Appendix B-7

Closure Plan

CLOSURE PLAN

US ECOLOGY NEVADA

September 2010

SECTION 15

CLOSURE PLAN

TABLE OF CONTENTS

LIST OF TABLES

Table 15-3 Clean Closure Demonstration Parameters

APPENDIX

Appendix 15 A Closure Cost Estimates

SECTION 15

CLOSURE PLAN

This Scheduled Closure Plan has been prepared by US Ecology Nevada (USEN) to comply with the requirements of 40 CFR §§264.111, 264.112 (a) to (c) and 40 CFR §270.14 (b)(13), as adopted by the Nevada Division of Environmental Protection (NvDEP). This plan describes the procedures USEN will follow to perform a scheduled partial and/or final closure at any point during the active life of the facility. Scheduled final closure is a planned activity and is expected to take place as part of normal operation after all the disposal cells are full.

USEN will implement this plan for the following existing units at time of closure:

Unit Description	Waste Type
Hazardous Waste Land Disposal Trench 11 and Trench 12	All*
Polychlorinated Biphenyl (PCB) Building and RCRA Container Storage Area CA1	All
PCB Tank Farm	PCBs
Batch Stabilization Units (5 Total)	All
Truck Parking Storage Area (CMU #7)	All
Evaporation Tank	All
Waste Consolidation and Storage Area 2	All
Low Temperature Thermal Desorption Unit	RCRA
Dry Hazardous Waste Storage Areas 1 and 2	All
Container Management Building (CMU #16)	All
Leachate Storage Tank	All

* This includes RCRA Hazardous waste, non-RCRA and PCB waste

15.1.0 CLOSURE PERFORMANCE STANDARD

Closure:

- Minimizes the need for further maintenance,
- Minimizes the potential for post-closure escape of hazardous waste or constituents to the surrounding environment, and
- Complies with the closure requirements in 40 CFR Part 264 for each unit.
- Complies with the closure requirements in 40 CFR §761.65(e)(1), which eliminates the potential for post-closure releases of PCBs which may be present at an unreasonable risk to human health and environment.

15.2.0 PARTIAL CLOSURE

Closure of certain hazardous waste management units may be necessary prior to final closure of the entire facility. Circumstances that may prompt partial closure are:

- Modifications to facility operations, such as the completion of filling in Trench 11.
- Replacement of units beyond useful service life
- Unanticipated failure of units/structures

Partial closure of any unit will be completed within 180 days after final receipt of hazardous waste in that unit following the same procedures described for final closure with regards to removal of waste and residues, unit decontamination, dismantling and disposal.

If partial closure is required for the landfill cell, USEN will notify the NvDEP Administrator at least 60 days prior to beginning closure.

15.3.0 MAXIMUM WASTE INVENTORY

The maximum inventory of hazardous waste expected to be at the facility at any time over the active life of the facility is identified in Table 15-1. This maximum was derived by reviewing historical inventory records and projecting the historical maximum percentage for permitted and proposed unit inventories. However, waste inventory at a time of scheduled closure should be minimal. As the final disposal cell approaches capacity, waste receipts will decrease to match the remaining volume. The only waste requiring off-site disposal after all units are closed should be that generated during closure.

15.4.0 SCHEDULE FOR CLOSURE

A closure schedule with the projected activities and required closure time are included in Table 15-2.

15.4.1 Time Allowed for Closure

Closure activities are expected to begin no later than 180 days after receiving the final volume of hazardous waste at the facility (or at the individual unit when partial closure is anticipated). Should additional time be necessary, USEN will submit a permit modification requesting a longer period.

Within 90 days after receiving the final volume of hazardous waste, waste inventory in storage or treatment units will be treated on site and disposed of in the landfill, or removed for off-site disposal. The units will be dismantled and disposed of or decontaminated, in accordance with the procedures described in Sections 7.2 and 8.0, respectively. Remaining portions of the landfill will be backfilled and a final cover placed as described in Section 7.1.

Closure activities will be completed within 180 days from the start of closure activities.

15.4.2 Closure Time Extension

If treatment, removal or disposal of the final volume of hazardous waste and completion of closure activities require a longer time, USEN may request modification of the approved closure plan, or otherwise petition the NvDEP for approval of a closure time extension. The extension request will include a demonstration that:

- Closure activities require longer than the 90 or 180 days allowed,
- The unit has capacity to receive additional waste,
- There is a reasonable likelihood that a party other than US Ecology will commence operation of the facility within one year, or
- Closure will interfere with continued operation.

15.5.0 AMENDMENTS TO SCHEDULED CLOSURE PLAN

USEN will submit a written request to the NvDEP for a modification of the approved Scheduled Closure Plan, as necessary, whenever the following occurs:

- Changes in operating plans or facility design materially affect the Scheduled Closure Plan
- In conducting partial or final closure activities, unexpected events require a modification to the approved Scheduled Closure Plan.

15.6.0 CERTIFICATION OF CLOSURE

USEN will submit a certification of closure to the NvDEP Administrator within 60 days of completion of partial closure activities of any of the land disposal cells, or completion of scheduled final closure. USEN will certify that the hazardous waste management unit or facility, as applicable, was closed in accordance with the specifications of the approved Scheduled Closure Plan. The certification will be signed by a company representative and by an independent professional engineer registered in the State of Nevada.

15.7.0 CLOSURE PROCEDURES

15.7.1 Closure of Landfill

Below-grade available space, except for the volume required for disposal of on-site waste and other items, will be backfilled with soil from the site's soil stockpile. Any above-grade waste will be contained by constructed dikes and soil backfill, as necessary.

When waste and backfill within the above-grade disposal facility reach an elevation within approximately three feet below the designed top of waste elevation, final waste placement operations will begin. At that time, waste and backfill will be mounded toward the middle of the above-grade area to the design maximum waste elevations. When the final waste slopes have been established, the final cover will be installed. This cover will consist of a layered soil system.

Once the slopes for waste and backfill are established, a final cover system will be placed over the landfill. It is assumed that the contractor will install the approved cover system, and will follow the specified quality assurance and quality control procedures.

Control of percolation into the closed trench will be provided by constructing a cover that holds infiltrated water in the evaporative zone of the cover until it is returned to the atmosphere. The cover virtually eliminates percolation into the trench.

The Nevada Division of Environmental Protection (NDEP) has approved the evaporative final covers for landfill Trenches 11 and 12 as part of the RCRA permit for hazardous waste management at the US Ecology, Nevada facility. NDEP determined that the evaporative covers satisfy the regulatory requirements for final closure of a landfill cell and are fully consistent with the provisions of 40 CFR 264.110, the performance standards of 40 CFR 264.111, and the following requirements of 40 CFR 264.310(a) dealing with landfill closure:

- Provide long-term minimization of migration of liquids through the closed landfill;
- Function with minimum maintenance;
- Promote drainage and minimize erosion or abrasion of the cover; and
- Accommodate settling and subsidence so that cover's integrity is maintained.

15.7.2 Evaporative Cover Characteristics

The cover is appropriate for an arid region, and uses the moisture retention properties of native soils to contain and store infiltrating moisture (precipitation) until the natural processes of evaporation and plant transpiration remove the stored moisture and release it the atmosphere. The cover is protective of human health and the environment, and offers long-term benefits when compared to conventional landfill cover types that incorporate compacted clay or synthetic materials as low-permeability components. These benefits include, but are not limited to:

- use of easily obtained construction materials,

- relative simplicity of construction,
- reduced complexity of quality assurance/quality control programs, and
- increased long-term cover integrity and stability.

From bottom to top, the components of the arid region cover to be used for Trenches 11 and 12 are as follows.

- **Interim Cover Soil Layer**. The lower layer of the final cover is a lightly compacted native soil layer at least 12-inches (1.0 foot) thick and extending across the cover to the natural ground surface on all sides of the trenches.

- **Final Cover Soil Layer**. The upper layer of the final cover is a lightly compacted soil layer at least 24-inches (2.0 feet) thick and extending across the cover to the natural ground surface on all sides of the trenches. In conjunction with the Interim Cover Layer, it retards the downward movement of infiltrating water by providing temporary water-storage, and allowing stored water to be returned to the atmosphere by evaporation and plant transpiration.

Mathematical models predicted that a three-feet (36-inch) thick monolithic cover will prevent significant percolation of fluids through the cover and into waste. The results also indicate that nearly all of the precipitation that enters returns to the atmosphere through the combination of evaporation and transpiration rather than infiltrating deeply into the cover and percolating into waste. These results likely are conservative because no vegetation was considered in the models, so the evaluation of "evapotranspiration"(the combined effect of evaporation and plant transpiration) actually was limited to consideration of evaporation only.

15.7.3 Evaporative Cover Specifications

Compacted-soil starter berms will serve as the outer shell of the above-grade waste disposal area for Trenches 11 and 12. The starter berms on the perimeter of Trench 11 were constructed previously in accordance with NDEP approval of the 1999 design and plan for above-grade waste disposal. The Trench 12 berms will be constructed of compacted native soil or compacted select soil waste (where the berm is over waste). Suitable materials will be placed in lifts not exceeding 12 inches thick and compacted to 95 percent maximum dry density (ASTM D 1557). In-situ density tests will be performed as specified in the CQA Plan.

Soil materials for final cover construction will consist of natural soil obtained from USEN stockpiles and the Trench 12 excavation, supplemented as needed with imported soil materials. Native and imported materials will be screened and mixed, as needed, to obtain material of satisfactory grain size.

The Trench 11 interim soil layer has been constructed as a layer at least 12 inches thick constructed during the trench's waste disposal operations history. The Trench 12 interim soil layer will be a layer not less than 12 inches thick that is comprised of natural soil materials that contain no grain sizes larger than 6.0 inches. Lift thickness will be measured and documented, but there is no compaction specification for this material, which will be placed as above-grade waste disposal proceeds.

Soil materials for the Trench 11 and 12 final cover layer will be 90 percent smaller than 1.0 inch with not less than 5.0 percent passing the #200 sieve. No materials in this layer will be larger than 3.0 inches. Cover materials will be placed in lifts that between 12 and 24 inches thick and lightly compacted to achieve a density of about 80 percent MDD (ASTM D 1557).

The lower density compaction requirement of the soil cover is important for the moisture holding capacity of the soil. Over-compaction could lead to reduced effectiveness and should be prevented. Areas of the final cover layer that become overly compacted, such as could result from repeated vehicle or equipment passage, will be loosened by shallow ripping or disking.

15.7.4 Post Closure Performance Verification

Verification of post-closure performance of the final cover will be provided by the combination of leachate monitoring (quality and quantity), basin lysimeter monitoring and groundwater monitoring.

Leachate monitoring will use existing Trench 11 and Trench 12 sumps to remove leachate from the landfill units. Records of leachate removal will be tabulated and evaluated to determine whether leachate production rates decline following facility closure.

Closure of the above-grade disposal facility will be considered complete when the final design slopes have been established on the cover. Post-closure inspection and maintenance will be performed in the same manner as for other closed landfill units at the facility. With the design features presented in this report, it is expected that the above-

grade disposal facility will provide long-term, maintenance-free protection to the environment.

Construction of the final cover will be conducted in accordance with cell specifications included in the Landfill Report of the Permit Renewal Application. A detailed evaluation of the proposed final cover performance is presented in the following reports, which have been previously presented to the NDEP, and are included herein by reference.

- The design of the proposed final cover is described in detail in the *Trench 11 Above-Grade Disposal Facility Design and Construction Quality Assurance Plan*, revised May 6, 1999, by AquAeTer, Inc.

- *Erosion Calculations for Above Grade Disposal Cell*, dated July 28, 1987, prepared by Dr. James L. Grant and Associates.

- *Cell 10 Cap Design Analysis Using Wind Erosion Equation* prepared by US Ecology in March 1991.
- *Supplement – Landfill Report for Trench 12, October 2007,* AquAeTer, Inc.
- *Design Basis and Construction Specifications for Trenches 11 and 12 Final Covers, April 2008,* AquAeTer, Inc.

The soil cover data in the above referenced reports is applicable to the cover design for Trenches 11 and 12.

Basin Lysimeters will be constructed underneath the evaporative cover to verify that infiltration of moisture does not reach beneath the landfill cover.

15.7.4.1 Lyimeter Description

The main components of the lysimeter include:

- Geomembrane pan (base and sidewalls);
- Geocomposite drainage layer;
- Layer representative of the upper portion of waste profile;
- Root barrier; and
- AFC profile.

Any water percolating through the cover will enter the basal geocomposite drainage layer of the lysimeter and then quickly migrate to and along the geomembrane channel to a collection point for measurement.

The lysimeter will be installed on Trench 11 on the north-facing slope of the upper deck. The placement of the lysimeter at this point on the Trench 11 cover is believed capable of providing the most accurate and conservative representation of cover performance.

15.7.4.2 Lysimeter Duration and Reporting

Lysimeter data collection will continue for 10 years following initial installation. The 10-year period will allow for monitoring and documentation through weather cycles that should be sufficient in number to experience widely varying precipitation events. The expected long-term (30-year) average of liquid flux through the final covers is less than 10.0 millimeters per year. A flux rate not exceeding 10.0 mm/yr is roughly the equivalent to an effective hydraulic conductivity that is less than 3.2×10^{-8} centimeters per second (cm/sec). USEN will utilize the 10.0 mm/yr value as the basis for notifying NDEP of unexpected situations during lysimeter-based monitoring. If, at anytime during performance monitoring, recorded flux through the lysimeter exceeds 50% of this value (i.e., 5.0 mm) in a single month, NDEP will be notified.

15.7.5 Closure of Treatment and Storage Units

For purposes of the closure procedures discussion, treatment and storage units are grouped according to their location, as follows:

- PCB Processing Building , RCRA Storage Area CA1 and PCB Tank Farm
- Truck Parking Storage Area
- Batch Stabilization Units
- Evaporation Tank
- Waste Consolidation and Storage Area
- Low Temperature Thermal Desorption Unit
- Dry Hazardous Waste Storage Areas
- Container Management Building

15.7.5.1 PCB Processing Building and RCRA Storage Area CA1

All liquid PCBs in storage at the time of an unscheduled closure will be transported to a Toxic Substance Control Act (TSCA) authorized disposal facility. All RCRA waste inventory in storage will be treated as needed and disposed of on site, or transported to a RCRA-authorized off-site facility for treatment and/or disposal.

The steel building walls and any contaminated equipment will be decontaminated, or washed, dismantled and disposed of in the PCB portion of the landfill cell. If structure removal is selected, the entire PCB Pad, including the building's concrete floor and underlying liner system, will be excavated and disposed of in the PCB portion of the landfill. The concrete floor of the building will be broken up into manageable pieces using appropriate equipment. The containment system drainage material will be removed and transferred to the

PCB portion of the disposal unit. The underlying liner system will be cut and folded for disposal in the landfill cell.

A minimum of 10 samples will be obtained from the soil underlying the containment system to demonstrate clean closure. Samples locations will be selected in areas with the highest probability for contamination including areas in front of the PCB building. If no contamination is evident, sample locations will be picked at random. Samples will be analyzed for the parameters specified in Table 3 following U.S. Environmental Protection Agency SW-846 methods. Samples with PCB concentrations below 1 ppm will be considered to have met the clean closure performance standard. Soil removal will be conducted in three-inch increments followed by confirmatory testing until clean closure is obtained.

If the decontamination option is selected, decontamination of the unit will follow the procedures described in Section 8.0, as applicable. Number 2 diesel fuel or other appropriate PCB solvent will be used as the decontamination agent. Wash waters generated from decontamination activities will be removed for off-site disposal at an authorized facility. PCB wipe samples will be taken to confirm all contamination is removed. For all non-porous surfaces that have been decontaminated the clean closure standard is 10 $\mu g/100cm^2$.

15.7.5.2 Truck Parking Storage Area

Waste inventory in the Truck Parking Storage area will be treated and disposed of on-site, or transported to a RCRA-authorized hazardous waste management facility. The concrete pad will be decontaminated and left in place, or removed to the disposal cell. PCB waste/articles will be transported to a TSCA permitted facility.

If removal of the pad is determined necessary, the procedures described in Section 7.5.1 will be followed for removal of the concrete pad, removal of contaminated soil (if any) and demonstration of clean closure.

15.7.5.3 Batch Stabilization Units

Waste inventory in the stabilization units will be treated and placed in the on-site landfill cell or transported to an authorized off-site facility for treatment and/or disposal.

The stabilization vessels will be decontaminated, or washed, dismantled and placed in the on-site disposal cell. The concrete silo foundation will be removed for off-site treatment and disposal. The procedures described in Section 7.5.1 will be followed for removal of the foundation, containment system, and any contaminated soil, and demonstration of clean closure.

15.7.5.4 Evaporation Pad

Liquid waste inventory in the unit will be removed and sent off site to an authorized disposal facility. Should partial closure be necessary for this unit, the waste inventory will be removed and solidified/stabilization in the Batch Stabilization Unit. If PCBs are present the waste will be sent off-site to a TSCA permitted facility.

The concrete pad will be removed for off-site treatment and disposal. The procedure described in Section 7.5.1 will be followed for removal of the liner system, removal of contaminated soil (if any), and demonstration of clean closure.

15.7.5.5 Waste Consolidation and Storage Area 1

Waste inventory in the Waste Consolidation and Storage Area will be treated and disposed of on site.

The procedures described in Section 7.5.1 will be followed for removal of contaminated soil (if any) and demonstration of clean closure.

15.7.5.6 Low Temperature Thermal Desorption (LTTD) Unit

Waste inventory in the LTTD Unit will be treated and disposed of on site, or transported to a RCRA-authorized hazardous waste management facility.

The unit and associated containers will be decontaminated following the procedures described in Section 8.0, or washed, dismantled and properly disposed of in the landfill should decontamination be determined economically unfeasible or physically impossible. If removal of the concrete pad is determined necessary, the procedures described in Section 7.5.1 will be followed for removal of the concrete pad, removal of contaminated soil (if any) and demonstration of clean closure.

15.7.5.7 Dry Hazardous Waste Storage Areas 1 and 2

Waste inventory in the Dry Hazardous Waste Storage Area will be treated and disposed of on site, or transported to a RCRA-authorized hazardous waste management facility. The pad area will be excavated and removed to the disposal cell.

The procedures described in Section 7.5.1 will be followed for removal of contaminated soil (if any) and demonstration of clean closure.

15.7.5.8 Container Management Building

All wastes in storage at the time of a scheduled closure will be treated and disposed onsite or transported to an appropriately authorized TSDF. PCB waste/articles will be transported to a TSCA permitted facility.

The steel building walls and any contaminated equipment will be decontaminated, dismantled and disposed of in the appropriately permitted landfill cell. If structure removal is required, the entire building including the floor shall be excavated and disposed of as described above.

Samples will be obtained from the soil underlying the containment system to demonstrate clean closure. Sample locations will be selected in areas with the highest probability for contamination (i.e., areas where treatment tanks were situated). If no deterioration to the floor or tank system is evident, sample locations will be picked at random. Samples will be analyzed for the parameters specified in Table 15-3 following U.S. Environmental Protection Agency SW-846 methods, and the results statistically compared to background concentrations. Samples where background concentrations are obtained within a statistically acceptable margin will be considered to have met the clean closure performance standard. Soil removal will be initiated should any of the samples indicate a statistically significant increase over background values for any constituent. Additional testing will be limited to those constituents exceeding background concentrations.

If the decontamination option is selected, decontamination of the unit will follow the procedures described in Section 15.8.0, as applicable.

Waste inventory in the stabilization units will be treated and placed in the on-site landfill cell or transported to an authorized off-site facility for treatment and/or disposal.

The stabilization vessels will be decontaminated, or washed, dismantled and placed in the on-site disposal cell. The procedures described in this section will be followed for removal of the foundation, containment system, and any contaminated soil, and demonstration of clean closure.

15.8.0 DECONTAMINATION OF EQUIPMENT AND STRUCTURES

At the time of closure, US Ecology will evaluate the economic feasibility of conducting clean closure of treatment/storage units and structures. In addition to the economic feasibility of decontamination, US Ecology will evaluate the condition of each unit or structure to determine the presence of significantly deteriorated areas, which could dictate the need for unit removal and disposal. Should the decontamination option be selected, the following steps will be taken.

1. The interior surfaces of piping, valves, pumps and other ancillary equipment associated with tank systems will be cleaned by flushing with a detergent wash and rinsing with tap water. If the facility determines that a detergent wash is not adequate, other appropriate decontamination methods may be employed (e.g., solvent wash, steam cleaning). Wash waters will be drained to the tank for subsequent removal.

2. Interior tank surfaces will be pressure washed using water and cleaning agents followed by triple rinsing with tap water. Wash waters will be collected from the bottom of the tank and removed using vacuum equipment or by pumping to a tanker truck for off-site disposal.

3. Tank surfaces will be visually inspected to determine whether residues have been completely removed. If residues are visually detected, Step 2 will be repeated.

4. Concrete floors and structures will be cleaned with an industrial floor scrubber. The floors will be pressure washed and triple rinsed. The entire surface will be visually inspected to ensure removal of visually detectable residues. Wash waters generated during decontamination will be removed with vacuum equipment or by pumping to a container or tanker truck for off-site disposal.

5. Following decontamination and visual inspection of all tanks and structures, a final rinse with clean tap water will be performed. Decontamination will be verified by collecting and submitting one rinsate sample from each unit/structure for analysis. Sampling and analysis will be conducted following procedures recommended by the version of EPA SW-846 that is applicable at the time of closure. Decontamination verification samples will be analyzed for the parameters identified in Table 3.

6. Heavy equipment and unloading docks used for handling waste shall be cleaned with a high-pressure water cleaner until all visible contamination has been removed. If such cleaning is

physically impossible or economically unfeasible, the equipment or applicable parts thereof will be properly disposed of in the landfill cell.

Decontamination rinse water will be statistically compared to a background sample of tap water. If statistically significant parameters are detected in the rinse water, the decontamination steps described above will be repeated until the statistical comparison is met.

15.9.0 GROUNDWATER MONITORING

At least one groundwater monitoring event will take place during the closure period. Groundwater monitoring will be conducted following the same procedures observed during operations just prior to the time of the scheduled closure.

15.10.0 LEACHATE COLLECTION

The leachate generated during the closure period will be transported to an off-site disposal facility.

15.11.0 RUN-ON AND RUN-OFF CONTROLS

The existing perimeter ditches around the facility will continue to provide run-on protection during the closure period. Run-off control mechanisms in place during the active life will remain in place throughout the closure period. Rainfall coming in contact with waste in the active cell will be collected in the cell and treated as leachate. Rainfall contacting capped portions of the cell will be considered clean and allowed to run off into natural drainage courses.

TABLE 15-1 - Estimate Of Maximum Waste Inventory

UNIT DESCRIPTION	AMOUNT * (Expressed as Percentage of Total Design Capacity)	WASTE TYPE
PCB Storage Tanks (T-4 through T-8)[1]	90%	PCB Liquids
Tank T-15	65%	Landfill Leachate (F039)
LTTD Tanks (T-12 through T-14)	65%	Tank-like structures at LTTD System
Truck Parking Storage Area and Waste Consolidation and Storage Area	100%	Stabilization Waste
Dry Hazardous Waste Storage Area	100%	Stabilization Waste and Thermal Desorption Waste
PCB Building and RCRA Storage Area	90%	RCRA Waste and PCB Materials
Evaporation Pad (T-11)	100%	Wastewater and Sludge
Batch Stabilization Units (T-1, T-2, T-3, T-18 & T-19)	100%	RCRA Liquids, Sludges or Solids Amenable to Stabilization

* Based on historical inventory records

1 – As Identified in the RCRA permit section 8

TABLE 15-2 - Estimated Schedule For Closure At Us Ecology Facility

TASK	ESTIMATED TIME PERIOD
Final Waste Receipt	Day 0
Notification of Intent to Close	Day 30
Complete Treatment or Disposal of Waste Inventory	Day 90
Complete Closure of Treatment and Storage Units	
* Truck Parking Area	Day 101
* Waste Consolidation and Storage Area	Day 112
* Dry Hazardous Waste Storage Area	Day 123
* PCB Processing Building (including PCB Tank Farm) and CA1	Day 134
* LTTD Treatment System	Day 143
* Batch Stabilization Units	Day 152

* Evaporation Pad	Day 170
Complete Closure of Landfill	Day 180
Final Inspection and Certification of Compliance with Closure Plan by Registered Professional Engineer (P.E.)	Day 240
* Note: Schedule only applies to units in existence at time of closure.	

TABLE 15-3 - Clean Closure Demonstration Parameters

UNIT	PARAMETERS
PCB Processing Building	PCBs, TOC and Eight RCRA Metals
PCB Tank Farm	PCBs, TOC and Eight RCRA Metals
Batch Stabilization Units	PCBS, TOC and Eight RCRA Metals
Evaporation Pad	PCBs, TOC and Eight RCRA Metals
Waste Consolidation and Storage Area 1	PCBs and Eight RCRA Metals
Dry Hazardous Waste Storage Areas 1 and 2	Eight RCRA Metals
Low Temperature Thermal Desorption	TOC and Eight RCRA Metals
Container Management Building	PCBs TOC and Eight RCRA Metals
Truck Parking Pad	PCBs, TOC and Eight RCRA Metals

APPENDIX 15-A

CLOSURE COST ESTIMATE

CLOSURE COST ESTIMATE

US ECOLOGY NEVADA

September 2010

SECTION 16

Closure Cost Estimate

TABLE OF CONTENTS

LIST OF TABLES

APPENDICES

Closure Cost Estimate

This Unscheduled Closure Plan was prepared by US Ecology Nevada to comply with the requirements of 40 CFR 264.142 (a), as adopted by the Nevada Division of Environmental Protection (NvDEP). This plan describes the activities included in developing the cost estimate for final closure of existing units. In each case, a worst-case closure scenario has been used to develop a conservative cost estimate, and assumes that US Ecology is no longer in control of the facility and that closure must be performed by an outside contractor.

The procedures described in this plan were used to calculate the worst-case closure cost estimates for the following existing units:

- Hazardous Waste Land Disposal Trench 11 and Trench 12
- Polychlorinated Biphenyl (PCB) Building and Resource Conservation and Recovery Act Container Storage Area (CMU #1)
- PCB Tank Farm
- Batch Stabilization Units
- Truck Parking Storage Area (CMU #7)
- Evaporation Tank
- Waste Consolidation and Storage Area2
- Low Temperature Thermal Desorption Unit
- Dry Hazardous Waste Storage Areas 1 and 2
- Container Management Building (CMU #16)

16.1.0 CLOSURE PERFORMANCE STANDARD

Closure minimizes the need for further maintenance and the potential for post-closure escape of hazardous waste or constituents to the surrounding environment.

16.2.0 MAXIMUM WASTE INVENTORY

The maximum potential inventory of hazardous waste on site at the time of this unscheduled closure is identified in Table 1, and is estimated to be the sum of the design capacity for each treatment and storage unit included in this permit application.

For the purpose of developing the cost estimate, most of the facility hazardous waste inventory will be transported to an off-site treatment, storage or disposal facility permitted under RCRA (and/or Toxic

Substance Control Act for PCB waste inventory). An outside contractor may elect to bring portable stabilization equipment to the facility to treat waste inventories at the facility prior to on-site disposal if airspace permits. For the worst-case estimate however, all waste that cannot be directly landfilled is assumed to be sent off site for treatment and disposal. The procedures assumed to be employed for waste removal and final disposition of each unit's waste inventory in the worst-case scenario are further described in Section 16.5.0.

16.3.0 SCHEDULE FOR CLOSURE

A closure schedule with the projected activities and required closure time is included in Table 2.
Closure activities will be completed within 90 days from receipt of the final volume of waste at the unit or facility.

16.4.0 AMENDMENTS TO UNSCHEDULED CLOSURE PLAN

US Ecology will submit a written request to the NDEP for a modification of the approved Unscheduled Closure Plan whenever the following occurs:

- Changes in operating plans or facility design materially affect the Unscheduled Closure Plan,
- In conducting partial closure activities, unexpected events require a modification to the approved Unscheduled Closure Plan.

16.5.0 CLOSURE ACTIVITIES

16.5.1 Closure of Landfill

Below-grade available space, except for the volume required for disposal of on-site waste and other items will be backfilled with soil from the site's soil stockpile. Any above-grade waste will be contained by constructed dikes and soil backfill, as necessary.

When waste and backfill within the above-grade disposal facility reach an elevation within approximately three feet below the designed top of waste elevation, final waste placement operations will begin. At that time, waste and backfill will be mounded toward the middle of the above-grade area to the design maximum waste elevations. When the final waste slopes have been established, the final cover will be installed. This cover will consist of a layered soil system.

Once the slopes for waste and backfill are established, a final cover system will be placed over the landfill. It is assumed that the contractor will install the approved cover system, and will follow the specified quality assurance and quality control procedures.

Control of percolation into the closed trench will be provided by constructing a cover that holds infiltrated water in the evaporative zone of the cover until it is returned to the atmosphere. The cover virtually eliminates percolation into the trench.

The final landfill covers for USEN Trenches 11 and 12 satisfy the regulatory requirements for final closure of a landfill cell and are fully consistent with the provisions of 40 CFR 264.110, the performance standards of 40 CFR 264.111, and the following requirements of 40 CFR 264.310(a) dealing with landfill closure:

- Provide long-term minimization of migration of liquids through the closed landfill;
- Function with minimum maintenance;
- Promote drainage and minimize erosion or abrasion of the cover; and
- Accommodate settling and subsidence so that cover's integrity is maintained.

16.5.1.1 Evaporative Cover Characteristics

The cover is appropriate for an arid region, and uses the moisture retention properties of native soils to contain and store infiltrating moisture (precipitation) until the natural processes of evaporation and plant transpiration remove the stored moisture and release it the atmosphere. The cover is protective of human health and the environment, and offers long-term benefits when compared to conventional landfill cover types that incorporate compacted clay or synthetic materials as low-permeability components. These benefits include, but are not limited to:

- use of easily obtained construction materials,
- relative simplicity of construction,
- reduced complexity of quality assurance/quality control programs, and
- increased long-term cover integrity and stability.

From bottom to top, the components of the arid region cover to be used for Trenches 11 and 12 are as follows.

- **Interim Cover Soil Layer**. The lower layer of the final cover is a lightly compacted native soil layer at least 12-inches (1.0 foot) thick and extending across the cover to the natural ground surface on all sides of the trenches.

- **Final Cover Soil Layer**. The upper layer of the final cover is a lightly compacted soil layer at least 24-inches (2.0 feet) thick and extending across the cover to the natural ground surface on all sides of the trenches. In conjunction with the Interim Cover Layer, it retards the downward movement of infiltrating water by providing temporary water-storage, and allowing stored water to be returned to the atmosphere by evaporation and plant transpiration.

Mathematical models predicted that a three-feet (36-inch) thick monolithic cover will prevent significant percolation of fluids through the cover and into waste. The results also indicate that nearly all of the precipitation that enters returns to the atmosphere through the combination of evaporation and transpiration rather than infiltrating deeply into the cover and percolating into waste. These results likely are conservative because no vegetation was considered in the models, so the evaluation of "evapotranspiration"(the combined effect of evaporation and plant transpiration) actually was limited to consideration of evaporation only.

16.5.1.2 Evaporative Cover Specifications

Compacted-soil starter berms will serve as the outer shell of the above-grade waste disposal area for Trenches 11 and 12. The starter berms on the perimeter of Trench 11 were constructed previously in accordance with NDEP approval of the 1999 design and plan for above-grade waste disposal. The Trench 12 berms will be constructed of compacted native soil or compacted select soil waste (where the berm is over waste). Suitable materials will be placed in lifts not exceeding 12 inches thick and compacted to 95 percent maximum dry density (ASTM D 1557). In-situ density tests will be performed as specified in the CQA Plan.

Soil materials for final cover construction will consist of natural soil obtained from USEN stockpiles and the Trench 12 excavation, supplemented as needed with imported soil materials. Native and imported materials will be screened and mixed, as needed, to obtain material of satisfactory grain size.

The Trench 11 interim soil layer has been constructed as a layer at least 12 inches thick constructed during the trench's waste disposal operations history. The Trench 12 interim soil layer will be a layer not less than 12 inches thick that is comprised of natural soil materials that contain no grain sizes larger than 6.0 inches. Lift thickness will be measured and documented, but there is no compaction specification for this material, which will be placed as above-grade waste disposal proceeds.

Soil materials for the Trench 11 and 12 final cover layer will be 90 percent smaller than 1.0 inch with not less than 5.0 percent passing the #200 sieve. No materials in this layer will be larger than 3.0 inches. Cover materials will be placed in lifts that between 12 and 24 inches thick and lightly compacted to achieve a density of about 80 percent MDD (ASTM D 1557).

The lower density compaction requirement of the soil cover is important for the moisture holding capacity of the soil. Over-compaction could lead to reduced effectiveness and should be prevented. Areas of the final cover layer that become overly compacted, such as could result from repeated vehicle or equipment passage, will be loosened by shallow ripping or disking.

16.5.1.3 Post Closure Performance Verification

Verification of post-closure performance of the final cover will be provided by the combination of leachate monitoring (quality and quantity), basin lysimeter monitoring and groundwater monitoring.

Leachate monitoring will use existing Trench 11 and Trench 12 sumps to remove leachate from the landfill units. Records of leachate removal will be tabulated and evaluated to determine whether leachate production rates decline following facility closure.

Basin Lysimeters will be constructed underneath the evaporative cover to verify that infiltration of moisture does not reach beneath the landfill cover.

Closure of the above-grade disposal facility will be considered complete when the final design slopes have been established on the cover. Post-closure inspection and maintenance will be performed in the same manner as for other closed landfill units at the facility. With the design features presented in this report, it is expected that the above-grade disposal facility will provide long-term, maintenance-free protection to the environment.

Construction of the final cover will be conducted in accordance with cell specifications included in the Landfill Report of the Permit Renewal Application. A detailed evaluation of the proposed final cover performance is presented in the following reports, which have been previously presented to the NDEP, and are included herein by reference.

- The design of the proposed final cover is described in detail in the *Trench 11 Above-Grade Disposal Facility Design and Construction Quality Assurance Plan*, revised May 6, 1999, by AquAeTer, Inc.

- *Erosion Calculations for Above Grade Disposal Cell*, dated July 28, 1987, prepared by Dr. James L. Grant and Associates.

- *Cell 10 Cap Design Analysis Using Wind Erosion Equation* prepared by US Ecology in March 1991.

- *Supplement – Landfill Report for Trench 12, October 2007,* AquAeTer, Inc.

- *Design Basis and Construction Specifications for Trenches 11 and 12 Final Covers, April 2008,* AquAeTer, Inc.

The soil cover data in the above referenced reports is applicable to the cover design for Trenches 11 and 12.

16.5.2 Closure of Treatment and Storage Units

For purposes of the closure activity discussion, treatment and storage units are grouped according to their location, as follows:

- PCB Processing Building and RCRA Storage Area CA1
- Truck Parking Storage Area
- Batch Stabilization Units
- Evaporation Pad
- Waste Consolidation and Storage Areas 1 and 2
- Low Temperature Thermal Desorption Unit
- Dry Hazardous Waste Storage Areas 1 and 2
- Waste Pile
- Containment Building

16.5.2.1 PCB Processing Building and RCRA Storage Area CA1

All liquid PCBs in storage at the time of an unscheduled closure will be transported to a TSCA authorized disposal facility. PCB solid materials will be removed and disposed of in the on-site landfill cell. All RCRA waste inventory in storage will be

removed and transported to a RCRA authorized off-site facility for treatment and/or disposal.

The steel building shell will be dismantled and disposed of in the landfill cell. Removal of the building's concrete floor and underlying liner system will proceed as follows:

- Wash the concrete floor of the building and break into manageable pieces using appropriate equipment.
- Remove the building's concrete floor and dispose in landfill cell.
- Remove the containment system drainage material and transfer to the on-site disposal unit.
- Remove, cut and fold the underlying liner system for disposal in the on-site landfill cell.
- Obtain ten samples from the soil underlying the containment system to demonstrate clean closure. Select sample locations in areas with the highest probability for contamination (i.e., areas where visual inspection of the liner indicates possible deterioration). If no deterioration is evident, simple random location selection should be performed.
- Analyze samples for the parameters specified in Table 3 following U.S. Environmental Protection Agency (EPA) SW-846 methods, and compare the results statistically to background concentrations. Samples where background concentrations are obtained within a statistically acceptable margin should be considered to have met the clean closure performance standard. Because of the presence of a liner system, no soil contamination is anticipated; therefore no soil removal is planned.

16.5.2.2 **<u>Truck Parking Storage Area</u>**

- Transport waste inventory in the Truck Parking Storage Area to a RCRA-authorized hazardous waste management facility.

- Wash the unit's concrete slab prior to on-site disposal.

- Obtain four samples from the soil underlying the containment system to demonstrate clean closure. Select sample locations in areas with the highest probability for contamination (i.e., any areas where the concrete surface has been stained by waste materials, along cracks or spalled concrete surfaces). If no deterioration is evident, simple random location selection should be performed.

- Analyze samples for the parameters specified in Table 3 following EPA SW-846 methods, and compare the results statistically to background concentrations.

- Remove three inches of soil and dispose of in the on-site landfill.

16.5.2.3 **Batch Stabilization Units**

- Remove the waste inventory in the stabilization units to an authorized off-site facility for treatment and disposal.

- Wash and dismantle the stabilization vessels, and dispose of in landfill cell.

- Remove the concrete silo foundation and send off site for treatment and disposal.

- Follow the procedures described in Section 5.2.1 for removal of the containment system, removal of any contaminated soil, and for demonstration of clean closure.

- The number of samples collected beneath and adjacent to the removed stabilization tanks should be sufficient to characterize the nature and extent of possible contamination including PCBs.

16.5.2.4 **Evaporation Pad**

The Evaporation Pad will be the last unit to undergo closure, because the unit will be used to decontaminate any small equipment (e.g., shovels, hand tools, etc.) remaining after completion of closure of other units.

- Remove the liquid waste inventory in the unit for off-site disposal at an authorized facility.

- Remove the concrete pad and send off-site for treatment and disposal.

- Follow the activities described in Section 5.2.1 for removal of the liner system and for demonstration of clean closure.

16.5.2.5 **Waste Consolidation and Storage Area 2**

Waste inventory in the Waste Consolidation and Storage Area2 will be treated and disposed of on site, or transported to a RCRA-authorized hazardous waste management facility. The pad area will be excavated and removed to the disposal cell. The loading/unloading dock, equipment and structures will be closed in accordance with Section 6.0.

Obtain four samples from the soil underlying the storage pads to demonstrate clean closure. Select sample locations in areas with the highest probability for contamination (i.e., any areas where the pad surface has been stained by waste materials). If no deterioration is evident, simple random location selection should be performed.

Analyze samples for the parameters specified in Table 3 following EPA SW-846 methods, and compare the results statistically to background concentrations.

Remove three inches of soil and dispose of in the on-site landfill.

16.5.2.6 **Low Temperature Thermal Desorption (LTTD) Unit**

Waste inventory in the LTTD Unit will be treated and disposed of on site, or transported to a RCRA-authorized hazardous waste management facility.

The LTTD unit and associated tanks will be decontaminated following the procedures described in Section 6.0, or washed, dismantled and properly disposed of in the landfill, should decontamination be determined economically unfeasible or physically impossible.

Wash the concrete containment system with high pressure washing prior to dismantling and on-site disposal.

Obtain four samples from the soil underlying the concrete pad to demonstrate clean closure. Select sample locations in areas with the highest probability for contamination (i.e., any areas where the pad surface has been stained by waste materials). If no deterioration is evident, simple random location selection should be performed.

Analyze samples for the parameters specified in Table 3 following EPA SW-846 methods, and compare the results statistically to background concentrations.

Remove three inches of soil and dispose of in the on-site landfill.

16.5.2.7 **Dry Hazardous Waste Storage Areas 1 and 2**

Waste inventory in the Dry Hazardous Waste Storage Area will be treated and disposed of on site, or transported to a RCRA-authorized hazardous waste management facility. The pad area will be excavated and removed to the disposal cell.

Obtain four samples from the soil underlying the storage pad to demonstrate clean closure. Select sample locations in areas with the highest probability for contamination (i.e., any areas where the pad surface has been stained by waste materials). If no deterioration is evident, simple random location selection should be performed.

Analyze samples for the parameters specified in Table 3 following EPA SW-846 methods, and compare the results statistically to background concentrations.

Remove three inches of soil and dispose of in the on-site landfill.

16.5.2.8 Container Management Building

Waste inventory in the Container Management Building will be treated and disposed of on site, or transported to a RCRA-authorized hazardous waste management facility.

The steel building shell will be dismantled and disposed of in the landfill cell. Removal of the building's concrete floor and underlying liner system will proceed as follows:

- Wash the concrete floor of the building and break into manageable pieces using appropriate equipment.
- Remove the building's concrete floor and dispose in landfill cell.
- Obtain four samples from the soil underlying the containment system to demonstrate clean closure. Select sample locations in areas with the highest probability for contamination (i.e., areas where visual inspection of the floor indicates possible deterioration). If no deterioration is evident, simple random location selection should be performed.
- Analyze samples for the parameters specified in Table 3 following U.S. Environmental Protection Agency (EPA) SW-846 methods, and compare the results statistically to background concentrations. Samples where background concentrations are obtained within a statistically acceptable margin should be considered to have met the clean closure performance standard.

16.6.0 CLEANING AND DECONTAMINATION OF EQUIPMENT AND STRUCTURES

In developing the cost estimate for decontaminating any equipment or structures at the facility, the following was assumed:

- High pressure/steam clean all accessible surfaces of piping, valves, pumps and other ancillary equipment associated with tank systems.

- Drain all wash waters for subsequent removal. Pressure wash accessible tank surfaces.

- Collect wash waters from the bottom of the tank and remove for off-site disposal.

- Pressure wash the concrete floors and structures.

- Visually inspect the entire surface to ensure removal of visually detectable residues.

- Remove wash waters generated during decontamination for off-site disposal.

- Clean heavy equipment used for handling waste with a high pressure steam cleaner until all visible contamination has been removed.

- For unit decontamination, cleaning may be supplemented with detergents and/or solvents, as necessary. Perform a final rinse with clean tap water following decontamination and visual inspection of all structures/equipment.

- Collect and submit one rinsate sample from each unit/structure for analysis to verify decontamination. Conduct sampling and analysis following procedures recommended by the current version of EPA SW-846 at the time of closure. Analyze decontamination verification samples for the parameters identified in Table 3.

NOTE: Decontamination verification is only required for clean closure of a structure/equipment. If decontamination is intended to comply with the Land Disposal Restricted (LDR) treatment standards for debris, no verification will be performed.

16.7.0 GROUNDWATER MONITORING

For purposes of developing the cost estimate it has been assumed that one groundwater monitoring event will take place during the closure period, and be conducted following permitted procedures in place just prior to closure.

16.8.0 LEACHATE COLLECTION

Completion of the activities should take no longer than a three-month period. Estimates for disposal of the leachate generated during the closure period are based on off-site disposal.

16.9.0 RUN-ON AND RUN-OFF CONTROLS

The existing perimeter ditches around the facility will continue to provide run-on protection during the closure period. Run-off control mechanisms in place during the active life will remain in place throughout the closure period. Rainfall coming in contact with waste in the active cell will be collected in the cell and treated as leachate. Rainfall contacting capped portions of the cell is considered clean and allowed to run off into natural drainage courses.

16.10.0 CLOSURE COST ESTIMATE

The cost estimate for the unscheduled closure of the facility is included in Appendix A. This cost estimate considers a worst-case scenario, and is based on the assumption of unexpected closure prompted by company bankruptcy at a point in the facility's operating life when the extent and means of operation would make closure most expensive. The worst-case closure scenario considers that US Ecology is no longer in control of the facility and that closure must be performed by an outside contractor. The cost estimate and cost assumptions are detailed in Appendix A.

In accordance with the requirements of 40 CFR 264.142(c), the closure cost estimate will be modified within 30 days after a revision to the Closure Plan has been authorized which increases the closure cost. The total closure cost estimate will be updated for inflation annually, according to the guidelines in 40 CFR 264.142(b).

TABLE 16-1

ESTIMATE OF MAXIMUM WASTE INVENTORY

UNIT DESCRIPTION	AMOUNT	UNITS	WASTE TYPE
Tank T-15	20,000	gallons	Landfill Leachate (F039)
Tanks T-12 through T-14	20000 (Total)	gallons	Condensate from LTTD Treatment System
Tanks T-4 through T-8	28,000	gallons	PCB Liquids
Truck Parking Storage Area	400	cubic yards	Stabilization Waste
PCB Building and RCRA Storage Area	102,960	gallons	RCRA Waste and PCB Materials
Evaporation Pad T-11	10,000	gallons	Wastewater and Sludge
Batch Stabilization Units	140	cubic yards	Stabilization Waste
Waste Consolidation and Storage Area (WCSA) 2	240 / 48,470	cubic yards / gallons	RCRA and non-RCRA Waste
Dry Hazardous Waste Storage Area (DHWSA)	495 / 100,083	cubic yards / gallons	RCRA and non-RCRA Waste
Container Management Building	2430 / 481,250	cubic yards / gallons	RCRA and non-RCRA Waste

TABLE 16-2

ESTIMATED SCHEDULE FOR CLOSURE AT US ECOLOGY NEVADA

TASK	ESTIMATED TIME PERIOD
Contractor and Equipment Arrive at Facility	Day 0
Complete Treatment or Disposal of Waste Inventory	Day 90
Complete Closure of Landfill	Day 180 *
Complete Closure of Treatment & Storage Units (all units except the Evaporation Pad)	Day 178 *
Complete Equipment Decontamination and Evaporation Pad Closure	Day 180
Final Inspection and Certification of Compliance with Closure Plan by Registered Professional Engineer (P.E.)	Day 240

* Closure of units, as considered in the cost estimate, will proceed simultaneously because an outside contractor will perform closure. The only unit that is addressed separately is the Evaporation Pad, which will be the last unit to be dismantled to allow the third party performing closure to use it for equipment decontamination.

TABLE 16-3

CLEAN CLOSURE DEMONSTRATION PARAMETERS

UNIT	PARAMETERS
PCB Processing Building and RCRA Storage Area CA1 / PCB Tank Farm	PCBs, TOC and Eight RCRA Metals
Batch Stabilization Units	PCBs, TOC and Eight RCRA Metals
Evaporation Pad	PCBs, TOC and Eight RCRA Metals
Waste Consolidation and Storage Area 2	PCBs, TOC and Eight RCRA Metals
Dry Hazardous Waste Storage Areas 1 and 2	Eight RCRA Metals
Low Temperature Thermal Desorption	TOC and Eight RCRA Metals
Container Management Building	PCBs, TOC and Eight RCRA Metals
Truck Parking Storage Area	PCBs, TOC and Eight RCRA Metals

APPENDIX 16-A

CLOSURE COST ESTIMATE

ndep
NEVADA DIVISION OF ENVIRONMENTAL PROTECTION
protecting the future for generations

STATE OF NEVADA
Department of Conservation & Natural Resources
DIVISION OF ENVIRONMENTAL PROTECTION

Jim Gibbons, Governor
Allen Biaggi, Director
Leo M. Drozdoff, P.E., Administrator

November 18, 2010

Mr. Bob Marchand
General Manager
US Ecology Nevada, Inc.
PO Box 578
Beatty, NV 89003

RE: Notice of Acceptance - Closure and Post-Closure Cost Estimate
EPA ID# NVT330010000 **RCRA Permit NEVHW0019**

Dear Mr. Marchand:

The Nevada Division of Environmental Protection – Bureau of Waste Management (NDEP-BWM) has reviewed the *Closure and Post-Closure Cost Estimate* recently submitted for the US Ecology Nevada (USEN) hazardous waste management facility near Beatty, Nevada. The referenced cost estimate, which was prepared by AquAeTer, Inc. on behalf of USEN using US EPA's *CostPro 6.0* closure and post-closure cost estimating software, was submitted electronically by email on November 12, 2010.

The submitted cost estimate in the amount of **$10,205,956.90** is the result of several revisions to the closure estimate initially provided in support of USEN's October 2009 RCRA Part B Permit Application. The November 12, 2010 *CostPro* estimate is deemed to reflect the current conditions at the Beatty facility and is hereby accepted. The closure cost estimate will be subject to annual reviews and respective updates at each 5-year RCRA permit renewal and any interim permit modifications.

The NDEP acknowledges and appreciates the cooperative effort provided by USEN and AquAeTer in addressing the comments from the iterative reviews of the previously submitted cost estimates. If you have any questions regarding this matter or if we can be of any other assistance, please contact Sree Kailash at (775) 687-9471, or me at (775) 687-9465.

Sincerely,

M. Leigh

Mike Leigh, P.E.
Supervisor, RCRA Facilities Branch
Bureau of Waste Management

ML:jm

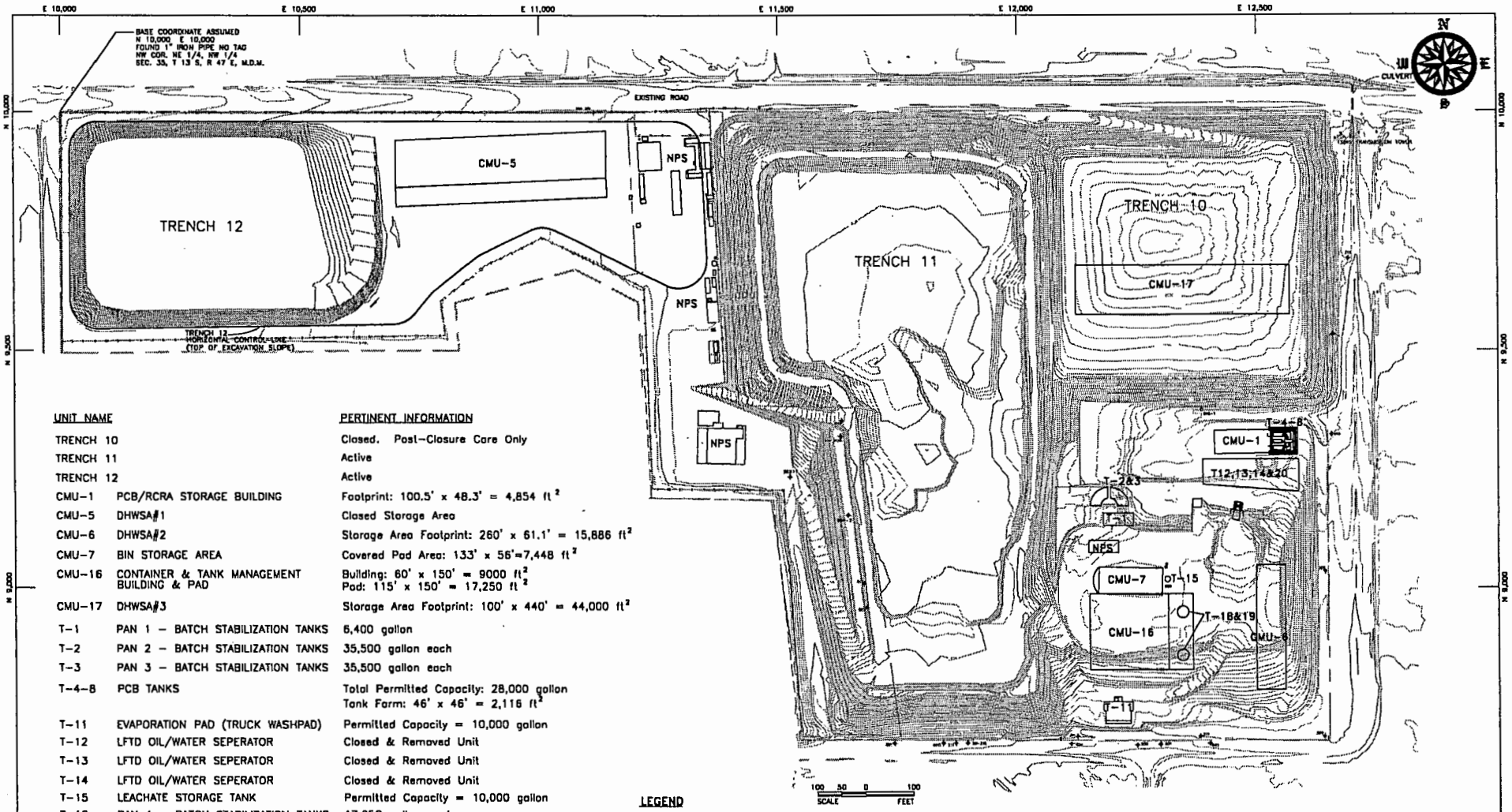
cc: File

ec: Eric Noack, Chief, NDEP-BWM
Sree Kailash, NDEP-BWM
Lisa Fleming, NDEP-OFPM
Simon Bell, US Ecology (SBELL@usecology.com)
Chris Bolin, AquAeTer (cbolin@aquaeter.com)

Closure Cost

Item No.	Item	CostPro Estimate
Trench 11	Trench 11	$604,377
Trench 12	Trench 12	$1,771,798
CMU #1	PCB Bulding	$255,592
CMU #5	Dry Hazardous Waste Storage Area #1	$4,655
CMU #6	Dry Hazardous Waste Storage Area #2	$392,646
CMU #7	Bin Storage Area	$261,086
CMU #8	Lab Waste Storage Area	Included within Non-permitted structures
CMU #16	Container Management Building	$587,572
CMU #17	Dry Hazardous Waste Storage Area #3	$1,071,192
T-1, T-2, T-3, T-18, and T-19	Stabilization Tanks (Pans 1, 2, 3, 4, and 5)	$65,515
T-4, T-5, T-6, T-7, and T-8	PCB Tanks	$153,027
T-12, T-13, T-14, and T-20	LTTD Oil/Water Separator	$4,655
T-11	Evaporation Tank and Truck Wash	$69,458
T-15	Leachate Storage Tank	$24,952
	Non-Permitted Structures	$142,830
	Post-Closure Care	$4,798,683
	TOTAL FACILITY CLOSURE COST ESTIMATE	**$10,208,038**

Prepared: October 26, 2010



UNIT NAME		PERTINENT INFORMATION
TRENCH 10		Closed. Post-Closure Care Only
TRENCH 11		Active
TRENCH 12		Active
CMU-1	PCB/RCRA STORAGE BUILDING	Footprint: 100.5' x 48.3' = 4,854 ft^2
CMU-5	DHWSA#1	Closed Storage Area
CMU-6	DHWSA#2	Storage Area Footprint: 260' x 61.1' = 15,886 ft^2
CMU-7	BIN STORAGE AREA	Covered Pad Area: 133' x 56'=7,448 ft^2
CMU-16	CONTAINER & TANK MANAGEMENT BUILDING & PAD	Building: 60' x 150' = 9000 ft^2 Pad: 115' x 150' = 17,250 ft^2
CMU-17	DHWSA#3	Storage Area Footprint: 100' x 440' = 44,000 ft^2
T-1	PAN 1 - BATCH STABILIZATION TANKS	6,400 gallon
T-2	PAN 2 - BATCH STABILIZATION TANKS	35,500 gallon each
T-3	PAN 3 - BATCH STABILIZATION TANKS	35,500 gallon each
T-4-8	PCB TANKS	Total Permitted Capacity: 28,000 gallon Tank Farm: 46' x 46' = 2,116 ft^2
T-11	EVAPORATION PAD (TRUCK WASHPAD)	Permitted Capacity = 10,000 gallon
T-12	LFTD OIL/WATER SEPERATOR	Closed & Removed Unit
T-13	LFTD OIL/WATER SEPERATOR	Closed & Removed Unit
T-14	LFTD OIL/WATER SEPERATOR	Closed & Removed Unit
T-15	LEACHATE STORAGE TANK	Permitted Capacity = 10,000 gallon
T-18	PAN 4 - BATCH STABILIZATION TANKS	17,250 gallon each
T-19	PAN 5 - BATCH STABILIZATION TANKS	17,250 gallon each
T-20	LFTD OIL/WATER SEPERATOR	Closed & Removed Unit
NPS	NON-PERMITTED STRUCTURES	

LEGEND

- HORIZONTAL CONTROL LINE
- PERMIT LINE
- DRAINAGE DITCH AND DIRECTION OF FLOW
- PROPERTY LINE
- FENCE LINE
- MONITOR WELL LOCATION AND NUMBER
- SOIL VAPOR EXTRACTION WELL
- 1' CONTOUR INTERVAL, FEET (MSL)
- 5' CONTOUR INTERVAL, FEET (MSL)

an American Ecology company

PROJECT NUMBER: 083140 DATE: 11/12/10

BEATTY NEVADA
HAZARDOUS WASTE MANAGEMENT FACILITY

PERMITTED UNIT IDENTIFICATION
TRENCH 12

CAD FILE NAME: F:\Data\083140 - USEN Closure Estimates\CostPro\Rev 3 - USEN 2010-10-15\NV12-07-002.dwg PLOT DATE: 11/12/10

USEN Facility
NVT330010000

Address: P.O. Box 578
Beatty
NEVADA
89003

Contact: Bob Marchand
800.239.3943

Comments:

Activity	Units	Closure Cost
Containment Buildings	4	$372,067.75
Container Storage Area	6	$2,346,078.73
Landfills	2	$2,376,175.10
Post Closure Care	3	$4,798,682.78
Tank Systems	4	$312,952.54
		$10,205,956.90

Additional Costs $0.00

Total Estimated Cost **$10,205,956.90**