Appendix B-8

Post Closure Care Plan

Revised March 2016

POST-CLOSURE CARE PLAN

(Applies to Scheduled and Unscheduled Closure Plans)

US ECOLOGY NEVADA

March 2010

Revised March 2016

POST-CLOSURE CARE PLAN

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17.0 POST-CLOSURE CARE PLAN

The post-closure care period begins upon closure of the facility and continues for 30 years. Should US Ecology Nevada (USEN) determine at any time during the post-closure care period that any of the monitoring or maintenance activities are no longer necessary or that revisions to the approved plan are required, the facility operator will petition the Nevada Division of Environmental Protection (NDEP) Administrator and the Permits Section, Land Division, US EPA Region IX, for a modification to the plan. The modification request will be submitted at least 60 days prior to the proposed change.

A detailed description of the post-closure care activities at the facility is provided in the following sections.

17.1.0 INSPECTION AND MAINTENANCE ACTIVITIES

The post-closure plan calls for quarterly inspections of the final cover system and other facility features, until a less frequent inspection schedule is warranted by site performance. Less frequent inspections of other facility features may be appropriate, but for the sake of convenience, they will be performed concurrently with inspections of the final cover.

17.1.1 Maintenance of Final Cover

The surface of the closed landfill cells will be inspected quarterly for subsidence, cracking, vegetative stress, burrowing animals or erosion. Cracks, depressions, animal burrows and erosion ditches will be filled as necessary with site soils (from excess materials stockpiled on site), and compacted.

After installation of the final cover, there will be no need to control run-off from the disposal unit, since the landfilled waste will be completely isolated.

17.1.2 Maintenance and Protection of Surveyed Benchmarks

The two reference points forming the base of the facility grid system and the benchmark used for vertical control shall be preserved and protected by converting them to permanent markers at the beginning of the post-closure period. The resulting structures shall be visible and outside of any traffic routes.

17.1.3 Installation and Maintenance of Run-On Controls

The facility's run-on control systems will be inspected quarterly for any condition that could prevent their proper functioning, and repaired as needed.

17.1.4 Maintenance and Inspection of Security Control Devices

Existing fences, gates and signs will remain in place to restrain access to the facility and as points of reference. These will be inspected concurrently with other facility features described in this plan, and repaired or replaced, as necessary.

17.1.5 Maintenance and Inspection of Monitoring Wells System

Because the monitoring wells will not be used for water production, it is unlikely that the well screens will clog to such an extent as to prevent the collection of representative samples. The post-closure plan provides for replacement of one well pump per year. This maintenance would be performed during a regularly scheduled semi- annual sampling event, so no additional man-hours are anticipated. The facility water supply well will be sampled on the same schedule as other monitoring wells at the facility. The water supply well will be maintained as the source of on-site maintenance water. The monitoring wells are provided with locks to minimize the risk of vandalism.

17.1.6 Maintenance and Inspection of Leachate Collection and Removal System

Inspection of the leachate collection sump risers to identify damage and maintenance needs will be conducted quarterly while inspecting the landfill cap and other site features.

All leachate pumped from the collection sumps during the post-closure period will be stored in totes or other approved containers and be transported off-site to a facility authorized to accept F039 waste.

17.2.0 FACILITY MONITORING

Post-closure monitoring is required and is assumed for cost estimating purposes to proceed in the same manner described for the facility's active life.

17.2.1 Leachate Monitoring

Monitoring of the leachate detection system sumps and recording of sump liquid levels initially will be conducted monthly. The monitoring/recording frequency will be reduced to a quarterly if the liquid level in the sump stays below the pump operating level for two consecutive months. After two consecutive quarters of recording sump liquid levels below pump operating level, monitoring/recording frequency will be changed to semi-annual. If, at any time during the post-closure period (while following the quarterly or semi-annual schedules), the sump liquid levels exceed the pump operating level, the unit will be returned to monthly monitoring until the liquid level stays below pump operating level for two consecutive months.

For the purpose of calculating the cost associated with monitoring of liquid detection sumps, it is assumed that monthly monitoring will be required throughout the first year after completion of facility closure. After the first year, the monitoring/recording frequency will be reduced to quarterly, as the presence of leachate in the sumps is expected to diminish significantly, and the liquid level in the sumps is likely to stay below the pump operating level. The sumps will be monitored quarterly during the second year following closure completion. Thereafter, monitoring of the sumps will be conducted semi-annually. The actual change in monitoring frequency will be determined by sump and leachate performance.

Records of leachate generation rates will be analyzed in each post closure report to determine whether there is a statistically significant increase in the rates.

17.2.2 Groundwater Monitoring

The latest revision of the Groundwater Monitoring Plan will be used as the basis for monitoring during the Post Closure Care period. The Plan includes system configuration, parameters to be monitored for, and groundwater sampling and analysis procedures. The Plan also is used to determine the groundwater monitoring costs expected during the Post Closure Care period.

17.2.3 Lysimeter Monitoring

A drainage Lysimeter was constructed during the closure of Trench 11. The lysimeter provides performance monitoring of the alternate final cover system. The drainage Lysimeter is used to verify that unacceptable infiltration of moisture does not penetrate the landfill cover. The Lysimeter will be monitored to determine whether rainwater and snowmelt are infiltrating the cover.

For the purpose of calculating the cost associated with monitoring of Lysimeters, it is assumed that semi-annual monitoring and data evaluation will be required and an annual performance evaluation will be required for a period of ten years following closure. The 10-year period is intended to allow for monitoring and documentation through weather cycles that should be sufficient in number to experience widely varying climate events. If periods of above-average precipitation (e.g., yearly averages or single storm events that exceed historical averages) occur over a shorter period than 10 years, and if cover performance has been acceptable, USEN might make a justification to end use of the lysimeter for cover performance monitoring after a period shorter than 10 years. In addition, an equipment maintenance inspection shall be performed every other year to ensure proper equipment performance.

17.3.0 POST-CLOSURE CONTACT

The contact for information at any time during the post-closure care period will be:
Director of Environmental Affairs

US Ecology, Inc.
251 East Front Street, Suite 400
Boise, Idaho 83702
(800) 590-5220

17.4.0 SURVEY PLAT

No later than the date when the landfill closure certification is submitted, USEN, will submit to the NDEP Administrator and the Recorder's Office of Nye County, Nevada, a survey plat indicating the location and dimensions of all Landfill cells with respect to permanently surveyed benchmarks. The plat will be prepared and certified by a professional land surveyor, and will contain a note, prominently displayed, stating USEN's obligation to restrict disturbance in accordance with the requirements of 40 CFR 264.117(c).

17.5.0 POST-CLOSURE NOTICES

By contractual agreement with the facility owner (The State of Nevada), the facility will revert to state control at the time of closure and the State will provide post closure care using funds already set aside for this purpose.

No later than 60 days after certification of landfill closure, USEN will submit to the NDEP Administrator, and the Recorder's Office of Nye County, Nevada, a record of the type, location and quantities of hazardous waste disposed of within each cell.

Within 60 days after closure certification, a notation will be recorded on the facility deed, (as recorded in the Recorder's Office of Nye County, Nevada) that will notify potential purchasers that:

- The property has been used for disposal of hazardous waste, and
- The use of the property is restricted under 40 CFR 264.117(c) (relating to Post- Closure Care and Use of Property), and
- The survey plat and record of the type, location, and quantity of hazardous wastes disposed of within each Landfill cell have been filed with the Recorder's Office of Nye County, Nevada, and with the NDEP Administrator.

A certification, signed by a company representative, will be submitted to the Administrator stating that the above notation has been recorded in the facility deed. A copy of the deed will be provided with the certification.

17.6.0 POST-CLOSURE CERTIFICATION

Within 60 days of completion of the post-closure care period, USEN will submit to the NDEP Administrator and to the Permits Section, Land Division, US EPA Region IX, a certification attesting that the post-closure care period for the hazardous waste disposal unit was performed in accordance with specifications of the approved post-closure plan. The certification will be signed by a facility representative, and by an independent professional engineer, registered in the State of Nevada.

17.7.0 POST-CLOSURE CARE COST ESTIMATE

The cost estimate for post-closure care activities of the disposal units at USEN facility is included as Appendix 17-A.

17.8.0 PLAN MODIFICATIONS

USEN will submit a written notification of, or request for a permit modification to authorize a change in the approved Post-Closure Plan if:

- Changes in operating plans or facility design affect the approved plan, or
- There is a change in the expected year of final closure, or
- Events which occur during the active life of the facility affect the plan.

The request for permit modification will be submitted at least 60 days prior to the proposed change in facility design or operation, or no later than 60 days after an unexpected event which requires revisions to the approved plan.

APPENDIX 17-A

POST-CLOSURE CARE COST ESTIMATE

Cost estimate for post-closure care is included in the NDEP's CostPro cost estimating program.

Facility: USEN Facility **Unit:** Trench 13 (Facility covered under T11) 11/30/2015

Post-Closure Care Summary (PC_01-1)

Removal of Leachate (PC-02)	$0.00	
Site Security (PC-03)	$0.00	
Maintenance of Vegetative Cover (PC-04)	$0.00	
Maintenance and Inspection (PC-05)	$0.00	
Groundwater Monitoring(PC-06)	$0.00	
Deed Notation (PC-07)	$0.00	
Maintenance and Inspection of Asphalt Cover (PC-8)	$0.00	
Surface Emission Monitoring (PC-09)	$0.00	
Gas Extraction System and Perimeter Probe Monitoring (PC-10)	$0.00	
User Defined Cost (UD-01)	$0.00	
Subtotal of Post-Closure Costs	$0.00	
Percentage of Engineering Expenses	8.0	%
Engineering Expenses	$0.00	
Certification of Post-Closure (PC-11)	$0.00	
Subtotal	$0.00	
Percentage of Contingency Allowance	15.0	%
Contingency Allowance	$0.00	
TOTAL COST OF POST-CLOSURE CARE	$0.00	

Post-Closure Care Summary (PC_01-1)

Removal of Leachate (PC-02)	$56,430.00	
Site Security (PC-03)	$66,360.00	
Maintenance of Vegetative Cover (PC-04)	$0.00	
Maintenance and Inspection (PC-05)	$72,392.20	
Groundwater Monitoring(PC-06)	$3,363,023.76	
Deed Notation (PC-07)	$6,684.40	
Maintenance and Inspection of Asphalt Cover (PC-8)	$0.00	
Surface Emission Monitoring (PC-09)	$0.00	
Gas Extraction System and Perimeter Probe Monitoring (PC-10)	$0.00	
User Defined Cost (UD-01)	$379,880.00	
Subtotal of Post-Closure Costs	$3,944,770.36	
Percentage of Engineering Expenses	8.0	%
Engineering Expenses	$315,581.63	
Certification of Post-Closure (PC-11)	$4,875.68	
Subtotal	$4,265,227.67	
Percentage of Contingency Allowance	15.0	%
Contingency Allowance	$639,784.15	
TOTAL COST OF POST-CLOSURE CARE	$4,905,011.82	

Facility: USEN Facility **Unit:** Trench 11 and Facility 11/30/2015

Post-Closure Care Rem. of Leachate (PC_02-1)

Volume of leachate to be removed per removal event	500.0	gal per Event
Number of leachate removal events per year	12	Events per yr
Volume of leachate to be removed per year	6,000.0	gal per Year
Cost to treat leachate per gallon	$1.14	per Gallon
Cost per year for removal of leachate	$6,840.00	per Year
Number of years in the post-closure care period	1	Years
TOTAL COST OF REMOVAL OF LEACHATE	$6,840.00	

Notes: Estimate assumes that average leachate production of 6000 gallons per year will occur in the first year following closure. Year 2 is covered under tab PC_02-2 and Years 3 to 30 are covered under PC_02-3. In Year 1 leachate monitoring and if necessary removal is expected to occur monthly.

Facility: USEN Facility **Unit:** Trench 11 and Facility 11/30/2015

Post-Closure Care Rem. of Leachate (PC_02-2)

Volume of leachate to be removed per removal event	1,125.0	gal per Event
Number of leachate removal events per year	4	Events per yr
Volume of leachate to be removed per year	4,500.0	gal per Year
Cost to treat leachate per gallon	$1.14	per Gallon
Cost per year for removal of leachate	$5,130.00	per Year
Number of years in the post-closure care period	1	Years
TOTAL COST OF REMOVAL OF LEACHATE	$5,130.00	

Notes: In Post Closure Year 2 the average leachate generation is estimated at 4500 gallons per year. In Year 2 leachate monitoring and if necessary removal is expected to occur quarterly.

Facility: USEN Facility **Unit:** Trench 11 and Facility 11/30/2015

Post-Closure Care Rem. of Leachate (PC_02-3)

Volume of leachate to be removed per removal event	1,500.0	gal per Event
Number of leachate removal events per year	2	Events per yr
Volume of leachate to be removed per year	3,000.0	gal per Year
Cost to treat leachate per gallon	$1.14	per Gallon
Cost per year for removal of leachate	$3,420.00	per Year
Number of years in the post-closure care period	13	Years
TOTAL COST OF REMOVAL OF LEACHATE	$44,460.00	

Notes: See note on PC_02-1. In Post Closure Years 3 to 15 the average leachate generation is estimated at 3000 gallons per year. In Years 3 to 15 leachate monitoring and if necessary removal is expected to occur semi-annually. After Year 15 leachate assumed not to be present in pumpable quantities.

Facility: USEN Facility **Unit:** Trench 11 and Facility 11/30/2015

Post-Closure Care Site Security (PC_03-1)

FENCING

Length of fencing	3,000.0	ft
Labor, materials, and equipment cost per ft	$22.12	per ft
Cost to Fence Site	$66,360.00	

CORNER POSTS

Number of corner posts required	0	Posts
Cost per corner post	$151.38	per Post
Cost to Erect Corner Posts	$0.00	

GATES

Number of gates required	0	Gates
Labor, materials, and equipment cost per gate	$344.05	per Gate
Cost to Install Gates	$0.00	

REFLECTOR SIGNS

Number of signs required	0	Signs
Labor, materials, and equipment cost per sign	$113.04	per Sign
Cost to Install Signs	$0.00	
TOTAL COST OF SITE SECURITY	$66,360.00	

Notes: Assumed fencing and fence repair during post closure.

Facility: USEN Facility **Unit:** Trench 11 and Facility 11/30/2015

Post-Closure Care Rep. and Insp. of Veg. Cover (PC_05-1)

MAINTENANCE AND REPAIR OF FINAL COVER

Cost of installing undifferentiated fill	$0.00	
Cost of installing clay layer	$0.00	
Cost of installing geomembrane	$0.00	
Cost of installing drainage layer	$0.00	
Cost of installing earthen layer	$300,032.00	
Cost of installing topsoil	$0.00	
Cost of installing colloid clay layer	$0.00	
Total cost of installing final cover	$300,032.00	
Maintenance and repair factor	20.0	%
Cost to Maintain and Repair Final Cover	$60,006.40	

POST-CLOSURE CARE INSPECTION

Cost of conducting one inspection	$206.43	per Inspection
Number of inspections per year	2	Inspections per Year
Cost of conducting post-closure care inspections per year	$412.86	per Year
Number of years in post-closure care period	30	Years
Cost to Conduct Inspections Over the Post-Closure Care Period	$12,385.80	
TOTAL COST OF REPAIR AND INSPECTION	$72,392.20	

Notes: Total Cover area = 780350 ft2
Cover Depth = 2 Feet
Slope correction factor (3:1) = 1.16
Total Cover Volume = 67052 CYD
Cover Construction Cost = 67053CYD*(3.25+0.50 dollars/CYD) = 251449 dollars (11/12/15 costs provided by LVP)
Mobilization = 48586 dollars
Total Cover Cost = 300032 dollars

Post-Closure Care Groundwater Monit. (PC_06-3)

COLLECTION OF GROUNDWATER SAMPLES

Number of sampling locations	5	Sample Location
Choose the appropriate level of PPE	Protection Level D	
Labor and equipment cost per work hour	$144.67	per Work Hour
Work rate to collect samples from one sampling location	2.7000	Work hr per Location
Number of hours required to collect all samples	13.5	Work hrs
Cost to Collect Groundwater Samples per Event	$1,953.04	per Event

ANALYSIS OF GROUNDWATER SAMPLES

Cost to Analyze Groundwater Samples per Event	$4,060.00	per Event

TOTAL GROUNDWATER MONITORING FOR POST-CLOSURE CARE PERIOD

Cost of Sampling and Analysis of Groundwater for Post-Closure	$6,013.04	per Event
Number of sampling events per year	1	Events per yr
Number of years of groundwater monitoring during the post-closure care period	15	Years
TOTAL COST OF GROUNDWATER MONITORING	$90,195.60	

Notes: Sampling of Leachate during Post Closure

Assumption that following closure no new waste is being added and leachate production decreases. Assumed that leachate is no longer available to sample after 15 years.

CostPro default assumes four hours per well. Use actual of 2.7 hours per well per USEN experience.

In lieu of CostPro Defaults actual analytical costs estimated (2016 estimated costs) by Asset Laboratories of Las Vegas have been used as. Sampling event total has been entered under acidity as a single cost for the entire event instead of specifying costs for each analytical procedure. See attached Spreadsheet for a breakdown of the individual analytical procedure costs.

Post-Closure Care Groundwater Monit. (PC_06-2)

COLLECTION OF GROUNDWATER SAMPLES

Number of sampling locations	5	Sample Location
Choose the appropriate level of PPE	Protection Level D	
Labor and equipment cost per work hour	$144.67	per Work Hour
Work rate to collect samples from one sampling location	2.7000	Work hr per Location
Number of hours required to collect all samples	13.5	Work hrs
Cost to Collect Groundwater Samples per Event	$1,953.04	per Event

ANALYSIS OF GROUNDWATER SAMPLES

Cost to Analyze Groundwater Samples per Event	$6,560.00	per Event

TOTAL GROUNDWATER MONITORING FOR POST-CLOSURE CARE PERIOD

Cost of Sampling and Analysis of Groundwater for Post-Closure	$8,513.04	per Event
Number of sampling events per year	1	Events per yr
Number of years of groundwater monitoring during the post-closure care period	24	Years
TOTAL COST OF GROUNDWATER MONITORING	$204,312.96	

Notes: CostPro default assumes four hours per well. Use actual of 2.7 hours per well per USEN experience.
5 Supplemental monitoring wells.

In lieu of CostPro Defaults actual analytical costs estimated (2016 estimated costs) by Asset Laboratories of Las Vegas have been used as. Sampling event total has been entered under acidity as a single cost for the entire event instead of specifying costs for each analytical procedure. See attached Spreadsheet for a breakdown of the individual analytical procedure costs.

Sampling for 5 Supplimental wells occurs once every 5 quarters. Once every 5 quarters equals 24 sampling events in 30 years. 24 is entered as number of sampling years.

Post-Closure Care Groundwater Monit. (PC_06-1)

COLLECTION OF GROUNDWATER SAMPLES

Number of sampling locations	18	Sample Location
Choose the appropriate level of PPE	Protection Level D	
Labor and equipment cost per work hour	$144.67	per Work Hour
Work rate to collect samples from one sampling location	2.7000	Work hr per Location
Number of hours required to collect all samples	48.6	Work hrs
Cost to Collect Groundwater Samples per Event	$7,030.96	per Event

ANALYSIS OF GROUNDWATER SAMPLES

Cost to Analyze Groundwater Samples per Event	$18,540.00	per Event

TOTAL GROUNDWATER MONITORING FOR POST-CLOSURE CARE PERIOD

Cost of Sampling and Analysis of Groundwater for Post-Closure	$25,570.96	per Event
Number of sampling events per year	4	Events per yr
Number of years of groundwater monitoring during the post-closure care period	30	Years
TOTAL COST OF GROUNDWATER MONITORING	$3,068,515.20	

Notes: CostPro default assumes four hours per well. Use actual of 2.7 hours per well per USEN experience.
Sample locations include
18 monitoring wells

In lieu of CostPro Defaults actual analytical costs estimated (2016 estimated costs) by Asset Laboratories of Las Vegas have been used as. Sampling event total has been entered under acidity as a single cost for the entire event instead of specifying costs for each analytical procedure. See attached Spreadsheet for a breakdown of the individual analytical procedure costs.

Post-Closure Care Deed Notation (PC_07-1)

Attorney fees	$1,769.40
Clerical and deed filing fees	$4,915.00
TOTAL COST OF DEED NOTATION	$6,684.40

Facility: USEN Facility **Unit:** Trench 11 and Facility 11/30/2015

Certification of Completion of Post-Closure Care (PC_11-1)

Number of units requiring certification of completion of post-closure care	1	Units
Cost of certification of completion of post-closure care per unit	$4,875.68	per Unit
TOTAL COST OF CERTIFICATION OF POST-CLOSURE CARE	$4,875.68	

User Defined Activity (UD_01-5)

NAME OF CLOSURE OR POST-CLOSURE ACTIVITY	Leachate Transport	
Number of units of work to be performed	0	
Type of unit	Tons	
Appropriate level of PPE	Protection Level B	
Labor, material, and equipment cost per work hour	$0.00	
Work rate to perform one unit of activity	0.0000	Work hrs per Unit
Number of hours required to perform activity	0.0	Work hrs
Additional cost per unit	$0.00	per Unit
Cost to conduct activity	$0.00	

Other cost(s) associated with this activity

Description of other costs	0
Cost	$25,380.00
Description of other costs	0
Cost	$0.00
Description of other costs	0
Cost	$0.00
Description of other costs	0
Cost	$0.00
Description of other costs	0
Cost	$0.00
TOTAL COST OF USER DEFINED ACTIVITY	$25,380.00

Notes: Leachate Removal
Year 1 = 6000 gallons per year.
Year 2 = 4500 gallons per year
Years 3 to 15 estimated at 3000 gallons per year.
No pumpable leachate after Year 15
Total leachate removal associated with Trench 11 over the 30 year post-closure care period = 49500 gallons.
CostPro default tanker load is 6900 gallons
Assume leachate is removed once a year regardless of full load thus 15 total loads

CostPro default tanker load cost is 5.64 dollars/mile/load.
Assume 300 miles to Siemens Water Treatment in Vernon CA
15 loads x 5.64/load/mile x 300 miles = 25380 dollars over the 30 year post closure care period.

User Defined Activity (UD_01-4)

NAME OF CLOSURE OR POST-CLOSURE ACTIVITY	Lysimeter Monitoring	
Number of units of work to be performed	10	
Type of unit	Tons	
Appropriate level of PPE	Protection Level B	
Labor, material, and equipment cost per work hour	$0.00	
Work rate to perform one unit of activity	0.0000	Work hrs per Unit
Number of hours required to perform activity	0.0	Work hrs
Additional cost per unit	$12,500.00	per Unit
Cost to conduct activity	$125,000.00	

Other cost(s) associated with this activity

Description of other costs	0
Cost	$0.00
Description of other costs	0
Cost	$0.00
Description of other costs	0
Cost	$0.00
Description of other costs	0
Cost	$0.00
Description of other costs	0
Cost	$0.00
TOTAL COST OF USER DEFINED ACTIVITY	$125,000.00

Notes: Lysimeter data evalations are estimated at semi-annual for a period of ten years (3000 per event or 6000 per year)
Lysimeter performance evaluations are extimated at annually for a period of ten years (5000 per year)
Lysimeter inspeciton and maintenance is expected every other year (3000 every other year or 1500 per year)
Costs are annualized at 12500 per year for ten years.
Sufficeint data collection expected to determine performance of alternative final cover in a 10 year period.
No removal necessary. Equipment has value and is not included as a cost to remove.

Facility: USEN Facility **Unit:** Trench 11 and Facility 11/30/2015

User Defined Activity (UD_01-3)

NAME OF CLOSURE OR POST-CLOSURE ACTIVITY	SVE-01 Closure	
Number of units of work to be performed	1	
Type of unit	Tons	
Appropriate level of PPE	Protection Level B	
Labor, material, and equipment cost per work hour	$0.00	
Work rate to perform one unit of activity	0.0000	Work hrs per Unit
Number of hours required to perform activity	0.0	Work hrs
Additional cost per unit	$0.00	per Unit
Cost to conduct activity	$0.00	

Other cost(s) associated with this activity

Description of other costs	Mobilization
Cost	$4,000.00
Description of other costs	Abandonment
Cost	$2,500.00
Description of other costs	GAC disposal
Cost	$3,000.00
Description of other costs	0
Cost	$0.00
Description of other costs	0
Cost	$0.00
TOTAL COST OF USER DEFINED ACTIVITY	$9,500.00

Notes: SVE Well Abandonment at 25/ft

User Defined Activity (UD_01-2)

NAME OF CLOSURE OR POST-CLOSURE ACTIVITY	Replacement of Leachate Pumps	
Number of units of work to be performed	4	
Type of unit	Tons	
Appropriate level of PPE	Protection Level B	
Labor, material, and equipment cost per work hour	$0.00	
Work rate to perform one unit of activity	0.0000	Work hrs per Unit
Number of hours required to perform activity	0.0	Work hrs
Additional cost per unit	$10,000.00	per Unit
Cost to conduct activity	$40,000.00	

Other cost(s) associated with this activity

Description of other costs	0
Cost	$0.00
Description of other costs	0
Cost	$0.00
Description of other costs	0
Cost	$0.00
Description of other costs	0
Cost	$0.00
Description of other costs	0
Cost	$0.00
TOTAL COST OF USER DEFINED ACTIVITY	$40,000.00

Notes: Each Leachate pump is assumed to need replacement at least once during Post Closure Care

User Defined Activity (UD_01-1)

NAME OF CLOSURE OR POST-CLOSURE ACTIVITY	Well Pump Replacement	
Number of units of work to be performed	30	
Type of unit	Tons	
Appropriate level of PPE	Protection Level B	
Labor, material, and equipment cost per work hour	$0.00	
Work rate to perform one unit of activity	0.0000	Work hrs per Unit
Number of hours required to perform activity	0.0	Work hrs
Additional cost per unit	$6,000.00	per Unit
Cost to conduct activity	$180,000.00	

Other cost(s) associated with this activity

Description of other costs	0
Cost	$0.00
Description of other costs	0
Cost	$0.00
Description of other costs	0
Cost	$0.00
Description of other costs	0
Cost	$0.00
Description of other costs	0
Cost	$0.00
TOTAL COST OF USER DEFINED ACTIVITY	$180,000.00

Notes: Replacement of a 2 inch low flow pump. Assume each pump will be replaced once during post closure period.

Facility: USEN Facility **Unit:** Trench 12 (Facility covered under T11) 11/30/2015

Post-Closure Care Summary (PC_01-1)

Removal of Leachate (PC-02)	$56,430.00	
Site Security (PC-03)	$0.00	
Maintenance of Vegetative Cover (PC-04)	$0.00	
Maintenance and Inspection (PC-05)	$55,123.20	
Groundwater Monitoring(PC-06)	$0.00	
Deed Notation (PC-07)	$6,684.40	
Maintenance and Inspection of Asphalt Cover (PC-8)	$0.00	
Surface Emission Monitoring (PC-09)	$0.00	
Gas Extraction System and Perimeter Probe Monitoring (PC-10)	$0.00	
User Defined Cost (UD-01)	$25,380.00	
Subtotal of Post-Closure Costs	$143,617.60	
Percentage of Engineering Expenses	8.0	%
Engineering Expenses	$11,489.41	
Certification of Post-Closure (PC-11)	$4,875.68	
Subtotal	$159,982.69	
Percentage of Contingency Allowance	15.0	%
Contingency Allowance	$23,997.40	
TOTAL COST OF POST-CLOSURE CARE	$183,980.09	

Facility: USEN Facility **Unit:** Trench 12 (Facility covered under T11) 11/30/2015

Post-Closure Care Rem. of Leachate (PC_02-1)

Volume of leachate to be removed per removal event	1,500.0	gal per Event
Number of leachate removal events per year	4	Events per yr
Volume of leachate to be removed per year	6,000.0	gal per Year
Cost to treat leachate per gallon	$1.14	per Gallon
Cost per year for removal of leachate	$6,840.00	per Year
Number of years in the post-closure care period	1	Years
TOTAL COST OF REMOVAL OF LEACHATE	$6,840.00	

Notes: Estimate assumes that average leachate production of 6000 gallons per year will occur in the first year following closure. Year 2 is covered under tab PC_02-2 and Years 3 to 30 are covered under PC_02-3. In Year 1 leachate monitoring and if necessary removal is expected to occur monthly.

Facility: USEN Facility **Unit:** Trench 12 (Facility covered under T11) 11/30/2015

Post-Closure Care Rem. of Leachate (PC_02-2)

Volume of leachate to be removed per removal event	1,125.0	gal per Event
Number of leachate removal events per year	4	Events per yr
Volume of leachate to be removed per year	4,500.0	gal per Year
Cost to treat leachate per gallon	$1.14	per Gallon
Cost per year for removal of leachate	$5,130.00	per Year
Number of years in the post-closure care period	1	Years
TOTAL COST OF REMOVAL OF LEACHATE	$5,130.00	

Notes: In Post Closure Year 2 the average leachate generation is estimated at 4500 gallons per year. In Year 2 leachate monitoring and if necessary removal is expected to occur quarterly.

Facility: USEN Facility **Unit:** Trench 12 (Facility covered under T11) 11/30/2015

Post-Closure Care Rem. of Leachate (PC_02-3)

Volume of leachate to be removed per removal event	1,500.0	gal per Event
Number of leachate removal events per year	2	Events per yr
Volume of leachate to be removed per year	3,000.0	gal per Year
Cost to treat leachate per gallon	$1.14	per Gallon
Cost per year for removal of leachate	$3,420.00	per Year
Number of years in the post-closure care period	13	Years
TOTAL COST OF REMOVAL OF LEACHATE	$44,460.00	

Notes: See note on PC_02-1. In Post Closure Years 3 to 15 the average leachate generation is estimated at 3000 gallons per year. In Years 3 to 15 leachate monitoring and if necessary removal is expected to occur semi-annually. After Year 15 leachate assumed not to be present in pumpable quantities.

Facility: USEN Facility **Unit:** Trench 12 (Facility covered under T11) 11/30/2015

Post-Closure Care Rep. and Insp. of Veg. Cover (PC_05-1)

MAINTENANCE AND REPAIR OF FINAL COVER

Cost of installing undifferentiated fill	$0.00	
Cost of installing clay layer	$0.00	
Cost of installing geomembrane	$0.00	
Cost of installing drainage layer	$0.00	
Cost of installing earthen layer	$213,687.00	
Cost of installing topsoil	$0.00	
Cost of installing colloid clay layer	$0.00	
Total cost of installing final cover	$213,687.00	
Maintenance and repair factor	20.0	%
Cost to Maintain and Repair Final Cover	$42,737.40	

POST-CLOSURE CARE INSPECTION

Cost of conducting one inspection	$206.43	per Inspection
Number of inspections per year	2	Inspections per Year
Cost of conducting post-closure care inspections per year	$412.86	per Year
Number of years in post-closure care period	30	Years
Cost to Conduct Inspections Over the Post-Closure Care Period	$12,385.80	
TOTAL COST OF REPAIR AND INSPECTION	$55,123.20	

Notes: Total Cover area = 555775 ft2
Cover Depth = 2 Feet
Slope Correction Factor (3:1) = 1.16
Total Cover Volume = 47755 CYD
Cover Cost = 47755 CYD*(3.25 + 0.50 dollars/CYD) = 179081 dollars (LVP Pricing Updated 11/12/15)
Mobilization = 34604 dollars
Total Cost = 213687 dollars

Facility: USEN Facility **Unit:** Trench 12 (Facility covered under T11) 11/30/2015

Post-Closure Care Deed Notation (PC_07-1)

Attorney fees	$1,769.40
Clerical and deed filing fees	$4,915.00
TOTAL COST OF DEED NOTATION	$6,684.40

Facility: USEN Facility **Unit:** Trench 12 (Facility covered under T11) 11/30/2015

Certification of Completion of Post-Closure Care (PC_11-1)

Number of units requiring certification of completion of post-closure care	1	Units
Cost of certification of completion of post-closure care per unit	$4,875.68	per Unit
TOTAL COST OF CERTIFICATION OF POST-CLOSURE CARE	$4,875.68	

Facility: USEN Facility **Unit:** Trench 12 (Facility covered under T11) 11/30/2015

User Defined Activity (UD_01-1)

NAME OF CLOSURE OR POST-CLOSURE ACTIVITY	Leachate Transportation	
Number of units of work to be performed	0	
Type of unit	Tons	
Appropriate level of PPE	Protection Level B	
Labor, material, and equipment cost per work hour	$0.00	
Work rate to perform one unit of activity	0.0000	Work hrs per Unit
Number of hours required to perform activity	0.0	Work hrs
Additional cost per unit	$0.00	per Unit
Cost to conduct activity	$0.00	

Other cost(s) associated with this activity

Description of other costs	Leachate Transportation
Cost	$25,380.00
Description of other costs	0
Cost	$0.00
Description of other costs	0
Cost	$0.00
Description of other costs	0
Cost	$0.00
Description of other costs	0
Cost	$0.00
TOTAL COST OF USER DEFINED ACTIVITY	$25,380.00

Notes: Leachate Removal
Year 1 = 6000 gallons per year.
Year 2 = 4500 gallons per year
Years 3 to 15 estimated at 3000 gallons per year.
No pumpable leachate after Year 15
Total leachate removal associated with Trench 11 over the 30 year post-closure care period = 49500 gallons.
CostPro default tanker load is 6900 gallons
Assume leachate is removed once a year regardless of full load thus 15 total loads

CostPro default tanker load cost is 5.64 dollars/mile/load.
Assume 300 miles to Siemens Water Treatment in Vernon CA
15 loads x 5.64/load/mile x 300 miles = 25380 dollars over the 30 year post closure care period.

Facility: USEN Facility **Unit:** Trench 10 (Cover Maintenance) 11/30/2015

Post-Closure Care Summary (PC_01-1)

Removal of Leachate (PC-02)	$0.00	
Site Security (PC-03)	$0.00	
Maintenance of Vegetative Cover (PC-04)	$0.00	
Maintenance and Inspection (PC-05)	$38,087.80	
Groundwater Monitoring(PC-06)	$0.00	
Deed Notation (PC-07)	$6,684.40	
Maintenance and Inspection of Asphalt Cover (PC-8)	$0.00	
Surface Emission Monitoring (PC-09)	$0.00	
Gas Extraction System and Perimeter Probe Monitoring (PC-10)	$0.00	
User Defined Cost (UD-01)	$0.00	
Subtotal of Post-Closure Costs	$44,772.20	
Percentage of Engineering Expenses	8.0	%
Engineering Expenses	$3,581.78	
Certification of Post-Closure (PC-11)	$4,875.68	
Subtotal	$53,229.66	
Percentage of Contingency Allowance	15.0	%
Contingency Allowance	$7,984.45	
TOTAL COST OF POST-CLOSURE CARE	$61,214.11	

Facility: USEN Facility **Unit:** Trench 10 (Cover Maintenance) 11/30/2015

Post-Closure Care Rep. and Insp. of Veg. Cover (PC_05-1)

MAINTENANCE AND REPAIR OF FINAL COVER

Cost of installing undifferentiated fill	$0.00	
Cost of installing clay layer	$0.00	
Cost of installing geomembrane	$0.00	
Cost of installing drainage layer	$0.00	
Cost of installing earthen layer	$128,510.00	
Cost of installing topsoil	$0.00	
Cost of installing colloid clay layer	$0.00	
Total cost of installing final cover	$128,510.00	
Maintenance and repair factor	20.0	%
Cost to Maintain and Repair Final Cover	$25,702.00	

POST-CLOSURE CARE INSPECTION

Cost of conducting one inspection	$206.43	per Inspection
Number of inspections per year	2	Inspections per Year
Cost of conducting post-closure care inspections per year	$412.86	per Year
Number of years in post-closure care period	30	Years
Cost to Conduct Inspections Over the Post-Closure Care Period	$12,385.80	
TOTAL COST OF REPAIR AND INSPECTION	$38,087.80	

Notes: Total Cover area = 43080 SYD
Assumed Cover Repair Depth = 2 Feet
Total Cover Volume = 28720 CYD
Cover Construction Cost = 28720 CYD*(3.25 + 0.50 dollars/CYD) = 107700 dollars (LVP cost updated 11/12/15)
Mobilization Cost = 20810
Cover Construction Cost = 128510 dollars

Post-Closure Care Deed Notation (PC_07-1)

Attorney fees	$1,769.40
Clerical and deed filing fees	$4,915.00
TOTAL COST OF DEED NOTATION	$6,684.40

Facility: USEN Facility **Unit:** Trench 10 (Cover Maintenance) 11/30/2015

Certification of Completion of Post-Closure Care (PC_11-1)

Number of units requiring certification of completion of post-closure care	1	Units
Cost of certification of completion of post-closure care per unit	$4,875.68	per Unit
TOTAL COST OF CERTIFICATION OF POST-CLOSURE CARE	$4,875.68	

T-13

Facility: USEN Facility **Unit:** Trench 13 (Facility covered under T11) 11/30/2015

Post-Closure Care Summary (PC_01-1)

Removal of Leachate (PC-02)	$0.00	
Site Security (PC-03)	$0.00	
Maintenance of Vegetative Cover (PC-04)	$0.00	
Maintenance and Inspection (PC-05)	$0.00	
Groundwater Monitoring(PC-06)	$0.00	
Deed Notation (PC-07)	$0.00	
Maintenance and Inspection of Asphalt Cover (PC-8)	$0.00	
Surface Emission Monitoring (PC-09)	$0.00	
Gas Extraction System and Perimeter Probe Monitoring (PC-10)	$0.00	
User Defined Cost (UD-01)	$0.00	
Subtotal of Post-Closure Costs	$0.00	
Percentage of Engineering Expenses	8.0	%
Engineering Expenses	$0.00	
Certification of Post-Closure (PC-11)	$0.00	
Subtotal	$0.00	
Percentage of Contingency Allowance	15.0	%
Contingency Allowance	$0.00	
TOTAL COST OF POST-CLOSURE CARE	$0.00	