MEMORANDUM

To: SFSWMA Joint Powers Board Members
From: Randall Kippenbrock, P.E., Executive Director RLK
Date: August 13, 2014
Subject: Request for Approval of Closure/Post-Closure Care and Phase I/II Assessment Cost Estimates for the Caja del Rio Landfill.

BACKGROUND:

At the September 19, 2013 meeting, the Board approved the closure and post-closure cost estimates for the disposal area (64.9 acres) of the Caja del Rio Landfill of $5,825,657 as of June 30, 2013. These costs were published in a September 16, 2013 report prepared by Randall Kippenbrock, P.E.

The closure and post-closure cost estimates for the current disposal area of the landfill (64.9 acres) is $6,396,597 as of June 30, 2014. These costs were calculated using the June 30, 2013 estimates and adjusting for a 1.4% inflation (CPI) for Calendar Year 2013. The post-closure estimate includes cost associated with the decommissioning of the landfill gas collection system with 20 wells after a minimum of 15 years in operation after landfill closure. The current entire disposal area of the landfill was corrected from 76.6 acres to 87.3 acres. No other conditions/factors were changed.

The cost estimates for the entire disposal area of the landfill (87.3 acres) is $7,734,579 as of June 30, 2014.

These estimates may be reflected by the auditors in the closure and post-closure care cost section for the FY 2014 annual financial statement.

REQUEST:

The Agency is requesting the Board approve the updated closure and post-closure cost estimates published in the report dated July 2, 2014.

Attachment: Final Closure/Post Closure and Phase I/II Cost Estimates for June 30, 2014.

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Final Closure / Post Closure and Phase I / II Assessment Cost Estimates for June 30, 2014

Caja del Rio Landfill
SWB Permit No. SWM-261708 and SW98-05(M)
Santa Fe, Santa Fe County, New Mexico

prepared for:

Santa Fe Solid Waste Management Agency
Caja del Rio Landfill
149 Wildlife Way
Santa Fe, NM 87506

prepared by:

Randall Kippenbrock, P.E.
Santa Fe Solid Waste Management Agency
Caja del Rio Landfill
149 Wildlife Way
Santa Fe, NM 87506

July 2, 2014

Final Closure / Post-Closure and Phase I / II Assessment
Cost Estimates
for
June 30, 2014

Santa Fe Solid Waste Management Agency
Caja del Rio Landfill

The following describes the cost estimates for closure, post-closure, Phase I assessment and Phase II assessment as per 20.9.10 New Mexico Administrative Code, Financial Assurance.

The closure cost estimate requires a detailed written estimate, in current dollars, showing the cost of hiring a third party to close the largest area of the landfill ever requiring a final closure at any time during the active life when the extent and manner of its operation would make closure the most expensive, as indicated by its final closure plan under 20.9.10.9 NMAC.

The post-closure cost estimate is based on a detailed written estimate, in current dollars, showing the most expensive costs of hiring a third party to conduct post-closure care for the landfill in compliance with the post-closure care plan under 20.9.10.10 NMAC.

Both Phase I and Phase II assessments are based on written estimates, in current dollars, of the costs of hiring a third part to conduct activities in accordance with 20.9.10.11 NMAC.

The cost estimate for a corrective action program is not included in this report.

The format for the estimates are based on the Texas Commission on Environmental Quality's (TCEQ) "Cost Estimates for Closure and Post-Closure Care, Type I Facility," dated August 1993 and Utah division of Solid and Hazardous Waste "Preparation of Solid Waste Facility Closure and Post-Closure Estimates." The unit costs are based on SFSWMA experience and Oklahoma Department of Environmental Quality Guidance on Cost Estimates and Financial Assurance, dated April 15, 2014. The unit costs are not site specific showing breakdown of labor, equipment, material, etc. The unit costs, however, are within the range commonly found in cost estimating references (i.e., R.S. Means, US Environmental Protection Agency, and cost estimates from consultants/contractors).

The complete closed landfill site will consist of 430 permitted acres, including the disposal area, surrounding buffer zone areas, and the property designated for drainage, storage, and maintenance facilities.

The annual adjustment inflation for Year 2013 is 1.4%, which is based from the U.S. Department of Labor - Bureau of labor Statistics Data.

The closure cost estimate is based on the following conditions:

1. Current site conditions.

2. Closing the filled waste disposal area (constructed cells) and placing final cover.

3. The filled/active disposal area encompasses ± 65.4 acres of the entire permitted disposal area (footprint) of 87.3 acres.

4. The final cover type required for the Subtitle D cells - erosion layer (6"), infiltration layer (18"), and intermediate cover (12").

5. The final cover is based on the NMED's approval for an alternate final cover design in a permit modification, dated August 6, 1998 [SW98-05(M)].

6. Assumes the intermediate cover is in place under 20.9.5 NMAC.

7. Based on the above, the total number of acres that will require final cover for closure is 65.4 acres as of June 30, 2014 and 87.3 acres at the end of 20-year permit life.

The post-closure cost estimate is based on the following:

1. The total number of acres for post-closure care is 87.3 acres.

2. Assume re-seeding once every five years for 5% of the landfill area.

3. Assume cover repair for 5% of the landfill area.

4. All groundwater monitoring wells and active methane gas system are in place prior to closure.

5. Assume the active landfill gas (methane) collection system can be removed after a minimum of 15 years in operation after landfill closure.

6. The volume of leachate generated annually will drop substantially once intermediate or final cover is applied to an area.

7. Annual groundwater detection monitoring and reporting for the approved Reduced Parameter Sampling List for 24 years.

8. Six years of annual groundwater detection monitoring and reporting for 20.9.9.20 NMAC Subsections A and C.

9. Quarterly methane gas monitoring and reporting for 30 years.

The cost estimate for Phase I assessment is based on the following:

1. One initial round of assessment monitoring in the two down gradient wells, MW-2 & MW-4 for 20.9.9.20 NMAC Subsections B and C.

2. Four rounds of assessment monitoring in wells MW-1, MW-2, & MW-4 for detections from the initial round; plus one additional round in MW-1. Laboratory analysis for detections is estimated to be $533 per well.

3. Installation of two down gradient corrective action monitoring wells (per NMED). Costs are based on the installation of the monitoring well at Agua Fria Landfill.

4. Initial round of assessment monitoring in the two corrective action monitoring wells for 20.9.9.20 NMAC Subsections B and C.

5. Four rounds of assessment monitoring in the two corrective action monitoring wells for detections from the initial round. Laboratory analysis for assessment detections is estimated to be $533 per well.

6. If assessment monitoring is required, the sampling frequency will revert to semi-annual (1 annual assessment monitoring event and 1 annual detection monitoring event).

7. Annual assessment monitoring for 20.9.9.20 NMAC Subsections B and C. Monitoring is assumed to be for 10 years.

8. Additional costs of annual detection monitoring for the assessment detections in wells MW-1, MW-2, and MW-4. Laboratory analysis for assessment detections is estimated to be $533 per well and is for 10 years.

9. Additional costs of annual detection monitoring in the two correction action monitoring wells for the Reduced Parameter Sampling List and the assessment detections for eight years. Laboratory analysis for assessment detections is estimated to be $533 per well.

10. Additional costs of annual detection monitoring in the two correction action monitoring wells for 20.9.9.20 NMAC Subsections A and C and the assessment detections for two years. Laboratory analysis for assessment detections is estimated to be $533 per well.

The cost estimate for Phase II assessment is based on the following:

1. Phase II cost is estimated to be $117,421.

CAJA DEL RIO LANDFILL - June 30, 2014 FINAL CLOSURE COST ESTIMATE[1]

COST ITEM	UNIT	COST	QUANTITY	TOTAL COST
Engineering Costs				
Topographic Survey	Per Acre	$155	87.3	$13,532
Boundary Survey for Affidavit	Lump Sum	$6,085	1	$6,085
Site Evaluation	Per Acre	$338	87.3	$29,507
Final Closure Plans	Per Acre	$368	65.4	$24,067
Contract Administration, Bidding and Award	Lump Sum	$12,169	1	$12,169
Administrative Costs	Lump Sum	$12,169	1	$12,169
Closure Inspection & Testing	Per Acre	$4,259	65.4	$278,539
SUBTOTAL				$376,068
10% CONTINGENCY				$37,607
ENGINEERING TOTAL				**$413,674**
Construction Costs				
Erosion Layer Placement (6" layer and on-site; 65.4 ac)	Per Cubic Yard	$4.07	52,756	$214,717
Infiltration Layer Placement (18" layer and on-site; 65.4 ac)	Per Cubic Yard	$4.07	158,268	$644,151
Seeding, Composting	Per Acre	$10,363	65.4	$677,740
Drainage Swales	Per Acre	$1,824	65.4	$119,290
Active Landfill Gas Well Installation for Cell 4B (5 wells)	Per Well	$40,564	5	$202,820
Site Grading & Drainage	Per Acre	$1,824	87.3	$159,235
Site Fencing and Security	Lump Sum	$3,650	1	$3,650
SUBTOTAL				$2,021,603
10% CONTINGENCY				$202,160
CONSTRUCTION TOTAL				**$2,223,763**

CALCULATION OF CLOSURE COSTS	
Engineering Total	$413,674
Construction Total	$2,223,763
Groundwater Well Installation Total	$0
Contract Performance Bond: (2% of Construction Subtotal)	$40,432
Legal Fees: (25% of Engineering Subtotal + 10% of Construction Subtotal)	$296,177
TOTAL CLOSURE COST	**$2,974,047**

1. Total costs rounded to the nearest dollar. CPI for Year 2013 is 1.4%.

CAJA DEL RIO LANDFILL - JUNE 30, 2014 FINAL CLOSURE COST ESTIMATE FOR ENTIRE DISPOSAL AREA[1]

COST ITEM	UNIT	COST	QUANTITY	TOTAL COST
Engineering Costs				
Topographic Survey	Per Acre	$155	87.3	$13,532
Boundary Survey for Affidavit	Lump Sum	$6,085	1	$6,085
Site Evaluation	Per Acre	$338	87.3	$29,507
Final Closure Plans	Per Acre	$368	87.3	$32,126
Contract Administration, Bidding and Award	Lump Sum	$12,169	1	$12,169
Administrative Costs	Lump Sum	$12,169	1	$12,169
Closure Inspection & Testing	Per Acre	$4,259	87.3	$371,811
SUBTOTAL				$477,399
10% CONTINGENCY				$47,740
ENGINEERING TOTAL				**$525,139**
Construction Costs				
Erosion Layer Placement (6" layer and on-site; 87.3 ac)	Per Cubic Yard	$4.07	70,422	$286,618
Infiltration Layer Placement (18" layer and on-site; 87.3 ac)	Per Cubic Yard	$4.07	211,266	$859,853
Seeding, Composting	Per Acre	$10,363	87.3	$904,690
Drainage Swales	Per Acre	$1,824	87.3	$159,235
Active Methane Gas Well Installation for Cell 4B (5 wells) and Cell 5B/6B (10 wells)	Per Well	$40,564	15	$608,460
Site Grading & Drainage	Per Acre	$1,824	87.3	$159,235
Site Fencing and Security	Lump Sum	$3,650	1	$3,650
SUBTOTAL				$2,981,740
10% CONTINGENCY				$298,174
CONSTRUCTION TOTAL				**$3,279,915**

CALCULATION OF CLOSURE COSTS	
Engineering Total	$525,139
Construction Total	$3,279,915
Groundwater Well Installation Total	$0
Contract Performance Bond: (2% of Construction Subtotal)	$59,635
Legal Fees: (25% of Engineering Subtotal + 10% of Construction Total)	$447,341
TOTAL CLOSURE COST	**$4,312,029**

1. Total costs rounded to the nearest dollar. CPI for Year 2013 is 1.4%.

CAJA DEL RIO LANDFILL - JUNE 30, 2014 POST-CLOSURE COST ESTIMATE[1]

COST ITEM	UNIT	COST	QUANTITY	TOTAL COST
Engineering Costs				
Post Closure Plan (one time event)	Lump Sum	$9,124	1	$9,124
Site Inspection & Recordkeeping	Per Annum	$3,650	30	$109,500
Correctional Plans & Specifications	Per Annum	$2,920	30	$87,600
Site Monitoring Costs				
Detection Monitoring and Reporting for 3 Wells - Reduced Parameter Sampling List	Per Event	$7,366	24	$176,784
Detection Monitoring and Reporting for 3 Wells - 20.9.9.20 NMAC Subsections A and C	Per Event	$10,355	6	$62,130
Methane Gas Monitoring and Reporting for 10 Probes	Per Annum	$3,057	30	$91,710
Construction and Maintenance Costs				
Cover Repair for 5% of the Landfill Area - 74.9 ac (6" layer and on-site; 5% = 3.75 ac)[2]	Per Event	$12,300	30	$369,000
Reseed 5% of the Landfill Area [3]	Per Event	$7,772	6	$46,632
Fence, Gate and Sign Repair /Replacement	Per Annum	$732	30	$21,960
Groundwater Monitoring Well Replacement[3]	Per Annum	$2,669	30	$80,070
Groundwater Monitoring Well Maintenance[5]	Per Well	$1,068	3	$3,204
Active Landfill Gas System - Operation & Maintenance[6]	Per Annum	$81,661	15	$1,224,915
Decommissioning Active Landfill Gas System (20 wells)	Per Event	$175,590	1	$175,590
Leachate Disposal[7]	Per Gallon	$0.062	120,000	$7,440

CALCULATION OF POST CLOSURE COSTS	
SUBTOTAL (30-year post-closure period excluding post-closure plan)	$2,456,535
10% CONTINGENCY	$245,654
Post Closure Plan (one time cost)	$9,124
TOTAL POST CLOSURE COST (Subtotal costs and 10% contingency plus post closure plan)	**$2,711,313**

1. Total costs rounded to the nearest dollar. CPI for Year 2013 is 1.4%.
2. Cost is erosion layer placement under construction section for closure cost.
3. Assume re-seeding once every five years for 5% of the landfill area.
4. Cost includes replacing one of the groundwater wells during the 30-year post-closure period.
5. Cost includes replacement of pumps, well pads and padlocks for 3 wells.
6. Assume the active landfill gas collection system can be removed after a minimum of 15 years in operation after landfill closure.
7. Estimated quantity of leachate generated over the 30-year post-closure period.

CAJA DEL RIO LANDFILL - June 30, 2014
COST ESTIMATES FOR PHASE I AND PHASE II ASSESSMENT[1]

COST ITEM	UNIT	COST	QUANTITY	TOTAL COST
Phase I Assessment Costs				
Initial Round Assessment Monitoring	Per Well	$4,912	2	$9,824
Four Rounds Assessment Monitoring	Per Well	$1,815	13	$23,595
90-Day Monitoring (existing wells)	Per Event	$8,754	1	$8,754
Assessment Monitoring Report	Per Report	$6,405	1	$6,405
Corrective Action Monitoring Well (CAMW) Installation	Per Well	$80,060	2	$160,120
Initial Round CAMW Sampling	Per Well	$4,912	2	$9,824
Four Rounds CAMW Sampling	Per Well	$1,815	8	$14,520
CAMW Installation and Sampling Report; Notification	Per Report	$10,674	1	$10,674
Additional Annual Detection Monitoring & Reporting - 20.9.9.20 NMAC Subsections B and C	Per Event	$22,418	10	$224,180
Additional Annual Detection Monitoring in MW-1, MW-2 & MW-3 - Assessment Detections	Per Event	$2,134	10	$21,340
Additional Annual Detection Monitoring & Reporting in CAMW - Reduced Parameter Sampling List & Assessment Detections	Per Event	$3,736	8	$29,888
Additional Annual Detection Monitoring & Reporting in CAMW - 20.9.9.20 NMAC Subsections A and C & Assessment Detections	Per Event	$5,017	2	$10,034
SUBTOTAL				$529,158
10% CONTINGENCY				$52,916
TOTAL PHASE I ASSESSMENT COST				**$582,074**
Phase II Assessment Costs				
Phase II Assessment Total, Per NMED	-	$117,421	1	$117,421
SUBTOTAL				$117,421
10% CONTINGENCY				$11,742
TOTAL PHASE II ASSESSMENT COST				**$129,163**

1. Total costs rounded to the nearest dollar. CPI for Year 2013 is 1.4%.