**Harding Lawson Associates/
Wilder Construction Company
Joint Venture**

March 3, 1997

40446

Mr. Wayne Svejnoha
U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
Alaska State Office
222 West Seventh Avenue, #13
Anchorage, Alaska 99513-7599

**Final Report
Delivery Order 9
BLM Contract 1422-N660-C97-3025
Red Top Retort Site**

Dear Mr. Svejnoha:

On February 5, 1998, the Bureau of Land Management (BLM) retained Harding Lawson Associates/Wilder Construction Company Joint Venture (HLA/Wilder) to develop and submit a cost analysis report for cleanup options at the Red Top Retort site. The Red Top site is located on the Wood River approximately 18 miles upstream from Dillingham, Alaska. The village of Aleknagik, Alaska, is approximately 2 miles west of the site. This report presents the results of the cost analysis, including a brief narrative description of the alternatives evaluated. The analyses and cost estimates presented in this report are based on HLA/Wilder's review of project documents provided by the BLM. During this work, we have consulted with Mr. Mike Alcorn of the BLM.

DOCUMENTS REVIEWED BY HLA

HLA reviewed the following documents to facilitate our understanding of the work performed to date at the site.

- Site Assessment Report: BLM Red Top Retort Site, Wood River, Alaska by Quest Environmental, August 1994.
- Remedial Action Report: BLM Red Top Retort Site, Wood River, Alaska, by Quest Environmental, January 1995.
- Status Report: Remedial Technology, Red Top Retort Site Project by AQE, Inc., August 25, 1995.

HLA has not independently verified any of the information contained in the project documents.

BACKGROUND

The Red Top Retort Site processed mercury ore (cinnabar) derived from the Red Top Mine during a period from 1952 to 1955. Native soils in the vicinity of the retort site were contaminated with elemental mercury and bunker C fuel during retort operations. The Red Top Retort Site is located immediately adjacent to Wood River and is within the river's inactive flood plain. Remedial activities were undertaken at the site in the fall of 1994 under the direction of the BLM. Remedial activities included the demolition and decontamination of the retort shack and retort furnace, excavation, and

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stockpiling of soils contaminated with mercury and diesel-range organics (DRO), and the removal of numerous 55-gallon and 110-gallon drums containing bunker C fuel.

It is our understanding that the following materials remain at the site and require treatment and/or disposal.

- 270 fish totes, most of which contain mercury and DRO-contaminated soils. An unknown number of the fish totes contain demolition debris from the retort shack.
- Approximately 30 cubic yards of stockpiled DRO-contaminated soils.
- Approximately twelve 55-gallon drums containing water used to decontaminate equipment during the 1994 remedial action.

The fish totes were lined with a plastic liner before receiving the contaminated soil and placed in a fenced and lined storage area adjacent to the Wood River. Pre-excavation soil samples collected during the 1994 site assessment indicated mercury concentrations in soil up to 15,000 milligrams per kilogram (mg/kg), and DRO concentrations in soil to 140,000 mg/kg. However, mercury and DRO concentrations of the soil stored in the fish totes are unknown. Based on the documents and photographs provided by the BLM, the structural integrity of the fish totes is questionable.

REGULATORY STATUS OF THE REMAINING WASTES

The final disposition of the wastes stored at the site will be determined to a great degree by their status as either hazardous or nonhazardous (solid) wastes under federal and state regulations. Beneficiation and extraction wastes from mining operations are subject to the Bevill exemption for hazardous waste under the Resource Conservation and Recovery Act (RCRA). HLA researched the applicability of this exemption to the Red Top soils. Based on the U.S. Environmental Protection Agency (EPA) interpretation conveyed in the letter (Attachment 1), we believe the waste will be classified as a processing waste and that the Bevill exemption will not apply.

As a processing waste, the materials will be subject to the waste characterization requirements set forth under RCRA. Under RCRA, these materials will be classified as solid waste by virtue of their lack of toxicity if Toxicity Characteristic leaching Procedure (TCLP) analytical results for mercury are less than 0.2 milligrams per liter (mg/l). The State of Alaska regulates solid waste disposal under Section 18 of the Alaska Administrative Code, Chapter 60 (18 AAC 60). If TCLP analyses for mercury are greater than 0.2 mg/l, the wastes will be considered a RCRA hazardous waste. The Land Disposal Restrictions (LDRs) under RCRA require hazardous mercuric wastes to be further subdivided on the basis of their total mercury content. Hazardous wastes containing up to 260 mg/kg of total mercury are classified as "low level" wastes and must be stabilized before disposal by landfilling. Hazardous wastes having total mercury concentrations in excess of 260 mg/kg are "high level" wastes and must be retorted before disposal by landfilling.

The regulatory requirements and disposal costs for the waste will be dependent on its status as either a solid or a hazardous waste. To date, no samples from the fish totes or stockpiled soils have been analyzed. Characterization of the remaining waste will be required to determine the most cost-effective disposal method.

EVALUATION OF ALTERNATIVES

The BLM's Statement of Work for the Red Top Retort Site requested that HLA/Wilder evaluate and prepare a brief cost analysis for the following alternatives.

- Alternative 1 - Sample Wastes and Establish Regulatory Status
- Alternative 2 - Solidify Waste and Dispose in an Onsite Landfill
- Alternative 3 - Stabilize Soils by Mixing Soils with Sulphur
- Alternative 4 - Mechanically Separate Mercury and Dispose Soils in an Onsite Landfill
- Alternative 5 - Retort the Mercury and Dispose the Soils in an Onsite Landfill
- Alternative 6 - Dispose All Wastes in an Onsite Landfill
- Alternative 7 - Transport Soils to a Treatment, Storage, and Disposal Facility (TSDF) for Disposal

In reviewing stabilization options for mercury in soil, we were unable to find any references to a process utilizing sulfur as the stabilization agent. As a result, we have not addressed this alternative. While researching Alternative 7, we found that the RCRA LDRs require that hazardous wastes containing mercury be treated before disposal. Low-level mercury wastes must be stabilized before landfilling while high-level wastes will require retorting before landfilling. As a result, we have expanded Alternative 7 as follows:

- Alternative 7A - Transport Nonhazardous Waste to TSDF for Landfilling
- Alternative 7B - Transport Hazardous Waste to TSDF for Stabilization and Landfilling
- Alternative 7C - Transport Hazardous Waste to TSDF for Retorting and Landfilling

The following assumptions were made in preparing our cost estimates. These assumptions apply to all of the alternatives.

- A total of 270 fish totes are present on site. The totes are of 1 cubic yard (yd^3) capacity. 250 totes contain soil, the remaining contain miscellaneous retort shed demolition debris.

- The soil in the totes weighs approximately 1.75 tons per yd^3. The total weight of soil in the totes is no more than 440 tons.

- There are no more than 30 yd^3 of soil in the hydrocarbon-contaminated soil stockpile. The total weight of this material is no more than 50 tons.

- Construction equipment including an all terrain forklift and small backhoe and trained operators are available at Aleknagik.

A brief description of the approach and assumptions specific to each alternative are presented in the following sections. The table presents a summary of the estimated cost for each alternative. Cost estimate details for each alternative are presented in Attachment 2.

Red Top Retort Site Restoration Cost Study Summary of the Estimated Cost of Alternatives

Alternative Number	Description	Cost Estimate
1	Sample Wastes and Establish Regulatory Status	$144,500
2	Solidify Waste and Dispose in an Onsite Landfill	336,900
3	Stabilize Soils by Mixing with Sulphur	deleted
4	Mechanically Separate Mercury and Dispose Soil in an Onsite Landfill	818,500
5	Retort the Mercury and Dispose the Soil in an Onsite Landfill	1,293,500
6	Dispose All Waste in an Onsite Landfill	260,500
7A	Transport Nonhazardous Waste to TSDF for Landfilling	271,500
7B	Transport Hazardous Waste to TSDF for Stabilization and Landfill	344,300
7C	Transport Hazardous Waste to TSDF for Retorting and Landfill	1,226,700

Alternative 1 - Sample Wastes and Establish Regulatory Status (estimated cost $144,500)

The fish totes containing the contaminated soils are presently stacked three high within the existing containment area adjacent to the Wood River. To sample the soils stockpiled in the fish totes, equipment and local labor will be mobilized from nearby Alagnegik. A lined sampling area will be established immediately outside the existing containment area. A forklift will be used to move the totes to the sampling area. A composite sample will be collected from each tote and the totes will be labeled and returned to the containment area. A backhoe will be used to transfer soil from damaged totes into supersacks or other containers.

Three samples will be collected from the small stockpile of hydrocarbon-contaminated soils. The stockpile will be covered to meet the requirements of 18 AAC 78 for the short-term stockpiling of petroleum-contaminated soils.

Samples from the mercury-contaminated soils will be analyzed for total mercury by EPA Method 7471, and for DRO and residual-range organics (RRO) by methods AK 102 and 103, respectively. Up to 25 samples that exhibit high mercury levels will also be analyzed for TCLP mercury.

Approximately 2 weeks will be required to complete the sampling. Our estimate includes the cost to provide hazardous waste operations (HAZWOPER) training for local personnel so they may be employed in the sampling work.

Alternative 2 - Solidify Waste and Dispose in an Onsite Landfill (estimated cost $336,900)

Mercury-contaminated soil may be stabilized via the addition of a chemical agent which converts leachable metals to nonleachable minerals. HLA investigated the use of MAECTITE® chemical treatment to stabilize the Red Top soils. To stabilize the soils, liquid Maectite is mixed with the contaminated soils. The quantity of Maectite required to stabilize this waste would be established by

performing a small scale bench test before field application. We have assumed 5 percent MAECTITE by weight will be required to stabilize the mercury. The stabilized material would pass TCLP and be disposed in a permitted landfill onsite. Therefore, the cost to complete this alternative also includes the cost of constructing a permitted landfill near the old mine site (Alternative 6). We have also assumed sufficient construction equipment is available from the village of Aleknagik, to construct the landfill and transport the soils.

This alternative would be implemented under the following conditions:

- The soil is a solid rather than a hazardous waste but stabilization is a requirement for obtaining a solid waste disposal permit from the state.

- The untreated soil is a hazardous waste on the basis of TCLP results but bench-scale testing indicates it can be successfully stabilized with MAECTITE. It will also require approval from the EPA for onsite treatment of a characteristic waste.

Alternative 4 - Mechanically Separate Mercury and Dispose Soil in an Onsite Landfill (estimated cost $818,500)

Under this alternative, mercury would be physically separated from the soil using a proprietary system developed by Phase Remediation Inc., of Nova Scotia, Canada. The recovered mercury would be recycled and the soil disposed in a permitted landfill constructed near the old mine site (Alternative 6). In developing our cost estimate for this alternative we used information generated by AQE Inc. (AQE), and provided to BLM in their letter of August 25, 1995. Our assumptions for this alternatives are as follows:

- The concentrator is not available for lease or rent. Per AQE the cost to purchase the concentrator will be $400,000. We have not included the resale or salvage value of the equipment in our estimate.

- Equipment available locally is suitable for supporting the mechanical separation activities.

- The unit has the capacity to process 4 tons per hour. Approximately 14 days will be required to treat 440 tons of soil.

- A permit can be obtained to draw water from the Wood River for use in processing the soil.

- The State will require the treated soils to be disposed as a solid waste under 18 AAC 60. A landfill will be developed at the mine site (Alternative 6) to dispose the treated soil, retort demolition debris, and hydrocarbon-contaminated soil.

This approach results in recycling of the mercury and eliminates processing potentially hazardous waste onsite or transporting it offsite. This approach may eliminate the need to develop an onsite landfill. If the treated soil is not considered a process waste and post-treatment mercury and hydrocarbon levels are below cleanup levels for the site, it may be possible to dispose the treated soil onsite without constructing a landfill. However, additional work will be required to establish mechanical separation unit equipment cost, as well as set up and processing requirements for soils which also contain hydrocarbons.

Alternative 5 - Retort the Mercury and Dispose the Soil in an Onsite Landfill (estimated cost $1,293,500)

This alternative is similar to Alternative 4 in that it recycles the mercury rather than transporting the soil and disposing it as a waste. Our assumptions for this alternative are as follows:

- Onsite retorting can be performed for the same cost estimated by Philip Services Corporation (Philip) for offsite retorting.
- Equipment available locally is suitable for supporting retorting activities.
- The retort unit will process 2 tons of soil per hour. Approximately 30 days will be required to treat 440 tons of soil.
- The retorted soil will be considered a processing waste under existing regulations. The State will require the retorted soils to be disposed as a solid waste under 18 AAC 60. A landfill will be developed at the mine site (Alternative 6) to dispose the treated soil, retort demolition debris, and hydrocarbon-contaminated soil.

We were not able to locate a subcontractor willing to provide onsite retorting. Additional work will be required to evaluate the availability and costs for an onsite retort unit and its ability to process hydrocarbon-contaminated soil. As with Alternative 4, retorting onsite may eliminate the need to develop an onsite landfill. If the treated soil is not considered a process waste and post-retort mercury and hydrocarbon levels are below cleanup levels for the site, it may be possible to dispose the treated soil onsite without constructing a landfill.

Alternative 6 - Dispose All Waste in an Onsite Landfill (estimated cost $260,500)

This alternative involves the design, permitting, construction, and monitoring of a landfill at the mine site. Our assumptions for this alternative are as follows:

- The wastes are solid rather than hazardous wastes.
- A suitable location for a landfill exists at the mine site and is owned by the BLM. The BLM will implement deed restrictions for future land use at the landfill site.
- A Class 1 solid waste landfill will be constructed. Landfill permitting and design will be performed in accordance with the regulations set forth in 18 AAC 60.
- The State will waive the leachate collection system requirement for the Class 1 landfill and require a 5-year post-closure monitoring period.
- Equipment available locally is suitable for improving the road to the mine site, constructing the landfill, and placing the waste.

This alternative can only be implemented for disposal of nonhazardous wastes. If the wastes are classified as hazardous on the basis of TCLP results, onsite treatment as described in Alternatives 2, 4, or 5 will be required to reduce their toxicity.

Alternative 7A - Transport Nonhazardous Waste to TSDF for Landfilling (estimated cost $271,500)

Alternative 7B - Transport Hazardous Waste to TSDF for Stabilization and Landfilling (estimated cost $344,300)

Alternative 7C - Transport Hazardous Waste to TSDF for Retorting and Landfilling (estimated cost $1,226,700)

All of the wastes will be hauled offsite for disposal under Alternative 7. Our assumptions for Alternative 7 are as follows:

- The wastes will be repackaged before shipment. The totes will be placed in supersacks or other suitable containers.
- Approximately 14 days will be required onsite to repackage and load the wastes. Suitable equipment is available from the village of Aleknagik to support this activity.
- Under Alternative 7A, TCLP analytical values for mercury are less than 0.2 mg/l for all of the waste. Therefore, it would be transported and disposed as a solid waste rather than a hazardous waste.
- Under Alternative 7B, the mercury-contaminated soil is a "low level" hazardous waste. Per the LDRs, it will be stabilized before landfilling.
- Under 7C, the mercury-contaminated soil is a "high level" hazardous waste and will require retorting before landfilling.

As no wastes will be disposed onsite, this alternative has the advantage of minimizing the BLM's long-term liability. Some variation of this alternative will be implemented in the event it is not possible to dispose solid waste onsite.

Thank you for the opportunity to assist you with this project. Please call me at 563-8102 if you have questions.

Yours very truly,

HLA/WILDER JV

Steven A. Johnson, P.E.
Civil Engineer - 8032

SGJ
QC/RW/BN/TE/mm/W0612R

Attachments: - 1 - EPA letter to ADEC dated April 26, 1993
- 2 - Estimated Costs for the Alternatives

ATTACHMENT 1

EPA LETTER TO ADEC DATED APRIL 26, 1993

9441.1993(04)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

APR 26 1993

OFFICE OF
SOLID WASTE AND EMERGENCY RESPONSE

Ms. Kristen DuBois Goodwin
Hazardous Waste Program Coordinator
Alaska Department of Environmental Conservation
Northern Regional Office
1001 Noble Street, Suite 350
Fairbanks, Alaska 99701-4980

Dear Ms. Goodwin:

This is in response to your March 16, 1993 letter regarding the regulatory status of solid waste generated from gold/mercury amalgam retorting. In particular, you requested that we concur with your interpretation that the solid waste generated from the retort process, including contaminated soils containing black sands, is beneficiation and extraction waste and subject to the exclusion found in 40 CFR 261.4(b)(7).

The operation that you described in your letter involves metal bearing materials that undergo retorting. Based upon EPA's September 1, 1989 final rule (54 FR 36618), and the information provided in your letter, EPA would interpret the retorting operation described in your letter to be mineral processing under EPA's regulations. Specifically,

> . . . heating operations such as smelting (i.e., any metallurgical operation in which metal is separated by fusion from impurities) and fire-refining (e.g., retorting) are clearly and have always been considered within the realm of mineral processing. Here, the physical structure of the ore or mineral is destroyed, and neither the product stream nor the waste stream(s) arising from the operation bear any close physical/chemical resemblance to the ore or mineral entering the operation (54 FR 36618).

Mineral processing wastes do not retain the Bevill exemption unless they are one of the 20 permanently exempt mineral processing waste listed in 40 CFR 261.4(b)(7)(i)-(xx). (No retorting wastes are among the 20 permanently exempt mineral processing wastes.) Therefore, EPA believes that any solid waste generated from the retorting operation is no longer covered by the Bevill exclusion in 40 CFR 261.4(b)(7).

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According to your letter, the site ceased operations in the 1960s and cleanup of the site will involve removal of contaminated soil and debris. The September 1, 1989, rule does not impose Subtitle C requirements on mineral processing wastes disposed of in Alaska prior to March 1, 1990, unless those wastes are actively managed. Active management includes physical disturbance of the wastes (see 54 FR 36597). Therefore, if the retort wastes were actively managed (i.e., removed for disposal) after March 1, 1990, the wastes would be subject to Subtitle C control if they either exhibit a hazardous characteristic or are listed. If these wastes are not actively managed, Subtitle C requirements do not apply.

I hope this letter clarifies the regulatory status of the retort wastes you described. If we can be of further service, or if you have any questions, please do not hesitate to call Robert Tonetti, Chief, Special Wastes Branch at (703) 308-8424.

Sincerely,

Sylvia K. Lowrance
Director
Office of Solid Waste

ATTACHMENT 2

ESTIMATED COSTS FOR THE ALTERNATIVES

RED TOP RETORT SITE RESTORATION COST STUDY
SUMMARY OF THE ESTIMATED COST OF ALTERNATIVES

ALTERNATIVE NUMBER	DESCRIPTION	COST ESTIMATE
1	SAMPLE WASTES AND ESTABLISH REGULATORY STATUS	$ 144,500
2	SOLIDIFY WASTE AND DISPOSE IN AN ONSITE LANDFILL	$ 336,900
3	STABILIZE SOILS BY MIXING WITH SULPHUR	Deleted
4	MECHANICALLY SEPARATE MERCURY AND DISPOSE SOIL IN AN ONSITE LANDFILL	$ 818,500
5	RETORT THE MERCURY AND DISPOSE THE SOIL IN AN ONSITE LANDFILL	$1,293,500
6	DISPOSE ALL WASTE IN AN ONSITE LANDFILL	$ 260,500
7A	TRANSPORT NON-HAZARDOUS WASTE TO TSDF FOR LANDFILLING	$ 271,500
7B	TRANSPORT HAZARDOUS WASTE TO TSDF FOR STABILIZATION AND LANDFILL	$ 344,300
7C	TRANSPORT HAZARDOUS WASTE TO TSDF FOR RETORTING AND LANDFILL	$1,226,700

RED TOP RETORT SITE RESTORATION COST STUDY

ALTERNATIVE 1
SAMPLE WASTES AND ESTABLISH REGULATORY STATUS

		COST ESTIMATE
Prepare Preconstruction Documents		
Work Plan	$	4,000
Sampling and Analysis Plan	$	1,000
Health and Safety Plan	$	1,000
Plan Coordination	$	1,500
HAZWOPER Training for Local Hires	$	6,000
Mobilization/Demobilization	$	10,000
Site Preparation	$	2,000
Sample Waste Streams	$	53,000
Laboratory Analyses	$	58,000
Compile Analytical Data and Final Report	$	8,000
TOTAL ESTIMATED COST OF ALTERNATIVE 1	$	144,500

RED TOP RETORT SITE RESTORATION COST STUDY

ALTERNATIVE 2
SOLIDIFY WASTE AND DISPOSE IN AN ONSITE LANDFILL

		COST ESTIMATE
Subcontract management	$	2,000
Perform Maectite Laboratory Treatability Study	$	12,000
Work Plan Amendment	$	2,000
Procure Maectite	$	20,000
Ship Maectite	$	26,400
Apply Maectite	$	10,000
Maectite Shipping Drum Disposal	$	4,000
Construct and Monitor SWLF (Alt 6)	$	260,500
TOTAL ESTIMATED COST OF ALTERNATIVE 2	$	336,900

RED TOP RETORT SITE RESTORATION COST STUDY

ALTERNATIVE 4

MECHANICALLY SEPARATE MERCURY AND
DISPOSE SOIL IN AN ONSITE LANDFILL

		COST ESTIMATE
Work Plan Modification	$	5,000
Purchase KMS Concentrator	$	400,000
Royalty Fee	$	20,000
Shipping from Nova Scotia to Site and Return	$	50,000
Subcontractor Supervision	$	14,000
Mobilization/Demobilization/Site Setup	$	15,000
Treat Mercury Contam. Soils	$	42,000
IDW disposal	$	6,000
Construct and Monitor SWLF (Alt 6)	$	260,500
Remedial Action Report Preparation	$	6,000
TOTAL ESTIMATED COST OF ALTERNATIVE 4	$	818,500

RED TOP RETORT SITE RESTORATION COST STUDY

ALTERNATIVE 5
RETORT THE MERCURY AND DISPOSE THE
SOIL IN AN ONSITE LANDFILL

		COST ESTIMATE
Work Plan Modification	$	6,000
Mobilization/Demobilization	$	100,000
Retorting	$	828,000
Contactor Supervision and Management	$	99,000
Construct SWLF for treated soil disposal (Alt 6)	$	260,500
TOTAL ESTIMATE COST OF ALTERNATIVE 5	$	1,293,500

RED TOP RETORT SITE RESTORATION COST STUDY

ALTERNATIVE 6
DISPOSE ALL WASTE IN AN ONSITE LANDFILL

		COST ESTIMATE
Preliminary ADEC Coordination	$	1,000
Health and Safety Plan Preparation	$	1,000
Pre-design Site Visit		
Topographic Survey and Preliminary Control	$	8,000
Hydrologic Survey	$	10,000
Class 1 Landfill Design	$	20,000
Permit Application Preparation	$	8,000
Permit Processing	$	12,000
Mobilization/Demobilization	$	12,000
Minesite Road Improvements	$	20,000
Construct Modified Class 1 SWLF		
Clear and Grub Site	$	5,000
Construct Drainage control Improvements	$	2,000
Excavate Landfill	$	12,000
Liner Purchase and Placement	$	18,000
Move Contaminated Soils Into Landfill	$	15,000
Place Top Liner and Cover	$	12,000
Revegetate cover	$	4,000
Construct Groundwater Monitoring System	$	15,000
Construct Site control Measures	$	4,500
Perform As-built Survey	$	4,000
Prepare Record Drawings	$	3,500
Post Use Confirmation Sampling and Analyses	$	9,000
Remedial Action Report Preparation	$	12,000
Record SWLF	$	2,500
Monitoring and Documentation for 5 Years	$	50,000
TOTAL ESTIMATED COST OF ALTERNATIVE 6	$	260,500

RED TOP RETORT SITE RESTORATION COST STUDY

ALTERNATIVE 7A
TRANSPORT NON-HAZARDOUS WASTE TO
TSDF FOR LANDFILLING

		COST ESTIMATE
Work Plan Preparation	$	6,000
ADEC Coordination	$	1,500
Subcontract Management	$	8,000
Mobilization/Demobilization	$	10,000
Repackage Waste for Shipment & Load	$	28,000
Post Use Confirmation Sampling and Analyses	$	9,000
Transport Waste to Landfill	$	176,000
Landfill Nonhazardous Waste	$	8,800
Disposal Sub Labor, Equipment, and ODCs	$	18,200
Remedial Action Report	$	6,000
TOTAL ESTIMATED COST OF ALTERNATIVE 7A	$	271,500

RED TOP RETORT SITE RESTORATION COST STUDY

ALTERNATIVE 7B
TRANSPORT HAZARDOUS WASTE TO TSDF
FOR STABILIZATION AND LANDFILLING
(Mercury TCLP>0.2ppm and Total Mercury <260 ppm)

		COST ESTIMATE			
Work Plan Preparation	$	6,000			
ADEC Coordination	$	1,500			
Subcontract Management	$	8,000			
Mobilization/Demobilization	$	10,000			
Repackage Waste for Shipment & Load	$	28,000			
Post Use Confirmation Sampling and Analyses	$	9,000			
Transport Waste to Landfill	$	200,000	$	455	per ton
Stabilize and Landfill Hazardous Waste	$	57,600	$	131	per ton
Disposal Sub Labor, Equipment, and ODCs	$	18,200			
Remedial Action Report	$	6,000			
TOTAL ESTIMATED COST OF ALTERNATIVE 7B	$	344,300			

RED TOP RETORT SITE RESTORATION COST STUDY

ALTERNATIVE 7C
TRANSPORT HAZARDOUS WASTE TO TSDF
FOR RETORTING AND LANDFILLING
(Mercury TCLP>0.2ppm and Total Mercury >260 ppm)

		COST ESTIMATE			
Work Plan Preparation	$	6,000			
ADEC Coordination	$	1,500			
Subcontract Management	$	8,000			
Mobilization/Demobilization	$	10,000			
Repackage Waste for Shipment & Load	$	28,000			
Post Use Confirmation Sampling and Analyses	$	9,000			
Transport Waste to Landfill	$	312,000	$	709	per ton
Retort and Landfill Hazardous Waste	$	828,000	$	1,882	per ton
Disposal Sub Labor, Equipment, and ODCs	$	18,200			
Remedial Action Report	$	6,000			
TOTAL ESTIMATED COST OF ALTERNATIVE 7C	$	1,226,700			