

CERTIFIED MAIL # 7015 1520 0001 8113 5963

January 27, 2017

John E. Kieling, Chief
New Mexico Environmental Department
Hazardous Waste Bureau
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303



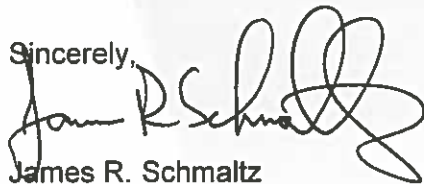
Re: Financial Assurance Cost Estimate – January 2017
Per Order No. HWB 07-34 (CO)
Western Refining Southwest, Inc. – Bloomfield Refinery
EPA ID# NMD089416416

Dear Mr. Kieling:

Western Refining Southwest, Inc. – Bloomfield Refinery submits the referenced Financial Assurance Cost Estimate pursuant to Section III.P.2. of the July 2007 HWB Order. The estimate was prepared for Western by DiSorbo, a third party environmental engineering company. Annual adjustments to the Financial Assurance Cost Estimate were made in compliance with the requirements of 40 CFR 264.142(b) and 264.144(b). The adjusted cost estimate reflects the completion of nine years of interim measures and facility-wide groundwater monitoring activities.

If you have any questions or would like to discuss the Financial Assurance Cost Estimate, please contact me at (505) 632-4171.

Sincerely,



James R. Schmaltz
HSER Director
Western Refining Southwest, Inc.
Bloomfield Refinery

cc: D. Cobrain – NNED HWB
L. Tsinnajinnie – NMED HWB
N. Dhawan – NMED HWB
C. Chavez – NMOCD
D. Roberts – Bloomfield Refinery
K. Robinson – Bloomfield Refinery
A. Hains – Western Refining El Paso

January 19, 2017

Mr. James R. Schmaltz
Health, Safety, Environmental, and Regulatory Director
Western Refining Southwest, Inc., Bloomfield Terminal
111 County Road 4990
Bloomfield, NM 87413

Re: Western Refining Southwest, Inc. Bloomfield; Order No. HWB 07-34 (CO)
Financial Assurance Cost Estimate Update for 2017

Dear Mr. Schmaltz:

This financial assurance cost estimate update for the Bloomfield Refinery includes costs to address:

1. those activities specified in Section III.P.1. of Order No. HWB 07-34 (CO) that was issued by the New Mexico Environment Department on September 27, 2007; and
2. implementation of the Final Closure Plan for Interim Status Unit No. 1 - North and South Aeration Lagoons.

The annual inflation factor used is that value available at the time the revised cost estimate is required for the Order (i.e., January 31, 2017). It is derived as follows:

Implicit price deflator for 2016 / implicit price deflator for 2015 (updated 12/22/2016) =
 $111.648/110.253 = 1.0\%$ [source - <http://www.bea.gov> (Table 1.1.9 Implicit Price Deflators for GDP)]

The cost estimate for the Order was prepared in accordance with 40 CFR 264.101 and substantially in compliance with the requirements of 40 CFR 264.142 and 264.144. The costs reflect the requirements of the Facility-Wide Groundwater Monitoring Plan (dated June 2014) incorporating revisions approved by the New Mexico Environment Department on June 15, 2015. A detailed breakout of the estimate by activity is provided in enclosed Tables 1, 1A, 1B, 1C, 1D, and 1E. The analytical rates and labor rates have been revised, as necessary, to reflect current costs and thus the annual inflation factor was not applied to the facility-wide groundwater monitoring costs prepared for 2017. The estimated cost for 2016 was \$1,229,412. The new estimate for 2017 is \$1,014,233.

The cost estimate for implementation of the Final Closure Plan for Interim Status Unit No. 1 - North and South Aeration Lagoons was prepared in accordance with 40 CFR 265.142. Annual adjustments for inflation are made from the cost estimate provided in the Final Closure Plan dated May 2010 (revised January 2011) and approved

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Mr. James R. Schmaltz
January 19, 2017
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May 20, 2011. The last annual estimate prepared in January 2016 was \$349,197. The new estimate for 2017 is \$352,689 (\$349,197 increased by 1.0%). A detailed breakout of the original estimate by activity is provided in enclosed Tables 2 and 2A.

The total estimated cost for 2017 is \$1,366,922. If there are any questions, please contact me at (512) 693-4193.

Sincerely,
DiSorbo Consulting, LLC



Scott T. Crouch, P.G.
Senior Consultant

Enclosures

cc: Allen Hains – Western Refining El Paso

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Table 1
Western Refining Southwest, Inc.
Bloomfield, New Mexico Refinery
NMED Order No. HWB 07-34 (CO) – Financial Assurance Cost Estimate
1/12/2017

Waste Management Area	NMED Order Provision	Capital Costs ¹	Operation & Maintenance Costs ²	NMED Review Fees	Total Costs	Explanation
Solid Waste Management Units (SWMU's) Investigation, Remediation, & associated reports						
Group 1						
Interim Status Unit No. 1: North & South Aeration Lagoons - Closure Plan Implementation	IV.B.5	\$0	\$0		\$0	Project completed
Remedy Completion Report	VI.D.6			\$0	\$0	
subtotal					\$0	
Group 2						
SWMU No. 2: Drum Storage Area - North Bone Yard	IV.B.6	\$0	\$0		\$0	
SWMU No. 8: Inactive Landfill	IV.B.6	\$0	\$0		\$0	
SWMU No. 9: Landfill Pond	IV.B.6	\$0	\$0		\$0	
SWMU No. 11: Spray Irrigation Area	IV.B.6	\$0	\$0		\$0	
SWMU No. 18: Warehouse Yard	IV.B.6	\$0	\$0		\$0	
Corrective Measures Implementation Plan	VI.D.2			\$0	\$0	
Progress Report	VI.D.5			\$0	\$0	
Remedy Completion Report	VI.D.6			\$0	\$0	
subtotal					\$0	
Group 3						
SWMU No. 4: Transportation Terminal Sump	IV.B.6	\$0	\$0		\$0	
SWMU No. 5: Heat Exchanger Bundle Cleaning Area & AOC No. 25: Auxiliary Warehouse and 90-day Storage Area	IV.B.6	\$0	\$0		\$0	
AOC No. 22: Product Loading Rack & Crude Receiving Loading Racks	IV.B.6	\$0	\$0		\$0	
AOC No. 23: Southeast Holding Ponds	IV.B.6	\$0	\$0		\$0	
AOC No. 24: Tank Areas 41 and 43	IV.B.6	\$0	\$0		\$0	
AOC No. 26: Tank Area 44 and 45	IV.B.6	\$0	\$0		\$0	
Corrective Measures Implementation Plan	VI.D.2			\$0	\$0	
Progress Report	VI.D.5			\$0	\$0	
Remedy Completion Report	VI.D.6			\$0	\$0	
subtotal					\$0	

Table 1
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Bloomfield, New Mexico Refinery
NMED Order No. HWB 07-34 (CO) -- Financial Assurance Cost Estimate
1/12/2017

Waste Management Area	NMED Order Provision	Capital Costs ¹	Operation & Maintenance Costs ²	NMED Review Fees	Total Costs	Explanation
Group 4						
SWMU No. 7 Raw Water Ponds	IV.B.6	\$0	\$0		\$0	
SWMU No. 10: Fire Training Area	IV.B.6	\$0	\$0		\$0	
SWMU No. 16: Active Landfill	IV.B.6	\$0	\$0		\$0	
Corrective Measures Implementation Plan	VI.D.2			\$0	\$0	
Progress Report	VI.D.5			\$0	\$0	
Remedy Completion Report	VI.D.6			\$0	\$0	
subtotal					\$0	
Group 5						
SWMU No. 15: Tank Farm Area	IV.B.6	\$0	\$0		\$0	
Corrective Measures Implementation Plan	VI.D.2			\$0	\$0	
Progress Report	VI.D.5			\$0	\$0	
Remedy Completion Report	VI.D.6			\$0	\$0	
subtotal					\$0	
Group 6						
AOC No. 19: Seep North of MW-45	IV.B.6	\$0	\$0		\$0	
AOC No. 20: Seep North of MW-46	IV.B.6	\$0	\$0		\$0	
AOC No. 21: Seep North of MW-47	IV.B.6	\$0	\$0		\$0	
Corrective Measures Implementation Plan	VI.D.2			\$0	\$0	
Progress Report	VI.D.5			\$0	\$0	
Remedy Completion Report	VI.D.6			\$0	\$0	
subtotal					\$0	
Group 7						
SWMU No. 17: River Terrace Area	IV.B.6	\$0	\$0		\$0	
Corrective Measures Implementation Plan	VI.D.2			\$0	\$0	
Progress Report	VI.D.5			\$0	\$0	
Remedy Completion Report	VI.D.6			\$0	\$0	
subtotal					\$0	

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Bloomfield, New Mexico Refinery
NMED Order No. HWB 07-34 (CO) -- Financial Assurance Cost Estimate
1/12/2017

Waste Management Area	NMED Order Provision	Capital Costs ¹	Operation & Maintenance Costs ²	NMED Review Fees	Total Costs	Explanation
Group 8						
SWMU No. 3: Underground Piping Currently In Use	IV.B.6	\$0	\$0		\$0	
SWMU No. 6: Abandoned Underground Piping	IV.B.6	\$0	\$0		\$0	
Corrective Measures Implementation Plan	VI.D.2			\$0	\$0	
Progress Report	VI.D.5			\$0	\$0	
Remedy Completion Report	VI.D.6			\$0	\$0	
subtotal					\$0	
Group 9						
SWMU No. 13: Process Area	IV.B.6	\$0	\$0		\$0	
SWMU No. 14: Tanks 3, 4, and 5	IV.B.6	\$0	\$0		\$0	
SWMU No. 12: API Separator	IV.B.6	\$0	\$0		\$0	
Corrective Measures Implementation Plan	VI.D.2				\$0	
Progress Report	VI.D.5				\$0	
Remedy Completion Report	VI.D.6				\$0	
subtotal					\$0	
Other Areas						
To be determined?	III.Q.1	\$0	\$0		\$0	Section III.G.2 of the NMED Order specifies that either NMED or Western may identify additional areas for corrective action. At this time, no additional areas have been identified.
Corrective Measures Implementation Plan	VI.D.2				\$0	
Progress Report	VI.D.5				\$0	
Remedy Completion Report	VI.D.6				\$0	
subtotal					\$0	

Table 1
Western Refining Southwest, Inc.
Bloomfield, New Mexico Refinery
NMED Order No. HWB 07-34 (CO) – Financial Assurance Cost Estimate
1/12/2017

Waste Management Area	NMED Order Provision	Capital Costs ¹	Operation & Maintenance Costs ²	NMED Review Fees	Total Costs	Explanation
Interim Measures & Facility Wide Ground Water Monitoring						
River Terrace Area Analytical	V.B.1		\$12,335		\$12,335	1 yr. Monitoring @ \$12,335/yr - see detail Table 1A
River Terrace Area Analytical	V.B.1		\$31,680		\$31,680	2 yr. Confirmation Monitoring @ \$15,840/yr - see detail Table 1B
River Terrace Annual Report	V.B.1		\$3,500	\$2,000	\$5,500	1 yr. reporting @ \$3,500/annual report & NMED fees of \$2,000/annual rpt
River Terrace Operation & Maintenance	III P.1 & V.B.		\$8,000		\$8,000	GAC filters & maintenance \$8,000/yr x 1 yr
North Barrier Wall collection operations	III P.1		\$0		\$0	BI-weekly fluid level measurements terminated in 2012 per NMED approval
Facility Wide Ground Water Monitoring (including North Barrier Wall & Tank Farm) analytical costs	IV.A.		\$373,890		\$373,890	Table 1C provides detailed cost on an annual basis (\$62,315) which is multiplied by 6 years pursuant to the Order.
Facility Wide Ground Water Monitoring (including North Barrier Wall & Tank Farm) analytical costs	IV.A.		\$475,944		\$475,944	Table 1D provides detailed closure (quarterly sampling) cost on an annual basis (\$237,972) that is multiplied by 2 years.
Facility-Wide Annual Monitoring Report (including North Barrier Wall)	IV.A.2.		\$42,000	\$12,000	\$54,000	6 yrs. Monitoring @ \$7,000/annual report & NMED fees of \$2,000/annual rpt
1# East Outfall	V.C.		\$0		\$0	Sampling is no longer conducted at this location as the discharge goes directly to the API Separator.
San Juan River samples			\$52,884		\$52,884	See Table 1E for detailed estimate; assume 6 years @ \$8,814/yr
RCRA Background Monitoring Wells			\$0		\$0	Quarterly sampling for the background monitoring wells terminated in 2014.
subtotal					\$1,014,233	
TOTAL ESTIMATED COSTS TO IMPLEMENT NMED ORDER (without inflation costs)					\$1,014,233	
Inflation Factor ³					0.00%	
CURRENT TOTAL ESTIMATED COSTS TO IMPLEMENT NMED ORDER.					\$1,014,233	

1- capital costs associated with construction, installation, pilot testing, evaluation, permitting, and reporting of the effectiveness of the alternative

2 -continuing costs associated with operating, maintaining, monitoring, testing, and reporting on the use and effectiveness of the technology

3 - No inflation factor applied as the cost estimate is updated with current laboratory and labor rates.

**TABLE 1A
RIVER TERRACE SAMPLING COST ESTIMATE**

Analysis	Frequency	# of Sample Locations	Total # of Samples ⁽¹⁾	Cost/Sample	Cost per Year
RIVER TERRACE - AQUEOUS					
8021B	Low Flow Annually	6	10	\$45	\$450
8021B	Bi-Annually	1	1	\$45	\$45
8015B (GRO, DRO)	Low Flow Annually	6	9	\$90	\$810
8015B (GRO, DRO)	Bi-Annually	1	1	\$90	\$90
6010B (metals)	Low Flow Annually	6	9	\$225	\$2,025
6010B (metals)	Bi-Annually	1	1	\$225	\$225
Level 4 Data Packet	each event			10%	\$365
RIVER TERRACE - Vapor					
8021B	Low Flow	9	9	\$45	\$405
8021B	High Flow	14	14	\$45	\$630
8015B (GRO)	Low Flow	9	9	\$90	\$810
8015B (GRO)	High Flow	14	14	\$90	\$1,260
Tedlar Bags	Annually	23	23	\$10	\$230
Level 4 Data Packet	High Flow / Low Flow			10%	\$311
GAC Breakthrough Sampling					
8260	Quarterly	3	12	\$90	\$1,080
8015B (GRO, DRO)	Quarterly	3	12	\$90	\$1,080
Level 4 Data Packet	each event			10%	\$216
Annual analytical costs					\$10,031
River Terrace labor for Low Flow event – 20 hours X \$72/hr					\$1,440
River Terrace labor GAC sampling events – 12 hours X \$72/hr					\$864
Total Annual River Terrace Sampling Costs					\$12,335

River terrace sampling conducted pursuant to June 2014 Facility-Wide Groundwater Monitoring Plan (Section 5.4), NMED's June 15, 2015 Approval with Mods letter, and Bioventing Monitoring Plan (Revised) River Terrace Voluntary Corrective Measures dated October 28, 2005

1 - Includes additional QA/QC samples

**BLOOMFIELD TERMINAL - TABLE 1B
RIVER TERRACE CONFIRMATION SAMPLING COST ESTIMATE**

Analysis	Frequency	# of Sample Locations	Total # of Samples ⁽¹⁾	Cost/Sample	Cost per Year
RIVER TERRACE - AQUEOUS					
8021B	Quarterly	7	40	\$45	\$1,800
8015B (GRO, DRO)	Quarterly	7	40	\$90	\$3,600
6010B (metals)	Quarterly	7	40	\$225	\$9,000
Level 4 Data Packet	each event		-	10%	\$1,440
Annual analytical costs					\$15,840

River terrace sampling conducted pursuant to June 2014 Facility-Wide Groundwater Monitoring Plan (Section 5.4) and Bioventing Monitoring Plan (Revised) River Terrace Voluntary Corrective Measures dated October 28, 2005

1 - Includes additional QA/QC samples

TABLE 1C

Facility-Wide Groundwater Monitoring Cost Estimate

Analysis	Frequency	# of Sample Locations	# of Samples (2)	Cost/Sample	Cost per Year
Annual Terminal Complex (Non-RCRA Wells)					
8260B	Annual	31	46	\$90	\$4,140
8015B (GRO, DRO)	Annual	31	42	\$90	\$3,780
8270C	Annual (1)	3	5	\$220	\$1,100
CO2/Alkalinity (310.1)	Annual	31	42	\$25	\$1,050
Cation Anion Balance + General Chem	Annual	31	42	\$170	\$7,140
6010 & 7470 (metals)	Annual	31	42	\$225	\$9,450
Filters			42	\$15	\$630
Level 4 Data Packet	Annual			10%	\$2,666
Annual Terminal Complex (RCRA Investigation Wells) (5)					
8260B	Annual	9	9	\$90	\$810
8015B (GRO, DRO)	Annual	9	9	\$90	\$810
8270C (4)	Annual	8	8	\$220	\$1,760
CO2/Alkalinity (310.1)	Annual	9	9	\$25	\$225
Cation Anion Balance + General Chem	Annual	9	9	\$170	\$1,530
6010 & 7470 (metals)	Annual	9	9	\$225	\$2,025
Filters			9	\$15	\$135
Level 4 Data Packet	Annual			10%	\$716
Semi-Annual - Terminal Complex (Non-RCRA Wells)					
8260B (target list)	Semi-Annual (3)	10	16	\$90	\$1,440
8015B (GRO, DRO)	Semi-Annual (3)	5	10	\$90	\$900
Level 4 Data Packet	Semi-Annual (3)			10%	\$234
Semi-Annual - North Barrier Wall OW/CW					
8260B (target list)	Semi-Annual	16	39	\$90	\$3,510
8015B (GRO, DRO)	Semi-Annual	16	36	\$90	\$3,240
Level 4 Data Packet	Semi-Annual			10%	\$675
Semi-Annual River Bluff (Outfall 2 & 3, & Seeps 1, 6, 7, 8, & 9)					
8260B (target list)	Semi-Annual	7	18	\$90	\$1,620
CO2/Alkalinity (310.1)	Semi-Annual	7	16	\$25	\$400
Cation Anion Balance + General Chem	Semi-Annual	7	16	\$170	\$2,720
6010 & 7470 (metals)	Semi-Annual	2	6	\$225	\$1,350
Filters			6	\$15	\$90
Level 4 Data Packet	Semi-Annual			10%	\$609
Sampling Labor	Semi-Annual & Annual events		15 Days of 7 hour days	\$72/hour	\$7,560
Total Annual - Facility-Wide Groundwater Sampling & Analysis					\$62,315

Sampling conducted pursuant to June 2014 Facility-Wide Groundwater Monitoring Plan and NMED's June 15, 2015 Approval with Mods letter

1 - The SVOC analyses are performed every two years and the "# of samples" is adjusted accordingly

2 - # of Samples includes additional QA/QC samples

3 - This reference to semi-annual only includes a single event, as these locations are also included in the annual category

BLOOMFIELD TERMINAL - TABLE 1D

Facility-Wide Confirmation Groundwater Monitoring Cost Estimate

Analysis	Frequency	# of Sample Locations	# of Samples (1)	Cost/Sample	Cost per Year
Annual Refinery Complex (Non-RCRA Wells)					
8260B	Quarterly	31	164	\$90	\$14,760
8015B (GRO, DRO)	Quarterly	31	152	\$90	\$13,680
8270C	Quarterly	31	152	\$220	\$33,440
CO2/Alkalinity (310.1)	Quarterly	31	152	\$25	\$3,800
Cation Anion Balance + General Chem	Quarterly	31	152	\$170	\$25,840
6010 & 7470 (metals)	Quarterly	31	152	\$225	\$34,200
Filters			152	\$15	\$2,280
Level 4 Data Packet	Quarterly			10%	\$12,572
Annual Refinery Complex (RCRA Investigation Wells)					
8260B	Quarterly	19	76	\$90	\$6,840
8015B (GRO, DRO)	Quarterly	19	76	\$90	\$6,840
8270C	Quarterly	19	76	\$220	\$16,720
CO2/Alkalinity (310.1)	Quarterly	19	76	\$25	\$1,900
Cation Anion Balance + General Chem	Quarterly	19	76	\$170	\$12,920
6010 & 7470 (metals)	Quarterly	19	76	\$225	\$17,100
Filters			76	\$15	\$1,140
Level 4 Data Packet	Quarterly			10%	\$6,232
Semi-Annual - North Barrier Wall OW/CW					
8260B	Quarterly	16	72	\$90	\$6,480
8015B (GRO, DRO)	Quarterly	16	70	\$90	\$6,300
Level 4 Data Packet	Quarterly			10%	\$1,278
Semi-Annual River Bluff (Outfall 2 & 3, & Seeps 1, 6, 7, 8, & 9)					
8260B	Quarterly	7	38	\$90	\$3,420
CO2/Alkalinity (310.1)	Quarterly	7	34	\$25	\$850
Cation Anion Balance + General Chem	Quarterly	7	34	\$170	\$5,780
6010 & 7470 (metals)	Quarterly	2	10	\$225	\$2,250
Filters			8	\$15	\$120
Level 4 Data Packet	Quarterly			10%	\$1,230
Total Annual - Facility-Wide Groundwater Sampling & Analysis					\$237,972

Sampling conducted pursuant to June 2014 Facility-Wide Groundwater Monitoring Plan

1 - # of Samples includes additional QA/QC samples

TABLE 1E

San Juan River Sampling Cost Estimate

Analysis	Frequency	# of Sample Locations	# of Samples¹	Cost/Sample	Cost per year
8260B	Semi-Annual	4	14	\$90	\$1,260
8015B (GRO, DRO)	Semi-Annual	4	12	\$90	\$1,080
CO2/Alkalinity (310.1)	Semi-Annual	4	12	\$25	\$300
Cation Anion Balance + General Chem	Semi-Annual	4	12	\$170	\$2,040
6010 & 7470 (metals)	Semi-Annual	4	12	\$225	\$2,700
Filters			8	\$15	\$120
Level 4 Data Packet	Semi-Annual			10%	\$738
Annual analytical costs					\$8,238
Sampling Labor	Semi-Annual		4 hours each event	\$72/hour	\$576
Total Annual San Juan River Sampling Costs					\$8,814

Sampling pursuant to June 2014 Facility-Wide Groundwater Monitoring Plan

1 - # of Samples includes additional QA/QC samples

TABLE 2
Final Closure Cost Estimate
Western Refining - Bloomfield Refinery
North and South Aeration Lagoons
May 14, 2012

Item	Description	Quantity	Units	Unit Cost	Cost
Professional Services					
1	Analyses for waste characterization & investigation/soil confirmation sampling (Table 2)	1	LS	\$140,000	\$140,000
2	Final closure report	1	LS	\$20,000	\$20,000
3	Project administration (engineering, bidding, construction administration, etc.)	1	LS	\$18,700	\$18,700
Construction					
5	Mobilization	1	LS	\$6,200	\$6,200
6	Administrative costs (office facilities & staff, H&S plan, SWPPP, Insurance, eqpmt decon, QA/QC, etc.)	1	LS	\$12,500	\$12,500
7	Dewater lagoons (1 ft water over 25,092 sq. ft.) Dispose water at authorized on-site discharge	188,000	Gal	\$0.011	\$2,100
8	Excavate and load sludge from aeration lagoons for disposal at local NMED permitted landfill. ⁽¹⁾	310	CY	\$4	\$1,200
9	Transfer sludge from aeration lagoons to local NMED permitted landfill. ⁽²⁾	403	CY	\$12.5	\$5,000
10	Dispose of sludge at local landfill as Special Waste	403	CY	\$16.5	\$6,600
11	Remove and dispose of RCRA liners at local landfill ⁽³⁾	1	LS	\$5,340	\$5,300
12	Remove and dispose of non-RCRA composite geotextile/geonet layer and 100 mil liner at local landfill; stockpile cemented amended sand ^{(4) (5)}	1	LS	\$7,780	\$7,800
13	Transport and dispose of cemented amended sand at local NMED permitted landfill as special waste ⁽⁵⁾	605	CY	\$29	\$17,500
14	Excavate upper two feet of soils across all lagoons ⁽⁶⁾	1,859	CY	\$5	\$9,300
15	Transport and dispose of excavated soils at local landfill as Special Waste	2,416	CY	\$29	\$70,100
16	Demobilization	1	LS	\$2,500	\$2,500
TOTAL					\$324,800
	Inflation Factor ⁽⁷⁾	0.01%			\$3,248
CURRENT TOTAL ESTIMATED COST TO IMPLEMENT CLOSURE PLAN					\$328,048

Notes

- 1 Assumed dried sludge in-place volume = 25,092 sq. ft. x 0.333ft = 310 cy (special waste). Estimated truck yards = 310 cy x 1.3 (fluff) = 403 cy. Estimated excavation cost = \$4/cy
- 2 Estimated transportation cost to NMED permitted landfill in Aztec, NM = \$12.50/cy (\$125/hr @ 2hrs per trip & 20 yd. truck)
- 3 Assume three 20-yd trucks @ \$16.50/cy; \$750 transportation & 72 hours labor @ \$50/hr = \$5,340
- 4 Assume four 20-yd trucks @ \$16.50/cy, \$1,000 transportation, 72 hours labor @ \$50/hr, & stockpile cemented amended sand (\$4/cy x 465 cy) = \$7,780
- 5 Estimated in-place volume of cemented amended sand = 25,092 sq. ft. x .5 ft. x 1.3 = 465 cy. Estimated truck yards = 465 cy x 1.3 (fluff) = 605 cy
- 6 Estimated in-place volume of excavated soils beneath lagoons = 25,092 sq. ft. x 2 ft. = 1,859 cy. Estimated truck yards = 2,203 cy x 1.3 (fluff) = 2,416 cy
- 7 Implicit price deflator for 2010/implicit price deflator for 2009 (updated 12/22/2011) = 110.992/109.729 = 1.01%
<http://www.bea.gov> (Table 1.1.9 Implicit Price Deflators for GDP)
 LS - Lump Sum
 CY - cubic yard
 Gal - gallon

TABLE 2A
Investigation & Confirmation Sampling Cost Estimate
Western Refining - Bloomfield Refinery
North and South Aeration Lagoons

Analysis	# of Samples	Cost/Sample	Costs
Waste Characterization Samples ¹			
VOCs 8260B	155	\$90	\$13,950
TCLP SVOCs 8270C	155	\$220	\$34,100
Haz. Characteristics	155	\$140	\$21,700
TCLP Skinner List Metals	155	\$185	\$525
Sampling Labor	40 hours	\$75/hour	\$3,000
Subtotal			\$73,275
Investigation/Confirmation Samples ²			
VOCs 8260B	87	\$90	\$7,830
SVOCs 8270C	87	\$220	\$19,140
TPH 8015B (GRO, DRO, MRO)	87	\$90	\$7,830
Skinner List Metals	87	\$185	\$16,095
Sampling Labor	40 hours	\$75/hour	\$3,000
Subcontract drilling			\$12,000
Subtotal			\$65,895
Total			\$139,170

1 - sludge samples (25,092 sq. ft. x .33 ft. = 310 yds / 20 yds/sample) = 16 samples; cement amended sand samples (25,092 sq. ft. x .5 ft = 465 yds / 20 yds/sample) = 24 samples; excavated soil samples (25,092 sq. ft. x 2 ft. x 1.2 (fluff factor) / 27 (cu. ft/yd.) = 2,230 yds / 20 yds/sample) = 112 samples; potential leachate samples (RCRA liner, non-RCRA liner & French drain) = 3 samples; estimated total of 155 characterization samples

2 - assumes two samples (0-6" & 18-24") at each of 15 soil borings & 15 sidewall samples, one additional sample (lower interval) at each of the 15 soil borings, seven duplicate samples, and five equipment blanks

TPH - total petroleum hydrocarbons

GRO - Gasoline Range Organics

DRO - Diesel Range Organics

MRO - Motor Oil Range Organics

VOCs - volatile organic compounds

SVOCs - semi-volatile organic compounds

