

Attachment #4 – Closure and Post-Closure

The annual report must include the following information:

1. Name and address of the facility;
2. Calendar year covered by the report;
3. Annual quantities, in tons, or volume in cubic yards, and estimated in-place density in pounds per cubic yard or solid waste handling, including recycling of appliances and car bodies;
4. The annual update of the required financial assurance mechanism; and
5. Training programs or procedures completed.

In accordance with the UAC, the Coop will apply for renewal of the facility's permit every ten years.

2.6 CLOSURE PLAN

2.6.1 Closure Schedule and Landfill Capacity

Each Landfill trench will be covered and closed as soon as the next trench as been prepared for use. Each trench will be approximately 20 feet deep, 150 feet wide at the top, 140 feet wide at the base, and 300 feet long, with a surface area of approximately one acre. The capacity of all 20 trenches, reduced by 10 percent for occasional cover, will be 580,000 cubic yards.

Using an average weight for compacted construction debris of 1,000 pounds per cubic yard, the total Landfill capacity is about 290,000 tons.

Based on the projected usage of 40 tons per week, the available capacity in trenches one through 20 will enable the Landfill to remain open for approximately 139 years. Since the Landfill will be open for such a long period of time, each trench will be covered and re-vegetated when it is filled.

If insufficient undisturbed soils are not present in an adjacent future trench, soils may be retrieved from the soil storage berm(s) along the perimeter of the Landfill. In no case will the berms be reduced in size enough to allow precipitation to run-on to the closed Landfill.

Because of this restriction, some areas will receive final cover before final closure of the entire Landfill. These areas will include the top and side slopes of each fill trench. The side slopes of the final cover over the closed trenches shall not be greater than 3:1, horizontal to vertical. Slopes along the top of each closed trench shall not be less than two (2) percent.

The sizes of the area potentially requiring final cover before closure of the entire Landfill will be reported quarterly to the SWM Contractor, so that areas of land filling can be adjusted to place waste over “aging” intermediate cover.

The proposed sequencing of the trenches to receive waste materials and subsequent closure is shown on Figures 1 and 2.

Sequential partial closure will be conducted by the Landfill Operator using borrow materials readily available on the site as part of normal operations. Therefore, no fund withdrawals are planned from the financial assurance mechanism during the active life of the Landfill.

2.6.2 Notification

The Coop will notify the Executive Secretary of the intent to implement closure of a unit or a facility 60 days prior to the projected final receipt of waste. The Coop will then commence implementation of the closure 30 days after receipt of the final waste load, with the closure activities to be completed within 180 days from the initiation of the closure activities.

2.6.3 Final Inspection

In accordance with UAC R315-302-3 (5)(a) and (b) the owner and operator will notify the Executive Secretary of the intent to implement the closure plan in whole or part, 60 days prior to the projected final receipt of waste at the facility. Final closure activities will begin within 30 days after receipt of the final volume of waste and will be completed within 180 days from their starting time.

Under current regulations, when facility closure is completed, closure plan sheets signed by a professional engineer registered in the state of Utah and modified as necessary to represent as-built changes to final closure construction are required to be presented to the Executive Secretary.

Additionally, certification by the owner and a professional engineer that the site has been closed in accordance with the approved closure plan will be presented to the Executive Secretary.

However, the UDEQ may consider changes to these requirements as they apply to Class IVb landfills and this section should be reviewed and existing regulations incorporated when the permit is updated every five years.

2.6.4 Record of Title, Land Use, and Zoning Restrictions

The closed Landfill will be rezoned, if necessary, to conform to local regulations after closure. A description of the Landfill history and filled areas will be permanently appended to the record of title no later than 60 days after certification of closure. Proof of the recording will be provided to the Executive Secretary. Land use restrictions will be assigned that conform to existing regulations for closed landfills at the time of closure.

2.7 POST-CLOSURE PLAN

Post-closure care is required for a period of 30 years or as long as the Executive Secretary determines is necessary for the facility to become stabilized and to protect the human health and the environment. When post-closure activities are complete, as determined by the Executive Secretary, the Coop will submit a certification to the Executive Secretary, signed by the owner and a professional engineer registered in the state of Utah, stating why post-closure activities are no longer necessary (i.e., little or no settlement, gas production, or leachate generation).

Because Class IVb landfills are exempt from ground water monitoring, leachate control, and gas monitoring requirement, post-closure care will primarily consist of semiannual inspections to insuring cover integrity and the security of the facility. Annual post-closure expenditures are detailed in Section 2.8.2 of this permit renewal application.

2.7.1 Corrective Action Program if Ground Water is Contaminated

Contamination of ground water is unlikely because of the inert nature of the waste to be received at the Class IVb Landfill. However, in the event that ground water contamination is suspected, samples will be collected from monitor wells previously constructed at the site by Bingham Engineering in 1995. If analyses of the water show that contamination has occurred, the water will be pumped and treated according to a plan prepared by the Coop and approved by the UDSHW.

The Sanpete Sanitary Landfill Cooperative will serve as the point of contact during the post-closure period at the address and phone number as follows:

50 North Main Street
Sterling, Utah 84665
(435) 835-3431

2.8 COST ESTIMATES AND FINANCIAL ASSURANCE

2.8.1 Closure Costs

The cost estimates for closure are based on a third-party performing closure. Estimated costs must be based on the cost to close the largest area of the disposal facility or unit ever requiring a final cover. As outlined in Section 2.6, Closure Plan, the only areas requiring final cover will be one Landfill trench. The covered areas will then be seeded with natural vegetation.

The active surface area of the Landfill (that portion that has not received final cover) will never be larger than 1.5 acres (7,260 square yards). That is the approximate surface area of one active trench and one half (1/2) of one adjacent trench that is being used as a source for cover materials. This restriction will limit the area that would require closure by a third party if the Coop were to relinquish operation of the Landfill.

Because of this restriction, some areas will receive final cover before final closure of the entire Landfill. These areas will include the top and side slopes of each filled trench. The side slopes of final cover of the closed trenches shall not be greater than 3:1, horizontal to vertical. Slopes along the top of each closed trench shall not be less than two (2) percent.

Each full trench will be closed with an additional two feed of loosely compacted, sandy soil. The soil will be compacted by the rubber tired or tracked vehicle(s) that are used to place the final cover soil. The uppermost six (6) inches of final cover soil shall be capable, when fertilized, of supporting native re-vegetation as an "Erosion Layer".

The amount of final cover to be placed on each acre of Landfill trench is equal to two (2) feet time the surface area of one trench (45,000 square feet).

Solving: $2 \times 45,000 = 90,000$ cubic feet, or 3,333 cubic yards.

The amount of soil sufficient to cover one and one half (1-1/2) trenches is 5,000 cubic yards.

The Estimated Closing Costs shown on lines 2.2.1a and 2.3 of Table 2 include the costs for placing 18" of closure soil (3,750 cubic yards), and 6" of Erosion Layer soil (1,250 cubic yards), for a total of 24" of final closure soil.

The costs of both Closure and Post-Closure Care are estimated at \$45,642.44 (see Tables 2 & 3, below). This figure is based on grading and seeding one Landfill trench with a surface are of 1.5 acres.

Approximately 3,750 cubic yards of soil will be needed to cover 1.5 acres to a depth of 18 inches. Covering this same area with an additional 6 inches of topsoil will require approximately 1,250 cubic yards of soil. Both the cover material and topsoil will be obtained from County material sites, so that the only costs incurred will be those to place and grade the material.

A cost estimate for final cover and reseedling was obtained from Jensen Construction and is proved in Attachment 7.

Table 2: ESTIMATED CLOSURE COSTS

<u>ITEM</u>	<u>UNIT OF MEASURE</u>	<u>COST PER UNIT</u>	<u>NO. OF UNITS</u>	<u>TOTAL COST</u>
1.0 Engineering	na	na	na	
1.1 Topographic Survey	na	na	na	
1.2 Boundary Survey for Affidavit	Hours	\$ 70.00	24	\$ 1,680.00
1.3 Site Evaluation	Hours	\$ 70.00	8	\$ 560.00
1.4 Development of Plans	Hours	\$ 70.00	8	\$ 560.00
1.5 Contract Administration Bidding and Award	Hours	\$ 40.00	8	\$ 320.00
1.6 Administrative Cost for the Certification of Final Cover and Affidavit to the Public	Hours	\$ 70.00	4	\$ 280.00

1.7 Project Management; Construction Observation and Testing	Hours	\$ 60.00	16	\$ 960.00
1.8 Monitor Well Construction Costs	na	na		
1.9 NPDES Construction Storm Water Permit, and other Permits	na	na		
SUBTOTAL				\$ 4,360.00
10% CONTINGENCY				\$ 436.00
ENGINEERING TOTAL				\$ 4,796.00

ITEM	UNIT OF MEASURE	COST PER UNIT	NO. OF UNITS	TOTAL COST
2.0 Construction				
2.1 Final Cover System				
2.1.1 Completion of sidewall liner	na	na	na	na
2.1.1a Soil Placement	na	na	na	na
2.1.1b Soil Processing	na	na	na	na
2.1.1c Soil Amendment	na	na	na	na
2.1.1d Soil Purchase	na	na	na	na
2.1.1e Transportation	na	na	na	na
2.1.2 Drainage Layer on Sidewall	na	na	na	na
2.1.2a Geotextile Filter Fabric	na	na	na	na
2.1.2b Geonet/Geotextile Composite	na	na	na	na
2.1.2c Geomembrane Sidewall Liner	na	na	na	na

2.2	Completion of Top Cover				
2.2.1	Infiltration Layer	na	na	na	na
2.2.1a	Soil Placement	cu yards	\$ 3.00	3750	\$ 11,250.00
2.2.1b	Soil Processing	acre	\$ 30.00	1.5	\$ 45.00
2.2.1c	Soil Amendment	na	na	na	na
2.2.1d	Soil Purchase	na	na	na	na
2.2.1e	Transportation	na	na	na	na
2.2.2	Flexible Membrane Cover	na	na	na	na
2.2.2	Drainage Layer in Top	na	na	na	na

ITEM	UNIT OF MEASURE	COST PER UNIT	NO. OF UNITS	TOTAL COST
2.2.2c Geonet/Geotextile Composite	na	na	na	na
2.3 Erosion Layer Placement	cu yards	\$ 3.00	1250	\$ 3,750.00
2.4 Native Re-vegetation	sq. feet	\$ 0.020	67500	\$ 1,350.00
2.5 Site Grading and Drainage	lump sum	\$1,200.00	1	\$ 1,200.00
2.6 Site Fencing and Security	na	na	na	na
2.7 Leachate Collection System Completion	na	na	na	na
2.8 Completion of Gas Monitoring System	na	na	na	na
SUBTOTAL				\$17,595.00
10% CONTINGENCY				\$ 1,759.50
CONSTRUCTION TOTAL				\$19,354.50

ITEM	UNIT OF MEASURE	COST PER UNIT	NO. OF UNITS	TOTAL COST
3.0 Ground-water Characterization Cost	na	na	na	\$ -
4.0 Monitor Well Installation Costs	na	na	na	\$ -
4.1 Monitor Well Installation	na	na	na	\$ -
4.2 Piezometer and Monitor Well Plugging	na	na	na	\$ -
SUBTOTAL				\$ -
10% CONTINGENCY				\$ -
GROUND WATER INSTALLATION TOTAL				\$ -

Calculation of Total Closure Costs

Engineering Total:	\$ 4,796.00
Ground Water Total	\$ -
Construction Total	\$ 19,354.50
_____ % Contract Performance Bond	Included
SUBTOTAL	\$ 24,150.50
Legal Fees (25% of Subtotal)	\$ 6,037.63
TOTAL CLOSURE COSTS	\$ 30,188.13

2.8.2 Post-Closure Costs

The post-closure cost estimates shown in Table 3, below, cover the 30-year post-closure period. It is anticipated that minimal care requirements will be necessary as the site is to be reseeded with native grasses that will not require irrigation or constant, routine maintenance. Anticipated tasks include annual inspections, record keeping, and maintaining cover integrity.

TABLE 3: ESTIMATED POST-CLOSURE COSTS

<u>ITEM</u>	<u>UNIT OF MEASURE</u>	<u>COST PER UNIT</u>	<u>NO. OF UNITS</u>	<u>TOTAL COST</u>
1.0 Engineering				
1.1 Post-Closure Plan	na	na	na	na
1.2 Site Inspection and RECORD KEEPING (semi-annual)	Inspection	\$ 250.00	60	\$ 15,000.00
1.3 Correctional Plans and Specifications (annual)	Hours	\$ 70.00	8	\$ 560.00
1.4 Site Monitoring (semi-annual)	na	na	na	na
2.0 Construction Cost	Sq. Feet	\$ 0.017	261,360	\$ 4,450.00
3.0 Leachate Disposal	na	na	na	na
4.0 Soil Amendment	Acre	\$ 12.50	180	\$ 2,250.00

TABLE 3: ESTIMATED POST-CLOSURE COSTS

SUBTOTAL				\$ 22,260.00
10% CONTINGENCY				\$ 2,226.00
ENGINEERING TOTAL				\$ 24,486.00

Total Estimated Financial Assurance Costs

Closure Costs	\$30,188.13
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Post-Closure Costs	<u>\$24,486.00</u>
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TOTAL FINANCIAL ASSURANCE:	\$54,674.13
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2.8.3 Financial Assurance Mechanism

The financial assurance plan is outlined below. The total estimated costs for closure and post-closure care are approximately \$54,674.13.

Sanpete County has established a Trust Fund for closure and post-closure care of the Landfill. The Trust Fund meets the requirements set forth in UAC R315-309(2)(a). Proof of the existence of this Trust Fund and a record of deposits for the final payment representing at least one-fifth of the total estimated costs for

closure and post-closure care will be submitted to the Executive Secretary at least 30 days prior to the initial receipt of waste. The Trust will be fully funded within five years of the permit approval.

Money deposited in the trust fund will be used exclusively for closure, post-closure care, and corrective action. Guidelines for reimbursement, found in UAC R315-309-2(iv), state:

The owner or operator, or other person authorized to conduct closure, post-closure, or corrective action may request reimbursement from the trustee for closure, post-closure, or corrective action costs.

- 1. the request for reimbursement may be granted by the trustee only if sufficient funds are remaining to cover the remaining costs and if justification and documentation of the costs are placed in the operating record*
- 2. The owner or operator shall notify the Executive Secretary that documentation for the reimbursement has been placed in the operating record and that the reimbursement has been received.*

The fund will be evaluated annually and may be adjusted as needed.

PART III – TECHNICAL DATA

3.1 DESCRIPTION OF SITE VICINITY

A scanned copy of part of the most recent Chester, Utah, U.S. Geological Survey (USGS) topographical map of the site area is provided as Attachment 8. This map shows the facility boundary, the property boundary, the latitude and longitude coordinates of the front gate, the land use and zoning of the surrounding areas, any existing utilities and structure within one-fourth mile of the site, surface drainage channels, and the direction of the prevailing winds.

As shown on the USGS map, there are no home, one power line, and no culinary wells within one-fourth mile of the site boundaries. The landfill property is zoned PF (Public Facilities). Lands to the north, west, and south are Zoned A (Agricultural), while across Highway 89 to the east the lands are SL (Sensitive Lands). Prevailing winds are from the south southwest.

3.1.1 Location Standards

Regulations concerning all new Class IV landfills require that they conform to location standards as listed in UAC R315-305-4(1)(a)(i,ii, and iii).

3.1.1.1 Floodplains

The Landfill is not located in a floodplain.

3.1.1.2 Wetlands

The Landfill is not located in wetlands.

3.1.1.3 Water Levels