File LANL TA 50 Red 96

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TA 50

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

July 1, 1996

G. Thomas Todd, Area Manager
Department of Energy
Albuquerque Operations Office
Los Alamos Area Office
Los Alamos, New Mexico 87544

Dear Mr. Todd:

RE: Approval of Closure Plan for the Controlled Air Incinerator
EPA I.D. No. EPA I.D. No. NM 0890010515

On May 13, 1996, the New Mexico Environment Department (**NMED**) released for a thirty (30) day comment period pursuant to New Mexico Hazardous Waste Management Regulations (HWMR-7), Subpart VI, Sections 265.112(d)(4) and 265.118(f) a proposed approval of Los Alamos National Laboratory's (**LANL**'s) Amended Closure Plan for the Controlled Air Incinerator located at Technical Area 50. The comment period ended on June 12, 1996, with two (2) written comments received. Copies of the comments and responses are enclosed for your information. The comments did not address the proposed Closure Plan specifically, thus no changes are required in the Closure Plan for HRMB approval.

The New Mexico Environment Department hereby approves the proposed Closure Plan for the Controlled Air Incinerator (**CAI**). The amended plan includes the Dismantlement Revision, and replaces Attachment E.4 in LANL's Operating Permit, approved November 8, 1989. Enclosed please find a clean copy of the Closure Plan to be inserted into LANL's Operating Permit.

8807

Please contact Mr. Michael Chacón of my staff at (505) 827-1561 if you have any questions.

Sincerely,

Ed Kelley, Ph.D, Director
Water and Waste Management Division

Enclosures

cc: Benito J. Garcia, Chief, HRMB
Barbara Hoditschek, RCRA Permits Program Manager
David Neleigh, EPA (6PD-N)
File - LANL TA-50 Red 96, and Reading

HRMB Responses to Comments on CAI Closure Plan

SECTION 1: Responses to First Commentor

Item 1: "I believe that the State of New Mexico Environment Department does not have sufficient confidence in the Los Alamos National Laboratory."

Response: 1) Please note that these responses represent HRMB only, and not NMED as a whole.

2) HRMB's purpose is to ensure that LANL complies with the regulations of the Resource Conservation and Recovery Act. Part of that process is public participation for which HRMB thanks you for taking the opportunity to be a part of. However, your comment does not specifically address the Amended Closure Plan.

Item 2: "As far as I am concerned, the Laboratory wrote the book on hazardous and radioactive materials."

Response: HRMB understands that this is a figure of speech expressing an opinion. See Item 1, Response 2.

Item 3: "Everyone else, including your department, DOE and the federal investigators, are all rookies compared with the trial and error education that these people have received through their work."

Response: HRMB understands that this is a figure of speech expressing an opinion. See Item 1, Response 2.

Item 4: "The Laboratory should be teaching you, as well as the other organizations, what it is all about."

Response: HRMB understands that this is a figure of speech expressing an opinion. See Item 1, Response 2.

Item 5: Nuclear Research and Development is absolutely necessary like pinto beans, some by products may be unpleasant and embarrassing but rectifiable."

Response: HRMB appreciates the analogy.

Item 6: "We have spent millions of dollars unnecessarily on hazardous and radioactive materials because of the testing and influx of all of the agencies involved in these responsibilities. Example: Two gas tanks on my commercial property would have cost me $20,000 to remove and to aerate contaminated hydrocarbon materials. But through the regulations and testing, and the manpower it took to send the multitude of 55 gallon drums full of

soil elsewhere with new soil coming in, over a year later and an estimated million dollars plus of cost to the DOE, it was ridiculous and criminal to blow that kind of money."

Response: See Item 1, Response 2.

Item 7: "Also, we had about 67 people involved in a small confined area, all with hard hats, and only two people were doing the digging. This was because of all these organizations involved."

Response: See Item 1, Response 2.

Item 8: "Simplification is necessary."

Response: The environmental community as a whole is aware of this need and much effort is being spent toward this goal. HRMB is an active participant in studying emerging, cost-effective technologies, the rapid commercialization of same, as well as studying regulatory reform, such as California's proposed use of Risk-Based Corrective Action, and New Jersey's proposed use of cost-benefit analyses of ground-water monitoring.

Item 9: "The Lab should have the lead in any of these endeavors, including the CAI, without mickey mouse interference of the rest of the populous and/or organizations that know not that they know not."

Response: See Item 1, Response 2.

Item 10: "Full appreciation and confidence must be given to the Los Alamos National Laboratory who wrote the book on hazardous and radioactive materials, and extremely necessary Nuclear Research."

Response: See Item 1, Response 2.

Item 11: "p.s. The optimum goal is to save time and money."

Response: HRMB is mandated by law to protect human health and the environment. Saving time and money is a secondary concern which is also addressed with LANL.

SECTION 2

Item 1: "As a consultant in 1994, I performed risk assessment studies of the Controlled Air Incinerator (CAI), in preparation for re-start after extensive improvement

retrofits. This is a safe facility with miniscule risk to the region, while offering benefits of volume reduction and chemical conversion of hazardous wastes now in storage at LANL."

Response: HRMB appreciates your singular insight and experience with the CAI. HRMB agrees that operated correctly, the CAI is not a threat to human health and the environment, and presents the benefits you mention.

Item 2: "Opponents waged incessant misrepresentation of environmental impact and benefits of operation. It is very unfortunate that DOE and LANL officials lowered the priority of the CAI to the point that LANL now proposes to permanently close and dismantle this useful facility, wasting the money already invested."

Response: HRMB acknowledges your concerns.

Item 3: "If the CAI is beyond any possible resurrection, the Amended Closure Plan should be approved without delay."

Response: HRMB acknowledges your opinion.

Item 4: "I urge you to resist any efforts by anti-nuclear activists to drag the issue along for their own publicity purposes."

Response: HRMB appreciates your concern, however, no such activity is anticipated.

Item 5: "Because of the apparent irreversible budgetary decision, I see no useful purpose to be served by a public hearing."

Response: HRMB acknowledges your opinion.

Item 6: "There may be some in this community that will seek a hearing simply to obtain a pulpit for further frightening the public about Los Alamos activities and about incinerators in general. Such a pulpit should not be provided."

Response: The process for requesting a public hearing includes disclosing the issues to be raised. If no substantive issues are presented, cause for a hearing may not be justified. The decision to hold a hearing is made by upper management after considering all the issues presented in hearing requests.

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CLOSURE PLAN
PERMIT ATTACHMENT E.4.
NM 0890010515-1

E.4. Chemical Waste Incinerator

The waste incinerator is located in Building 37 at Technical Area 50 (Figure E.5.1.). The controlled-air incinerator is rated at a nominal 45 kilograms per hour waste feed throughput. The incinerator is currently permitted to burn PCB-contaminated liquid materials and radioactive wastes. Modifications to the incinerator include additions of liquid waste tanks and solid waste feed preparation lines, a gravity ash removal system, a high-efficiency off-gas cleanup system, and backup utility systems. Standard combustion equipment has been modified to permit effective incineration of waste in solid, liquid, slurry, or gaseous form. Particular attention has been given to engineering for proper waste containment with an emphasis on radioactivity.

E.4.1. Estimate of Maximum Waste in Storage and Treatment

The maximum inventory of hazardous wastes stored and treated at any one time in the TA-50 waste incinerator is estimated at 8 cubic meters (2200 gallons).

E.4.2. Description of Waste Handled

The incinerator and the flue gas treatment systems are capable of combusting a variety of hazardous wastes, including chemical waste, mixed waste, low-level radioactive wastes and transuranic wastes. The Laboratory wastes are a mixture of liquid and solid hazardous wastes composed of various organic solvents and liquids, as well as chemically contaminated paper, wood, and plastics. The liquids can contain either characteristic or listed wastes containing HWMR-5, Part II, Appendix VIII constituents. The incinerator burns all HWMR-5, Part II, Appendix VIII constituents with an incinerability ranking equal to or better than carbon tetrachloride.

E.4.3. Closure Procedure

E.4.3.1. Partial Closure

No partial closure of this unit is expected to occur. Any requirement for decontamination to perform maintenance, without total removal of the unit, is not considered closure. Components removed and replaced will be decontaminated or disposed of as regulated waste.

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E.4.3.2. Final Closure

All remaining wastes will be incinerated before shutting down the incinerator. If for some reason it is not possible to incinerate all the waste on the site, the waste will be sent to a permitted off-site treatment or disposal facility.

Upon the decision to close the facility, the equipment and building will be surveyed to determine the nature and levels of both radioactive and hazardous chemical contamination. Using the Laboratory guidelines and procedures, a decommissioning document will be prepared describing in detail the methods and procedures for decontamination, demolition, packaging, and disposal. All materials generated from decontamination and demolition will be treated as radioactive or mixed waste and disposed of in accordance with appropriate regulations. A copy of the final decommissioning document will be provided to the EID upon publishing.

When all the waste inventory has been properly disposed of, the unit will be decontaminated as follows: First, the entire incineration system (incinerator, all relevant lines and pumps, and the air pollution control system) will be disassembled and inspected. Those components amenable to decontamination will be cleaned by washing with Liquinox(@) or Alconox(@) solution in water, followed by a thorough steam cleaning. The spent cleaning solution will be collected and analyzed for hazardous constituents. If no constituents are detected, these components will be deemed decontaminated and released for reuse or disposal. If constituents are detected, further cleaning will be repeated until decontamination is verified. Those components not amenable to decontamination, the two incinerator chambers, including all attached refractory and residual solid residue, will be sealed and sent to a designated radioactive mixed waste disposal facility. The manner of disposal will depend on any residual radionuclide contamination as well as any residual hazardous waste contamination. All radioactive components will be decontaminated to the extent practicable and disposed of according to appropriate Department of Energy orders.

Personnel involved in decontaminating the incinerator will wear protective equipment, including, acid/solvent-resistant coveralls, head protection, neoprenecoated gloves, and boots, Wrists and ankles are to be taped to protect against upward and inward splash. As a minimum protection, face shields will be worn. Full face respirators will be used if specified by the Laboratory's Industrial Hygiene Group, HSE-5, following a field inspection.

The protective clothing and tools used during the wash down will be cleaned with detergent and water. The wash waster will be collected and analyzed. If the wash water is non-hazardous, the water will be discharged to the industrial waste water sewer. If

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the wash water contains hazardous constituents, it will be treated on-site or transported off-site to a permitted facility. Mops and rags used for clean-up will be placed in drums for transport to Area L, with ultimate off-site disposal at a permitted facility.

E.4.4. Decontamination Verification

Before the first wash down, two samples will be taken of the clean Liquinox(@) or Alconox(@) solution in water and analyzed for the constituents listed in Table E.4.2.

One additional clean wash solution sample will be taken for each additional washdown event. These analytical results provide background data for decontamination verification.

Dirty wash-down solutions will be analyzed for the constituents listed in Table E.4.2. Analytical procedures will conform to methods found in SW 846. Equipment will be considered to be contaminated if the dirty wash solutions show a significant increase in the listed constituents over the clean wash solution.

The constituents listed in Table E.4.2. include regulated constituents normally treated in the unit. A scan for volatile and semivolatile organics is performed to ensure that solvents commonly used within the Laboratory have not contaminated the unit.

Successful decontamination is defined as:

1. No detectable hazardous constituents in the final sample, or
2. Detectable hazardous constituents in the final sample are equal to or less than, at the 0.01 confidence level, their concentration in the unused washwater or background sample.

An alternative demonstration of decontamination may be proposed and justified at the time of closure as circumstances indicate. The Director will evaluate the proposed alternative in accordance with the standards and guidance then in effect and, if approved, incorporate by permit modification the alternative into the closure plan.

E.4.5. Closure Schedule

Characterization of the final delivery of hazardous waste may require up to 30 days. An estimated 60 days will be required to schedule and process the final wastes on hand. Once the chemical decontamination is completed the incinerator will be surveyed for radioactive contamination in preparation for decommissioning.

The survey of the incinerator facilities to determine the nature and level of radioactive contamination and to prepare the decommissioning document is estimated to take one year.

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Decommissioning and final disposal are estimated to take up to one year.

The year of closure for the TA-50-37 incinerator is 2100. Closure will observe the schedule given in Table E.4.1.

E.4.6. Closure Certification

An independent registered professional engineer and the Permittee shall witness the closure and ensure that the closure follows this plan. Upon completion of closure, the engineer and the DOE shall prepare a letter certifying that the facility has been closed in accordance with this plan. The letter shall be dated and signed by each party, stamped by the registered engineer, and the original copy submitted by the DOE to the Director of NMEID. One copy shall be maintained at the DOE office and one copy maintained by the HSE-8 Regulatory Compliance Section.

E.4.7. Sampling and Analytical Procedure

The following section defines procedures and methods for sampling, analysis and documentation applicable to closure plans. While the procedures and method are specific, any applicable procedure or method given in SW-846 may be used if conditions or experience shows the alternate method to be more appropriate. All analytical procedures actually used will be annotated in the final closure report. Disposable samplers may be used.

Samples will be taken, placed in bottles, sealed, tagged, and immediately packed in vermiculite, sawdust, or, if refrigeration is required an insulated container with ice. One sample for every ten samples will be either duplicated or split. The duplicated or split sample will be identified by a code so that its source is not available to the analytical laboratory, but analytical results can be compared to its twin.

Sample containers appropriate for the requested analyses will be used for all samples. Sampling will be conducted in accordance with procedures given in *Samplers and Sampling Procedures for Hazardous Waste Streams*, EPA 600/2-80-018 and/or SW 846.

E.4.7.1. Solid Residues Sampling

Under normal circumstances the following soil sampling information is inapplicable. Should, however, spills occur outside the building, sampling of the area will be required to verify that no hazardous constituents remain upon closure. The sampling procedures outlined below are used to determine the amount of hazardous material deposited on a particular area of land, or to determine the leaching rate of the material, or determine the

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residue level on the soil. Adequate preparation ensures that proper sampling is accomplished.

Surface soil samples will be collected with a trowel or scoop. To sample below 3 in. (8 cm), samples will be collected with a Veihmeyer soil sampler. Drums of solid residues will be sampled with a core sampler or Veihmeyer sampler. Drums unable to be sampled will be assumed to be hazardous waste.

E.4.7.1.1. Cleaning of Sampler

It is important to clean the samplers after each site is sampled. An unused disposable sampler may be presumed clean if still in a factory sealed wrapper. Unsealed samplers will be cleaned prior to use. The samplers will be washed with a warm Liquinox(@) or Alconox(@) solution, rinsed several times with tap water, rinsed with distilled water, drained of excess water, and air-dried or wiped.

E.4.7.1.2. Sampling Procedures Trowel or Scoop

- Take small, equal portions of sample from the surface or near the surface of the material to be sampled.
- Combine the samples in a glass container.
- Cap the container, attach a label and seal, record in field log book, and complete the sample analysis request sheet and chain-of-custody record.

Veihmeyer Sampler

- Assemble the sampler by screwing in the tip and drive head on the sampling tube.
- Insert the tapered handle (drive guide) of the drive hammer through the drive head.
- Place the sampler in a perpendicular position on the material to be sampled.
- With the left hand holding the tube, drive the sampler into the material to the desired sampling depth by pounding the drive head with the drive hammer. Do not drive the tube further than the tip of the hammer's drive guide.
- Record the length of the tube that penetrated the material.
- Move the drive hammer onto the drive head. In this position, the hammer serves as a handle for the sampler.

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- Rotate the sampler at least two revolutions to shear off the sample at the bottom.

- Lower the sampler handle (hammer) until it just clears the two ear-like protrusions on the drive head and rotate about 90 degrees.

- Withdraw the sampler from the material by pulling the handle (hammer) upwards. When the sampler cannot be withdrawn by hand, as in deep soil sampling, use a pullerjack and grip.

- Dislodge the hammer from the sampler, turn the sampler tube upside down, tap the head gently against the hammer, and carefully recover the sample from the tube. The sample should slip out easily.

- Store the core sample in a 1,000 or 2,000 ml (1 qt or 1/2 gal) sample container.

- Label the sample, affix the seals, record in the field log book, complete the sample analysis request sheet and chain-of-custody record, and deliver the samples to the laboratory for analysis.

E.4.8.2. Liquid Sampling

A Coliwasa sampler or similar device will be used to sample water solutions in order to determine background parameters before washing the area; it will also be used to sample the dirty wash water used in cleaning equipment. The recommended model of the Coliwasa is shown in Figure E.4.2, the main parts consisting of the sampling tube, the closure-locking mechanism, and the closure system. As an alternative to the Coliwasa, glass tubes may be used to sample liquids. The primary advantage in using a glass tube is that the tube will be disposed of as hazardous waste after each sample is collected, thus eliminating the potential for cross-contamination.

E.4.8.2.1. Cleaning of Sampler

The sampler must be clean before use. An unused disposable sampler may be presumed clean if still in a factory sealed wrapper. Unsealed samplers will be cleaned prior to use. The used sampler must be washed with a warm detergent solution (Liquinox(@) or Alconox(@)), rinsed several times with tap water, rinsed with distilled water, drained of excess water, and air-dried or wiped dry. A necessary piece of equipment for cleaning the tube of the Coliwasa is a bottle brush that fits tightly inside the diameter of the tube. The brush is connected to a rod of sufficient length to reach the entire length of the sampler tube. Using this ramrod and fiber-reinforced paper towels, the Coliwasa tube may be quickly

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cleaned. Improper cleaning of sample equipment will cause cross-contamination of samples. Prevention of contamination is of particular importance in these samples. Clean samples should be stored in polyethylene plastic tubes or bags in a clean and protected area.

E.4.8.2.2. Sampling Procedures

- Assemble the Coliwasa sampler.
- Make sure that the Coliwasa sampler is clean.
- Check to make sure the sampler is functioning properly. Adjust the locking mechanism, if necessary, to make sure the neoprene rubber stopper provides a tight closure.
- Wear necessary protective clothing and gear and observe required sampling precautions.
- Put the sampler in the open position by placing the stopper rod handle in the T-position and pushing the rod down until the handle sits against the sampler's locking block.
- Slowly lower the Coliwasa sampler into the liquid at a rate that permits the levels of the Liquid inside and outside the sampler tube to be about the same. If the level of the liquid in the sampler tube is lower than that outside the sampler, the sampling rate is too fast and will result in a non-representative sample.
- When the sampler stopper hits the bottom of the liquid container, push the sampler tube downward against the stopper to close the sampler. Lock the sampler in the closed position by turning the T-handle until it is upright and one end rests tightly on the locking block.
- Slowly withdraw the sampler from the container with one hand while wiping the sampler tube with a disposable cloth with the other hand.
- Carefully discharge the sample into a glass container by slowly opening the sampler. This is done by slowly pulling the lower end of the T-handle away from the locking block while the lower end of the sampler is positioned in the glass container.
- Cap the glass container, attach a label and seal, record in the field log book, and complete the sample analysis request sheet and chain-of-custody record.

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- Unscrew the T-handle of the sampler and disengage the locking block. Clean the sampler on-site or store the contaminated parts of the sampler in a plastic storage tube or bag for subsequent cleaning. Store used rags in plastic bags for subsequent disposal.

E.4.8.3. Sample Handling and Documentation

Soil and liquid samples will be analyzed either at LANL or at a commercial laboratory. In either case, each sample will be labeled, sealed, and accompanied by a chain-of-custody and a sample analysis request form.

The sample container must be sealed with a gummed paper seal attached to the container in such a way that the seal must be broken in order to open the container. The seal and sample tag must be completed with a waterproof pen. An example of a sample seal is shown in Figure E.4.3.

The sample label is necessary to prevent misidentification of samples and shall include, if applicable, the grid number referenced to positions staked on the site perimeter. The field information in the case of soil sampling, shall include observations such as the soil texture and surface appearance, ambient temperature and cloud cover at time of sampling, and precipitation conditions 24 hours before sampling. An example of a sample label is shown in Figure E.4.4.

The chain-of-custody form is necessary to trace sample possession from the time of collection and must accompany every sample. This record becomes especially important when the sample is to be introduced as evidence in litigation. This is a two-page record with the original accompanying shipment and the copy retained by the Laboratory. An example of this form is shown in Figure E.4.5.

A separate closure sampling field log book will be kept and will contain all information pertinent to field surveys and sampling. The log book shall have bound and consecutively numbered pages in 8-1/12 by 11-inch format.

Minimum entries include:

a. Purpose of sample (routine sampling, special sampling)

b. Location of sampling (coordinates referenced to staked field points, if soil sample)

c. Name and address of person making log entry

d. Type of process producing waste

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e. Number and volume of sample

f. Description of each sampling location, sampling methodology, equipment used, etc.

g. Date and time of sample collection

h. Sample destination and transporter's name (name of laboratory, UPS, etc)

i. Map or photograph of the sampling site, if any

j. Field observations (ambient temperature, sky conditions, past 24-hour precipitation, etc)

k. Field measurements, if any (pH, flammability, conductivity, explosivity, etc).

l. Collector's sample identification number(s)

m. Signature of person responsible for the log entry.

Sampling situations vary widely. No general rule can be given as to the extent of information that must be entered in the log book. A good rule, however, is to record sufficient information so that someone can reconstruct the sampling situation without relying on the collector's memory.

The sample shipment and chain-of-custody record is accompanied by a sample analysis request sheet. The request sheet has two parts: field and laboratory. The field portion of this form must be completely by the person collecting the sample and include most of the pertinent information noted in the log book. The laboratory portion is intended to be completed by the laboratory personnel when the sample is received.

E.4.9. Quality Assurance/Quality Control

The Permittee shall designate a qualified individual or individuals to independently oversee the closure activities and report directly to senior management on the quality of the performance of this closure. This individual will personally observe a portion of the key activities, assure that sample blanks are used and analyzed and review the analysis reports for accuracy and adequacy. A written QA/QC plan in accordance with SW-846 guidance shall be prepared and followed, with variations from the plan documented and explained. The designated individual shall prepare a written statement for the final report commenting on the adequacy of the analysis showing decontamination.

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E.4.10. Final Closure Report

Upon completion of the closure activities, the Permittee shall submit a Final Closure Report to the Director. The report shall document the final closure and contain, at a minimum, the following:

A. The certification described in paragraph E.3.6.

B. Any variance from the approved activities and the reason for the variance.

C. A tabular summary of all sampling results, showing:
   1. Sample identification
   2. Sampling location
   3. The datum reported,
   4. Detection limit for each datum,
   5. A measure of analytical precision (e.g. uncertainty, range, variance),
   6. Identification of analytical procedure, and
   7. Identification of analytical laboratory.

D. A QA/QC statement on the adequacy of the analyses and the decontamination determination.

E. The location of the file of supporting documentation:
   1. Field log books,
   2. Laboratory sample analysis reports,
   3. The QA/QC documentation, and
   4. Chain of custody records.

F. Disposal location of all regulated and nonregulated residues.

G. A certification of accuracy of the report.

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TABLE E.4.1.

CLOSURE SCHEDULE

ACTIVITY	MAXIMUM TIME REQUIRED
PRECLOSURE	
Make decision to close	-380 Days
Characterize waste on hand	-360
Notify the EID	-360
Complete final incineration	-330
Survey the building for radioactivity	-320
Prepare preliminary decommissioning document	-150
Prepare final decommissioning document	-100
Let contract request for proposals	-90
Receive proposals	-30
Select contractor and award contract	-10
CLOSURE	
Begin closure activities	Day 0
Unit disassembly as required	Day 180
Internal washdown complete	Day 210
External washdown complete	Day 220
Floor washdown	Day 230
Final cleanup	Day 260
Decontamination verification	Day 310
Submit final report to EID	Day 360

NOTE: The calendar days given above are completion dates for each activity. In some cases more than one activity may occur simultaneously.

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TABLE E.4.2.

ANALYTICAL PARAMETERS AND METHODS

METALS	ORGANICS
Arsenic	Halogenated volatile organics
Barium	Nonhalogenated volatile organics
Cadmium	Acid-extractable semivolatile organics
Selenium	Base-neutral extractable semivolatile organics
Lead	Phenols
Mercury	Organochloride pesticides
Berylium	Chlorinated herbicides
Chromium	
Silver	
Nickel	

OTHER

Cyanides
Ignitability
Reactivity
pH

NOTES:

Analytical methods are taken from *Test Methods for Evaluating Solid Waste*, EPA SW 846, and may be superseded by more current methods from SW 846 or alternate EPA-approved methods.

Metals may be analyzed for total content. Any metal whose total concentration exceeds the standard for Extraction Procedure Toxicity shall be analyzed by Extraction Procedure Toxicity procedures. Both data shall be reported in the final report.

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TABLE E.4.3.

SAMPLING SUMMARY

MATERIAL SAMPLED	METALS	ORGANICS	OTHER	
Washwater before use		X	X	X
Washwater after use	X	X	X	
Solid wastes & residues		X	X	X
Protective clothing washwater		X		

NOTE:

Analytical parameters are given in Table E.4.2.

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FIGURE E.4.1.

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FIGURE E.4.2.

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FIGURE E-4.3.
EXAMPLE OF SAMPLE SEAL

OFFICIAL SAMPLE SEAL

Collected by _____ Collector's sample No.
(Signature)

Date Collected_____ Time Collected_____

Place Collected_____

FIGURE E-4.4.
EXAMPLE OF SAMPLE LABEL

OFFICIAL SAMPLE LABEL

Collector_____ Collector's Sample No.__

Place of Collection_____

Date Sampled_____ Time Sampled _____

Field Information_____

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FIGURE E-4.5
CHAIN OF CUSTODY RECORD
Hazardous Materials
Collector's Sample No._____

Location of Sampling: ☐ Producer ☐ Hauler
☐ Disposal Site ☐ Other: _____

Company's Name_____ Telephone (_____)_____

Address_____
Number Street City State Zip

Collector's Name_____ Telephone (_____)_____

Date Sampled_____ Time Sampled_____ hours

Type of Process Producing Waste_____

Waste Type Code_____ Other_____

Field Information_____

_____

_____

Sample Allocation:

1. _____
(Name of Organization)

2. _____
(Name of Organization)

3. _____
(Name of Organization)

Chain of Possession:

1.	_____	_____	_____
	Signature	Title	Inclusive Dates
2.	_____	_____	_____
	Signature	Title	Inclusive Dates
3.	_____	_____	_____
	Signature	Title	Inclusive Dates

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