5)(a) Design and Construction 28
I.2.h.(5)(b) Minimization of Liquid Migration 30
I.2.h.(5)(c) Maintenance Needs 31
I.2.h.(5)(d) Drainage and Erosion 31
I.2.h.(5)(e) Settlement and Subsidence 31
I.2.h.(5)(f) Cover Permeability 32
I.2.h.(5)(g) Freeze/Thaw Effects 32

I.2.i Crusher System within the Containment Building 32
I.2.i(1) Maximum Inventory 32

I.2.j Closure of Vehicle Wash Area 33
I.2.j.(1) Maximum Inventory 33
I.2.j.(2) Closure Schedule 33
I.2.j.(3) Partial Facility Closure 33
I.2.j.(4) Vehicle Wash Area Closure Activities 33

I.2.k Closure of Laboratory/Shop Buildings 33
I.2.k.(1) Closure Schedule 33
I.2.k.(2) Partial Facility Closure 34

I.2.k.(3) Laboratory/Shop Building Closure Activities 34

I.2.l Management of Closure Residues 34

I.2.m Surface Soil Sampling 34
I.2.m.(1) Unit-Specific Sampling 35
I.2.m.(2) Non-Unit-Specific Sampling 36
I.2.m.(3) Road Surfaces 36
I.2.m.(4) Background Soil and Asphalt Sampling 36
I.2.m.(5) Sample Analyses and Data Evaluation 37
I.2.m.(6) Clean Closure Criteria 37

I.2.n General Site Closure Procedures 38

I.2.o Equipment Decontamination 38

I.3 Post-Closure Plan 39

I.3.a Post-Closure Requirements 39

I.3.b Post-Closure Period 40

I.3.c Post-Closure Security 40
I.3.c.(1) Fencing 40
I.3.c.(2) Signs 40

I.3.e Benchmarks 41

I.3.f Landscape Maintenance 41
I.3.f.(1) Maintenance 41
I.3.f.(2) Buildings 41
I.3.f.(3) Roadways 41
I.3.f.(4) Drainage Ditches 41
I.3.f.(5) Utilities 41

I.3.g Erosion Controls 42

I.3.h Monitoring 42
I.3.h.(1) Leachate Collection, Detection, and Removal Systems 42
I.3.h.(2) Groundwater Monitoring Wells 43
I.3.h.(3) Landfill and Pre-RCRA Unit Final Covers 43

I.4 Closure Cost Estimate 45

I.5 Post Closure Cost Estimate 46

I.6 Financial Assurance for Closure and Post-Closure Care 46

I.6.a Financial Assurance Mechanism 46

I.6.b Liability Insurance 46

I.7 Certification of Closure and Completion of Post-Closure Care 46

List of Tables

Table I-1 Containment Building Major Equipment List (Stab. Portion)

Table I-2 Containment Building Major Equipment List (Debris Portion)

Table I-3 Landfill Areas Closure Schedule

Table I-4 Remaining Landfill Capacity

Table I-5 Soil Sampling Grid

Table I-6 Sampling Diagonal

Table I-7 Potential Inorganic Background Soil Constituents

Table I-8 Insurance Limits

List of Figures

Figure I-3 Schedule of Substantial Completion of Closure Activities

Figure I-4 Schedule of Final Facility Closure Activities

Figure I-5 Typical Post-Closure Inspection Form

Figure I-6 Cover Estimator Chart

List of Drawings

PRMI-T13 Facility Typical Topographic Plan Final at Closure

I.1 Introduction

This Closure, Post-Closure and Financial Requirements Plan is prepared as required under IDAPA 58.01.05.008 (40 CFR Part 264, Subparts G, H, I and §§264.178, 264.197, 264.228, 264.310, 264.1102 and 270.14.(b)(13-17)).

I.1.a General

The Closure/Post-Closure Plan contains information on USEI's current and proposed facilities as described in Section D. Future amendments to the Closure/Post-Closure Plan, if required, will be filed with the IDEQ in accordance with IDAPA 58.01.05.008 (40 CFR §264.112(c)).

In accordance with IDAPA 58.01.05.008 (40 CFR §264.111), the Closure/Post-Closure Plan provides for closure of the facility in a manner that minimizes the need for further maintenance while it controls, minimizes, or eliminates post-closure escape of hazardous wastes, hazardous waste constituents, leachate, contaminated rainfall, or waste decomposition products to groundwater, surface water, or the atmosphere to the extent necessary to prevent threats to human health and the environment.

A copy of this Closure/Post-Closure Plan will be kept at the facility and may be reviewed by IDEQ or its authorized representatives during normal working hours.

I.1.b Facility Description

I.1.b.(1) Background

This Section provides a general description of the facility and is intended to acquaint the Closure/Post-Closure Plan's reviewer with the facility and the associated operations located at the facility.

USEI operates an approximately 328 acre Resource Conservation and Recovery Act (RCRA) permitted treatment, storage and disposal facility located at the end of Lemley Road approximately 10½ miles west of the town of Grand View, Owyhee County, Idaho. The site location plan is shown on Figure I-1 and the facility plan is shown on Figure I-2. Prior to 1973, the site was operated as a Titan missile silo complex and from 1973 to 1981 the facility was operated as a waste storage and landfill disposal facility by Wes-Con, Inc. The facility was used for both non-hazardous and hazardous waste management, and for polychlorinated biphenyl (PCB) disposal under a separate Toxic Substances Control Act (TSCA) approval. Wes-Con, Inc. operated the facility as an industrial waste landfill and disposed wastes in abandoned Titan missile silos and in chemical landfills. In 1980, Wes-Con, Inc. received interim status under RCRA for disposal of approved hazardous wastes. In June 1981, the facility was acquired by Envirosafe Services of Idaho, Inc. (ESII). The facility was operated by ESII, a privately held corporation, from June 1981 until February 2001 when it was acquired by US Ecology a subsidiary of American Ecology, Inc. Current operations include treatment, storage, and land disposal of hazardous wastes.

The facility is surrounded by a chain link fence that is six (6) ft. high and topped with three (3) strands of barbed wire.

Currently, approximately 40% of the waste accepted at the facility is characteristic RCRA waste ; approximately 60% of the waste received isnon-hazardous waste. USEI does not accept explosive, pyrophoric, or shock sensitive wastes; highly water reactive wastes; or etiological wastes. More detailed information on the wastes accepted at the facility and the analyses for characterization, treatment, and disposal of these wastes can be found in the Waste Analysis Plan (WAP).

Landfill Cell 5 was closed in 2006. Currently, Landfill Cell 14 is nearing capacity and receives only a limited amount of waste. Landfill Cells 15 and 16 are the primary active land disposal units.

I.1.b.(2) RCRA Unit Locations and Descriptions

This Section provides a description of the units that will be addressed during closure and post-closure. Figure I-2 provides RCRA unit locations and process codes relative to the specific units. This plan provides anticipated closure scenarios for all RCRA Units. Depending on the character of the waste at time of closure, the final method of treatment and/or decontamination may need to be modified depending on conditions at closure. The WAP will be utilized to determine treatment options. In general, this plan makes conservative assumptions in order to quantify closure costs.

For purposes of closure, the RCRA container management units consist of Container Storage Pads #4 and #5 (CSPs #4 & #5), the RCRA(Pad 7)/PCB Storage Building, the Containment Building, Truck Unloading Aprons #1, #2, & #3, and Container Storage Area #1 (CSA #1). Brief descriptions of each of these container storage units are provided in the following paragraphs.

CSP #4 is a 100 ft. by 100 ft. reinforced concrete slab with reinforced concrete containment curbing. CSP #5 is a 100 ft. by 100 ft. reinforced concrete slab with a six (6) inches high reinforced concrete containment curbing.

The RCRA(Pad 7)/PCB Storage Building is a 100 ft. by 100 ft. steel-framed building with metal siding and a carbon steel plate floor (all seams welded for containment) on the PCB portion (East side) as required by USEI's TSCA permit. The RCRA portion of the building has curbed, reinforced, epoxy-coated concrete for containment. In addition, the building has reinforced concrete aprons for loading and unloading activities.

The Stabilization Facility is a subdivided, unenclosed receiving, storage, and processing for containers of liquids and solids. It is constructed of curbed, reinforced, epoxy-coated concrete for containment.

Truck Unloading Aprons #1, #2 & #3, located at the Containment Building, each measure 55 ft. long by 15 ft. wide and consist of a reinforced concrete slab with an integral reinforced concrete collection trench located in the center of each pad. The trenches are covered with steel grates; the concrete slabs are underlain by primary 80 mil HDPE liners with an appropriate monitoring system. The Truck Unloading Aprons consist of a reinforced concrete slab with three (3) integral reinforced concrete containment trenches underlain by primary and secondary 80 mil HDPE liners with an appropriate monitoring system.

The container storage units described above store both liquid and solid non-bulk and bulk containers of non-hazardous and hazardous wastes. CSA #1 is a designated storage and staging area where only non-bulk and bulk containers with solids (i.e., wastes that pass the paint filter test) can be staged or stored. No waste processing occurs in these units (other than inspection and sampling). In addition, no wastes carrying the waste codes of F020, F021, F022, F023, F026 or F027 are placed within the units for staging or storage. CSA #1 has a compacted soil base with no integral containment.

The Containment Building (both RCRA and Debris management portions) are also permitted for storage of non-bulk and bulk containers of RCRA wastes under containment building storage.
Other temporary container storage areas have existed on-site in the past. These areas were previously removed from service and certified as decontaminated, as described in the *USEI Container Storage and Processing Areas Soil Decontamination Report*, which was previously submitted to the United States Environmental Protection Agency (USEPA). This report is included in Appendix I.10.

I.1.b.(2)(a) Tanks

USEI has eight (8) permitted above ground tanks for the management of RCRA wastes. Four (4) tanks are utilized for the management of bulk liquid RCRA waste and four (4) are utilized for the treatment of RCRA wastes. The location of these tanks within the facility is shown on the facility plan (Figure I.2).

Four (4) permitted above ground tanks are for the management of bulk liquid RCRA wastes. These tanks each have a nominal capacity of 16,930 gallons and are located within a secondary containment system that is adjacent to the southeast corner of CSP #4. These tanks include:

- RCRA Tank #1 (T-1)
- RCRA Tank #2 (T-2)
- RCRA Tank #3 (T-3)
- RCRA Tank #4 (T-4)

The facility does not manage wastes in tanks that are subject to the requirements of IDAPA 58.01.05.008 {40 CFR Part 264, Subpart CC}.

T-1 and T-2 were installed in 2000, T-3 was installed in 1991 and T-4 was installed in 1997 and put into service in 1998.

All four tanks are constructed of welded carbon steel and the physical characteristics of these tanks are listed in Table D.2 of Section D. Tanks are constructed of ¼ inch A36 plate and conform to the specifications and requirements of Underwriters Laboratories, Inc. Standard for Safety UL-142, "Standard for Steel Above Ground Tanks for Flammable and Combustible Liquids."

The (4) four tanks are located within two adjacent, segregated secondary containment areas that share a common wall. The slabs and walls of the secondary containment systems are constructed of epoxy-coated reinforced concrete.

Four (4) Mixing Bin Tanks are permitted to exist within the Containment Building (2 in the Stabilization portion and 2 in the Debris portion). The two tanks in the Stabilization portion were constructed during 1998 as an integral part of the design. The location of the Stabilization portion of the Containment Building is shown on Figure I-2.

The Containment Building which houses the two (2) stationary Mix Bin Tanks, is located adjacent to the west wall of the Debris portion of the Containment Building as shown on the Facility Site Plan, Figure I-2. The Containment Building consists of a steel framed building supported by concrete spread footings. The unit's walls and roof are insulated metal panels. The floor consists of a reinforced concrete slab with perimeter curbs underlain by an 80 mil HDPE liner. Two (2) stationary below-grade reinforced concrete Mixing Bin Tanks are located within the building. The two (2) stationary Mix Bin Tanks consist of interior steel wear plates, reinforced concrete interior walls, two (2) 80 mil HDPE liners, geonet, and an exterior reinforced concrete wall. The Mixing Bin Tank liner systems drain to collection sumps and have monitoring ports to detect and remove liquids. The design of the Mixing Bin Tank system is shown on Drawing #793P-C13. Two (2) additional stationary above-grade steel Mixing Bin Tanks are permitted to be located within the Debris Portion of the building. These stationary Mixing Bin Tank(s) consist of steel tanks underlain by steel drip pans installed on top of the slab floor. The location of the Mix Bin Tanks in the Debris Portion of the Containment Building is shown in design drawing C-1, included as part of Attachment 14a.

I.1.b.(2)(b) Pug Mill Mixing System

The Pug Mill Mixing System was located on the Plant Pad adjacent to the north side of CSP #4 as shown on the facility plan (Figure I-2). This unit was previously used for treatment (stabilization) of RCRA regulated hazardous wastes. The Pug Mill equipment was decontaminated, removed and landfilled in 2005; certification of closure was received on February 6, 2006. The pad where the mill was located will be removed and the area clean closed at the time of substantial closure activities at the facility.

I.1.b.(2)(c) Surface Impoundments

There are three surface impoundments at the facility as shown on the facility plan (Figure I-2). The primary purpose of two (2) of these surface impoundments (Collection Pond #1 and #3) is the collection and containment of surface run-off from active portions of the facility. The 3rd surface impoundment, the Evaporation Pond, is used primarily to manage run-off from the Collection Ponds, to manage landfill leachate (F039 wastes), and other facility and off-site generated liquids, in accordance with the WAP.

All three surface impoundments were constructed in the summer of 1984 and as such were constructed prior to minimum technology requirements (MTR) for surface impoundments. Collection Pond #1 and #3 each have an engineered lining and leak detection, collection, and removal system (LDCRS) along their base (floor), and, as shown on Drawing Numbers PRMI-D06 and -D07, consist of the following, from bottom to top:

- **Liner subgrade** - Native subsoil
- **Bedding material** - Geotextile fabric
- **Secondary synthetic liner** – 40 mil HDPE
- **Leachate collection and removal zone** - 12 inches of free draining granular material with a perforated collection pipe system
- **Primary synthetic liner** – 60 mil HDPE
- **Protective cover layer (bottom of Collection Pond #1 only) -** Cobbles over sand (varying thicknesses) separated by a geotextile filter fabric

In addition, in 1993, a new 80 mil HDPE primary liner was installed in Collection Pond #3 directly over the original primary liner. The original primary liner was cut and left in place.
The Evaporation Pond also has an engineered lining and LDCRS along its base (floor), as shown on Drawing #PRMI-L41, consisting of the following, from bottom to top:

- **Liner subgrade** - Native subsoil
- **Secondary synthetic liner** – 40 mil HDPE
- **Leachate collection and removal zone** – 12 inches to 18 inches of free draining granular material with a perforated collection pipe system
- **Protective cover layer** – 12 inches primary soil liner over four (4) inches to six (6) inches of granular material
- **Primary synthetic liner** – 80 mil HDPE

During installation of the primary synthetic liner, the original 60 mil HDPE primary liner was cut and left in place.

The Collection Ponds have interior side slopes varying from two (2) horizontal to one (1) vertical (2H:1V) to approximately 6H:1V. The Evaporation Pond has interior side slopes varying from 3H:1V to approximately 6H:1V. The exterior side slopes of the Evaporation Pond dikes are 2.5H:1V.

The engineered lining and leachate collection system along the side slopes of the Collection Ponds consist of the following, from bottom to top:

- **Liner subgrade** - Native subsoil
- **Bedding material -** Geotextile filter fabric
- **Secondary synthetic liner** - 40 mil HDPE
- **Leachate collection and removal zone** - Drainage net
- **Primary synthetic liner** – 60 mil HDPE

In addition, in 1993, a new 80 mil HDPE primary liner was installed in Collection Pond #3 directly over the original primary liner. The original primary liner was cut and left in place.

The engineered lining and leachate collection system along the side slopes of the Evaporation Pond consists of the following, from bottom to top:

- **Liner subgrade** - Native subsoil
- **Secondary synthetic liner** – 40 mil HDPE
- **Leachate collection and removal zone** - Drainage net
- **Protective cover layer** – 12 inches primary soil liner (to elevation 2560 ± only)
- **Primary synthetic liner** - 80 mil HDPE

During installation of the primary liner, the original 60 mil HDPE primary liner was cut and left in place. The relatively flat side slopes (6H:1V) are used as access ramps for sediment removal and repair operations.

I.1.b.(2)(d) Containment Building (Stabilization and Debris Treatment portion)

The facility operates the Containment Building as a RCRA regulated unit. These buildings were designed and are operated to meet the criteria for containment buildings described under IDAPA 58.01.05.008 {40 CFR 264 Subpart DD - *Containment Buildings*}.

In general, hazardous debris treatment (stabilization) consisting of macro-encapsulation and micro-encapsulation are performed in the Debris portion of the Containment Building. A crushing system located inside the Containment Building is a Miscellaneous Unit [IDAPA 58.01.05.008 and 40 CFR 264 Subpart X] used for handling various waste/debris requiring further treatment; it is also used to facilitate disposal of the waste/debris. The Stabilization portion of the Containment Building is used primarily for bulk stabilization of fine wastes, and to a lesser extent, macro- and micro-encapsulation of hazardous debris.

The Debris portion of the Containment Building construction was completed in August 1994 and is located in the central portion of the plant as shown on the facility plan (Figure I-2). Additional construction for the installation of additional Mixing Bin Tanks will be completed as needed. The Containment Building consists of a steel framed building supported by concrete spread footings. Two (2) above-grade steel Mixing Bin Tanks are permitted to be located within the building and they consist of steel tanks and steel drip pans. In addition, each Mixing Bin Tank is accompanied by a platform constructed of welded wire mats with soil backfill and covered with wood beams. The platforms provide access for the excavator(s) to perform mixing activities inside the Mixing Bin Tanks during treatment operations. The floor consists of reinforced concrete with perimeter curbs underlain by two (2) 80 mil HDPE liners. Both liner systems drain to collection sumps and have monitoring ports to detect leaks. Three (3) steel-lined sort floors are located on the south side of this building. The construction of one or both Mixing Bin Tanks will result in the sort floor(s) being removed from service for the duration of the existence of the Mixing Bin Tank(s).

The design of the Containment Building is shown on Drawing #'s D2020-C05, -C08, -A02, -A03, -A04, -A05, -A06, -A07, -H01, -H03, -H04, -R02, -R05, -R07, -R08, and 773C-S01, -S02, -S03 and -S04.

The Stabilization portion of the Containment Building was constructed in 1997 and 1998 and shares a common west wall with the Debris portion of the Containment Building as shown on the facility plan (Figure I-2). The Containment Building consists of a steel framed building supported by concrete footings. The floor consists of reinforced concrete with perimeter curbs and is underlain by an 80-mil HDPE liner. Two (2) below-grade reinforced concrete Mixing Bin Tanks are located within the building. They consist of steel wear plates, reinforced concrete interior walls, two (2) 80 mil HDPE liners, and exterior reinforced concrete walls. Both the slab and the mixing bin HDPE liner systems drain to collection sumps which have monitoring ports to detect leaks. The design of the Containment Building is shown on Drawing Numbers 793P-C05, -C06, -C07, -C08, -C09, -C13, -C14, -C15, -C16, -C17, -G01, -H01, -R01, and -R02.

I.1.b.(2)(e) Landfills

The currently active landfill units at the facility include Cells 14, 15, and 16 as shown on the facility plan (Figure I-2). Cell 5 received Closure Certification on February 6, 2006. Trench 10, located adjacent to Trench 11, has been inactive since May 1983. Alternative evaporative caps were installed on Trenches 10 and 11 along with a demonstration pad (see Drawing PRMI-LO6). Performance objectives for the alternative caps were satisfied per the specifications outlined in the November, 2000 Report "Trenches 10 & 11 Alternative Demonstration Cover and Test Pad Construction", and was approved on July 12, 2006. Therefore, the traditional capping scheme, as described in Section I.2.h of this Section, is not needed for Trenches 10 and 11. A three (3) ft. thick soil cover was also placed over Trench 10 following cessation of disposal activities in 1983. Cell 5, Trenches 10 and 11, and Phase 1 of Cell 14 were all constructed prior to January 29, 1992, and as such, were constructed prior to the MTR for landfill liner systems.

Cells 5, 14, 15, and 16 have engineered leachate collection and removal systems (LCRS) and leak detection collection and removal systems (LDCRSs). Trench 10 and Trench 11 do not have synthetic bottom liners. The design for Trenches 10 and 11 are shown on Drawing Numbers PRMI-L01, -L02, -L03, and -L04.

The design for Cell 5 is shown on Drawing Numbers PRMI-L11, -L12, -L13, -L14, -L15, -L16, -L17, -L18, and -L19.

Cell 5, Phase 1, which comprises approximately the southern third of the Cell, was constructed in late 1984. The original base of this portion of the Cell consists of the following, from bottom to top as shown on Drawing Numbers PRMI-L15 and -L16:

- **Liner foundation** - Native subsoil
- **Support layer** - The excavated foundation was fine-graded and compacted to provide a stable base.
- **Secondary synthetic liner** - 40-mil HDPE
- **Leak detection, collection, and removal zone** - 12 inches of sand
- **Primary synthetic liner** - 60 mil HDPE
- **Primary leachate collection and removal zone** - 12 inches (minimum) of sand
- **Separation layer** - Geotextile fabric
- **Protective layer** – Six (6) inches of soil cover for protection

In early 1986, prior to disposal of any wastes in Cell 5, an additional 60 mil HDPE primary liner and primary leachate collection system were constructed on top of the base of the Phase 1 area (see Drawing Numbers PRMI-L15 and -L16). This new liner system consisted of the following components, from bottom to top:

- **Bedding material** - Site soils that passed the ¾ inches sieve placed in six (6) inches lifts and compacted to 90% of the Standard Proctor maximum dry density
- **New primary liner** - 60 mil HDPE
- **New protective layer** - Geotextile fabric
- **New primary leachate collection and removal zone** - 12 inches of sand
- **New separation layer** - Geotextile fabric
- **New cover soil layer** – Six (6) inches of compacted road mix

The side slopes of Cell 5, Phase 1, were constructed of the following components, from bottom to top (see Drawing Numbers PRMI-L15 and -L16):

- **Support layer** - Prepared native subsoil was excavated, fine-graded, and compacted to provide a stable base.
- **Bedding layer** - Geotextile fabric

- **Secondary synthetic liner** – 40 mil HDPE
- **Leak detection, collection, and removal zone** - Synthetic drainage net
- **Primary synthetic liner** – 60 mil HDPE
- **Primary leachate collection and removal zone** - Synthetic drainage net
- **Support/separation layer** - Geotextile fabric

The Phase 2 portion of Cell 5 was completed in November 1986 and consists of the following components, from bottom to top (see Drawing Numbers PRMI-L17 and -L18):

- **Liner foundation** - Native subsoil
- **Support layer** - The excavated foundation was fine-graded and compacted to provide a stable base
- **Compacted low permeability soil liner** – 36 inches clay/soil liner
- **Secondary synthetic liner** – 60 mil HDPE
- **Leak detection, collection, and removal zone** - 12 inches (minimum) of sand placed over a geotextile fabric which overlies a drainage net. A leachate collection pipe with a stone annulus was placed within the leachate collection zone and drains to a leachate removal sump
- **Primary synthetic liner** – 80 mil HDPE
- **Primary leachate collection and removal zone** - 12 inches (minimum) of sand with a leachate collection pipe with a stone annulus placed within the leachate collection zone to drain to a leachate removal sump
- **Separation layer** - Geotextile fabric
- **Protective layer** – Six (6) inches of soil cover for protection

The internal side slopes of Cell 5, Phase 2, were constructed of the following components, from bottom to top (see Drawing Numbers PRMI-L17 and -L18):

- **Support layer** - Prepared native subsoil
- **Compacted low permeability soil liner** – 36 inches clay/soil liner
- **Secondary synthetic liner** – 60 mil HDPE
- **Leak detection, collection, and removal zone** - Synthetic drainage net
- **Primary synthetic liner** – 80 mil HDPE
- **Primary leachate collection and removal zone** - Synthetic drainage net
- **Support/separation layer** - Geotextile fabric

The design for Landfill Cell 14 is shown on Drawing Numbers PRMI-L21, -L22, -L23, -L24, -L25, -L26, -L27, -L28, and -L29. Cell 14 has engineered liner and leachate collection systems in the base of the disposal area consisting of the following, from bottom to top:

- **Liner foundation** - Native subsoil
- **Support layer** - The excavated foundation was fine graded and compacted to provide a stable base
- **Compacted low permeability soil liner** - 36 inches thick, compacted to develop a maximum permeability of 1×10^{-7} cm/sec at a minimum of 92% of the Standard Proctor maximum dry density
- **Secondary synthetic liner** - 60-mil HDPE
- **Leak detection, collection, and removal zone** - 12 inches of free-draining granular material (minimum permeability of 1 cm/sec) graded to drain to a leachate removal sump
- **Support/separation layer** - Geotextile fabric
- **Primary liner support layer** - 12 inches (minimum) compacted low permeability soil at a minimum of 90% of the Standard Proctor maximum dry density
- **Primary synthetic liner** – 80 mil HDPE

- **Primary leachate collection and removal zone** - A drainage net, geotextile fabric, and 12 inches (minimum) of free draining granular material (minimum permeability of 1 X 10^{-2} cm/sec) with a leachate collection pipe with a stone annulus placed within the leachate collection zone to drain to a leachate removal sump
- **Separation layer** - Geotextile filter
- **Protective layer** – Six (6) inches of soil cover for protection

Cell 14 has cut and fill constructed side slopes of approximately 3.0 horizontal to 1.0 vertical (3H:1V). The fill areas have 2.5H:1V exterior side slopes on the berms and dikes. The engineered lining and leachate collection system along the side slopes and below the proposed grade consists of the following, from bottom to top:

- **Support layer** - Native subsoil
- **Compacted low permeability soil liner** – 3 ft. thick with 1 H 10^{-7} cm/sec maximum hydraulic conductivity
- **Secondary synthetic liner** – 60 mil HDPE
- **Leak detection, collection, and removal zone** - Synthetic drainage net
- **Primary synthetic liner** – 80 mil HDPE
- **Primary leachate collection and removal zone** - Synthetic drainage net
- **Support/separation layer** - Geotextile filter fabric

Construction on Cell 15 was completed in 2009. The Cell 15 lining system is similar to Cell 14 and is described in more detail in Appendix D.3.1 and D.3.1.a. The Cell 16 lining system is also similar to Cell 14 and is described in more detail in Appendix D.5.1.

I.1.b.(3) Site Geology

The facility is situated on a plateau that is approximately one (1) mile wide near the drainage divide that separates Castle Creek from the Snake River. The plateau rises about 150 ft. above the level of Castle Creek, which is located about one (1) mile to the west. The facility site is outside the 100-year flood plains for both Castle Creek and the Snake River.

The underlying soils of the facility generally grade from gravelly sands to silty clays with depth. Groundwater is first encountered at a depth of 120 ft. to 160 ft. below grade at the facility. Under natural conditions, the groundwater flow direction in the aquifer is from the west to the east.

Subsurface investigations at the facility have indicated that the underlying soils located 100 ft. to over 400 ft. below grade are dense, fine-grained sediments with no evidence of subsidence. From grade to a depth of about 100 ft., the soils are typically coarse-grained sands and gravels with some inter-bedded silts and clays.

The facility area is very arid and receives approximately seven (7) inches per year of precipitation. The arid conditions, in conjunction with the facility's location on a plateau, minimize site run-on problems, as well as the potential for infiltration. Information on the pH of the precipitation in the Grand View area is not available, however, the U.S. Geological Survey did conduct a rainfall analysis in Boise in 1997 and the results indicated a pH of 5.3. Since Boise is only 50 miles northwest of Grand View, the rainfall characteristics are expected to be similar.

The potential for lateral or vertical migration of hazardous wastes at the facility are considered minimal because of the geological/hydrological characteristics of the facility including:

- The relative absence of a hydraulic driving force (minimal surface water in the area of the facility)
- A very low precipitation rate
- A high evaporation rate (53 inches/year)

- The existence of low permeability soils underlying the area
- A Closure Plan that consists of the clean closure of the majority of the facility's waste processing/handling areas and the use of alternative evaporative final landfill covers to minimize or eliminate infiltration
- Effective run-on control measures
- The disposal/landfilling of solidified and stabilized materials

I.1.b.(4) Site Operation

The facility consists of approximately 328 acres with various support structures (laboratory, office buildings, maintenance shop, etc.). The facility handles hazardous, PCB, and industrial non-hazardous wastes. Services provided at the facility include the following:

- Storage of containerized hazardous and non-hazardous wastes and materials
- Treatment, including decanting and stabilization of hazardous and non-hazardous wastes
- Storage and treatment of hazardous and non-hazardous wastes in tanks
- Collection of hazardous wastes to be shipped to other authorized facilities (trans-shipment)
- Management of materials and transfer to qualified reclaimers or to alternate facilities
- Operation of surface impoundments for hazardous and non-hazardous wastes storage, treatment, and disposal
- Disposal of hazardous and non-hazardous wastes in secure landfill units

The hazardous wastes currently handled on-site are listed in the Part A Application. The management guidelines for hazardous wastes include the following:

- Solid waste (hazardous) – Stabilization (if required), landfill
- Residues – Stabilization (if required), landfill
- Liquids and sludges – Tank storage, treatment, or stabilization and landfill
- Reactive, ignitable, or corrosive wastes – Storage, treatment, landfill, or trans-shipment off-site
- Laboratory packs – Landfill, or trans-shipment off-site
- Hazardous debris – Treatment and landfill

All hazardous wastes that are disposed in the facility's landfills meet the land disposal restrictions described in IDAPA 58.01.05.011 {40 CFR Part 268.}

I.1.c Facility Contacts

Paragraphs I.1.c provide the contact listings for the facility. Over the 30-year post-closure period, it is expected that the primary and other facility contacts will change. During this period, any change in the facility contacts will be reported to the IDEQ in writing [IDAPA 58.01.05.008 and 40 CFR 264.118(d)].

I.1.c.(1) Primary Contact

The primary facility contact is:
Facility Manager
US Ecology Idaho, Inc.
Lemley Road
Grand View, Idaho 83624
Telephone: (208) 834-2275

I.1.c.(2) Other Facility Contacts

Other facility contacts are as follows:

Operations Manager
US Ecology Idaho, Inc.
Lemley Road
Grand View, Idaho 83624
Telephone: (208) 834-2275

I.1.d Site Equipment

A fleet of specialized equipment for excavation, hazardous materials handling, spill containment, and other handling, monitoring, treatment, and removal operations is located on-site. Sorbents, safety gear and clothing (PPE), drums, firefighting supplies, etc. in addition to firefighting equipment are available on-site. See Section G.5 of the Contingency Plan for additional information.

I.1.e Facility Record keeping

This paragraph addresses the record keeping requirements of IDAPA 58.01.05.008 (40 CFR Part 264), and more specifically, those requirements pertaining to the records to be submitted to the IDEQ and Owyhee County.

I.1.e.(1) General Facility Records Policy

Plans, drawings, maps, and other engineering and waste/facility-use documents will be maintained on-site and made available to personnel involved in closure and post-closure activities. Site inspection reports and other pertinent records used during the facility's post-closure period will be maintained on-site and will be available to personnel involved in closure and post-closure activities.

USEI will maintain records and results of inspections generated during the facility's operating life, closure period, and post-closure period for at least three years. Records will be kept for a longer period, if required, in accordance with IDAPA 58.01.05.008 {40 CFR §264.74(b)}. Copies will be submitted, as requested, to the IDEQ. Many records (i.e., waste tracking, analyses, etc.) may be computerized and stored on appropriate media.

I.1.e.(2) Record Submittals

As required by IDAPA 58.01.05.008 {40 CFR §264.119}, all certifications of closure, records of the type, location, and quantity of hazardous wastes disposed of within each disposal unit and a survey plat indicating location with respect to permanent benchmarks will be submitted to the IDEQ and the local land authority (Owyhee County).

The appropriate documents will be submitted within 60 days of final closure of each unit and at the facility's final closure. Other records generated during the post-closure period will be available on-site for inspection by the IDEQ.

I.1.e.(3) Deed Notation

In accordance with IDAPA 58.01.05.008 {40 CFR §264.119(b)}, the facility's property deeds were changed to include a general notation that the land as described in the deed has been used to manage hazardous wastes, and that its use is restricted.

I.2 Closure Plan

I.2.a Closure Schedule

This paragraph addresses the requirements of IDAPA 58.01.05.008 {40 CFR §264.112}, pertaining to the estimated dates that the facility will reach partial and final closure. It also addresses the anticipated schedule of pre-closure requirements (e.g., notifications), closure activities, and post-closure activities.

As the capacity and/or usefulness of the individual units are exhausted, they will undergo partial closure and eventually final closure. The Evaporation Pond (a surface impoundment) is expected to be the final RCRA permitted waste management unit at the facility to undergo closure as it will be used to manage liquid wastes generated during closure of other RCRA units on-site. All other RCRA permitted units will be closed prior to the Evaporation Pond. The final closure year for the facility is based on the Evaporation Pond's operational life. Substantial RCRA closure will occur when all of the units except the Evaporation Pond are closed. Final RCRA closure will occur when the Evaporation Pond is closed.

I.2.a.(1) Final Closure Year

The site will initiate closure once the remaining landfill capacity is consumed, and there are no plans for further expansion. Parameters used to determine the projected year that the facility will begin final closure activities are as follows:

- The facility's estimated remaining landfill capacity (as of July 2011) associated with Cells 14 and 15 is 1,490,000 cubic yards, plus 10,260,000 cubic yards of future capacity in Cell 16 (see Drawing 16-11-08 in Appendix D.5.4).
- The landfill typically operates 300 days per calendar year.
- The landfill currently receives approximately 2,100 cubic yards of waste per day.
- Assuming it is at capacity, it will take approximately four (4) years for the contents of the Evaporation Pond to evaporate. Attachment B to the *Surface Water Management Plan* included in Section N includes evaporation calculations for the Evaporation Pond.

I.2.a.(2) Partial Facility Closure

Partial closure is defined by RCRA [IDAPA 58.01.05.004 and 40 CFR 260.10] as "the closure of a hazardous waste management unit in accordance with the applicable closure requirements of IDAPA 58.01.05.008/009 and 40 CFR Parts 264 and 265 at a facility that contains other active hazardous waste management units." Partial closure at the facility may involve any or all of the RCRA units at the facility, with the exception of the Evaporation Pond. Closure of Collection Pond #2 was completed in October 2011. Based on the operational history of the unit, perimeter sampling of soils adjacent to Collection Pond #2, as described in I.2.m, will be conducted during full facility closure rather than during partial closure activities. All remaining units, except the Evaporation Pond are planned to be closed as part of the substantial facility closure activities.

The principal elements of partial facility closure activities include:

- Landfill Cell 5 was certified as closed on February 6, 2006.
- The Pug mill was certified as closed on February 6, 2006.
- Collection Pond 2 was certified as closed on October 12, 2011.

An alternative evaporative cap was installed on Trenches 10 and 11. The performance objectives for the alternative cap were satisfied per the specifications outlined in the November, 2000 Report "Trenches 10 & 11 Alternative Demonstration Cover and Test Pad Construction", and was approved on July 12, 2006.

- Substantial site closure activities will address closure of all remaining RCRA units at the facility (except the Evaporation Pond).
- Final site closure will occur when the Evaporation Pond is closed.
- Certification of closure in accordance with this Closure/Post-Closure Plan will be provided by USEI and by an independent registered professional engineer. See Appendix I.1 for a sample closure certification.

I.2.a.(3) Closure Schedule

All wastes at the facility will be treated, removed from the site, or disposed of on-site or off-site within 90 days after receiving the final volume of waste unless USEI requests a Permit modification pursuant to the requirements of IDAPA 58.01.05.008 {40 CFR 264.113(1)} because activities will, of necessity, take longer than 90 days to complete. These regulations also require that closure activities be completed in accordance with the approved closure plan within 180 days following receipt of the final waste volume. The requirements will be met for all of the currently active RCRA units except the Evaporation Pond. Figures I-3 and I-4 show the anticipated schedules for substantial and final facility closure activities, respectively. As described in I.2.f of this Section, the Evaporation Pond closure will exceed the 180 day requirement for completion of closure activities. The measures that will be implemented to prevent threats to human health and the environment from the Evaporation Pond during the extended closure period are described in I.2.f of this Section. [IDAPA 58.01.05.008 and 40 CFR §264.113].

I.2.b Facility Closure and Post-Closure Notifications

USEI will provide the following notifications or requests:

- If the facility RCRA permit is modified, this Closure/Post-Closure Plan will also be modified to reflect those modifications, as appropriate. The Request for Modification and the subsequently modified Closure/Post-Closure Plan will be submitted to the IDEQ for acknowledgment and approval.
- Notification of changes in the Closure/Post-Closure Plan will be provided within 60 days after any facility operational changes or events that occur during the active life of the facility that affect the Closure/Post-Closure Plan. [IDAPA 58.01.05.008 40 CFR §264.112(c) and §264.118(d)]
- At least 60 days prior to the date that USEI expects to begin closure of each unit and prior to final closure, USEI will notify the IDEQ of its intent to implement this Closure/Post-Closure Plan.
- Closure of Cell 5 was completed in 2005 and Closure certification was provided on February 6, 2006.
- Closure of each RCRA unit (except the Evaporation Pond) will be completed within 180 days of the receipt of the final volume of hazardous waste for that unit. However, should it appear that closure activity for other units will extend beyond 180 days, the IDEQ will be notified and a request for an extension will be submitted. [IDAPA 58.01.05.008 and 40 CFR §264.113].
- Within 60 days of closure of each surface impoundment and landfill unit and within 60 days of final facility closure, USEI will submit to the IDEQ, via registered mail, private carrier (e.g., Federal Express), or hand delivery, a certification that the hazardous waste management unit(s) or facility, as applicable, has been closed in accordance with the approved Closure/Post-Closure Plan. The certification will be signed by USEI and by an independent registered professional engineer. Documentation supporting the independent registered professional engineer's certification will be furnished to the IDEQ upon request. (IDAPA 58.01.05.008 and 40 CFR §264.115) Post-closure care will begin upon certification of closure for units requiring post-closure care. Post-closure will continue for 30 years after the date of certification of closure (IDAPA 58.01.05.008 40 CFR §264.117(a)).
- Within 60 days after certification of closure of each hazardous waste disposal unit, USEI will submit a record of the type, location and quantity of hazardous wastes disposed of within the unit to the IDEQ and Owyhee County, including, to the best of its knowledge, the type, location

and quantity of the hazardous wastes disposed of before January 12, 1981. ([IDAPA 58.01.05.008 and 40 CFR §264.119(a))

- USEI has annotated the official deed of record to notify any potential purchaser of the property that ([IDAPA 58.01.05.008 and 40 CFR §264.119(b)):

  - The land has been used to manage hazardous wastes.
  - The survey plat and record of the type, location, and quantity of hazardous wastes disposed of at the facility have been filed with the IDEQ and Owyhee County. (IDAPA 58.01.05.008 and 40 CFR§§264.116 and 264.119(a)). This plat will indicate the location and dimensions of landfill cells or other hazardous waste disposal units with respect to permanently surveyed benchmarks. It will be prepared and certified by a professional land surveyor. The plat will contain a note, prominently displayed, that states the owner's or operator's obligation to restrict disturbance of the hazardous waste disposal unit in accordance with the applicable IDAPA 58.01.05.008 (40 CFR 264 Subpart G) regulations.
  - USEI has recorded the notation specified above. See Appendix I.2 for the current USEI Site "B" deed.
  - Property on or in which hazardous waste remains after closure will not be used for any other purpose if the use will disturb the integrity of the final cover(s) or liner(s) or any components of any containment system or the function of the facility's monitoring system unless the IDEQ approves of such use of the area. (IDAPA 58.01.05.008 and 40 CFR §264.117(c)(1) and (2)).

I.2.c Closure of Container Management Units

This paragraph addresses the requirements for closure of the container management units (CMUs). (IDAPA 58.01.05.008 and 40 CFR §264.178).

I.2.c.(1) Maximum Inventory

The CMUs are designed for the maximum capacities indicated in Section D. The inventory will be processed during final closure of the units and before completion of the final facility closure.

I.2.c.(2) Closure Schedule

The container storage units will be closed during substantial facility closure activities. The projected year of closure for the CMUs and the schedule to accomplish closure are described in detail in I.2.a.

I.2.c.(3) Partial Facility Closure

The CMUs will remain active until initiation of substantial facility closure activities. Partial closure will include closure of the CMUs.

I.2.c.(4) Container Management Unit Closure Activities

Within 90 days after receiving the final waste volume, all CMUs inventories will be processed and/or disposed. Processing and disposal will be conducted according to normal operating procedures as defined in Section D and all applicable state and federal regulations.

The closure cost estimate has been prepared under the assumption that all CMUs will be clean closed. If excavation necessary for clean closure disturbs any pre-RCRA units, then excavation will cease and final closure of these units will be integrated into any final remedial measures undertaken to address the pre-RCRA activities. Any CMUs that cannot be clean closed because of past (pre-RCRA) waste management activities will be covered with a three (3) ft. thick interim soil cap.

I.2.c.(4)(a) Container Storage Units Storing Liquid Wastes

The container storage pads used for liquid or non-liquid storage are constructed of epoxy-coated or sealed reinforced concrete, steel, and/or steel sheeting. These units will be decontaminated, demolished and disposed in an on-site landfill, as follows:

Concrete Container Management Units (CSP #4 and CSP #5, as shown on Drawing # PRMI-R11, -C11, -C12, -C13, -C14 and -C15)

- The reinforced concrete slabs and curbs will be decontaminated by sweeping, washing or abrasive cleaning to remove any surface residues, if necessary. Since any spills or leaks on the concrete slabs will have been addressed in accordance with Section G (Contingency Plan), this method of decontamination should be sufficient to decontaminate the concrete.
- The concrete slabs and curbs will be broken into pieces, using appropriate equipment. Reinforcing steel rods, HDPE liners, and steel plating will be cut as necessary. The broken concrete slabs and other pieces will be disposed in the facility's final landfill unit. For purposes of estimating closure costs, it has been assumed that the concrete and other pieces will be disposed of as hazardous waste meeting LDR criteria.
- Any decontamination residues generated during cleaning will be managed as described in I.2.l.
- The soils below and/or surrounding the CMUs will be inspected, sampled, analyzed, and, if necessary, disposed in the facility's final landfill unit as described in I.2.m.
- The disturbed area of the unit will be backfilled to final grade level.

RCRA(Pad 7)/PCB Storage Building (See Drawing Numbers PRMI-R21, R22, C16, and C17)

The steel floor in the RCRA portion of the building was removed following DEQ approval (6/99). An epoxy-coated concrete floor with reinforced concrete curbing was installed in 2012.

- The concrete aprons outside and the concrete slabs and curbs inside the RCRA(Pad 7)/PCB Storage Building will be decontaminated to remove any surface residues, if necessary, using the procedures described above for decontamination of the reinforced concrete slabs.
- The RCRA(Pad 7)/PCB Storage Building structure, including the metal roof and wall panels, the structural steel framing, and the plate steel floor and ramps will be dismantled using appropriate equipment.
- The concrete aprons, slabs, and curbs will be broken into pieces and reinforcing steel rods will be cut as necessary. The broken concrete will be disposed in the facility's final landfill unit. For purposes of estimating closure costs, it has been assumed that the concrete and other pieces will be disposed of as hazardous waste meeting LDR criteria.
- The roof and wall panels will be broken into pieces using appropriate equipment. The structural steel framing and plate steel floor will be cut as necessary to facilitate landfill disposal.
- The metal pieces will be disposed of as non-hazardous waste in the facility's final landfill unit.
- Any decontamination residues generated during the cleaning of the plate steel floor will be managed as described in I.2.l.
- The soils below and surrounding the RCRA(Pad 7)/PCB Storage Building will be inspected, sampled, analyzed, and, if necessary, disposed in the facility's final landfill unit as described in I.2.m.
- The disturbed area of the unit will be backfilled to final grade level.

Stabilization Facility (See Drawing Numbers PRMI-R31, -R32, -R33, -R34, and -R35)

Process equipment will be decontaminated, if necessary, and removed from the facility for reuse or dismantled and disposed in an on-site landfill cell. Waste residues from the stabilization processing equipment and structures will be removed and treated/disposed, as required. The following procedures will be utilized for closure of the Stabilization Facility:

- All waste inventory in the Stabilization Facility at the time of closure will be stabilized, removed, and disposed in the facility's final landfill unit.
- Residues on the exterior surfaces of the process equipment will be removed by sweeping, washing or abrasive cleaning. These residues will be managed as described in I.2.l. The equipment will be salvaged or disposed as non-hazardous waste.
- The roll-off containers will be disposed in the facility's final landfill unit as a hazardous waste meeting LDR criteria since they will contain residues of wastes treated to meet LDR criteria.
- The concrete slabs and structures will be decontaminated by sweeping, washing or abrasive cleaning. They will then be demolished and disposed in the facility's final landfill unit as hazardous waste meeting LDR criteria. The decontamination residues will be managed as described in I.2.m.
- The soils below and surrounding the Stabilization Facility will be inspected, sampled, analyzed, and, if necessary, disposed in the facility's final landfill unit as described in I.2.m.
- The disturbed area of the unit will be backfilled to adjacent grade level.

I.2.c.(4)(b) Container Storage Units Storing Non-Liquid Wastes

CSA #1, as shown on Drawing Number PRMI-R15, consists of compacted earthen materials and is for solids storage only. Closure activities for this unit will consist of the following:

- Six (6) inches of soil will be excavated, characterized for disposal, and disposed in the facility's final landfill unit.
- The soils below and surrounding CSA #1 will be inspected, sampled, analyzed, and, if necessary, disposed in the facility's final landfill unit as described in I.2.m.
- The disturbed area of the unit will be backfilled to adjacent grade level.

For closure cost estimating purposes, the soil removed from CSA #1has been assumed to be non-hazardous as all spills are addressed at the time of occurrence in accordance with the Contingency Plan.

I.2.d Closure of Tanks

This paragraph addresses the requirements for closure of the RCRA Waste Water storage tanks and leachate piping (IDAPA 58.01.05.008 and 40 CFR §264.197). Four (4) liquid RCRA storage tanks are currently operated on-site. Leachate piping is located between Cell 14 and the RCRA tanks, and between the RCRA tanks and the Evaporation Pond. See Drawing Numbers 720C-G01, -G02, -G03, -G04, -G05, -G06, and -G07.

Closure of the two (2) Mixing Bin Tanks located in the Stabilization portion of the Containment Building and the two (2) Mixing Bin Tanks located in the Debris Portion of the Containment Building are discussed in Section I.2.g, due to their location within the Stabilization portion of the Containment Building and the original regulatory status of these units.

I.2.d.(1) Maximum Inventory

The total bulk liquid storage capacity for hazardous wastes in tanks is 67,720 gallons. All waste inventories will be processed during closure of the tank area and subsequent to completion of the final landfill closure. For development of the closure estimate, the maximum inventory capacities (16,930 gallons each) of the four permitted RCRA tanks and the 6,000-gallon less-than-90-day accumulation tank were used.

I.2.d.(2) Closure Schedule

The RCRA tanks will be closed during substantial closure activities. The projected year of closure for the RCRA tanks and the schedule to accomplish closure are described in detail in I.2.a. Alternatively, the RCRA tanks will be operated to treat leachate from the landfill as the remaining liquids within the landfill are captured during the post-closure period. Under this scenario, the RCRA tanks would be closed once the amount of liquid entering the leachate collections systems no longer justifies the maintenance of the tanks.

I.2.d.(3) Partial Facility Closure

The only time that a tank will be out of operation is when it is being cleaned, tested, repaired, replaced, modified, or because of temporary lulls in business activity. These conditions do not constitute or require closure. The RCRA (both waste water and stabilization) tanks will remain active until initiation of substantial facility closure activities and/or as described in I.2.d.(2). As such, partial facility closure, including closure of the RCRA tanks, is possible while the Evaporation Pond remains open.

Two temporary storage tanks were closed in July 1985. These tanks have been removed, disposed of and were certified accordingly as closed. The closure plan for these temporary storage tanks and the 1985 certification of closure (although not required by partial closure) are included in Appendix I.3.

I.2.d.(4) Tank Closure Activities

All tanks and ancillary equipment (i.e., pumps, piping, valves) will be emptied of residues (to the extent practical) , the internal surfaces of the waste water tanks will be scraped, and the tanks will be cut up and/or crushed and disposed in the facility's final landfill unit as a non-hazardous waste. Based on the nature of the tank materials (i.e., non-porous steel) and the wastes stored in the tanks (i.e., low level organics), and because the tanks will be completely emptied and scraped clean, this level of decontamination should adequately decontaminate the tanks such that they can be disposed of as non-hazardous wastes. Otherwise, such as the case of the concrete Mixing Bin Tanks may be characterized and stabilized (e.g., macro/micro encapsulation) per the requirements of the WAP. Any residues from each tank will be collected, and characterized based on the waste codes of the wastes present in the tanks at the time of closure. Although it has been assumed that the residues from two (2) of the waste water tanks will exceed applicable LDRs and require off-site transportation and incineration, while the residues from the remaining two (2) tanks will be below LDR criteria and will be stabilized and disposed in the facility's final landfill unit, closure cost estimates are calculated assuming that for all four (4) waste water tanks are full and the liquids require solidification. The primary cost for waste water treatment is the liquid phase carbon, USEIs cost estimate conservatively assumes an additional three (3) carbon units are required for waste water treatment closure activities.

I.2.d.(5) Tank Area Closure Activities

The two (2) adjacent tank containment areas, including the Plant Pad, as shown on Drawing Numbers PRMI-R11, -C11, -C12, -C13, -C14 and -C15, are reinforced concrete structures. The demolition and disposal of these areas will follow the same procedures described for the concrete container management secondary containment units in I.2.c.(4)(a). Sampling and analysis of areas under and surrounding the tank storage area will be performed as described in I.2.m.

I.2.e Closure of Pug Mill Mixing System

The Pug Mill Mixing System was closed in accordance with the requirements of pertinent Sections of IDAPA 58.01.05.008 (40 CFR Part 264). Closure Certification for the Pug Mill was received on February 6, 2006.

I.2.e.(1) Maximum Inventory

Since the Pug Mill has been removed, the inventory for the Pug Mill Mixing System is assumed to be zero.

I.2.e.(2) Closure Schedule

Pug Mill closure activities were completed in 2005. Closure of the pad upon which the Pug Mill was located will be performed when substantial facility closure activities at the facility are initiated.

I.2.e.(3) Partial Facility Closure

Closure certification for the Pug Mill Mixing System was received February 6, 2006. Final closure of the pad where the Pug Mill was located is anticipated while the Evaporation Pond remains open.

I.2.e.(4) Pug Mill Mixing System Closure Activities

Waste residues from the Pug Mill structures will be removed and treated/disposed, as required. The following procedures will be utilized for closure:

- The pad and soils surrounding the pad upon which the Pug Mill was located will be inspected, sampled, analyzed, and if necessary, disposed in the facility's final landfill unit at the time of substantial site closure, as described in I.2.d.(5).

For purposes of estimating closure costs, it was assumed that the pad and soils will be direct disposed in the landfill as a non-hazardous waste.

I.2.f Closure of Surface Impoundments

This paragraph addresses the requirements for closure of the Evaporation Pond and the two (2) run-off collection ponds (Collection Pond #1 and #3) (IDAPA 58.01.05.008 and 40 CFR 264.228(a)). Pond #2 was clean closed in 2011.

I.2.f.(1) Maximum Inventory

The three (3) surface impoundments subject to closure under this Closure/Post-Closure Plan are similar in design but have varying capacities and functions. The Collection Ponds are used primarily for run-off management, are normally empty, and handle wastes only on a contingent basis if there is a leak in the Evaporation Pond. Furthermore, contents of the Collection Ponds are routinely transferred to the Evaporation Pond. For these reasons, the Collection Ponds are considered to be empty for the purposes of this Plan. Accordingly, under the worst case operating condition, the maximum inventory of the Evaporation Pond is approximately 4,474,000 gallons (includes maintaining a 2.8 ft. freeboard).

I.2.f.(2) Closure Schedule

The schedule for closing the surface impoundments is provided in I.2.a and is shown on Figures I.3 and I.4. As indicated on those figures and as described previously, the Collection Ponds will be closed during substantial facility closure activities while the Evaporation Pond closure will occur approximately four (4) years after the Collection Pond closures. The reason for this extended closure period is that it is anticipated that it will take approximately four (4) years to evaporate the maximum inventory in the Evaporation Pond.

During the four (4) year period when the Evaporation Pond is inactive but not closed, USEI will implement all necessary measures to prevent threats to human health and the environment from the Evaporation Pond. At a minimum, these will include the following:

- Run-on will be prevented from entering the Evaporation Pond.
- There will be no run-off from the Evaporation Pond.
- Site security control measures will be maintained to prevent unauthorized access to the property by persons or livestock.
- The Evaporation Pond and its associated leak detection sumps will be monitored in accordance with the inspection schedule contained in Section F.

Following evaporation of the Evaporation Pond liquids, closure of the Evaporation Pond will proceed in accordance with the following schedule:

- **Day 0 to Day 60** - The remaining residues/sediments and the impoundment liner system will be characterized, removed and properly disposed at an off-site facility.
- **Day 61 to Day 90** - The underlying soils will be sampled and analyzed to determine compliance with the closure criteria described in I.2.m of this Section.
- **Day 91 to Day 150** - Removal and off-site disposal of underlying soils that exceed closure criteria, and re-sampling and analysis of the residual soils to document that closure criteria have been achieved.
- **Day 151 to 180 -** Backfill and re-grade the former Evaporation Pond area to complete closure activities.

I.2.f.(3) Partial Facility Closure

The Collection Ponds provide for temporary collection of precipitation run-off from the contributing areas before liquid transfer to the Evaporation Pond. The Evaporation Pond is used for storage and solar evaporation of contaminated run-off water and other aqueous wastes. Collection Ponds #1 and #3 will remain active until initiation of substantial closure activities. Collection Pond #2 was clean closed in 2011 and replaced with a non-HDPE lined sediment basin as a means of continued collection of precipitation run-off. The Evaporation Pond will remain active until initiation of final closure activities. As such, partial facility closure, including closure of the Collection Ponds while the Evaporation Pond remains open, is anticipated.

I.2.f.(4) Surface Impoundment Closure Activities

USEI intends to clean close the three (3) surface impoundments. Based on the design and performance of the impoundment liner systems, USEI believes that clean closure is a viable closure approach. The following paragraphs describe how clean closure of the impoundments will be accomplished.

I.2.f.(4)(a) Liquid Removal

As described previously, any liquids in the Collection Ponds will be removed and transferred to the Evaporation Pond. The liquids in the Evaporation Pond will then be allowed to evaporate. USEI estimates that evaporation of the Evaporation Pond maximum capacity will take approximately four (4) years. Evaporation calculations are included in the *Surface Water Management Plan* included in Section N.

I.2.f.(4)(b) Characterization and Removal of Waste Residues

Following removal of liquids from the Collection Ponds, the remaining residues/sediments will be sampled and characterized for disposal in accordance with the WAP. Based on the characterization results, one of the following four approaches will be selected for disposal of the Collection Pond residues:

- If the residues do not meet LDR criteria for an F039 listed waste and cannot be treated at the facility to meet those criteria, then they will be excavated and transported to an off-site permitted RCRA facility for treatment and disposal.

- If the residues do not meet LDR criteria for an F039 listed waste but can be treated at the facility to meet those criteria, then they will be excavated and stabilized in the Stabilization Facility or the Containment Building, or alternatively, and if appropriate, they may be treated in the impoundment. Prior to stabilization, a treatability study will be performed on representative samples of the residue to determine a stabilization mix ratio in accordance with the WAP. Stabilization in either the Stabilization Facility or the Containment Building will be performed as described in Section D. The stabilization process will continue until the mixture meets the LDR criteria. The treated residues will then be disposed in the facility's landfill cell.
- If the residues meet LDR criteria, but free liquid is present (i.e., if the residues do not pass the Paint Filter Test), then the residues will be excavated and stabilized in the Stabilization Facility or the Containment Building, or alternatively, and if appropriate, they may be treated in the impoundment. Prior to stabilization, a treatability study will be performed on representative samples of the residue to determine a stabilization mix ratio in accordance with the WAP. Stabilization will be as described in Section D. The stabilization process will continue until the mixture passes the Paint Filter Test. The treated residues will then be disposed in the facility's landfill unit.
- If the residues meet LDR criteria and no free liquids are present (i.e., if the residues pass the Paint Filter Test), then the residues will be excavated and disposed in the facility's landfill unit.

Following the evaporation of liquid in the Evaporation Pond, the remaining residues/sediments will be sampled and characterized for disposal in accordance with the WAP. The Evaporation Pond residues/sediments will be properly treated (if necessary to meet LDRs) and disposed at the appropriate off-site facility based upon the characterization results. To facilitate final Evaporation Pond closure activities, a temporary equipment decontamination zone will be constructed. This zone will be similar to that described in I.2.o.

Based on the operating history of and the types of wastes managed in the Collection ponds, for purposes of estimating closure costs, it was assumed that all of the Collection Pond residues/sediments will meet all applicable LDR criteria. Based on the operating history of the Evaporation Pond and the types of liquids managed in the Evaporation Pond, for purposes of estimating closure costs, it was assumed that all of the Evaporation Pond residues/sediments will meet all applicable LDR criteria, except those for metals. It was also assumed the Collection Pond residues, while meeting LDR criteria, will require treatment (because of the presence of free liquids) prior to landfill disposal. As the liquids in the Evaporation Pond will be evaporated, it was assumed that any remaining residues/sediments would be sufficiently dry to pass the Paint Filter Test.

I.2.f.(4)(c) Characterization and Removal of Liner Systems

Collection Ponds

Following removal of residues/sediments from the Collection Ponds as described above, the synthetic portions of the liner systems (i.e., the geotextiles, HDPE liners, drainage nets and leachate collection pipes) will be removed for disposal. It is assumed that the liner systems will carry the F039 code due to past contact with leachate and as a result USEI anticipates macro-encapsulation of this material and disposal in the facility's final landfill. Alternatively, if the residues and sediments during cleanout are demonstrated to meet LDR limits USEI will have the option of disposing of the liner systems as non-hazardous waste. The soil (i.e., sand, gravel and crushed stone) components of the Collection Ponds liner systems will be removed, characterized, and managed similarly to the residues/sediments described in I.2.f.(4)(b). Underlying soils will be sampled (as described in I.2.m), analyzed, removed, and disposed of off-site, if necessary.

For purposes of estimating closure costs, based on the operating histories and the types of liquids managed in these impoundments, it was assumed that all of the Collection Pond liner system soil components (i.e., those soil components below the primary liner) will be disposed in the facility's final

landfill unit as non-hazardous wastes. It was also assumed that all of the liner system soil components will pass the Paint Filter Test and, therefore, will not require treatment.

Evaporation Pond

Following removal of residues/sediments from the Evaporation Pond, the entire liner system (i.e., all synthetic and soil components above and including the secondary liner) of the Evaporation Pond will be removed and disposed at a permitted off-site RCRA landfill as an F039 listed hazardous waste. Underlying soils will be sampled (as described in I.2.m), analyzed, removed, and disposed of at an off-site landfill, if necessary.

For purposes of estimating closure costs, it was assumed that the Evaporation Pond HDPE liners (including the "old" primary liner) and drainage nets would exceed the LDRs for F039 wastes and, therefore, would require macro-encapsulation prior to transportation and disposal in an off-site landfill. In addition, it was assumed that the remaining Evaporation Pond liner system components (i.e., geotextile fabrics and those soil components below the primary liner) will be hazardous but will meet LDR criteria for an F039 listed waste and, therefore, will not require stabilization prior to off-site land disposal. It was also assumed that all of the liner system soil components will pass the Paint Filter Test and, therefore, will not require treatment to remove any free liquids.

I.2.f.(4)(d) Backfilling

Following excavation of the residues and liner systems, the soils beneath the surface impoundments and in the dikes will be sampled and characterized as described in I.2.m. If necessary to achieve clean closure, any contaminated soils from the Collection Pond will be excavated and managed similarly to the impoundment residues/sediments as described in I.2.f.(4)(b). Once clean closure criteria (described in I.2.m) have been achieved in Collection Ponds #1 and # 3, the Collection Ponds will be backfilled to the final grade with clean fill. Backfilling of Collection Pond #2 will be performed during the same timeframe as Collection Ponds #1 and #3, rather than during the 2011 partial closure activities. Any contaminated soils from the closure of the Evaporation Pond will be properly treated and disposed at an off-site facility. Once clean closure criteria have been achieved in the Evaporation Pond, the Evaporation Pond dikes will be collapsed into the impoundment excavation. The backfilled surfaces will be compacted and graded as necessary to promote run-off.

I.2.g Closure of Containment Building (Stabilization and Debris Portions)

This paragraph addresses the requirements for closing the Containment Building in accordance with the requirements of pertinent Sections of IDAPA 58.01.05.008 (IDAPA 58.01.05.008 and 40 CFR Part 264). The Containment Building consist of the Stabilization portion and the Debris portion.

I.2.g.(1) Maximum Inventory

The total maximum container storage inventory for the Containment Building including the three (3) truck aprons, the three (3) sort floors, and the four (4) Mixing Bin Tanks, are indicated in Table D-1. All of the wastes present in the Containment Building at the time of closure will be processed (i.e., stabilized, solidified, microencapsulated, or macro-encapsulated) as appropriate and disposed in an on-site landfill. For purposes of closure cost estimating, it has been assumed the maximum inventory of hazardous wastes will be present in this unit and waste will be processed and disposed in the facility's final landfill unit as hazardous waste. Table D-1 treats this unit as separate items, e.g. stabilization, and Debris portions.

I.2.g.(2) Closure Schedule

The projected year of closure for the RCRA Containment Building and the schedule to accomplish closure are described in detail in I.2.a.

I.2.g.(3) Partial Facility Closure

The Containment Building will remain active until initiation of substantial closure activities. This unit will be closed during substantial facility closure activities prior to final site closure as shown on Figure I-3. As such, partial closure, including closure of the Containment Building while the Evaporation Pond remains open, is anticipated.

I.2.g.(4) Containment Building Closure Activities

The purpose of this paragraph is to outline the steps to achieve decommissioning and/or closure of the process equipment that has contacted hazardous waste, all hazardous waste unloading areas, the building structures (i.e., walls, ceilings and roofs), the air pollution control (APC) equipment, and the concrete slabs. Closure of the Containment Building (Stabilization/Debris), and their associated Mixing Bin Tanks and Truck Unloading Aprons will be conducted through stabilization of waste inventories and decontamination of the process equipment, buildings, APC equipment, and concrete slabs. These units will be clean closed and will remain at the facility following closure. As described herein, equipment that has not contacted waste or has been decontaminated may be salvaged/reused and not disposed.

The two (2) mix Bin Tanks will have the steel wear plates removed and will be characterized in accordance with the WAP, and disposed of as hazardous debris. The inner concrete tank walls will be decontaminated by sand blasting. Residue created from these activities will be managed in accordance with the WAP.

The two (2) permitted steel Mixing Bin Tank(s) located in the Debris portion of the Containment Building will be either decontaminated, or characterized in accordance with the WAP and disposed of as hazardous debris. Residue created from these activities will be managed in accordance with the WAP.

The Closure/Post-Closure Plan assumes that, during the operational life of the Containment Buildings, any incidental spills of hazardous liquid will be managed effectively and in a timely manner in accordance with the Contingency Plan. At the start of closure, the primary and secondary liquid collection sumps will be inspected and, if liquids are detected, these liquids will be sampled for hazardous constituents of interest and will be managed based upon the analytical results. Sample analysis will be based on constituents associated with the waste codes processed in the buildings immediately prior to the discovery of any liquids. Due to the nature of operational inspections and liquid removal as necessary it is assumed that the liquid collection system will not contain liquids. It is also assumed that if liquids are discovered within the collection/detection system that those liquids would be used as make-up water for treatment of closure generated wastes.

All roof materials, steel siding, structural steel and interior support structures shall be decontaminated by sweeping, washing, or abrasive cleaning. Since the referenced equipment is only subject to surficial contamination, verification of decontamination will be accomplished by visual inspection. Specifically, all visible signs of waste will be removed from the equipment to the extent practicable, with no more than 5% of the total surface area of the equipment to exhibit any staining in order to be considered adequate decontamination. Subsequent to decontamination, the building/structures shall be demolished using cutting tools, cranes, slings and other equipment necessary. The building materials shall be reused, recycled, or direct disposed in the on-site landfill as non-hazardous material. All residue such as rinsate and/or residual blast material shall be collected, tested, and disposed in accordance with USEIs permit and the existing regulations.

I.2.g.(4)(a) Process Equipment

All process equipment that has contacted hazardous waste (see Table I-1 and Table I-2 for a list of equipment within the Debris and Stabilization portions of the Containment Building) will be decontaminated by sweeping, washing, or abrasive cleaning. The decontaminated equipment will either be salvaged/reused or disposed in the facility's final landfill unit as a non-hazardous waste. All residue such as rinsate and/or residual sand blast material shall be collected, tested, and disposed in accordance with USEIs WAP, permit and the existing regulations.

During the time when Mix Bin Tanks MBT-3 and MBT-4 are installed and operating in the Debris Portion of the Containment Building, the vent hoods above the sort floors will be removed. The vent hoods will be decontaminated, as described above, and stored on-site for re-installation when the Mixing Bin Tanks are removed from the building.

I.2.g.(4)(b) Buildings

All interior roof, ceiling and siding surfaces, structural steel and interior support structures will be decontaminated by sweeping, washing, or abrasive cleaning. Water from the wash of the building surfaces will be collected and analyzed for Universal Treatment Standards (UTS) constituents (IDAPA 58.01.05.011and 40 CFR 268.48) to determine if these surfaces have been adequately decontaminated. The surfaces will be considered clean when analytical results indicate all detected constituents are present at concentrations at or below the UTS. All spent wash waters will be characterized through UTS analyses for proper disposal. For purposes of closure cost estimating, it has been assumed that all spent wash waters will be disposed in the Evaporation Pond in accordance with procedures described in the WAP. The Containment Building will remain in place following decontamination.

I.2.g.(4)(c) Air Pollution Control Equipment and Feed Additive Silos

All filter bags and HEPA filters will be removed from the APC equipment, stabilized and disposed in the facility's final landfill unit as hazardous debris. All APC equipment upstream of and including the Containment Building HEPA filter enclosure and upstream of but not including the Containment Building baghouses (including ventilation hoods and duct work) will be dismantled, crushed, macro-encapsulated, if necessary, and disposed in the facility's final landfill unit as hazardous waste. Decontamination of the Containment Building baghouses will consist of sweeping, washing, or abrasive cleaning. These residues will be managed in accordance with I.2.m.

The duct work, fans, and stacks following the Containment Building's HEPA filter enclosure and the Containment Building's baghouses will be considered to be uncontaminated since all potentially hazardous waste (dust) is collected within the baghouses and HEPA filter systems upstream of these APC components. This equipment will remain in place or may be removed and salvaged/reused or disposed as non-hazardous waste. Closure costs assume this equipment will either remain in place or be salvaged/reused. In addition, the feed additive silos and related equipment located outside the Containment Building will not be contaminated and will be dismantled and salvaged/reused.

I.2.g.(4)(d) Concrete Slabs

The Containment Building's reinforced concrete slabs, Truck Unloading Aprons, associated reinforced concrete curbs, ramps, and trenches will be decontaminated by sweeping, washing, or abrasive cleaning. Prior to this, the steel plate will be removed from all areas covered with steel plate (i.e., the debris sort floors, the oversize debris bin, and the Stabilization Mixing Bin Tanks) and decontaminated or disposed in the facility's final landfill unit as a hazardous waste meeting the LDRs. These residues will be managed in accordance with I.2.l. The decontaminated steel wear plates in the Stabilization Mixing Bin Tanks will be managed in accordance with the requirements specified in IDAPA 58.01.05.008 {40 CFR §264.1102(a)} for closure of a containment building. The steel plates will be managed as hazardous waste unless

IDAPA 58.01.05.005 (40 CFR §261.3(d)) applies and the steel can be reused, or managed as scrap metal for recycling.

I.2.h Closure of Landfills

This paragraph addresses the requirements for closure of landfill Cells 14, 15 and 16 (IDAPA 58.01.05.008 and 40 CFR §264.310).

I.2.h.(1) Maximum Inventory

The maximum extent of RCRA landfill operations at the facility consists of the operation of Landfill Cells 14, 15, and 16. The approximate remaining capacity of each of these landfills are as follows:

Table I-3 Landfill Areas Closure Schedule

Trench Designation	Approximate Dimension (ft)	Approximate Permitted Capacity (yd^3)	Approximate Remaining Capacity (yd^3)[a]	Total Remaining Lifetime (yrs)[b]	Closure Year
5	200 x 1,110	240,000	0	0	2005
10	100 x 1,300	77,000	None	0	2005
11	120 x 1,700	345,000	0	0	2005
14	1,040 x 1,750	2,102,000	111,000	1	2017
15	768 x 2,260	4,800,000	706,000	2	2020
16	1,150 x 2,800	10,262,000	9,611,000	16	2030

Note: Closure schedule is an estimate only – dependent on waste receipts and operational considerations
[a] As of May 31, 2015
[b] Based on receiving waste at a rate of 2,100 cubic yards/day and 300 operating days/year.

The closure cost estimate is based on closure of the facility at a point in the facility's current remaining life when the extent and manner of its operation would make closure most expensive. (IDAPA 58.01.05.008 and 40 CFR §264.142)

Prior to utilization, a closure cost estimate for Cell 16 was submitted to the IDEQ. For Cell 16, the most expensive closure scenario would occur when placement of waste in the base of the initial phase has just begun (when backfilling cost would be greatest) and when Cells 14 and 15 have not yet been closed.

Final site Closure, under normal operating conditions with no expansion, is projected to occur in the year 2032. Actual closure costs at the time of substantial facility closure will be significantly less, as Cells 14 and 15 will already be closed. The remaining permitted capacity for each landfill is shown on Table I-3. Unless capacity in another permitted cell is available, closure of Cell 16 will be scheduled at a time when Cell 16 has sufficient capacity to receive all closure wastes, debris and residues/sediments that will be generated during closure of the facility's RCRA units (except for the Evaporation Pond), as described in I.2.f. USEI has reserved adequate volume of the remaining capacity (approximately 40,000 cubic yards) of the facility's final landfill cell for disposal of the facility's closure materials.

I.2.h.(2) Closure Schedule

The projected year of closure for the RCRA landfills and the schedule to accomplish closure are described in detail in I.2.a. Under the projected operating conditions and the projected closure schedule, final closure of the Evaporation Pond will complete the overall final facility closure.

I.2.h.(3) Partial Facility Closure

Partial Closure of each individual landfill trench will occur sequentially throughout the life of the facility. Each landfill trench is considered a specific unit that will be partially closed, when it is filled to capacity. Landfill unit (Trench) 5 was closed in accordance with the provisions specified in this permit. Landfills 14 and 15 will be closed in accordance with the provisions specified in Appendix I.14. Trenches 10 and 11 were closed using evapotranspiration covers as specified in Appendices I.11 and I.13. The projected schedule for Closure of each trench is given in Table I-3. This schedule may vary depending on actual waste receiving rates.

Closure of Cell 5 was completed in 2005. Closure certification was provided on February 6, 2006. An alternative evaporative cap was installed on Trenches 10 and 11. The performance objectives for the alternative cap were satisfied per the specifications outlined in November, 2000 Report “Trenches 10 & 11 Alternative Demonstration Cover and Test Pad Construction”, and closure certification was provided on July 12, 2006. The projected year of closure for each landfill unit is shown on Table I.3. This schedule may vary depending on actual waste receiving rates. Cell 16 will accept wastes until initiation of substantial closure activities; it will be closed during substantial site closure activities prior to final facility closure, unless another cell is added. As such, partial facility closure, including closure of the landfill units while the Evaporation Pond remains open, is anticipated.

I.2.h.(4) Landfill Closure Activities

Closure of individual landfill units will be conducted in a manner that minimizes the need for extensive post-closure maintenance and control and will minimize or eliminate, to the maximum extent possible, threats to human health and the environment. Landfill closure activities are described in detail in the following paragraphs.

I.2.h.(5) Final Landfill Cover

The final landfill cover is designed to minimize migration of liquids into and through the closed landfills, minimize necessary post-closure cover maintenance, promote surface drainage, minimize erosion or abrasion of the final cover, and accommodate settlement and subsidence without losing integrity. The final cover system will also have a permeability less than or equal to that of the bottom liner system or natural sub-soils present and will be able to withstand freeze/thaw cycles. The design of the cover will minimize infiltration of liquid into the landfill unit and will minimize leachate generation, thus attaining required closure performance standards. (IDAPA 58.01.05.008 and 40 CFR 264.111). The final covers for each of the landfills will be maintained to provide for their integrity and continued effectiveness.

If interim cover is needed prior to closure, the landfills will typically be covered with a minimum of six inches of intermediate cover soil. The soil may be placed, graded, and compacted to the required design grade for cap placement. Otherwise, the landfill will be brought to design grade through the placement of waste. The final cover system will then be installed. A description of the design and construction of the proposed final cover system is provided in the following paragraph.

I.2.h.(5)(a) Design and Construction

Design

The final cover system for Cell 5 consists of the following components, from top to bottom:

- A 30-inch vegetated protective cover soil layer;
- A double-sided geocomposite drainage net lateral drainage layer;
- A 40-mil textured HDPE geomembrane liner primary barrier layer;
- A geosynthetic clay liner secondary barrier; and
- A landfill gas collection/venting layer.

A cross-section of the proposed final cover system is shown on Drawing Numbers PRMI-L04, and –L05 for Trenches 10 and 11 and PRMI-L19 for Cell 5.

The selection of a cover system design was based on the results of the Hydrologic Evaluation of Landfill Performance (HELP) Model Version 3.06 (August 1996) analyses of alternative cover systems and the estimated performance of these systems as compared to the standard RCRA cap design. The HELP model was used to determine the expected leakage rate through the barrier layer(s) of the cover systems. The resulting estimated leakage rates were then compared to the results for the standard RCRA cap design.

The results of the HELP model analyses for the standard RCRA cap and the Cell 5 cap design are included in Appendix I.5. The cover system was modeled and the resulting leakage rate through the system was determined to be 0.00002 ft^3/year/acre of cover system, based on the average of 20 years of generated data. The standard RCRA cover system was modeled in the identical fashion using the same input data to provide a consistent comparison. The resulting 20 year average leakage rate through the standard RCRA cover system (i.e., the HDPE and 36 inches clay liners) was 0.00002 ft^3/year/acre. The results of the HELP model analyses demonstrate that the performance of the proposed cover system has been determined to be equivalent to the standard RCRA cover system. In addition to the better performance results, the use of the synthetic barrier material (i.e., the GCL) in the proposed cap design can result in a higher level of uniformity and installation quality than a re-compacted barrier soil material (clay).

In addition to the HELP model analysis for the final cover system, the design was based on the cover system components stability on the landfill side slopes (veneer stability). Static and seismic stability analyses were conducted for the veneer system proposed as the final cover system. Stability analyses documenting the proposed final cover system stability (based on factors of safety) are included in Appendix D.4.8.

As discussed in Section I.2.(h).3, an alternative evaporative cap was installed on Trenches 10 and 11. The performance objectives for the alternative cap were satisfied per the specifications outlined in November, 2000 Report “Trenches 10 & 11 Alternative Demonstration Cover and Test Pad Construction”. Therefore, Trenches 10 and 11 were not required to be closed using a capping system as detailed for Cells 5.

The final cover system design for Cells 14,15, and 16 is similar to the cover system for Trenches 10 and 11 and is described in more detail in Appendices I.14 and I.15.. Also included with these appendices are the calculations and other information used to demonstrate the acceptability of the cover system design.

The final cover system design for Cell 16 is similar to the cover system for Cells 14 and 15 and is described in more detail in Appendix I.17.

Construction

For Cell 5, a gas collection/venting system was constructed over the grade material as the first layer of the final cover system on plateau areas (less than 5% slope) only. This gas venting system (on plateau areas) consists of a geotextile drainage net (GDN) placed over the material, and is located just below the GCL layer of the cap system. The gas collection/venting system has an aggregate backfilled collection trench located below the longitudinal center line of the cap high point and a series of vent pipes that discharge to the atmosphere through carbon adsorption canisters. Details of the landfill gas collection/venting system are shown on Drawing Number PRMI-L19.

The synthetic liners used in the cover system include the GCL and the 40-mil textured HDPE geomembrane. The GCL was selected as the lower barrier layer and was placed on top of the landfill gas collection/venting layer (on plateau areas) and directly upon the intermediate cover layer surface (on side

slope areas). The 40 mil textured HDPE geomembrane was selected as the upper barrier layer and was placed on top of the GCL.

The lateral drainage layer was placed on top of the 40 mil HDPE liner and consists of a double-sided GDN. This GDN acts as a flow zone to intercept precipitation infiltrating the cover soil and to divert it away from the trench area. The GDN consists of an HDPE core net sandwiched between two (2) non-woven, polyethylene geotextile filter fabrics. The filter fabrics are laminated to the top and bottom surfaces of the core net and have a weight of not less than 5.0 ounces per square yard of material.

A protective cover layer consisting of 30 inches of soil cover material was placed on top of the GDN lateral drainage layer. The soil cover was fine-graded to provide a minimum slope of 4%. The soil cover and the double-sided geocomposite drainage net provides a physical barrier against potential damage to the underlying barrier layers.

The cover design is stable at the maximum landfill cover design slopes of three (3) horizontal to one (1) vertical (3H:1V). Engineering calculations (for static and seismic veneer system stability) are provided in Appendix D.4.8 and demonstrate that the landfill slopes are stable with adequate factors of safety. In addition, final material selection and testing were performed to demonstrate that adequate internal and interface friction angles are provided at the maximum 3H:1V final design slopes.

The vegetation consists of a mixture of various grass species that are suitable for the climate and the soil condition of the cover system. The specified grass seed mixture produces a vegetative cover that minimizes the potential for erosion of the cover soils. The grass seed mixture was developed by the Idaho Department of Transportation (IDOT) for establishment of vegetative cover along roadsides in arid regions.

Specifications for materials, including the minimum average roll valves (MARVS), and installation of the GCL, HDPE geomembrane, GDN, soil cover, and vegetation followed the procedures described in the *USEI General Construction Specifications* contained in Appendix D.4.1 and the *Construction Quality Assurance Plan* contained in Appendix D.4.2.

The cover system design for Cells 14, 15, and 16 does not include a gas collection system. The cover system design, including calculations and other information used to demonstrate the effectiveness of the cover system, is described in more detail in Appendices I.14, I.15, and I.17.

I.2.h.(5)(b) Minimization of Liquid Migration

The proposed cover systems are designed to limit the amount of liquid leaking through the cover system and into the underlying waste.

The HELP model was used to evaluate the performance of the Cell 5 cover system and calculate the leakage through the barrier layers of the cover system. As described in I.2.h.(5)(a), the comparison of the HELP model analyses performed for the Cell 5 cover system and for the standard RCRA cover system indicates that the proposed cover system provides a somewhat lower leakage rate than that of the standard RCRA cover system. As such, the Cell 5 cover system adequately minimizes the potential for migration or leakage through the cover system. The results of the HELP model analyses have been included in Appendix I.5.

A combination of the use of select soils, determined through testing and analyses, cover thickness, cover slopes, and select vegetation was used to evaluate the performance of the Cells 14, 15, and 16 cover systems. The information, included in Appendices I.14, I.15, and I.17, demonstrates the cover systems adequately minimize the potential for migration or leakage through the cover system.

I.2.h.(5)(c) Maintenance Needs

Maintenance of the cover systems will be minimized by engineering controls incorporated into the cover design that reduce the potential for surface erosion, precipitation infiltration, and frost damage. Post-closure maintenance activities for the proposed cover systems could include repair of erosion damage, reseeding of bare areas, and cleaning of drainage swales. These maintenance activities will be performed as necessary during routine post-closure inspections of the facility as described in I.3.

I.2.h.(5)(d) Drainage and Erosion

To provide for the long-term integrity of the Cell 5 cover system, the final cover of the landfill has been designed to enhance drainage and to minimize ponding of any run-off on the cover surfaces. The design of the drainage system provides for effective removal of collected water. In addition, the drainage system will control and minimize the potential for erosion of the cover system. The run-off will be isolated from the waste materials by the barrier layer of the cover system and therefore will not be contaminated. Drawing Number PRMI-T13 shows final grades at closure.

The final cover drainage system is designed to intercept, collect, and convey run-off from the cover system to adjacent drainage courses. The drainage controls are designed to handle run-off resulting from a 25-year, 24-hour storm. Drainage system calculations are included in Section N.

Erosion potential of the Cell 5 cover system was evaluated for all final cover slopes. Conservatively, all final cover slopes were assumed to be 3H:1V. These slopes were checked to determine if erosion exceeded the recommended maximum rate of two tons per acre per year. Calculations based on the United States Department of Agriculture (USDA) Universal Soil Loss Equation verified that all the slopes and proposed vegetative layer would meet this requirement. These calculations are included in Appendix D.3.1.

Drainage and erosion control for the Cells 14, 15, and 16 cover system design are described in Appendices I.14, I.15, and I.17, including calculations, laboratory analyses and other information used to demonstrate the effectiveness of the cover system design. For Cells 14 and 15, proposed final grades at closure are located in Appendix I.15, Drawing Numbers Sheet 5 of 9 and Sheet 5 of 8, respectively. For Cell 16, proposed final grades at closure are located in Appendix I.17, Drawing Numbers Sheet 5 of 9 and Sheet 6 of 9.

I.2.h.(5)(e) Settlement and Subsidence

The waste landfilled into the cells has an approximate minimum in-place density of 135 #/ft^3. Currently, the majority of the placed material at the facility consists of a stabilized chrome contaminated soil (RCRA waste code D007) and non-NRC regulated radioactive waste. Primary or immediate consolidation is the initial strain response of a soil mass to an applied load. For the materials placed in the facility's landfills, the primary consolidation potential is minimized by the placement and subsequent compaction of the waste materials in shallow lifts. In addition, stringent stabilization procedures are followed to minimize consolidation of encapsulated materials following landfill disposal. These procedures are described in Section D.

Secondary consolidation is the result of pore water being forced from the landfilled mass. Settlement during this stage is a direct function of the volume of fluid dissipated from the waste mass. As stated above, the waste material consists primarily of a stabilized, low moisture content dust placed and compacted in shallow lifts. This placement and compaction minimizes the potential for water to enter into the pores of the landfilled material and increase the moisture content and pore water of the landfilled material. Consequently, secondary consolidation is anticipated to be minimal because of the low moisture content and method of placement of the materials.

Additional consolidation can occur in some types of waste materials as a result of biological and chemical degradation. Since the facility's landfills do not accept routine municipal solid waste, and many of the wastes have been stabilized prior to landfilling, biological or chemical degradation and any associated consolidation is not expected to occur.

Because of the low moisture content of the waste and the landfilling procedures, significant consolidation or subsidence of landfills following closure is not expected.

I.2.h.(5)(f) Cover Permeability

As described previously, the HELP model analysis estimated the 20 year average leakage rate through the Cell 5 cover system to be 0.00002 ft^3/year/acre and through the standard RCRA cover system to be 0.00002 ft^3/year/acre. These results demonstrate that the Cell 5 cover system is equivalent to the standard RCRA cover system. In addition, the Cell 5 cover system's permeability will be less than or equal to that of the bottom liner system. Therefore, the Cell 5 cover system is more than adequate.

The cover system design for Cells 14, 15, and 16 limits infiltration of precipitation to a rate at least equivalent to the prescriptive standards and to a rate less than or equal to the permeability of the bottom liner system. Information regarding the performance of the cover system design for Cells 14, 15, and 16 are described in more detail in Appendices I.14, I.15, and I.17.

I.2.h.(5)(g) Freeze/Thaw Effects

The maximum depth of frost penetration in the Grand View, Idaho area is estimated at 28-30 inches (see Appendix I.6). The Cell 5 cover system design has 28-30 inches of soil material over the barrier layers. Therefore, the barrier layer is at the maximum expected frost depth and should not be subjected to freeze/thaw effects. The Cells 14, 15 and 16 cover system design has a maximum 60 inches of soil material over the waste. The effects of freeze/thaw cycles on the ET cover systems are discussed in Appendices I.14, I.15, and I.17.

The Cell 5 cover is designed to be free draining, which minimizes the frost heave potential. The GCL is covered by the impermeable synthetic liner and 28-30 inches of soil and will not be exposed to moisture saturation conditions that could promote frost heaving in the winter months. In addition, liner manufacturer test results included in Appendix D.4.3 of Section D show that cold temperatures actually increase the tear resistance of HDPE sheets. Therefore, the HDPE cap should not be adversely affected by freezing conditions.

I.2.i Crusher System within the Containment Building

This paragraph addresses the requirements of the closure of the Crusher System (secondary system) that is located in the containment building. The Crusher System is considered a Miscellaneous Unit.

The Crusher System shall be dismantled and decontaminated using sweeping, washing, or abrasive cleaning. All visible signs of waste/staining will be removed from the equipment to the extent practicable. All rinsate and/or residual blast material shall be collected, tested, and disposed in accordance with USEI's permit and the existing regulations. The decontaminated equipment will either be direct disposed in the hazardous waste landfill or re-used.

I.2.i(1) Maximum Inventory

As the crusher does not contain waste the maximum inventory is assumed to be zero.

I.2.j Closure of Vehicle Wash Area

The truck / vehicle / equipment wash area is operated under the conditions of IDAPA 58.01.05.006 {40 CFR §262.34} and is, therefore, not required to be covered under the Closure Plan.

This paragraph addresses the requirements for closure of the Vehicle Wash Area. This area will remain functional until all waste materials have been finally disposed and the facility's surface soils have been certified clean.

I.2.j.(1) Maximum Inventory

The maximum inventory of the Vehicle Wash Area is approximately 2,000 gallons of wash water located in the vehicle wash sump. This liquid will be disposed in the Evaporation Pond. Any solids removed from the sump will be characterized, treated, and disposed as a hazardous waste in the facility's final landfill unit. For purposes of estimating closure costs, it was assumed that these solids will be direct disposed in the facility's final landfill unit.

I.2.j.(2) Closure Schedule

The projected year of closure for the Vehicle Wash Area and the schedule to accomplish closure are described in detail in I.2.a.

I.2.j.(3) Partial Facility Closure

The Vehicle Wash Area will be closed during substantial facility closure activities prior to final site closure as shown on Figure I-3. This area will remain active until substantial facility closure activities are nearly complete. As such, partial closure, including closure of the Vehicle Wash Area while the Evaporation Pond remains open, is anticipated.

I.2.j.(4) Vehicle Wash Area Closure Activities

Following final disposal of all waste materials and waste residues from the Vehicle Wash Area, the Vehicle Wash Area will be dismantled and disposed in the facility's final landfill unit as non-hazardous debris. Closure procedures will be as follows:

- Remove liquids and residue from the vehicle wash sump as described in I.2.j.(1).
- Dismantle and dispose piping in the facility's final landfill unit as non-hazardous debris.
- Demolish and dispose materials in the facility's final landfill unit as non-hazardous debris.
- Treat, if necessary, based on the results of waste characterization, and dispose liquids and residues in the facility's final landfill unit or Evaporation Pond.
- The soils below and surrounding the unit will be inspected, sampled, analyzed and if necessary, disposed in the facility's final landfill unit as described in I.2.m.

I.2.k Closure of Laboratory/Shop Buildings

This paragraph addresses the requirements of closure of the laboratory/shop buildings.

I.2.k.(1) Closure Schedule

The projected year of closure for the laboratory/shop buildings and the schedule to accomplish closure are described in detail in I.2.a.

I.2.k.(2) Partial Facility Closure

The laboratory/shop buildings will remain active until their closure during substantial facility closure as shown on Figure I.3. As such, partial closure, including closure of the two laboratory/shop buildings while the Evaporation Pond remains open, is anticipated.

I.2.k.(3) Laboratory/Shop Building Closure Activities

The laboratory/shop building area (Figure 1-2) will be demolished and disposed in the facility's final landfill unit as non-hazardous debris. This debris has been assumed to be non-hazardous based on the nature of activities conducted in these buildings. Closure procedures will be as follows:

- Demolish structures and dispose as non-hazardous debris in the facility's final landfill cell.
- Demolish concrete and dispose of as non-hazardous debris in the facility's final landfill cell.
- The soils below and surrounding the units will be inspected, sampled, analyzed and, if necessary, disposed in the facility's final landfill cell as described in I.2.m.

I.2.l Management of Closure Residues

This paragraph will describe the procedures for collection, characterization, treatment, and disposal of closure decontamination residues. These may consist of sweeping & vacuuming residues, incidental liquids, wash waters, sandblasting residues, spent PPE and/or other cleaning residues. To facilitate cost-effective residues management, incidental liquids, sludges, sediments, or solids will be segregated in separate containers, as necessary. These containers may consist of roll-off containers, box trailers, frac tanks, vacuum trucks, portable plastic storage tanks, totes, drums or other appropriate containers. Representative samples of the accumulated solids and liquids will be collected and analyzed for UTS constituents to determine if treatment is required. Based on the results of these analyses, the materials will be disposed per the requirements of the WAP.

Stabilization of liquids and/or solids may be performed in the Mixing Bin Tanks inside the Containment Building, in containers (including roll-offs), or other temporary units utilized for this purpose. Such units will be decontaminated, dismantled and/or direct disposed as hazardous waste upon completion of treatment activity. A final sample of the stabilized residues will be collected and analyzed for metals to verify the stabilized residues are no longer hazardous (or meet appropriate LDRs) and may be disposed in the facility's final landfill unit. During final closure activities for the Evaporation Pond, all residues will be characterized and properly treated and disposed at an off-site facility.

I.2.m Surface Soil Sampling

A soils evaluation will be conducted following closure of each RCRA unit for soils beneath and/or adjacent to the RCRA unit. The need for underlying and perimeter soil sampling will be determined based on the design and operational history of each unit, and the estimated potential for a release below or outside the containment structures of each unit. Units or operations where there is minimal potential for a release outside the boundaries will be incorporated into the facility-wide soil sampling program on a 200 ft. by 200 ft. square grid basis. Soil evaluations will be performed as part of substantial facility closure activities for those areas not sampled as part of the individual unit closure sampling. Facility wide and unit specific evaluations will involve establishing a horizontal grid system and sampling quadrants as follows:

- A 50 ft. by 100 ft. grid system will be superimposed beneath units that, based on their design and/or operational history, had the potential to allow a release of hazardous wastes beneath their physical boundaries;
- A 25 ft. by 200 ft. grid system will be superimposed around the perimeter of the units that, based on their design and/or operational history, had the potential to allow a release of hazardous wastes outside their physical boundaries;

- Road surfaces, including shoulders, will be divided into 250 ft. long sampling areas and sampled as individual units; and
- A 200 ft. square grid system will be superimposed over the remainder of the facility.

Soils and road surfaces will be sampled as part of substantial facility closure activities, prior to the closure of the final landfill unit to allow disposal of contaminated soils in the landfill unit. Any contaminated areas located where pre-RCRA waste disposal activities occurred will be excavated to a maximum depth of one (1) ft., covered with three (3) ft. of compacted soils as described in I.2.c.4. The evaluation of specific areas will be conducted as described in the following paragraphs.

Preliminary sampling and analytical testing for indicator parameters may be performed to determine if all contaminated material has been removed to an acceptable level. These tests are discretionary in nature and will not be used for closure certification. If such tests show that contamination persists above acceptable levels, additional material may be removed until test results are satisfactory. Results from the preliminary sampling will be maintained in the operating record.

Once this has been accomplished, more specific certification sampling and analysis will be conducted. USEI will develop a targeted analytical suite for each hazardous waste management unit based on the type of waste managed at the unit in question. For example, in an area where metal contaminated and cyanide waste was managed, the targeted analytical suite would include metals and cyanides. USEI shall submit the “target list” to the IDEQ for concurrence. Sampling of unit specific areas will be performed as described in the following Section.

I.2.m.(1) Unit-Specific Sampling

Sampling and testing of the soils below and adjacent to the following RCRA units will be conducted as part of unit closure activities. The proposed sampling grids for these units are described in the following table and are shown on Drawing Number PRMI-T11.

Table I-5 Soil Sampling Grid

RCRA Unit	Underlying Soil Sampling	Perimeter Soil Sampling
CSPs #4 and #5	50 ft. x 100 ft. grid	25 ft. x 200 ft. grid
RCRA(Pad 7)/PCB Storage Building	50 ft. x 100 ft. grid	25 ft. x 200 ft. grid
CSA #1	50 ft. x 100 ft. grid	25 ft. x 200 ft. grid
RCRA Tanks Area	50 ft. x 100 ft. grid	25 ft. x 200 ft. grid
Stabilization Facility	50 ft. x 100 ft. grid	25 ft. x 200 ft. grid
Containment Building (Debris portion) & Truck Unloading Aprons	NA	25 ft. x 200 ft. grid
Containment Building (Stabilization portion) & Truck Unloading Aprons	NA	25 ft. x 200 ft. grid
Collection Pond #1 and #3	50 ft. x 100 ft. grid	25 ft. x 200 ft. grid
Evaporation Pond	50 ft. x 100 ft. grid	25 ft. x 200 ft. grid
Landfill Cells 14, 15, and 16	NA	100 ft. x 100 ft. grid
Laboratory/Shop Buildings	50 ft. x 100 ft. grid	25 ft. x 200 ft. grid

Prior to sample collection, the grid pattern will be laid out and the sample collection points located. Five (5) samples will be collected from each grid area. One (1) sample will be collected at the center of the grid; the other four (4) samples will be collected along the diagonals of the grid as follows:

Table I-6 – Sampling Diagonal

Grid Size	Grid Diagonal Sample Location[(a)]
25 ft. x 200 ft.	50 ft.
50 ft. x 100 ft.	28 ft.
100 ft. x 100 ft.	47 ft.

Note: [(a)] Distance along grid diagonal from center of grid.

These five (5) individual samples will be composited within the site laboratory, as described in Section C.4.3 of the WAP, prior to analysis. Samples will be collected to a depth of approximately six (6) inches below the surface. In addition to the grid-based samples, at least one (1) sample will be obtained from each area of known contamination or obvious visual contamination, if any. These additional samples will not be composited with any other samples. The sampling grid procedure will be modified, as necessary, when sampling soils at or near the perimeter of buildings, concrete structures, roadways, or in other similar situations to provide an equivalent number of samples per unit area.

I.2.m.(2) Non-Unit-Specific Sampling

These areas will be sampled in the same manner as the unit-specific sampling areas described above. However, the grids will be 200 ft. by 200 ft. and the composite samples will be taken from the approximate center of the grid and approximately 94 ft. from the center of the grid along all four (4) grid diagonals.

I.2.m.(3) Road Surfaces

There are approximately 12,000 linear feet of roads at the facility that will require sampling during substantial closure. All roads within the central portion of the facility and connecting facility RCRA units will be sampled under this program. This will include the asphalt paved main access road, but will not include any other roads that are included in the perimeter sampling grids described previously in I.2.m.(1). Prior to sampling, the asphalt road surfaces will be swept. The sweepings will be managed as on-site generated residues in accordance with the WAP. The road surfaces to be sampled are shown on Drawing Number PRMI-T11.

The roads are an average of 20 ft. in width. The road surfaces will be divided into 250 ft. segments and individual samples will be taken from the approximate center of each 50 ft. section to a depth of six (6) inches. The five (5) individual samples from each 250 ft. segment will be composited into a single sample in the laboratory. As described in I.2.m.(5), these samples will be analyzed for the same parameters as the unit-specific and non-unit-specific samples; soil removal will be based on the same criteria. Because of the presence of both volatile and semi-volatile organic compound (VOCs and SVOCs) in asphalt, the presence of these constituents in the road surface samples of the main access road is anticipated. As such, in addition to the background soil samples described in I.2.m.(4), background asphalt samples will be collected and analyzed for Appendix IX inorganics, VOCs, and SVOCs. These samples will be collected from Lemley Road.

I.2.m.(4) Background Soil and Asphalt Sampling

Background soil and asphalt samples will be collected from areas where there have been no impacts from waste activities (e.g., upwind off-site). At least five (5) background soil locations will be sampled. Each background soil location will consist of a single 200 ft. by 200 ft. square.

Within each grid, five (5) samples will be collected: one (1) sample will be collected from the midpoint of the grid and four (4) samples will be collected along the grid diagonals at a distance of approximately 94 ft. from the center of the grid. The samples will be collected to a depth of approximately six (6) inches below the surface. The five (5) individual soil samples from each background grid location will be composited in the facility laboratory prior to analysis for the inorganic constituents listed on Table I-7.

Discrete background asphalt samples will be collected from five (5) locations on Lemley Road. No compositing of these samples will be performed. The background asphalt samples will be analyzed for VOCs and SVOCs in addition to the inorganic constituents listed on Table I-7.

Criteria used for selection of all background sample locations will be as follows:

- Samples will be taken from areas that have not been affected by facility waste management operations; and
- Background samples will be taken from geologic strata and at depths similar to the samples taken from the closure areas to which they will be compared.

A background concentration will be used as a clean closure criterion only when the upper limit of the 95% confidence interval for background concentrations for a constituent exceeds the calculated risk-based clean closure criterion described in I.2.m(6). The upper limit of the 95% confidence interval for background concentrations for a constituent will be calculated using the following equation:

$U.L. = M_b + 2s$
where:
U.L. = Upper Limit of statistical background concentrations assuming a normal distribution and a 97.5% (one-tailed) confidence interval
M_b= mean background concentration
s = standard deviation of background concentrations

If analytical results indicate a background constituent for any sample is an obvious outlier (i.e., its concentration is greater than the U.L. for that background constituent), then that result will be deleted from the background set. Alternatively, it may be demonstrated that the outlier concentration is a valid background concentration that is representative of natural background concentrations for the constituent in question. All background concentrations and calculated U.L. values for each constituent will be subject to review and acceptance by the IDEQ before such values are used as clean closure criteria.

I.2.m.(5) Sample Analyses and Data Evaluation

All closure certification and background samples will be preserved and analyzed in accordance with the procedures described in the latest edition of the USEPA's *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (SW-846) and using the latest approved SW-846 analytical methods, or other protocols approved by the IDEQ. The individual samples will be shipped with their chain-of-custody documentation to an independent laboratory for analysis. All samples collected for closure certification purposes will be analyzed for the target list as outlined in Section I.2.m.

As described in I.2.m.(6), if a clean closure criterion is below the estimated quantitation limit (EQL) described in SW-846, then the EQL will be used as the clean closure criterion. If analytical results for the closure certification samples indicate the concentrations of hazardous constituents exceed the clean closure criteria described in I.2.m.(6), then the contaminated soil will be removed and disposed in the facility's final landfill unit. These areas will be resampled and additional soil removed, as required to meet the clean closure criteria. For purposes of estimating closure costs, it was assumed that 10% of all closure samples (surface soils and roadways) will exceed closure criteria and that these soils would be disposed of as a hazardous waste meeting LDR criteria. For these grids, it was assumed that 1 ft. of soil would be removed and additional soil samples would be collected and analyzed to demonstrate that clean closure was achieved.

I.2.m.(6) Clean Closure Criteria

Clean closure will be determined by a two-phase, risk-based approach. The risk-based procedures are described in detail in Appendix I.7. Initially, closure soil sample results will be compared to risk-based criteria to determine if there is an exceedance that would result in an unacceptable risk to potential post-closure receptors. If any detected constituent exceeds its corresponding risk-based closure criterion, then the sample will not be considered clean and soil removal and re-sampling will be implemented in the area represented by that sample as described above in I.2.m.(5). If the detected constituents do not exceed their corresponding closure criteria, then the total cancer risk and non-cancer hazard quotient for the sample will be calculated as described in Appendix I.7. The sample location will meet clean closure criteria when the calculated cancer risk and hazard quotient values are below acceptable levels as

described below. If either of these values yield an unacceptable risk, then the sample will not be considered clean, and additional soil removal and re-sampling in the area represented by that sample will be performed as described previously in I.2.m.(5).

The risk-based closure criteria for each constituent will be determined at the time of closure using either current risk-based calculations and toxicological data or background sample concentrations (if they exceed the risk-based closure criteria). As described previously in I.2.m.(5), if a constituent is calculated and the risk-based closure criterion is less than the EQL listed in SW-846, then the EQL will be used as the closure criterion.

I.2.n General Site Closure Procedures

Existing facility and groundwater monitoring systems and devices will be protected during closure. They will be repaired and replaced, if necessary. After closure, these systems and devices will be inspected and maintained in operable condition.

Landfill unit leachate removal and detection systems will be protected during closure. They will be maintained in operable condition. The systems will be routinely inspected and, if necessary, leachate will be removed for subsequent off-site treatment and disposal.

Benchmarks will be protected during closure and, if damaged, they will be repaired or replaced. Benchmarks will be routinely inspected and maintained following closure.

Excavation and backfilling operations will be conducted by USEI or an independent contractor. The actual type, quantity, and availability of earthwork equipment will be determined at the time of closure. However, it is anticipated that conventional earthwork equipment, including bulldozers, front-end loaders, and dump trucks, will be utilized to complete the work.

The type of PPE necessary will be dependent on the type and measured or estimated concentrations of toxic substances in the closure media (i.e., soils, sediments, wash waters) and atmosphere and the potential exposure to these substances through inhalation or direct contact with contaminated closure media. An OSHA-compliant site and activity-specific health and safety plan (HASP) will be developed and will identify the type of PPE required.

The following conditions will be met in completing the site closure:

- No wastes will be left in storage;
- The site will remain fenced to prevent unintentional entry by the approximately six (6) ft. high barbed wire-topped fence;
- The site will be secured so that discharge of hazardous wastes does not occur (final cover);
- Surface drainage erosion control will be provided;
- All monitoring and maintenance structures and devices will be protected;
- The generation of leachate will be minimized (cover systems and climate); and
- The integrity and effectiveness of the final cover systems will be maintained.

I.2.o Equipment Decontamination

All construction equipment used in closure activities and hazardous waste processing equipment (that is not disposed in a landfill unit) will be decontaminated. All rinsate will be collected and pumped to a temporary holding tank for analysis. The wash water will be transferred to the Evaporation Pond in accordance with the procedures described in the WAP. For purposes of this Closure/Post-Closure Plan, it is assumed that the wash waters will not exceed LDRs and can be placed into the Evaporation Pond.

The decontamination zone will be located along the edge of the “working” or contaminated area and will include a liquid collection area. This zone will be bermed and double lined with synthetic sheeting to facilitate collection of wash water and to prevent a release of liquid outside the zone.

All earthwork equipment will be cleaned in the decontamination zone or truck / equipment wash pad, if it is still active, prior to final removal from the site and before any “clean” (e.g., backfilling) operations are commenced in the area. All trucks hauling material to facility landfills will also be cleaned, as necessary, at the completion of disposal activities. Equipment decontamination will be verified visually (i.e., no visible evidence of contaminated soil or liquid).

I.3 Post-Closure Plan

This paragraph provides the Post-Closure Plan and addresses the requirements for long-term, post-closure care including inspection, monitoring, and maintenance (IDAPA 58.01.05.008 and 40 CFR §§264.117-118 and 264.310). Post-closure activities will only be required for facility landfills and support structures and are not required for decontaminated (clean closed) RCRA tanks, container management units, surface impoundments, and waste processing areas (Stabilization Facility and Containment Building).

I.3.a Post-Closure Requirements

Post-closure care including inspection, monitoring, and maintenance of the site will consist of the following activities, as applicable:

- Inspection and maintenance of facility security control devices
- Inspection of the landfill final covers for the following:
  - Erosion damage;
  - Settlement, subsidence or displacement;
  - The condition of the vegetative cover;
  - The integrity of run-on and runoff control measures;
  - The functioning of the cover drainage systems;
  - The condition of the gas venting system and characterization of any off-gas;
  - Inspection, monitoring and maintenance of the leachate collection/detection and removal systems for the closed landfills, including removal of any accumulated leachate;
  - Inspection, monitoring and maintenance of the post-closure groundwater monitoring wells;
  - Sampling of groundwater monitoring wells; and
  - Inspection of the integrity of permanent landfill benchmarks.

If any erosion damage or damage to the run-on or run-off control structures is observed during post-closure inspections, then it will be repaired. All vegetative cover fertilization and other necessary maintenance will be performed.

During the post-closure care period following final site closure, any questions regarding the closed facility should be directed to the following post-closure contact:

US Ecology, Inc.
251 E. Front, Suite 400
Boise, Idaho 83702
1-800-590-5220
Attention: Director of Regulatory Affairs

I.3.b Post-Closure Period

Post-closure activities will begin as individual land disposal units are closed. Any land disposal units that are closed before final site closure will be monitored and maintained by USEI in accordance with this Closure/Post-Closure Plan. The post-closure period for each land disposal unit is 30 years after the unit's closure certification date and will be re-evaluated every 10 years during the Permit renewal process.

The post closure care period for the facility as a whole will begin after final closure of the entire facility is complete. Initially, post-closure inspections will be performed on a monthly basis. Because of the arid and isolated nature of the area, and as the entire facility will be surrounded by a security fence with locked gates, monthly inspection intervals will be adequate to verify the integrity of the closed site. In addition, the facility will be inspected within seven (7) days following any major (25-year, 24-hour or greater) storm event. A 25-year, 24-hour storm event will be as measured at the National Weather Service located in Boise, Idaho. Available weather service data will be monitored to determine if a major storm event has occurred. Post-closure activities will include monthly facility inspections for the elements described above and in the paragraphs that follow. An example of a typical post-closure inspection form is shown in Figure I-5.

Based on the results of the post-closure inspections, the frequency of these inspections may be reduced, if warranted and upon final facility closure, the inspection frequency will be changed to quarterly inspections. USEI will submit a formal request to the IDEQ of its intent to reduce the post-closure inspection frequency and will provide adequate rationale for less frequent inspections. Post-closure inspections following 25-year, 24-hour storm events will be performed throughout the duration of the post-closure period regardless of the frequency of the scheduled post-closure inspections.

I.3.c Post-Closure Security

After completion of closure activities for each RCRA unit, no hazardous wastes will remain exposed. In addition, access to the facility by the public or domestic livestock will continue to be prevented by the security fence with locked gates. As described in I.2.b, post-closure use of the facility will be restricted so that the integrity of the final landfill covers, liners, or any other components of the containment systems or the function of the facility's groundwater monitoring system are not disturbed.

I.3.c.(1) Fencing

The existing fence is made of galvanized steel, approximately six (6) ft. high with a 1 ft. to 2 ft. barbed wire barrier mounted at the top. All fencing will be maintained in a manner that prevents entrance to the facility. Fencing will be inspected at the frequencies described in I.3.b of this Section and repaired or replaced as necessary.

I.3.c.(2) Signs

All existing warning signs will be maintained or replaced to meet the readability requirements. (IDAPA 58.01.05.008 and 40 CFR 264.14). Sets of replacement signs will be kept at the facility.

I.3.c.(3) Controlled Entrance

The entrance gates are the same materials as the fence and will be maintained in operable condition and securely locked when not in use. Gate locks will be checked during inspections.

I.3.d Insect and Rodent Control

Insect and rodent control will be provided annually and will be monitored for evidence of insect or rodent damage during normal post-closure inspections. USEI will contract insect and rodent control services

from commercial contractors as needed. Should contractors be required, they will be informed of potential hazards and instructed not to disrupt the integrity of the cover materials, liners, etc. of closed units.

Any damage to the final cover of the landfill by insects or rodents that could reduce the effectiveness or performance of the cover will be repaired by USEI or its subcontractor personnel.

I.3.e Benchmarks

Permanent survey benchmarks will be constructed of concrete and securely placed at least two (2) locations on the facility and will be clearly identified, and protected. These units are not typically degradable and should not require replacement during the post-closure period. All permanent benchmarks will be inspected during post-closure inspections and maintained, repaired, and replaced, as necessary.

The locations of on-site facility benchmarks are established from off-site United States Geological Service (USGS) benchmarks. These off-site USGS benchmarks are expected to be maintained indefinitely by the USGS.

I.3.f Landscape Maintenance

I.3.f.(1) Maintenance

Post-closure monitoring will document that the facility is maintained in good repair and acceptable appearance. No trees, shrubs, or other deep-rooted plants will be allowed to grow in final cover areas. Areas damaged by erosion will be repaired with the proper cover materials.

I.3.f.(2) Buildings

Administrative and support buildings will be maintained at the facility as necessary to support post-closure activities.

I.3.f.(3) Roadways

Roadways are not generally necessary for post-closure care but will be maintained in satisfactory condition. The roadways will be maintained, as necessary, to provide access within the facility. See Drawing Number PRMI-T09 for roadways to remain after closure.

I.3.f.(4) Drainage Ditches

No ditches will be constructed so as to interfere with closed hazardous waste disposal areas. All post-closure drainage ditches will be maintained and kept free of blockage. Ditches will be inspected during post-closure inspection and cleaned, as necessary.

I.3.f.(5) Utilities

All utilities to the facility, other than those to the remaining administrative and support buildings to be utilized during the post-closure monitoring period, will be terminated. No underground utility construction will occur in areas previously used for hazardous waste disposal.

I.3.g Erosion Controls

Erosion control structures will be inspected and maintained during post-closure. The facility will be inspected quarterly (initially, as described in I.3.b) and within seven (7) days after every 25-year, 24-hour storm event. Erosion damage or significant pooling of water will be repaired or corrected.

I.3.h Monitoring

I.3.h.(1) Leachate Collection, Detection, and Removal Systems

Landfill leachate collection sumps and their associated standpipes will be maintained in good repair. They will be inspected during post-closure inspections and repaired, if required. The presence and volume of liquids in the LDCRS sumps will initially be recorded during the inspections during the post-closure period. This information will continue to be recorded on the inspection form contained in Section F. During the post-closure period, the monitoring data will be reviewed on a monthly basis for areas that are currently inspected on a weekly basis, on a quarterly basis for areas that are currently inspected on a monthly basis, and on a semiannual basis for areas that are currently inspected on a quarterly basis, to confirm that the Action Leakage Rate (ALR) as defined in the Response Action Plan located in Appendix D.4.6 has not been exceeded.

Water balance (i.e., HELP model) calculations indicate that there will be minimal (0.016 ft^3 or 0.12 gallons per acre per year) percolation of water through the landfill final cap systems into the underlying wastes. At any time during the post-closure period for Landfill Cells 5, 14, 15, or 16 USEI may reduce the inspection or monitoring frequency for the LDCRSs of these landfills or a sub-cell of these landfills to a monthly, quarterly or semiannual basis based on the actual volumes of liquids detected. The criteria for reducing the inspection/monitoring frequency are as follows:

- To change from monthly to quarterly inspections, at least six (6) consecutive months (2 quarters) during which the total monthly volume of liquid detected does not exceed the ALR must occur; and
- To change from quarterly to semiannual inspections, at least four (4) consecutive quarters (1 year) during which the total quarterly volume of liquid detected does not exceed the ALR must occur.

Under no circumstances will inspections be performed less than semi-annually. Prior to changing the post-closure inspection/monitoring schedule, data and a narrative explanation will be placed in the facility's operating record demonstrating that, during the new inspection/monitoring period, the ALR volume of liquids in the unit/sub-cell leak detection system should not be exceeded based on data obtained during a preceding period.

Any leachate found in the systems at a depth of 12inches or more above the bottom of the liner during post-closure inspections will be removed using a submersible pump. The leachate will be collected and manifested to a permitted off-site facility within ninety (90) days of the date of generation. Leachate will be tested for the parameters specified by the permitted facility.

Pertinent information will be recorded in the facility's post-closure operations record. This will include, at a minimum, the date and time of inspection, quantity of liquid removed, analytical characterization as required for off-site shipment, and all manifest and pertinent disposal information.

Upon the discovery/occurrence of leakage above the ALR, a record of the condition will be entered into the Facility Operating Record. Within seven (7) days of the discovery of an ALR condition, USEI will notify the IDEQ of the occurrence of the ALR condition. This written notification will include:

- Name of facility;

- IDEQ identification number;
- Date of detection of liquid;
- Volume of liquid found/removed;
- Sample collection and analysis initiated (if any); and
- Response actions taken.

Any required corrective measures will be taken as specified in IDAPA 58.01.05.008 {40 CFR §§264.222, 224, 302 and 304}.

I.3.h.(2) Groundwater Monitoring Wells

The current groundwater monitoring well network for the facility is shown on Drawing Number PRMI-T03. The post-closure groundwater monitoring program proposed for the facility will be the same program as implemented for active site operations. This program is described in Section E. All groundwater monitoring wells and devices will be maintained in good repair and kept operational. The wellhead units will be inspected during the groundwater monitoring events and repaired or replaced if necessary. In addition, the following activities will be performed as part of the well maintenance program during the semi-annual monitoring program:

- Well sounding
- Specific capacity testing
- Redevelopment, if deemed necessary
- Disinfection, if deemed necessary

As a result, the wells will be repaired or replaced as necessary. Monitoring, including reporting requirements, will be conducted in accordance with IDAPA 58.01.05.008 (40 CFR Subpart F and §264.117). For post-closure cost estimating purposes, it has been assumed that post-closure groundwater monitoring wells will require replacement once during the post-closure period. Purge water generated during post-closure groundwater monitoring events will be sent off-site for disposal.

I.3.h.(3) Landfill and Pre-RCRA Unit Final Covers

The RCRA and pre-RCRA unit final covers will be maintained at the slope and gradients described in I.2.h.(5). Inspections of the final ET covers will be conducted monthly (initially, as described previously) and after 25-year, 24-hour storm events. Slope and gradient will be checked semi-annually or when there is an apparent change from erosion, settling, or subsidence.

Inspections will look for evidence of erosion by water or wind, stressed vegetation, damage due to settlement or subsidence, animal intrusion, or other damage.

- Inspection for Erosion
  - The gravel-amended soil used to armor the surface against wind and water erosion will be inspected to observe changes over time, such as formation of a gravel pavement on the ground surface
  - The surface gravel will be used as a marker indicating that excessive wind and water erosion have not occurred.
  - Inspections will look for erosion gullies, surface erosion, and stressed vegetation by surface-water flow.
  - Inspections will look for areas of unexpected concentrations of surface-water flows (e.g. settled areas…etc.) and manage flow in such areas to prevent scour or erosion of the cover system.

  - Edges of the cover, where wind concentrates, will be inspected to see if there is evidence of wind erosion; if such evidence exists, erosion problems will be repaired with additional armoring.

- Inspection for Settlement and Subsidence
  - Inspections will look for excessive settlement or subsidence, particularly differential settlement; cracks or fissures near areas of settlement will be identified
  - Inspections will look for cracks at crests of slopes, bulging toes of slopes, or “leaning” vegetation, all of which could be an indication of slope movement.
  - Maintenance of cover slopes that provide positive drainage will be verified; no ponding of water will be allowed.

- Inspection for Animal Intrusion
  - Inspections will look for animal burrows in the landfill cover; when one or more animal intrusion holes are identified, a more comprehensive survey for additional holes will be undertaken to determine the extent of the animal burrows.
  - Any observations of animals or other evidence such as tracks, trails, droppings…etc. will be noted. Identification of the animal species digging burrows will directly relate to the likely depth of the burrows.

- Vandalism or Uncontrolled Access
  - Intrusion onto the USEI facility has not been a problem; however, if inspections identify breaches in fences or gates or other uncontrolled access or damage, then steps will be taken to mitigate damage and increase surveillance as needed.

- Inspection Frequency
  - Inspections will be performed initially on a monthly basis; over time, inspection frequency may be adjusted to quarterly or semi-annually, based on performance of the cover.
  - Additional inspections will be performed under circumstances when damage to the covers could occur, such as extreme storms or seismic events.

Damage Prevention and Mitigation

USEI will take steps to prevent damage to the Cell 14, 15, and 16 covers and implement corrective measures to mitigate damage if it occurs. In the event animal burrows are identified, corrective measures, which may include baiting, trapping…etc. will be implemented to remove the animals from the cover system(s). Repairs will be made as needed using materials and methods appropriate to the work. Repairs may consist of filling gullies, ponding areas, or animal burrows. The original gravel-amended soil will be replaced with gravel content meeting or exceeding the original requirements. Restored areas will be revegetated. As needed, soil stabilizers such as bonded fiber matrix (BFM) or rolled erosion controls (RECs) may be used temporarily. Additional engineering measures may be evaluated in the event that repeated or severe damage occurs.

Repair procedures will be initiated if any erosion gullies greater than six (6) inches deep for lengths of 10 ft. or more are found in the final covers. If repairs are necessary, the proper materials will be used to correct the damage. No post-closure use of these areas is planned or requested.

Vegetation Monitoring

During the first five years following cover construction, vegetation development on the Cell 14, Cell 15, and Cell 16 Evapotranspiration (ET) Covers will be monitored. Due to the arid conditions, establishing vegetation is expected to take 3 to 5 years. Therefore, vegetation surveys will be conducted during this period. After five years, cover inspections will continue to record general observations of vegetation conditions.

- Photographic Surveys

  Photographic records will be collected to document vegetation conditions during revegetation of the ET covers. Three times each year, during the early, middle, and late part of the growing season, a series of photographs will be taken. Photos will be taken of the north, south, east, and west facing side slopes and the north and south sloping portions of the cover top deck, on each of the Cell 14, Cell 15, and Cell 16 covers. The photograph dates and views will be kept relatively consistent during each survey. Over the five years of photographic surveys, the photographs will be compiled to show a presentation in the changes in vegetation.

- Vegetation Transects

  Vegetation transect methods will be used to monitor and quantify the amount of plant growth on the covers. Transects provide a method to representatively measure plant cover and bare ground percentage in a manner that is consistent from year to year.

  Three transect locations will be used on the north side slope, south side slope, and top deck on each of the Cell 14, Cell 15, and 16 covers. A tape measure will be used to establish a straight line perpendicular to the slope. Measurements of percent ground cover will be recorded at 10 locations consistently measured at 20 foot (or similar) spacing. Percent ground cover will be estimated by placing a 3-foot diameter ring on the ground adjacent to the pre-determined distance marking on the tape measure. Using the cover estimator chart (Figure I-6) as a guide, the percent ground cover will be recorded at each location. The percent ground cover will be averaged for Cells 14, 15, and 16 from the three transects on each.

- Vegetation Monitoring Report

  USEI will submit annual monitoring reports providing the results of the vegetation monitoring. These reports will be provided for five years after cover revegetation is initiated. Climate data for the year will be included with the report, since precipitation variability will play an important role in evaluating vegetation. The reports will include prior year's data, so the progression of vegetation development can be evaluated. If any additional revegetation measures or repairs are needed, such as reseeding, the revegetation measures will be described and documented with photographs and maps showing the location of the work.

I.4 Closure Cost Estimate

A copy of the closure cost estimate is provided in Appendix I.4. This closure cost estimate takes into consideration the following factors:

- The estimate is in 2013 dollars;
- The estimate equals the cost of final closure at the point at which facility closure would be most costly (e.g., when placement of wastes into sub-cell 2 of Cell 16 has not yet begun).
- The cost estimate is based on having a 3rd party close the facility, using facilities and equipment available on site for treatment (i.e., stabilization…) and hauling.
- The estimate uses costs for disposal in the facility's final landfill unit and Evaporation Pond since capacity will exist for closure wastes at all times over the life of the facility.
- The estimate does not incorporate salvage value of structures/equipment, land or other facility assets.
- The estimate does not assume zero costs for handling of hazardous wastes with potential economic value.

The cost estimate will be adjusted annually for inflation (IDAPA 58.01.05.008 and 40 CFR §264.142(b)). Included within the annual adjustment will be a certification that sufficient landfill space is available for required closure activities (approx. 40,000 CY).

I.5 Post Closure Cost Estimate

A copy of the post-closure cost estimate is provided in Appendix I.4. This estimate has been calculated to cover the costs of post-closure monitoring and maintenance of the facility in accordance with the Post-Closure Plan contained in I.3. The estimate is in provided in 2013 dollars . The post-closure cost estimate is based on the costs of having a 3rd party perform the post-closure activities. This estimate will be adjusted annually for inflation by using the Implicit Price Deflator for the GNP (or equivalent) (IDAPA 58.01.05.008 and 40 CFR §264.144(b)).

I.6 Financial Assurance for Closure and Post-Closure Care

I.6.a Financial Assurance Mechanism

Currently, USEI maintains financial assurance for both closure and post-closure estimated cost for RCRA and TSCA in the form of a Certificate of Insurance. However, financial assurance for closure and/or post-closure costs may be demonstrated by USEI using any of the RCRA authorized mechanisms (IDAPA 58.01.05.008 40 CFR 264 Subpart H). A copy of the most current Certificate of Insurance, is contained in Appendix I.8. (IDAPA 58.01.05.008 and 40 CFR §264.151(a)(1)).

I.6.b Liability Insurance

In accordance with the requirements of IDAPA 58.01.05.008 (40 CFR §264.147(a) and (b)), USEI maintains the minimum coverage for both sudden and non-sudden accidental occurrences in the following amounts:

Table I-8 – Insurance Limits

Type of Coverage	**Amount of Coverage**
Sudden Accidental Occurrences	
Per occurrence	$ 1 million
Annual aggregate	$ 2 million
Non-Sudden Accidental Occurrences	
Per occurrence	$ 3 million
Annual aggregate	$ 6 million

USEI provides these liability coverages as documented in Appendix I.9 by the Certificate of Liability Insurance, which contain the wording specified by IDAPA 58.01.05.008 (40 CFR §264.151(j)).

I.7 Certification of Closure and Completion of Post-Closure Care

Copies of the RCRA closure and post-closure certifications as required by IDAPA 58.01.05.008 (40 CFR §§264.115 and 264.120) are included in Appendix I.1.

Table I-1 Containment Building (Stabilization Portion) Major Equipment List

Equip Number	Equipment Description	# Of Equip	Equipment Size	Equipment Capacity	Matl of Constr	Unit HP*	Conn HP*	Oper HP*	Remarks
T-301 T-401	Additive Storage Silo	1 1	16' □ x 35' H 12' □ x 35' H	4690 CF 2940 CF	CS CS	-- --	-- --	-- --	Lime Storage. Lime or Cement Storage. Ea w/ Bottom Discharge 16' Above Grade, & Manual Shut-Off Slide Gate
BH-301 BH-401	Silo Dust Collector	2	2300 CFM @ 5" WG		CS	5	10	10	Operate When Filling Silo. Bag Type, Timed Pulse Air, W/ Fan
BL-101 BL-102	Additive Blower	2	780 SCFM @ 15 Psig		CS	125	250	125/ 250	Pressure Blower for Semi-Dense Phase Conveying. W/ Hi Press Switch & Safety Relief Valve
CO-101 CO-102	Additive Conveyor	2	100 CF	30-40 TPH	CS	--	--	--	Silo Unloading w/ Weigh Load Cells. Interlocked to Feed Either Additive Receiver
RC-101 RC-102	Additive Receiver	2	100 CF	30-40 TPH	CS	--	--	--	Each Dedicated to a Mix Bin. W/ Bottom Discharge Manual Shut-Off Slide Gate & Exhaust Filter Bags W/ Pulsed Jet
DV-101 DV-102	Additive Diverter Valve	2	6" □	30-40 TPH	CS	--	--	--	To Divert Additive to Either Additive Receiver. W/ Position Sensor & Air Solenoid Valve
RF-101 RF-102	Additive Rotary Feeder	2	20" x 20"	30-40 TPH	CS	2	4	4	Delivers Additive @ a Controlled Rate to Mix Bin
AS-101 AS-102	Additive Air Slides	2	TBD	50 TPH	CS	--	--	--	Swing or Retractable to Clear Bin When Idle
WS-101 WS-102	Mixing Bin Water Spray System	2		250 GPM	CS/Brass	--	--	--	Heat Traced & Temperature Sensor as Needed
FM-101 FM-102	Water Flow Meter	2	3"	250 GPM	CI/SS/ Ryton	--	--	--	W/ Process Controller & Air Operated Valve
WP-101A WP-101B	Process Water Pump	2	4 x 3	500 GPM	DI	50	100	50	Auxiliary Pumps to Existing Water Pumps to Provide an Adequate Water Supply
WT-101	Process Water Storage Tank	1	15' □ x 20' H	25,000 Gals	CS	--	--	--	Auxiliary Tank to Existing Water Tanks to Provide an Adequate Water Supply
DH-101 DH-102	Mixing Bin Dust Suppression Hood	2	13' W x 20' L	100 %	CS	--	--	--	With Strip Curtains on All Sides. Retractable Curtains on E, N & W Sides
DC-604	APC System Bag	1	50,000	50,000	CS	--	--	--	Bag type, Timed Pulse Air,

Equip Number	Equipment Description	# Of Equip	Equipment Size	Equipment Capacity	Matl of Constr	Unit HP*	Conn HP*	Oper HP*	Remarks
	House		CFM @ 6" WG	CFM					Differential Pressure Switch & Gauge, Broken Bag Detector
HF-604	APC System HEPA Filter	1	50,000 CFM @ 1.5" WG	50,000 CFM	CS	--	--	--	Cell Type, Differential Pressure Switch & Gauge
EB-604	APC System Exhaust Blower	1	50,000 CFM @ 15" WG	50,000 CFM	CS	200	200	200	Centrifugal, Non-Overloading. W/ Vibration Isolators & Damper
HFE-604	Pre-Engineered HEPA Filter Enclosure	1	50,000 CFM @ 15" WG	50,000 CFM	GS	--	--	--	W/ Inlet & Outlet Flanges, Internal Partition , Access Doors and Safety Outlet Screen
AD-100	APC System Ductwork	1	50,000 CFM @ 5" WG	50,000 CFM	GS	--	--	--	Five Pick-Ups W/ Adjustable Dampers. All Flanged Joints & 1½□ R Elbows
PS-101	Loader Weigh Scale	1	Built-In Front End Loader	10,000 Lbs	--	--	--	--	To Weigh Bulk Additives as Front End Loader Raises Bucket. W/ totalizer & Batch Registers.
VL-101 VL-102 VL-103 VL-104	Ventilation Louver	4	4' H x 8' W		GS	--	--	--	Gravity Operated, Air Flow Into Building; Bug Screen & Rain Guard
OD-101 OD-102 OD-104 OD-105 OD-107 OD-108	Over Head Door	6	14' W x 15' H		GS	--	--	--	Truck Access Doors Into Stabilization Building, W/ Seals
OD-103 OD-106	Over Head Door	2	12' W x 28' H		GS	--	--	--	Access Doors to Mixing Bins, W/ Seals
DO-101 DO-102 DO-103 DO-104 DO-105 DO-106 DO-107 DO-108	Over Head Door Opener	8	--		CS	¾	6	3	Each Door to Be Opened/Closed Either From Control Room, Inside Building, or Truck. W/ Weatherproof Housing for Outdoor Installation
MCC-201	Motor Control Center	1		800 Amp	CS				W Main Circuit Breaker, V-A Meter, 13 Starters & 5 Breakers & NEMA 12 Enclosure
DE-101	Diesel Exhaust System	1	3200 CFM @ 896□ F		SS, CS, FG	5	5	5	To Exaust Diesel Fumes From Excavators. W/ Motorized Hose Reels, & Blower Alarm

Equip Number	Equipment Description	# Of Equip	Equipment Size	Equipment Capacity	Matl of Constr	Unit HP*	Conn HP*	Oper HP*	Remarks

Table I-2 Containment Bldg. (Debris Portion) Major Equipment List

EQUIPMENT NUMBER	EQUIPMENT DESCRIPTION	EQUIPMENT SIZA/CAPACITY	MATS. OF CONSTR.	REMARKS
VS-301	VIBRATING SCREEN	3' X 10' 60 TPH	C.S./ A.R.S.	3/8 " SINGLE DECK C/W DISCHARGE HOPPER WT: 4,000 LBS
CR-301	CRUSHER	24" X 32" INLET 60 TPH	C.S./ A.R.S.	IMPACTOR TYPE WITH OPEN BOTTOME C/W FEED/DSCH HOP'R WT: 10,000 LBS
CO-301	TRANSFER VERT. CONVEYOR	30"W X 46' LIFT 60 TPH	C.S	FLEXIBLE SIDEWALL WITH CLEANING BUCKETS (FLAT IDLERS) WT: 15,000 LBS
DC-601	DUST COLLECTOR SYSTEM **	1590 SF CLOTH 25,000 CFM @12" W.C.	C.S	BAGHOUSE TYPE W/ PULSE JET CLEANING (15.7:1 AIR/CLOTH) WT: 9,500 LBS
DC-602	DUST COLLECTOR SYSTEM **	2544 SF CLOTH 36,000 CFM @12" W.C.	C.S	BAGHOUSE TYPE W/ PULSE JET CLEANING (14.1:. AIR/CLOTH) WT: 13,000 LBS
DC-603	DUST COLLECTOR SYSTEM **	1590 SF CLOTH 25,000 CFM @12" W.C.	C.S	BAGHOUSE TYPE W/ PULSE JET CLEANING (15.7:1 AIR/CLOTH) WT: 9,500 LBS
AC-600	AIR COMPRESOR SYSTEM ***	80 GAL TANK 35 CFM @ 100 PSIG	C.S	REFER TO *** FOR DETAILS
MBT-3	MIX BIN TANK	60'L X 17'W X 8'H	C.S.	ABOVE GRADE TANK FOR WASTE TREATMENT OPERATIONS
MBT-4	MIX BIN TANK	60'L X 17'W X 8'H	C.S.	ABOVE GRADE TANK FOR WASTE TREATMENT OPERATIONS

** EACH DUST COLLECTOR SYSTEM CONSISTS OF 1 BAGHOUSE AND 1 FAN.

*** AIR COMPRESSOR SYSTEM INCLUDES AIR-COOLED COMPRESSOR, RECEIVER, FILTERS, DESSICANT DRYER AND CONTROLS FOR CLEANING ANY TWO DUST COLLECTOR SYSTEMS SIMULTANEOUSLY.

**** STATIONARY CHASSIS SKID MOUNTED UNIT COMPLETE WITH THE FOLLOWING:
CR: IMPACT TYPE CRUSHER (FEED OPENING 42" X 31")
VG: VIBRATING GRIZZLY FEEDER 46" WIDE X 16' LONG INCLUDING 5' ADJUSTABLE GRIZZLY SECTION.
CO: TRANSFER CONVEYOR 42" WIDE X 28; LONG EQUIPPED WITH IMPACT BARS AT CRUSHER DISCHARGE.
MG: SELF-CLEANING ELECTROMAGNETIC SEPARATOR WITH ARMOR CLAD BELT
ACCESSORIES: FEEDHOPPER, CRUSHER DISCHARGE CHUTE AND CONTROL PANEL.

Table I-4 Remaining Landfill Capacity

2014 - LANDFILL CAPACITY

Cell 14 (yd^3)	111,864
Cell 15 (yd^3)	551,375
Cell 16 ($yd^{3)}$	731,846
Permitted Airspace (yd^3)	11,010,095
Constructed Airspace (yd^3)	1,395,085
Remaining Constructed Airspace at 40K yd^3/month (years)	2.9

Table I-7 Potential Inorganic Background Soil Constituents

Antimony
Arsenic
Barium
Beryllium
Cadmium
Chromium
Cobalt
Copper
Lead
Mercury
Nickel
Selenium
Silver
Thallium
Tin
Vanadium
Zinc
Cyanide, total
Sulfide, total

Figure I-3 Estimated Schedule of Substantial Completion of Closure Activities

	ACTIVITY SCHEDULE (Days)																				
CLOSURE ACTIVITY	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	240	300
1. Begin Closure Activities According to Plan (180-Day Prior Notification Given to IDEQ)	▲																				
2. Receive Final Volume of Hazardous Waste at USEI Facility	▲																				
3. Remove, Process/Dispose of Containerized Waste from storage areas																					
4. Clean, Demolish & Dispose of Container Storage units																					
5. Evaporation of Evaporation Pond Liquids (4 years, estimated)																					
6. Remove, Process/Dispose of Tank Wastes																					
7. Clean, Dismantle and Dispose of Tanks																					
8. Close Remaining Runoff Collection Ponds																					
9. Stabilize/Solidify Waste Inventories & Closure Residues/Sediments																					
10. Clean, Dismantle & Dispose of Stabilization Facility																					
11. Close Containment Building																					
13. Clean Laboratory/Shop Buildings																					
14. Demolish & Dispose of Laboratory/Shop Buildings																					
15. Implement Surface Soil Sampling Plan																					
16. Additional Soil Removal, Sampling & Analysis (if necessary)																					
17. Remove/Dispose of Vehicle Wash Area																					
18. Close (Cap) Landfill Trench																					
19. Decontaminate Closure Equipment																					
20. Remove Decontamination Residues for Off-Site Disposal																					
21. Begin Post-Closure Care																			▶		
22. Submit Closure Certification																				▶	
23. Submit Survey Plat and Landfill Records																					▶

Figure I-4 - Estimated Schedule of Final Facility Closure Activities

	ACTIVITY SCHEDULE (Months)																					
CLOSURE ACTIVITY	0	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54	55	56	LT
1. Begin Closure Activities According to Plan (180-Day Prior Notification Given to IDEQ)	▶																					
2. Receive Final Volume of Hazardous Waste at USEI Facility	▶																					
3. Close Container Storage Units and Laboratory/Shop Buildings		■																				
4. Close Tanks (Tanks 1-4) & Collection Ponds		■																				
5. Stabilize Wastes/Residues & Close Stabilization Facility		■																				
6. Close Containment Building (and Mix Bin Tanks)			■																			
7. Surface Soil Sampling Plan & Additional Soil Removal			■																			
8. Close Vehicle Wash Area & Landfill, Decontaminate Equipment, Off-Site Residue Disposal			■																			
9. Implement Post-Closure Care for Closed Landfill Units				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	▶
10. Submit Closure Certifications, Survey Plat & Landfill Records				■																		
11. Evaporation of Evaporation Pond Liquids		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■					
12. Clean Close Evaporation Pond																		■	■			
13. Submit Final Site Closure Certification																				■		
14. Submit Final Survey Plat and Landfill Records																					■	

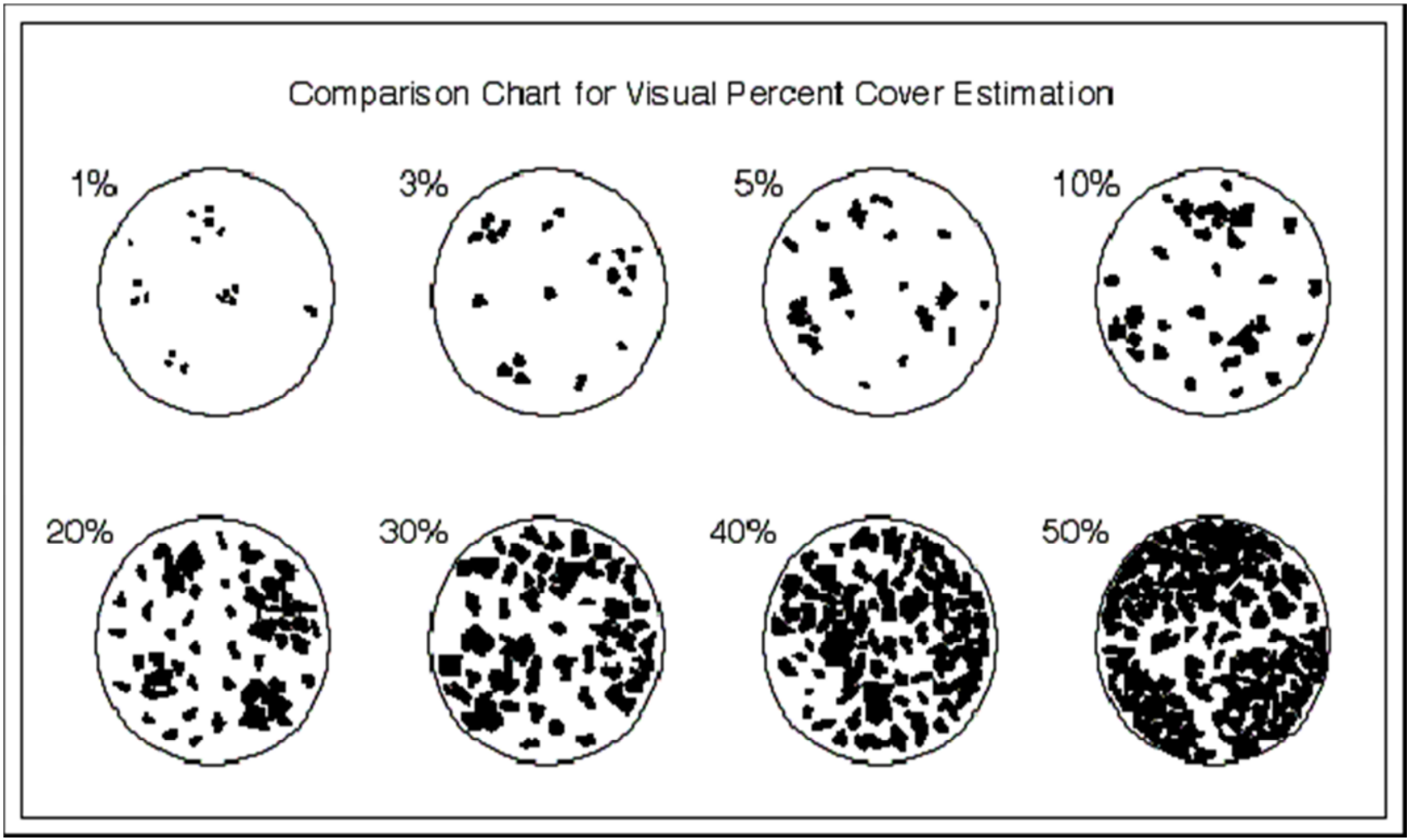
LT = Long Term Care

Figure I-5 - Typical Post-Closure Inspection Form

Potential Problems (By Item):			
Fencing/Signs/Benchmarks : Deterioration/Damage : Warning Signs Not Legible/Missing : Evidence of Attempted Forced Entry : Burrowing Under Fence Final Covers (pre-RCRA & RCRA units) : Cover Integrity : Signs of Settling, Subsidence or Erosion : Odor	Drainage Ditches : Blockage : Spillage : Deterioration/Damage : Overfill Leachate Collection/Removal Systems : Leachate Present/Level : Leachate Pipe Damage/ Deterioration/Obstruction	Runon/Runoff Systems (pre-RCRA & RCRA units) : Deterioration : Animal Burrows : Obstruction	Groundwater Monitoring Wells : Damage : Unlocked : Obstruction (Note Well Number Designation Below)

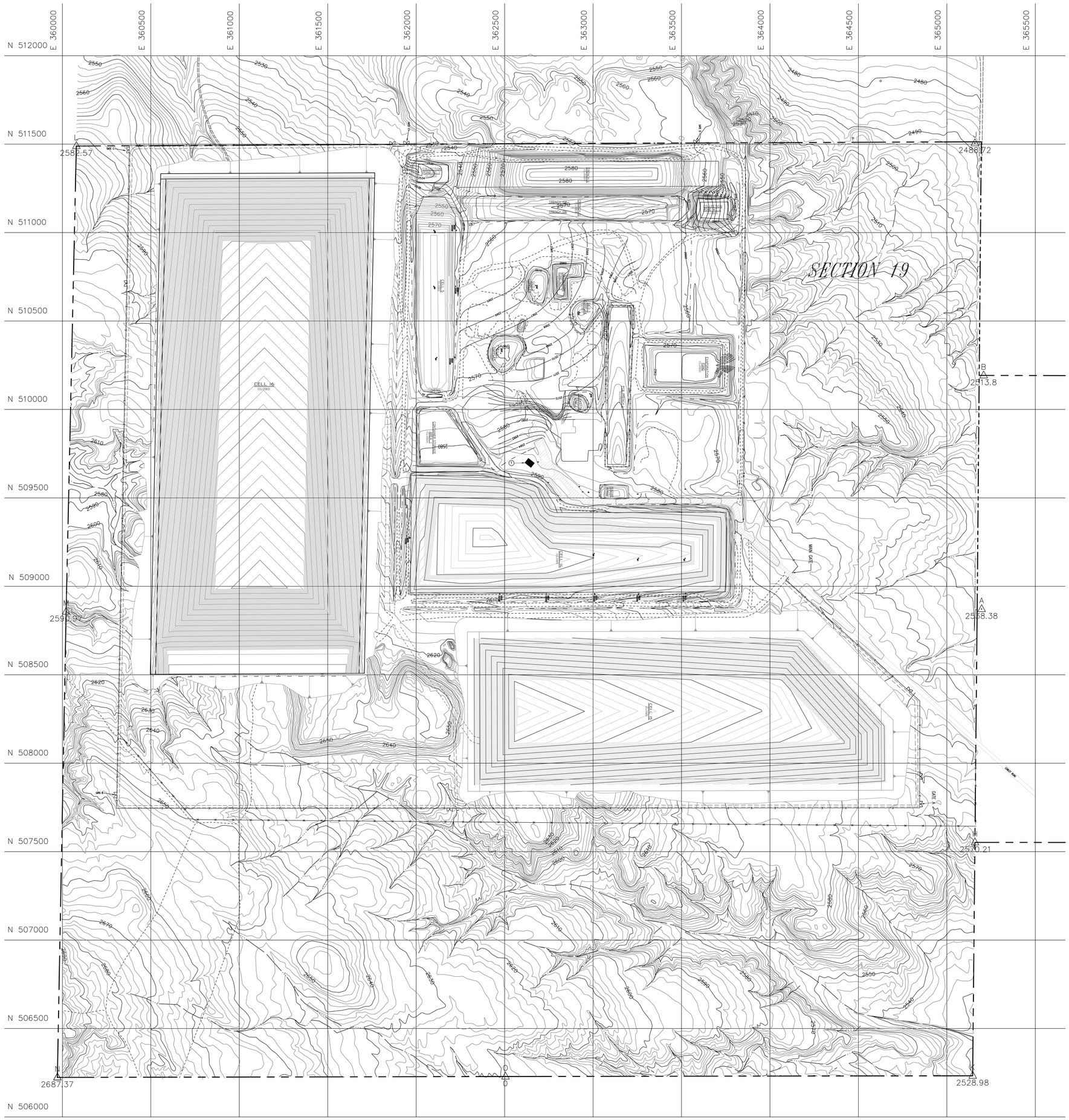
Date/Time	**Inspector**	**Item/Location**	**Identified Problem**	**Corrective Action**		
				Date	**Name**	**Action**

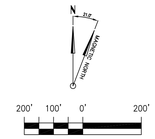
FIGURE I-6
COVER ESTIMATOR CHART



http://www.nature.nps.gov/protectingrestoring/damageassessmentandrestoration/DO14Handbook/appendices/appendixb_files/image011.gif

DWG NO. PRMI-T13
PROJ NO. PRMI





LEGEND

- 5/8" IRON PIN W/ ALUMINUM CAP
- POWER POLE
- (34) FACILITY KEY NUMBER
- FENCE LINE
- PROPERTY BOUNDARY
- UNIMPROVED ROAD
- PAVED ROAD
- 2500 EXISTING TOPOGRAPHY
- RCRA UNIT BOUNDARY
- DRAINAGE

FACILITY KEY

1 ADMINISTRATION/LUNCH ROOM

GENERAL NOTES:

1. EXISTING SITE TOPOGRAPHY, PHYSICAL FEATURES AND DELINEATIONS OBTAINED FROM AERIAL PHOTOGRAPHY AND SURVEYED DATUM PROVIDED TO ENVIROSOURCE TECHNOLOGIES BY: J.J. HOWARD ENGINEERING–SURVEYING; 1675–A HILL ROAD; BOISE, IDAHO 83702. DATE OF ORIGINAL SURVEY – NOVEMBER 4, 1995.
2. ADDITIONALLY THE FOLLOWING AREAS OF THE SITE HAVE BEEN UPDATED AND INCORPORATED INTO THE EXISTING SITE PLAN AS FOLLOWS:
   - A. AN ADDITIONAL 1,000 FEET TO THE NORTH OF SECTION 19 HAS BEEN SURVEYED AND INCORPORATED INTO THE EXISTING TOPOGRAPHY. SURVEY BY: J.J. HOWARD DATED FEBRUARY 20, 1998.
   - B. STABILIZATION AND CONTAINMENT BUILDING UPDATED AS OF JANUARY 14, 1997. SURVEY BY: J.J. HOWARD. DESIGN CONTOURS BY: ENVIROSOURCE TECHNOLOGIES.
   - C. PAD 4 PROCESS PLANT AREA UPDATED AS OF APRIL 15, 1998. SURVEY BY: J.J. HOWARD.
   - D. LEACHATE FORCE MAIN AND SOIL STOCKPILE SURVEY UPDATED AS OF FEBRUARY 15, 1999. SURVEY BY: J.J. HOWARD.
   - E. THE CURRENT TOP OF WASTE ELEVATIONS FOR CELL 5 AS OF JANUARY 2, 1996. SURVEY BY: J.J. HOWARD.
   - F. THE CURRENT TOP OF WASTE ELEVATIONS FOR CELL 14 AS OF JANUARY 04, 2001. SURVEY BY: J.J. HOWARD.
   - G. TOPOGRAPHY OF TRENCHES 10 AND 11 UPDATED AS OF SEPTEMBER 12, 2000. SURVEY BY: J.J. HOWARD.
   - H. UPDATE OF CONTAINER STORAGE AREA NO. 1 TOPOGRAPHY AS OF JUNE 18, 1999. SURVEY BY: J.J. HOWARD.
   - I. BORROW AREA TOPOGRAPHY UPDATED AS OF DECEMBER 12, 2000. SURVEY BY: J.J. HOWARD.
   - J. WEST HAUL ROAD TOPOGRAPHY UPDATED AS OF DECEMBER 05, 2000. SURVEY BY: J.J. HOWARD.
   - K. ET CAP TEST PAD TOPOGRAPHY UPDATED AS OF NOVEMBER 06, 2000. SURVEY BY: J.J. HOWARD.

REV.	BY / DATE	CHK'D / DATE	DESCRIPTION	PROJ ENGR / DATE	SURV ENGR / DATE
F	VJT 7/15		PART B PERMIT RENEWAL		
E	VJT 7/11		CELL 16		
D	VJT 1/09		CELL 15 MODIFICATIONS		
C			NOV. 2 2006 PERMIT MOD		
B			USEI RCRA PERMIT DATED NOVEMBER 12, 2004		
A	MK 7/28/98		ISSUED FOR PART B PERMIT RENEWAL APPLICATION		

US ecology

SITE B
GRAND VIEW, IDAHO
US EPA ID NO. IDD 073 114 654

TITLE:
FACILITY
TYPICAL TOPOGRAPHIC PLAN
FINAL AT CLOSURE

DRAWN BY: MK	DATE 2/05/98	SCALE: 1"=200'	FILE CODE PRMIT04E	REV. NO.
CHECKED	DATE	ENGINEER	DATE	DWG. NO. PRMI–T13	F
PROJ. MGR.	DATE	APPROVED	DATE	PROJ. NO. PRMI	