TA 50

Department of Energy
Albuquerque Operations Office
Los Alamos Area Office
Los Alamos, New Mexico 87544

JAN 1 4 1997

Site
In this TSCA ?
How does this fit in with our RCRA closure ?
Sent to
1/20/97

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

JAN 1997 RECEIVED

Mr. James S. Sales
TSCA/RCRA Permits Branch
U. S. Environmental Protection Agency
Region VI
1445 Ross Avenue, Suite 1200
Dallas, TX. 75202-2733

Dear. Mr. Sales:

SUBJECT: SUBMITTAL OF THE FINAL REPORT AND CERTIFICATION ON THE PCB CLOSURE OF THE LOS ALAMOS NATIONAL LABORATORY'S CONTROLLED AIR INCINERATOR.

The purpose of this letter is to submit to the U. S. Environmental Protection Agency (EPA) the final report and certification on the PCB closure of the Los Alamos National Laboratory's (LANL) Controlled Air Incinerator (CAI). Closure activities have been completed and the certificate of destruction and/or recycle received.

Attached is the "Los Alamos National Laboratory Controlled Air-Incinerator Toxic Substance Control Act Closure Report". If there are any questions please contact me at (505) 665-5042.

Sincerely

M T Johansen

H. L. "Jody" Plum for
Office of Environment and Projects
U. S. Department of Energy
Los Alamos Area Office

Enclosure:
cc: w/enclosure
Benito J. Garcia, Bureau Chief
Hazardous and Radioactive Materials Bureau
New Mexico Environment Department
2044 Galisteo Street, Building A
P.O. Box 26110
Santa Fe, New Mexico 87505

8833

TA 50

Contract 938EE0005-8L
Project # 5044.01.0004
Revision 0.0
December 1996

LIBRARY COPY

Los Alamos National Laboratory Controlled Air-Incinerator Toxic Substances Control Act Closure Report

Prepared by:

Los Alamos National Laboratory
Hazardous and Solid Waste Group (ESH-19)
Los Alamos, New Mexico 87545

LANL
TA-50/96

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A. Sampling, Quality Assurance, and Quality Control Plan for Hazardous Constituents and PCBs During Closure of the Controlled-Air Incinerator

B. Sampling Results Table

C. PCB Certificate of Destruction/Recycle

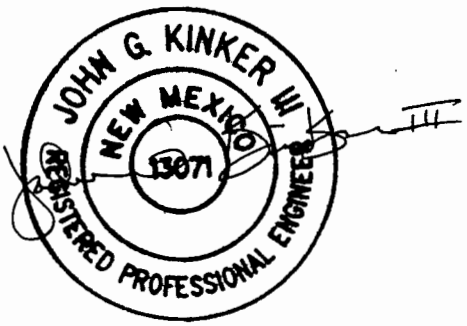
CLOSURE CERTIFICATION

This certification is made in accordance with the provisions of the letter titled, "Los Alamos National Laboratory (LANL) Controlled-Air Incinerator (CAI), Technical Area (TA)-50, Building 37, Cancellation of Authorization to Incinerate Polychlorinated Biphenyls (PCBs)" (the closure letter).

This certification is based upon analytical data provided by LANL and direct observation of closure activities performed by qualified individuals under the direct supervision of a registered professional engineer. This service has been performed with the care and skill ordinarily exercised by members of the profession practicing under similar conditions at the same time and in the same, or a similar, locality. Benchmark Environmental Corporation makes no other warranty, either expressed or implied.

With the signature and seal below, I certify that closure of the LANL (CAI) has been performed in accordance with the requirements set forth in the closure letter, with exceptions and approved changes noted in the attached Closure Report, and that the performance standards for closure have been demonstrated.

Respectfully,
Benchmark Environmental Corporation



John G. Kinker III, P.E.
New Mexico Registered Professional Engineer No. 13071

Date: Dec. 20, 1996

1.0 INTRODUCTION

This report documents the implementation of closure activities at the Los Alamos National Laboratory (LANL) Controlled-Air Incinerator (CAI) pursuant to the procedures outlined in a letter dated February 8, 1996, between the Los Alamos Area Office (LAAO) of the U.S. Department of Energy (DOE) and U.S. Environmental Protection Agency (EPA), Region 6. The letter titled, "Los Alamos National Laboratory Controlled-Air Incinerator, Technical Area (TA)-50, Building 37, Cancellation of Authorization to Incinerate Polychlorinated Biphenyls (PCBs)" (the closure letter) was submitted for concurrence by the EPA prior to the initiation of closure activities and served as the closure plan and specifications.

In addition to the aforementioned letter, LANL project personnel developed and implemented a "Sampling, Quality Assurance, and Quality Control Plan for Hazardous Constituents and PCBs During Closure of the CAI (Attachment A)." This plan detailed sampling and analytical protocols, personnel responsibilities, relevant quality assurance/quality control measures, and sample handling and documentation procedures to be used.

2.0 PERFORMANCE STANDARDS

The initial screening standard of 10 mg/100 cm^2 stated in the plan is based on the release limit for "other restricted access areas" as defined at 40 Code of Federal Regulations (CFR) §761, Subpart G, "PCB Spill Cleanup Policy." This limit was used to screen initial wipe sample data for each component to determine which, if any, components would be considered PCB-contaminated. The 10 mg/100 cm^2 standard was also applicable in the case of equipment/item decontamination, although no decontamination efforts were undertaken during this closure.

3.0 SAMPLING PROCEDURES

The major components of the CAI were individually characterized by taking a minimum of three wipe samples from different locations within each piece of process equipment. Care was taken to obtain samples from potentially contaminated areas within each unit (i.e., pipe/duct expansions and contractions, bends, other turbulent areas, and blind flanges). The wipe sampling procedure complied with the requirements of 40 CFR §761.123 for a standard wipe test.

4.0 RADIATION SURVEYS

In addition to PCB wipe testing, the CAI components and immediate vicinity (indoors) were screened for radiological hazards in accordance with the closure letter. The radiological survey was conducted prior to PCB wipe sampling. A qualified LANL Radiation Control Technician performed the survey. Survey results were reviewed and confirmed, and radiological control procedures (i.e., personal protective equipment requirements, etc.) were approved by a LANL Health Physicist prior to the initiation of closure activities.

5.0 LIQUID SAMPLING

The scrub solution recycle tank (scrubber tank) was the only CAI component containing liquid from which a sample could be obtained. This liquid was sampled in accordance with the closure letter and analyzed for PCBs.

6.0 QUALITY ASSURANCE/QUALITY CONTROL AND SAMPLE HANDLING

LANL personnel performing sampling followed the procedures outlined in the closure letter and the attached "Sampling, Quality Assurance, and Quality Control Plan for Hazardous Constituents and PCBs During Closure of the CAI (Attachment A). Four field blanks and one duplicate sample were collected for quality control (QC) purposes. LANL retained Paragon Analytics, Inc. (Paragon) to perform all analyses required. Paragon provided their quality assurance (QA) Plan, which is part of the attached LANL QA/QC plan (Attachment A).

Copies of the blank sample collection log and chain-of-custody/request for analysis forms used are included in the LANL QA/QC plan. Preprinted sample labels were used on sample vials and sample bottles, with the individual collecting the sample initialing the label after each sample was obtained and sealed.

Paragon has provided a QA/QC report documenting implementation of their internal QC procedures and providing analytical results for verification.

7.0 SAMPLING RESULTS

Thirty-seven samples were obtained and analyzed for PCBs, including four field blanks and one duplicate. Of these, only four samples taken from the two liquid feed tanks had positive detection results. Of these, two were estimated values below the reporting limit of 1.0 mg/100 cm2, and one was 1.1 mg/100 cm^2. The fourth positive sample was 240 mg/100 cm^2, which exceeded the threshold limit of 10 mg/100 cm2 stated in the closure letter. Therefore, the liquid feed tank, with a sample exceeding 10mg/100 cm^2, was determined to be the only portion of the CAI that was PCB-contaminated. A table summarizing all of the PCB samples is included as Attachment B.

8.0 CLOSURE PROCEDURE

The closure letter allows for decontamination of contaminated items or disposal of such items as PCB-contaminated waste. The project manager decided to dispose of the feed tank as a PCB-contaminated item, opting not to perform decontamination. The item was shipped to S.D. Myers, Inc., a licensed PCB disposal facility, on September 24, 1996. The PCB Waste Certificate of Destruction/Recycle is included as Attachment C. All other components were found to be uncontaminated and therefore not subject to special handling or disposal requirements under the Toxic Substances Control Act regulations.

9.0 ATTACHMENTS

A. Sampling, Quality Assurance, and Quality Control Plan for Hazardous Constituents and PCBs During Closure of the Controlled-Air Incinerator

B. Sampling Results Table

C. PCB Certificate of Destruction/Recycle

ATTACHMENT A

Sampling, Quality Assurance, and Quality Control Plan for Hazardous Constituents and PCBs During Closure of the Controlled-Air Incinerator

SAMPLING, QUALITY ASSURANCE & QUALITY CONTROL PLAN

FOR HAZARDOUS CONSTITUENTS AND PCBs

DURING CLOSURE OF THE CONTROLLED AIR INCINERATOR

Prepared By

Ron Conrad, Ph. D.
Waste Site Studies Team
Hazardous & Solid Waste Group (ESH-19)
Environment, Safety & Health Division
Los Alamos National Laboratory
Los Alamos, New Mexico

June 14, 1996

Los Alamos National Laboratory

Sampling, Quality Assurance & Quality Control Plan for Hazardous Constituents and PCBs During Closure of the Controlled Air Incinerator

Reviewed and approved by:

Ron Conrad

Signature

Ron Conrad, Ph.D.
Waste Site Studies Team
Hazardous & Solid Waste (ESH-19)
Environment, Safety & Health Division

6/17/96
Date

Jack Ellvinger

Signature

Jack Ellvinger
Team Leader, Permitting Team
Hazardous & Solid Waste (ESH-19)
Environment, Safety & Health Division

6/17/96
Date

Kenneth M. Hargis

Signature

Kenneth M. Hargis
Manager of Operations
Waste Management Program Office
Environmental Management Programs

6/17/96
Date

I. INTRODUCTION

The Hazardous and Solid Waste Group (ESH-19) of the Environment, Safety, and Health Division has been tasked by the Waste Management Program Office to perform sampling for hazardous constituents and polychlorinated biphenyls (PCBs) as part of the closure/decommissioning of the Controlled Air Incinerator (CAI) located inside Building 37, Technical Area 50 at the Los Alamos National Laboratory (LANL), Los Alamos, New Mexico. The purpose of the sampling of the CAI is to determine the presence of (1) hazardous contamination as regulated under the Resource Conservation and Recovery Act (RCRA) and as required by the New Mexico Environment Department (NMED) in an amended closure plan[1] under the LANL Hazardous Waste Facility Permit; and (2) contamination by PCBs as required by the US Environmental Protection Agency (EPA) in a letter[2] that terminated approval to dispose of PCBs in the CAI under the Toxic Substances Control Act (TSCA) and required closure under a closure/decontamination plan provided to EPA in a letter[3] from the US Department of Energy.

The closure plans (called the RCRA and TSCA Closure Plans) define the sampling and analytical methodology to be used during the closure activities. The purpose of this plan is to provide additional detail on the specific sampling and quality assurance/quality control (QA/QC) procedures that will be used during the RCRA and TSCA closure activities. This plan serves as the QA/QC plan required by Section E.4.10 of the RCRA Closure Plan.

Radiological surveys and sampling are also being carried out during decommissioning of the CAI,[4] but this work is not being carried out by Group ESH-19 and is not addressed in this plan.

Background

The original CAI was installed in 1977 and first operated in 1978. The CAI was initially used as a research and development (R&D) tool to prove the viability of incineration as a treatment method for transuranic (TRU) radioactive waste, and was then used for further research on the capability of incinerators to break the chemical bonds of certain persistent chemicals. These chemicals included simulated and actual hazardous wastes and PCBs.

Between May 1978 and March 1987, a total of 36 campaigns (period of use of the CAI for a specific purpose or material type) were conducted. The CAI campaigns included equipment checks, treatability studies, efficiency studies, a PCB trial burn, incineration of PCB contaminated materials, a hazardous waste trial burn, incineration of ignitable hazardous waste, and burns of TRU wastes. Eight of the 36 CAI campaigns involved radioactive components.

These campaigns demonstrated that the CAI was very effective at treating radioactive materials, PCBs, and hazardous wastes. LANL received approval from the EPA under TSCA to incinerate PCBs in the CAI in 1983, with reapproval in 1992. Modifications (upgrades) to the CAI system were conducted after R&D testing ended in 1987, and the CAI was permitted by the New Mexico Environmental Improvement Division (now called the New Mexico Environment Department, NMED) to incinerate RCRA regulated waste in 1989. Additional modifications have been made to the CAI since the permit was issued to replace equipment due to normal wear (during the R&D campaigns) or to upgrade existing equipment for routine operations.

The CAI has never operated since the R&D testing ended in 1987. Since that time, efforts have focused on making modifications to the CAI for routine treatment of wastes, and in attempting to obtain all regulatory approvals and public acceptance of its operation. Because of projected costs and uncertainty regarding the operation of the CAI, decisions were made in 1995 to discontinue funding and to conduct regulatory closure of the CAI. Closure activities will be conducted concurrent with the dismantlement and removal of the CAI from the site. CAI components will also be sampled and surveyed to identify the presence of radiological contamination. Decontamination activities will be conducted to support reuse and reclamation of equipment associated with the CAI to the extent practicable.

Summary of Task

The RCRA and TSCA closures of the CAI are scheduled to commence in June 1996. Sampling and analysis for RCRA and TSCA constituents will be conducted within the main components of the CAI to verify that these constituents are not present, or to determine the need for decontamination or management of CAI equipment as hazardous/chemical waste. If decontamination is required for RCRA and/or TSCA constituents, sampling will also be conducted to verify the success of the decontamination activities during CAI closure.

The sampling locations on the interior surfaces of the CAI components will be selected so that the samples taken are representative of potential constituent contamination of that component. Because much of the sampling will occur before the dismantlement process begins, ports, flanges, and other access openings will serve as the entry to the interior of many components. Professional judgment and knowledge of the CAI operations indicates that these access locations will allow representative sampling. Access to some components may be limited (e.g. the hearth of the combustion chamber, the ash collection hopper), and sampling of such components will occur during dismantlement.

The ESH-19 Waste Site Studies Team will collect the samples according to procedures that meet the requirements of the EPA's *Test Methods for Evaluating Solid Waste Physical/Chemical Methods* (SW-846),[5] submit the samples to the LANL Environmental Restoration Project Sample Management Office (a qualified outside commercial laboratory will analyze the samples), receive the data back (verbally) within a 5-day turnaround time, and summarize the data for the regulatory personnel in ESH-19. The closure sampling will also be conducted consistent with the LANL Environmental Restoration Project *Quality Assurance Project Plan Requirements for Sampling and Analysis,*[6] Chapter B, "Measurements/Data Acquisition.", and Chapter D, "Assessment/Oversight/Data Validation," or modification.

Samples will be analyzed for RCRA and TSCA constituents as specified in the closure plans by a qualified commercial analytical laboratory. RCRA constituents will consist of volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), total metals, and total cyanides (total CN). TSCA constituents to be analyzed consist of PCBs. The analytical laboratory will operate under a Quality Assurance and Quality Control Plan that has been approved for SW-846 methods and EPA Contract Laboratory Procedures through the LANL Environmental Restoration Project specifications for contract analytical support laboratories.[7]

The different sets of analytes will be determined by EPA SW-846 methods. These include:

VOCs Method 8240, 8260 or modification.
SVOCs Method 8270 or modification
Total metals (Method 3050 extraction plus appropriate Method 6000 or 7000x series (ICAP or AA) analytical technique)
Total CN (Method 9010A or modification)
PCBs (Method 8080 or modification)

After the results of the sampling are received in hard copy, spreadsheets will be prepared presenting the data, and a brief report summarizing the sampling techniques used and any other pertinent details regarding the sampling will be prepared. A copy of all documentation for the closure sampling (e.g. analytical and survey results, correspondence, sample collection logs, plans, photographs, and procedures) will be provided in a timely manner to the independent Professional Engineer who will oversee the closure activities.

Responsibilities

The responsibilities of those involved in the RCRA and TSCA closure sample/analysis activities are presented below. Responsibilities of those involved in other aspects of the CAI decommissioning are defined in the Decommissioning Management Plan for the Controlled Air Incinerator.[4]

Project Leader. Ken Hargis of the Waste Management Program Office is the LANL project manager with overall responsibility and accountability for completing the closure/decommissioning project.

Field Team Leader. Ron Conrad of ESH-19 is the field team leader and primary person who will collect samples for the closure sampling. He will organize and direct the field team's efforts and is responsible to ensure that all sampling is performed in conformance with the RCRA and TSCA closure plans, as well as with this plan. He will report all problems or recommendations to the project leader, although he has full authority to make field changes in the sampling that will enhance the success of the project. He will ensure that the team complies with all site requirements (including training), and complies with the *Site Specific Health & Safety Plan for Decommissioning of the CAI.*[8]

Field Team Members. Albert Dye, Kallie Firestone, and Marquis Childs are the field team members for the closure sampling. They will participate in sampling, document the sampling events, take photographs, and assist in other ways as needed.

Sample Management Office Contact. Samples collected in the closure sampling will be submitted to a qualified commercial analytical laboratory through the LANL Environmental Restoration Project Sample Management Office. John Miglio is the contact for the Sample Management Office, and can be reached at 665-7461 or Pager 104-1967.

Analytical Laboratory Contact. Samples collected in the closure sampling will be analyzed by Paragon Analytics, Inc. located in Fort Collins, Colorado. Steve Fry is the contact for Paragon Analytics, and can be reached at (800)443-1511 or (970)490-1511.

Independent Professional Engineer. An independent Professional Engineer will be contracted to oversee all RCRA and TSCA closure activities and prepare certification reports that will be submitted to EPA and NMED upon completion of all closure activities.

II. SAMPLING PROCEDURES

Four types of samples may be collected during the RCRA and TSCA closure sampling. These consist of (1) swipe samples of the interior of each of the major system components of the CAI; (2) a bulk sample of solid material collected from the floor of the primary combustion chamber of the CAI; (3) samples of wash water used in the decontamination of any CAI components; and (4) bulk samples of materials that will be disposed as wastes during the closure/decommissioning of the CAI. The latter samples will include a sample of each type of refractory in the CAI and a sample of carbon from the activated carbon adsorber unit.

All sampling activities will be conducted in a manner to prevent cross contamination and preserve the integrity of the samples. Sampling equipment will be dedicated to the sample or decontaminated between samples. No decontamination of sampling equipment will occur in the field. Latex gloves will be changed between samples and sample containers will be kept closed except during transfer of the sample. Sampling team personnel will be approved by the ESH-19 Field Team Leader to ensure proper training and qualification.

Components of the CAI that will be sampled consist of the solid waste feed glovebox , liquid waste feed tanks, glove box and elevator surrounding the ram charger mechanism , combustion chamber, quenching tower, scrubber water tanks, absorption tower, HEPA filter bank, activated carbon adsorber, exhaust stack, and the ash dropout hopper. Five swipe samples for all hazardous constituents and PCBs will be collected in the solid waste feed glovebox. Results from these samples will constitute the control or background data for comparison to results from all other CAI process components. Three swipe samples for all hazardous constituents and PCBs will be collected from each of the other CAI components, except the combustion chamber. A single composite bulk sample of solid material will be collected from the floor of the primary combustion chamber. The actual sampling locations within each component will be approved by an individual working under the supervision of the independent Professional Engineer who will oversee the closure sampling and prepare the closure certification reports.

For each discrete sample to be collected, a sample collection log will be prepared that describes the following, as a minimum:

- Purpose of sampling
- Location of sampling (CAI component name and location)
- Name and address of person(s) making log entry
- Type of sampling process
- Number and volume of sample
- Description of each sampling location, sampling methodology, equipment used, etc.
- Date and time of sample collection
- Sample destination and transporter's name (name of laboratory, United Parcel Service, etc.)
- Diagram or photograph of the sampling location, if any
- Field observations, if an (pH, flammability, conductivity, explosivity, etc.
- Collector's sample identification number(s), and
- Signature of person(s) responsible for the log entry

Because sampling situations vary widely, no specific rule can be given as to the extent of information that will be entered in the log book. Sufficient information will be recorded so that the sampling situation can be reconstructed without relying on the collector's memory. A Polaroid photo will also be taken of each sampling location. The CAI component that is sampled will be marked with a number on the outside of the portion of the component that is sampled using a code based on the CAI component being sampled, as shown in a table presented in Attachment A that summarizes samples planned for the CAI. This number will also be recorded on the sample collection log (example shown as Attachment B). ESH-19 personnel will make all entries on all records with indelible, blue or black ink. All entries will be legible, consistent, direct, and succinct. ESH-19 personnel will ensure that records are identifiable, retrievable, and protected against damage and loss.

All samples will be routinely managed according to modified EPA National Enforcement Investigations Center (NEIC) chain-of-custody (COC) procedures,[9] and ESH-19 Chain of Custody/Request for Analysis forms (Attachment C) will be used. Sample labels will be prepared before sampling with as much information as possible completed before going out to the field for sampling. Attachment D shows examples of the sample labels that will be used for each sampling location. Sample containers will be sealed with a COC seal attached to the container in such a way that the seal will be broken in order to open the container. The COC record is necessary to trace sample possession from the time of collection and will accompany each sample.

Surveys of the internal surfaces of the CAI components show contamination by radioactive materials in some locations. All samples collected from the CAI will be surveyed by the LANL Health Physics personnel that are supporting the CAI decommissioning project to ensure that levels of radioactivity are below levels of concern for transportation and for receipt by the analytical laboratory. The US Department of Transportation (DOT) radiological limits include 2.0 nCi/g for total radiological content for solids (or 0.2 nCi/g for liquids) and 1000 dpm/100cm^2 surface radiation. Results of radiological surveys will be provided to the Sample Management Office to ensure that all DOT requirements for shipping are met, and to inform the analytical laboratory of the radiological content of the samples.

Swipe Sampling

For each analyte group, an area of approximately 10 cm x 10 cm or 100 cm^2 area is to be swiped. For each component of the CAI to be sampled (there are eleven components) approximately three sample sets will be taken. For each set (i.e. each location), a separate 100 cm^2-area must be used for each class of analytes: one for VOCs, one for SVOCs, one for total metals, one for total CN, and one for PCBs. At each sample location, the 100 cm^2-areas should be contiguous to the greatest extent practicable. If that is not possible, they must be as near to each other as possible. Where feasible, a template will be used to define each square. In separate sheets of white paper, a 100 cm^2-section will be cut. This template will be placed on the surface to be swiped. The paper will be left in place while the swipe is made. After sampling, the corners of the square sampled will be marked with a pencil or other method. This will also be done in the same manner for the background samples (those taken in the solid waste feed glove box). If negative air pressure or other factors prevent the use of the paper templates, the swipe will be taken by approximating the 100 cm^2-area. After a location is sampled, a Polaroid photo will be taken documenting the location and the location ID number. This sampling method must be approved by the independent Professional Engineer assigned to this closure project.

For everything but PCBs, a circular 2" diameter swipe, cotton on one side, fiberglass on the other will be used. The cotton surface will be used to collect the swiped material. Latex gloves will be employed while collecting the samples, and the gloves will be changed between each sampling location.

The solvents to be used to wet the swipe are:

Methanol for VOCs and SVOCs,
Deionized water for total metals and total Cyanide, and
Hexane for PCBs.

When the swipe has been done for VOCs, the swipe is to be placed in a 20 ml vial containing purge-and-trap reagent grade methanol (the same type of methanol that will be used as the solvent for the swipe), and sealed. This procedure for VOCs was recommended by Paragon Analytics, Inc., the analytical laboratory performing the analyses, to assure that any volatile organic compounds picked up by the swipes would be retained by dissolution in methanol. The methanol and the VOC-free deionized water will be provided by Paragon Analytics, Inc.

After the swipe has been done for SVOCs, the air dried swipe will then be placed in a dry 40 ml vial, and sealed. One swipe will have to be done for total metals (using water as the solvent); and one swipe will have to be done for total CN (also using water as the solvent). For the metals and CN swipes, the swipes will be placed in empty and dried 40 ml vials, and sealed. An amber 40 ml vial will be used for the cyanide swipe.

For PCBs only, a 2 in x 2 in sterile cotton gauze swipe will be used as per the EPA recommended procedure.[10] One swipe soaked with hexane solvent will be used to collect each PCB swipe. After the swipe has been done, it will be placed in a 40 ml vial, and sealed with COC tape.

Sampling of Refractory

The sampling of the hearth of the combustion chamber will be done by brushing and collecting loose material evident on the refractory surface. If enough loose material is not available, a small chisel will be used to scrape semi-consolidated solid material from the refractory surface. This material will be placed in separate vials for each class of analytes, sealed with COC tape, labeled, and cooled.

Previous radiological surveys of the refractory showed significant radiological contamination, and it is expected that the refractory will be disposed as waste. In addition to the surface sampling that will be undertaken on the refractory bricks described above, a sample of each type of refractory will be submitted for Toxic Characteristic Leaching Procedure (TCLP) metals, in particular chromium, because elevated levels of chromium are suspected in some types of refractory. A small chisel and hammer will be used to chip enough material from the surface of the refractory bricks. Samples of the bricks used in the CAI are known to be available that were never used in the CAI combustion chamber. At least 100 grams of brick material must be collected in order to have enough solid to perform TCLP metals. This solid material will be placed in a dry 40 ml vial or a 125 ml wide-mouth glass bottle, capped, sealed with COC tape, labeled, and cooled.

Sampling of Activated Carbon

The CAI has not operated since the activated carbon was replaced, and the activated carbon should contain no contamination. This operating history and the data from the swipe samples of the surfaces of the activated carbon adsorber will be discussed with the waste coordination team to determine if additional analyses of the activated carbon are needed to characterize the material. If needed, a sample of activated carbon will be collected from the carbon bed located in the activated carbon adsorber using a small scoop or laboratory spoon. This material will be placed in separate dry 40 ml vials (depending on the analyses that are necessary), which will then be capped, sealed with COC tape, labeled, and cooled.

Sampling of Wash Water

Wash water used in the decontamination process will be sampled to identify the presence or absence of contaminants to determine whether CAI components have been successfully decontaminated. Wash waters will be analyzed only for constituents that had been identified as above background in swipe samples on the CAI components. Results of wash water samples will also be used to determine how to manage waste water generated from the decontamination activities in accordance with applicable regulations. Wash water solutions will be sampled before use to determine background parameters (two samples will be collected); wash water used in cleaning components will also be sampled to identify any hazardous constituent contamination. Samples will collected by spraying wash solution onto areas of the components identified by swipe samples as having elevated hazardous constituents. Brushes may be used to help dislodge particulate and laminated residues from the surfaces of the sampling area. Washed areas will be rinsed and all waters collected using vacuum or manual pumps or other means for dismantled components. The volume of water collected will be recorded in the sample collection log book. Wash waters will be transferred to sample containers using glass tubes to obtain representative samples as follows:

1. Spray wash solution onto areas of the sampling location that have the greatest likelihood for contamination (e.g., bends, horizontal surfaces, seams, basins, etc.).
2. If areas of slag, ash, or lacquer remain after spraying, use a sampling brush to dislodge the material.
3. Use vacuum or pump to collect washwaters from the sampling area. Use caution not to let washwaters migrate from the sampling area.
4. Ensure that sampling equipment is present (glass tube with stopper, sample container, laboratory wipe, pen, etc.). Ensure that stopper provides a tight closure.
5. Slowly lower the glass tube into the liquid at a rate that permits the levels of the liquid inside and outside the glass tube to be about the same. If the level of the liquid in the glass tube is lower than that outside the glass tube, the sampling rate was too fast and will result in a nonrepresentative sample.
6. When the glass tube hits the bottom of the liquid container, push the stopper in to close the glass tube.
7. Slowly withdraw the glass tube from the container with one hand while wiping the glass tube with a disposable cloth with the other hand.
8. Carefully discharge the sample into a sample container by slowly opening the glass tube. This is done by slowly pulling the stopper from the glass tube while the lower end of the sampler is positioned in the sample container.
9. Cap the sample container(s), and attach a label and COC seal.
10. Record sampling information in the field log as described above.

11. Complete the sample analysis request for and COC record.

Alternative methods of sampling may be necessary. These methods must be approved by the independent Professional Engineer who will oversee the closure and prepare certifications.

Handling/Preservation of Samples

After all samples have been collected/containerized/sealed/labeled, they will be placed in a cooler supplied with frozen blue ice. The samples will be kept under ESH-19's custody until turned over to the Sample Management Office (SMO). At this time the chain-of-custody form(s) will be signed by both ESH-19 and SMO. A copy of the COC form will be maintained by ESH-19. Procedures modified from the EPA NEIC document 330/0-78-001-R will be followed in the chain-of-custody protocol used in this sampling.

IV. QUALITY CONTROL

The independent Professional Engineer will independently oversee the closure activities and report directly to the Project Leader for the CAI closure. This individual or his/her representative will personally observe key activities, ensure that sample blanks are obtained, and review the analytical reports for accuracy and adequacy.

Blanks

Each time a trip is made to the CAI to collect swipe samples, blanks must be collected. These blanks will include:

1) *Trip blanks.* A trip blank will consist of a 40 ml vial containing VOC-free water. This trip blank will be analyzed for VOCs only. This trip blank is to remain unopened in the cooler during the site visit and transportation to the analytical laboratory.

2) *Field blanks.* The field blanks will consist of the following:

a) One unused swipe sitting in a 20 ml vial containing 10 ml of methanol, to be analyzed for VOCs only;

b) One unused swipe that has been wet with methanol sitting in a dry 40 ml vial, to be analyzed for SVOCs;

c) One unused swipe that has been wet with deionized water sitting in a dry 40 ml vial, to be analyzed for total metals;

d) One unused swipe that has been wet with deionized water sitting in a dry 40 ml vial, to be analyzed for total CN; and

e) One unused cotton gauze swipe must be removed from vial, wet with hexane, and exposed to ambient conditions during the sampling event. After event, replaced in vial, to be analyzed for PCBs.

Current plans are to use new, disposable sampling equipment for collection of all samples. Since sampling equipment will not be rinsed in the field or ever re-used, LANL does not plan to submit rinsate blanks. If these plans change and sampling equipment is rinsed for re-use, then appropriate rinsate blanks will be submitted.

The field blanks will be prepared once the sampling team arrives at the site and will remain open until all samples are collected. The vials will then be closed and sealed with custody tape and managed the same as the regular samples.

If the paper template method is used, field blanks will be prepared on one occasion that consist of swipes of 100 cm^2 areas of the paper used for the template. On this occasion, five swipes will be collected by swiping individual 100 cm^2 areas of the paper to be used as the template. That is, two swipes will be done with methanol as the solvent (one swipe analyzed for VOCs, and one swipe analyzed for SVOCs), two swipes will be done with water as the solvent(one swipe to be analyzed for total metals and one swipe for total cyanide), and one swipe will be done using hexane as the solvent (swipe to be analyzed for PCBs).

No less than one split (or duplicate) sample will be collected for every ten locations sampled (about one split per three of the components of the incinerator sampled). A duplicate will consist of a swipe of an 100 cm^2 area adjacent to the area comprising the original sampling location and will be analyzed for the same analyte groups for which the original sample is analyzed. It is anticipated that 2-3 duplicate samples will be collected during the project.

Any field equipment requiring calibration will be calibrated and maintained using the manufacturer's instructions and appropriate standard operating procedures.

Holding Times

All samples will be managed to ensure that holding times as outlined in the RCRA and TSCA closure plans are not exceeded. This should not be a problem since analytical results are being requested on a five-day basis. However, compliance with holding times will be expressly evaluated if there are delays in submittal or analysis of samples.

Analytical Laboratory QA/QC

The analytical laboratory (Paragon Analytics, Inc.) will operate under its own Laboratory Quality Assurance and Quality Control Plan, which was approved for SW-846 methods and EPA Contract Laboratory Procedures through the LANL Environmental Restoration Project specifications for contract analytical laboratories. A copy of the Table of Contents and Introduction sections of this Paragon Analytics, Inc. QA/QC plan is attached as Attachment E.

V. DATA INTERPRETATION

Action Levels for RCRA Closure

The following clarifies the approach planned to define the action limits that are to be established in order to determine whether a particular component of the CAI has hazardous constituents equal or greater than the background sample constituent concentrations at the 0.01 confidence level. This approach, or any modifications to this approach, will be discussed with and approved by the independent Professional Engineer who will oversee and certify the RCRA and TSCA closures.

A method of defining the background concentrations is planned that is similar to the method that the Environmental Restoration Project uses to define background for metals in soils at LANL. This methodology is summarized in the LANL document entitled, "Statistical Comparisons to Background,"[11] This comparison method is called the "hot measurement test." This methodology is

one of those test methods discussed in the EPA document entitled "Statistical Analysis of Ground Water Monitoring Data at RCRA Facilities."[12]

This measurement test defines an upper limit threshold value representing background concentrations. This upper tolerance limit or UTL is considered the action level. There will be an action level for each constituent. No matter how a threshold value is chosen, there exists a probability or confidence limit that there is a measurement that will exceed the hot measurement threshold. The confidence limit on a percentage of the distribution (say the 95th or 99th percentile), termed the tolerance limit, is such a value and is one of the background comparison methods recommended by EPA. The RCRA Closure Plan[1] (Section E.4.4) states that constituents concentrations equal to or less than background sample concentrations, at the 0.01 confidence level, are verified as absent from the CAI location that sample came from.

The proposed equation for calculating the UTL for each constituent is:

UTL = mean concentration + std. dev. x k,

where k or the k-factor depends on the number of background samples to be taken, the percentile of the distribution desired and the probability stipulated.

Related to this approach is the method used to allow calculation of the mean and standard deviation of the constituents analyzed in the background samples (those from the glove box) where some results are below the detection limit. For constituents such as metals, it is possible that the results for the control samples will consist of a mixture of reported values and non-detects. In calculating the concentration mean and standard deviation, the non-detects will be censored and a value for that sample constituent will be used that is the reported detection limit divided by two. For instance, if one control sample has an arsenic concentration reported out as <0.06 mg (that's per swipe), this non-detect value will be censored to 0.03 mg. This 0.03 mg value will be used along with the reported values of arsenic for the other control samples to calculate the mean and the standard deviation for arsenic.

For the VOC and SVOC target compounds, it is anticipated that non-detects will be the norm. Where all values are reported as non-detectable, the detection level considering the analytical uncertainty will be used. For instance, if all reported concentrations for benzene in the five control samples are listed as below the detection level, then the detection level at the 0.01 confidence level will be used as the action level for benzene. A mixture of reported values and non-detects will elicit a treatment as described in the paragraph above.

Action Level for TSCA Closure

As contained within the plan for closure approved by the EPA,[2, 3] sampling will be conducted of the CAI to verify no PCB residues are present above the 40 CFR Section 761 Subpart G, *PCB Spill Cleanup Policy,* level for "other restricted access areas." Under the cleanup requirement for other restricted access areas, the CAI equipment must be shown to contain less than 10 ug/100cm^2 PCB contamination. This is the Action Level for PCBs. The presence of PCBs above this Action Level will require those pieces of equipment showing contamination to be either handled as PCB waste or be subjected to further decontamination.

REFERENCES

1. *Amended Closure Plan, Dismantlement Revision,* Attachment E.4 to Hazardous Waste Facility Permit No. NM 0890010515-1 for Los Alamos National Laboratory; Approved by New Mexico Environment Department; June 1996.

2. Letter from Allyn M. Davis, US Environmental Protection Agency, Dallas, Texas to Larry Kirkman, US Department of Energy, Los Alamos, New Mexico; February 27, 1996.

3. Letter from Larry Kirkman, US Department of Energy, Los Alamos, New Mexico to Allyn M. Davis, US Environmental Protection Agency, Dallas, Texas; February 8, 1996.

4. *Decommissioning Management Plan for the Controlled Air Incinerator (CAI) at TA-50,* Decommissioning Project/Environmental Restoration Project, Los Alamos National Laboratory; May 1996.

5. *Test Methods for Evaluating Solid Waste Physical/Chemical Methods, SW-846,* Third Edition, US Environmental Protection Agency, November 1986 (4 Volumes).

6. *Quality Assurance Project Plan Requirements for Sampling and Analysis,* Environmental Restoration Project, Los Alamos National Laboratory; March 1996.

7. "Statement of Work - Analytical Support," Revision 2, RFP No. 9-XS1-Q4257, Los Alamos National Laboratory; July 1995.

8. "Site Specific Health & Safety Plan for Decommissioning of the CAI," *Decommissioning Management Plan for the Controlled Air Incinerator (CAI) at TA-50,* Decommissioning Project/Environmental Restoration Project, Los Alamos National Laboratory; May 1996.

9. "Chain-of-Custody for Samples," in *NEIC Policies and Procedures,* EPA-330/9-78-001-R, US Environmental Protection Agency, Office of Enforcement, National Enforcement Investigations Center, Denver, CO.

10. John Smith, "Wipe Sampling and Double-Wash Rinse Clean-Up as Recommended by the EPA PCB Spill Clean-Up Policy, " June 23, 1987.

11. "Statistical Comparisons to Background, Part 1." Environmental Restoration Project Assessments Council, LANL; January 16, 1996."

12. "Statistical Analysis of Ground Water Monitoring Data at RCRA Facilities," Interim Final Guidance, US Environmental Protection Agency; April 1989.

ATTACHMENTS

Attachment A:	Summary of Samples for Controlled Air Incinerator Showing Location Identification Numbers and Types of Analyses
Attachment B:	Sample Collection Log for Controlled Air Incinerator
Attachment C:	Chain of Custody/Request for Analysis Form
Attachment D:	Sheet of Sample Labels
Attachment E:	Paragon Analytics, Inc., Technical Laboratory Quality Assurance and Quality Control Plan, Revision 0, Table of Contents and Section 1, Introduction

Controlled Air Incinerator

Location ID	Section	Date	VOCs	SVOCs	Total Metal	CN	PCBs
CAI-QT-1	Quench Tower	/ / 96	x	x	x	x	x
CAI-QT-2	Quench Tower	/ / 96	x	x	x	x	x
CAI-QT-3	Quench Tower	/ / 96	x	x	x	x	x
CAI-AT-1	Asorb. Tower	/ / 96	x	x	x	x	x
CAI-AT-2	Asorb. Tower	/ / 96	x	x	x	x	x
CAI-AT-3	Asorb. Tower	/ / 96	x	x	x	x	x
CAI-ST-1	Scrubber Tank	/ / 96	x	x	x	x	x
CAI-ST-2	Scrubber Tank	/ / 96	x	x	x	x	x
CAI-ST-3	Scrubber Tank	/ / 96	x	x	x	x	x
CAI-HP-1	HEPA	/ / 96	x	x	x	x	x
CAI-HP-2	HEPA	/ / 96	x	x	x	x	x
CAI-HP-3	HEPA	/ / 96	x	x	x	x	x
CAI-EX-1	Exhaust	/ / 96	x	x	x	x	x
CAI-EX-2	Exhaust	/ / 96	x	x	x	x	x
CAI-EX-3	Exhaust	/ / 96	x	x	x	x	x
CAI-AR-1	Ash Removal	/ / 96	x	x	x	x	x
CAI-AR-2	Ash Removal	/ / 96	x	x	x	x	x
CAI-AR-3	Ash Removal	/ / 96	x	x	x	x	x
CAI-GB-1	Glove Box	/ / 96	x	x	x	x	x
CAI-GB-2	Glove Box	/ / 96	x	x	x	x	x
CAI-GB-3	Glove Box	/ / 96	x	x	x	x	x
CAI-GB-4	Glove Box	/ / 96	x	x	x	x	x
CAI-GB-5	Glove Box	/ / 96	x	x	x	x	x
CAI-LF-1	Liquid Feed	/ / 96	x	x	x	x	x
CAI-LF-2	Liquid Feed	/ / 96	x	x	x	x	x
CAI-LF-3	Liquid Feed	/ / 96	x	x	x	x	x
CAI-SF-1	Solid Feed	/ / 96	x	x	x	x	x
CAI-SF-1	Solid Feed	/ / 96	x	x	x	x	x

CAI-SF-3	Solid Feed	/	/ 96	x	x	x	x	x
CAI-AC-1	Activated Carbon	/	/ 96	x	x	x	x	x
CAI-AC-2	Activated Carbon	/	/ 96	x	x	x	x	x
CAI-AC-3	Activated Carbon	/	/ 96	x	x	x	x	x
CAI-DP-1	Duplicate	/	/ 96	x	x	x	x	x
CAI-DP-2	Duplicate	/	/ 96	x	x	x	x	x
CAI-DP-3	Duplicate	/	/ 96	x	x	x	x	x
CAI-FB-1	Field Blank *	/	/ 96	x	x	x	x	x
CAI-FB-2	Field Blank	/	/ 96	x	x	x	x	x
CAI-FB-3	Field Blank	/	/ 96	x	x	x	x	x
CAI-FB-4	Field Blank	/	/ 96	x	x	x	x	x
CAI-FB-5	Field Blank	/	/ 96	x	x	x	x	x
CAI-TB-1	Trip Blank	/	/ 96	x				
CAI-TB-2	Trip Blank	/	/ 96	x				
CAI-TB-3	Trip Blank	/	/ 96	x				
CAI-TB-4	Trip Blank	/	/ 96	x				
CAI-TB-5	Trip Blank	/	/ 96	x				
CAI-TB-6	Trip Blank	/	/ 96	x				
CAI-TB-7	Trip Blank	/	/ 96	x				
* One Field								
Blank will								
consist of								
swiping the								
paper								
template								

Los Alamos National Laboratory
Controlled Air Incinerator
Swipe Sampling for Clean Closure

Swipe Material	Solvent	Analysis Requested	Containers Used
Circular Cotton	Methanol	VOCs	40 ml Vial
Circular Cotton	Methanol	SVOCs	40 ml Vial
Circular Cotton	H2O	Total Metals	40 ml Vial
Circular Cotton	H2O	CN	40 ml Vial
Square Cotton Gauze	Hexane	PCBs	40 ml Vial

Sample Area: 100 sq. cm

Date: _____ Sampler: _____
Time: _____ Asst. Sampler: _____

Technical Area: 50 Weather: _____
Sample Location: Demister
Location ID: CAI - DM - 2

Comments:
The swipe is dampend with the appropriate solvent before taking the sample.
After the sample is taken, the swipe is placed in a 40 mL vial.
The swipe for VOCs is placed in a vial containing Methanol
The swipes for the remaing analytes, are placed in dry 40 mL vials.
Samples are submitted to the Sample Management Office,
to be shipped to Paragon Analytics in Fort Collins, Colorado.

Los Alamos National Laboratory
CHAIN OF CUSTODY/REQUEST FOR ANALYSIS

Date _____

Technical Area _____ Send Lab Report _____ MS _____

Unit _____ Site Work Plan _____

OU Contact _____ Date Samples Shipped _____

Contact Phone No. _____ Date Lab Report Required _____

Field Unique Sample #/ID (Write in sample ID number in space below)	Date and Time Collected	GRAB	COMP	Sample Container Volume/Material	Matrix (Liquid, Soil, Core, Sludge, Etc.)	Preservative	Analysis Requested		Remarks (Condition of receipt, etc.)
							Test	Method	

Relinquished by (Signature) Affiliation	Date	Relinquished by (Signature) Affiliation	Date	Relinquished by (Signature) Affiliation	Date
Received by (Signature) Affiliation	Time	Received by (Signature) Affiliation	Time	Received by (Signature) Affiliation	Time

POSSIBLE HAZARD IDENTIFICATION
(Please indicate if sample(s) are hazardous materials and/or are suspected to contain high levels of hazardous substances.)

Radiological ____ Highly Toxic ____ Flammable ____ Skin Irritant ____ Nonhazard ____ Other ____

SAMPLE DISPOSAL

Return to client ____ Disposal by lab ____ Archive ____ (Indicate number of months) ____

COMMENTS _____

SAMPLING TEAM (Print names and initial) _____

SOP 1.04, R0

ATTACHMENT C

LOS ALAMOS NATIONAL LABORATORY		LOS ALAMOS NATIONAL LABORATORY	
TA- 50 Controlled Air Incinerator	LOCATION ID: CAI- QT-1	TA- 50 Controlled Air Incinerator	LOCATION ID: CAI- QT-2
DATE: / /96	TIME:	DATE: / /96	TIME:
ANALYSIS : VOCs	LOCATION: Quench Tower	ANALYSIS : VOCs	LOCATION: Quench Tower
	PRESERVATIVE: 4°C		PRESERVATIVE: 4°C
COLLECTED BY: Ron Conrad, Albert Dye, Marquis Childs INITIALS:		COLLECTED BY: Ron Conrad, Albert Dye, Marquis Childs INITIALS:	

LOS ALAMOS NATIONAL LABORATORY		LOS ALAMOS NATIONAL LABORATORY	
TA- 50 Controlled Air Incinerator	LOCATION ID: CAI- QT-3	TA- 50 Controlled Air Incinerator	LOCATION ID: CAI- AT-1
DATE: / /96	TIME:	DATE: / /96	TIME:
ANALYSIS : VOCs	LOCATION: Quench Tower	ANALYSIS : VOCs	LOCATION: Absorb Tower
	PRESERVATIVE: 4°C		PRESERVATIVE: 4°C
COLLECTED BY: Ron Conrad, Albert Dye, Marquis Childs INITIALS:		COLLECTED BY: Ron Conrad, Albert Dye, Marquis Childs INITIALS:	

LOS ALAMOS NATIONAL LABORATORY		LOS ALAMOS NATIONAL LABORATORY	
TA- 50 Controlled Air Incinerator	LOCATION ID: CAI- AT-2	TA- 50 Controlled Air Incinerator	LOCATION ID: CAI- AT-3
DATE: / /96	TIME:	DATE: / /96	TIME:
ANALYSIS : VOCs	LOCATION: AbsorbTower	ANALYSIS : VOCs	LOCATION: Absorb Tower
	PRESERVATIVE: 4°C		PRESERVATIVE: 4°C
COLLECTED BY: Ron Conrad, Albert Dye, Marquis Childs INITIALS:		COLLECTED BY: Ron Conrad, Albert Dye, Marquis Childs INITIALS:	

LOS ALAMOS NATIONAL LABORATORY		LOS ALAMOS NATIONAL LABORATORY	
TA- 50 Controlled Air Incinerator	LOCATION ID: CAI- ST-1	TA- 50 Controlled Air Incinerator	LOCATION ID: CAI- ST-2
DATE: / /96	TIME:	DATE: / /96	TIME:
ANALYSIS : VOCs	LOCATION: Scrubber Tank	ANALYSIS : VOCs	LOCATION: Scrubber Tank
	PRESERVATIVE: 4°C		PRESERVATIVE: 4°C
COLLECTED BY: Ron Conrad, Albert Dye, Marquis Childs INITIALS:		COLLECTED BY: Ron Conrad, Albert Dye, Marquis Childs INITIALS:	

LOS ALAMOS NATIONAL LABORATORY		LOS ALAMOS NATIONAL LABORATORY	
TA- 50 Controlled Air Incinerator	LOCATION ID: CAI- ST-3	TA- 50 Controlled Air Incinerator	LOCATION ID: CAI- HP--1
DATE: / /96	TIME:	DATE: / /96	TIME:
ANALYSIS : VOCs	LOCATION: Scrubber Tank	ANALYSIS : VOCs	LOCATION: HEPA
	PRESERVATIVE: 4°C		PRESERVATIVE: 4°C
COLLECTED BY: Ron Conrad, Albert Dye, Marquis Childs INITIALS:		COLLECTED BY: Ron Conrad, Albert Dye, Marquis Childs INITIALS:	

ATTACHMENT E

PARAGON ANALYTICS, INC.

AN EMPLOYEE OWNED SMALL BUSINESS

225 Commerce Drive Fort Collins, Colorado 80524 (800) 443-1511

Message

Phone (970) 490-1511
Fax (970) 490-1522

Here are the Lab QA Plan excerpts that you requested.

Please call me if there is anything more that you need.

To	Ron Conrad	Company	LANL ESH-19
Fax No.	(505) 667-5224	Date	6/13/96
From	Lance Steere	Total Pages	10

If you do not receive all the pages, please call us back as soon as possible.

PARAGON ANALYTICS, INC.
225 Commerce Drive • Fort Collins, CO 80524 • (800) 443-1511 • (970) 490-1511 • FAX (970) 490-1522

TECHNICAL LABORATORY QUALITY ASSURANCE AND QUALITY CONTROL PLAN

Revision: 0

Copy Control #:_____

Donald Gipple
Laboratory Manager

Date: 5/5/95

Karen T. Kotz
Corporate Quality Assurance Manager

Date: 5/5/95

Effective 3/1/96, doing business as Paragon Analytics Inc. This is the result of an employee buy-out. We have retained the ATI QA/QC plan pending an update to reflect the new name. 6/13/96

Analytical Technologies, Inc.
225 Commerce Drive
Fort Collins, Colorado 80524
(970) 490-1511

CONFIDENTIAL

An Employee Owned Small Business

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1.0 INTRODUCTION

This Quality Assurance Plan summarizes the Analytical Technologies, Inc. (ATI) quality assurance procedures for providing service as an analytical chemistry laboratory for government agencies such as EPA as well as commercial clients. The purpose of this plan is to assure that consistently accurate data are being reported in support of ATI's responsibilities as an environmental chemistry laboratory serving both government agencies and private sector concerns.

Within this plan, the following definitions will be used:

Quality Assurance: The overall controls imposed upon laboratory operations. Included are all actions taken by personnel and the documentation of laboratory performance as specified in the Quality Assurance Program.

Quality Control: The daily specific actions taken within the laboratory to verify sample integrity, performance of analysis, data processing, and record maintenance.

1.1 QA/QC Objectives

Overview: The major responsibility of ATI is to provide data which is timely, cost-effective, and of a quality required by the client. The accomplishment of these goals is the principal objective of ATI's QA program. It recognizes that the data generated by our staff must be credible. This is ensured by the QA/QC program which monitors all phases of data generation, ranging from sample collection to sample handling, and from the actual analysis to the reporting of data.

1.2 QA/QC Scope and Approach

1.2.1 ATI routinely checks the quality of analytical work through analysis of reference samples, duplicate samples, and spiked samples. Statistically based control limits are established for each method of analysis and sample matrix.

1.2.2 The accuracy of measurement data is evaluated by the use of a reference material of known or established concentration. It may be used "as is" or diluted with an inert matrix as a blind environmental sample.

1.2.3 Accuracy is also evaluated when spiked samples are run for each analysis batch of samples for each type of sample matrix. Recoveries are assessed to determine method success and interference effects. A spiked sample is analyzed for each batch of ten samples (10%) or twenty samples (5%), depending upon the individual test. Small sample lots are routinely analyzed and accuracy data may be reported on a more frequent basis.

1.2.4 Precision is routinely evaluated based upon the results of samples which are analyzed in duplicate. A duplicate sample is analyzed for each batch of ten samples (10%) or

twenty samples (5%), depending upon the individual test. Small sample lots are routinely analyzed and precision data may be reported on a more frequent basis.

1.2.5 Both precision and accuracy are dependent on type of analysis, the sample matrix, and the concentration range of the particular analytes.

1.2.6 All data are visually checked for consistency and reasonableness, and any unusually high or low results are checked. Data are calculated and reported in units consistent with the approved method for comparability of results. Unusually high or unexpectedly low results are verified using different methods where possible.

1.2.7 All data entry, calculation, and reporting is reviewed by a second knowledgeable and professional party for errors, trends, consistency, and reasonableness. Staff are cognizant of basic Good Laboratory Practices such as "Z-ing" out unused portions of pages, legible handwriting using indelible, photocopy reproducible ink, and single line, initialed corrections.

1.2.8 Completeness can be determined as the percentage of the sample data for which the associated QC data is found to be acceptable. Precision and accuracy determinations, if outside the acceptance criteria due to sample related causes, may be regarded as qualifying and not invalidating the associated data.

1.2.9 ATI-Fort Collins seeks to upgrade the over-all quality of laboratory performance by:

1.2.9.1 Promptly recognizing and providing correction for any factors which adversely affect quality.

1.2.9.2 Monitoring the operational performance of the laboratory on a routine basis through system and performance audits and providing corrective action as needed.

1.3 ATI-Fort Collins Quality Assurance Documents

Complete documentation of any operation requires several types of quality assurance documents. ATI utilizes the Corporate Quality Assurance Manual to provide the overall quality policy. The ATI-Fort Collins facility utilizes the ATI-Fort Collins QA Manual to provide information about the overall QA policy. The manual, composed of four documents or sets of documents, discusses aspects of quality control and quality assurance for all levels of the organization. The Technical QA/QC Plan, one of the four documents, does not provide in-depth technical discussions but rather establishes the guidelines for developing and setting QA/QC procedures, documentation, in-depth technical procedures and protocol . Except as noted in Section 1.3.2.2, this plan does, however, have precedence in policy matters over other quality-related items. Other quality assurance documents provide either supportive or additional information, or are used to meet specific project requirements.

1.3.1 Standard Operating Procedures (SOPs)

SOPs provide detailed discussion and instructions for the implementation of QA/QC policies, analytical methods and procedures. A listing of ATI-Fort Collins SOPs current at the revision date of this manual may be found in Appendix A.

1.3.2 Project Specific Manuals or Quality Assurance Project Plans (QAPjP)

1.3.2.1 Specific contractual and regulatory demands may require the implementation of a QAPjP. Specific Data Quality Objectives (DQOs) may create a need to define criteria for:

1.3.2.1 The development and/or use of new testing methods.

1.3.2.2 Variations in equipment calibration and maintenance.

1.3.2.3 Adjusted detection limits for testing.

1.3.2.4 Adjusted accuracy and precision limits and the statistical treatment of data.

1.3.2.5 Additional or different document and record formats and maintenance.

1.3.2.2 If a specific project requires a unique QA Program, a project specific plan will be implemented. Full documentation will be provided in the Project-Specific Plan or QAPjP. The requirements of the work will take precedence over conventional ATI-Fort Collins QA practices when a project-specific manual or QAPjP is utilized.

1.4 Control, Distribution and Revision of Quality Assurance Documents

1.4.1 The QA/QC Plan, SOPs and Project-Specific Plans or QAPjP are approved by laboratory management and are controlled documents. Laboratory approvals required before issue for the documents are as follows:

1.4.1.2 ATI-Fort Collins Quality Assurance Manual (which contains the NQA-1 QA Plan, the QA Procedures, the Technical QA/QC Plan and the SOP documents in 1.4.1.3):
Laboratory Manager
Quality Assurance Manager

1.4.1.2 Laboratory Project Specific Manuals/QAPjP:
Laboratory Manager
Quality Assurance Manager

Project Managers

1.4.1.3 Standard Operating Procedures:
Laboratory Manager
Quality Assurance Manager
Supervisor or technical lead from appropriate area

1.4.2 Documents will be made available to all ATI-Fort Collins personnel at their functional work area. All copies distributed within ATI-Fort Collins are numbered for document control. Distribution of the Quality Assurance Manual, its associated documents and SOPs will be by the Quality Assurance Department. Records of distribution of all revised sections and SOPs will be maintained by the QA Department.

So that all Quality Assurance documents can be revised as necessary, distribution records are maintained by the Quality Assurance Department. Before issue, revisions will require the same approvals as the original document. Revisions will be consecutively numbered, and each page revised shall denote the numbered revision. To facilitate revision of Quality Assurance documents, each page shall contain the following information in the header:

SOP No. and Revision
Title
Associated Forms
Approval Notations
History of the document

1.4.3 Copies of Quality Assurance documents and revisions may be issued external to ATI-Fort Collins as required. Authorization for distribution will be by the QA Manager. These documents may be controlled (uniquely numbered) or uncontrolled (unnumbered) copies, depending on the reason for issue. Only controlled copies will be revised in accordance with the above policies.

The QA Department will maintain a distribution list for all SOPs and other controlled documents.

In all cases, external copyholders will be asked to return QA documents when the need for the document has ended. Exceptions to this will be if the external party requires a copy for record keeping purposes.

ATTACHMENT B

Sampling Results Table

All Measurements in μg/swipe

Sampling Location	Sampling ID Number	Field Sample ID Number	Sampling Results
Glove Box	96-06-175-04	CAI-GB-1	ND
Glove Box	96-06-175-05	CAI-GB-2	ND
Glove Box	96-06-175-06	CAI-GB-3	ND
Glove Box	96-06-175-07	CAI-GB-4	ND
Glove Box	96-06-175-08	CAI-GB-5	ND
Absorber Tower	96-06-172-01	CAI-AT-1	ND
Absorber Tower	96-06-172-02	CAI-AT-2	ND
Absorber Tower	96-06-172-03	CAI-AT-3	ND
HEPA	96-06-175-09	CAI-HP-1	ND
HEPA	96-06-175-10	CAI-HP-2	ND
HEPA	96-06-175-11	CAI-HP-3	ND
HEPA	96-06-175-12	CAI-HP-4	ND
HEPA	96-06-175-13	CAI-HP-5	ND
Solid Feed	96-06-175-14	CAI-SF-1	ND
Solid Feed	96-06-175-15	CAI-SF-2	ND
Solid Feed	96-06-175-16	CAI-SF-3	ND
Solid Feed	96-06-175-17	CAI-SF-4	ND
Activated Carbon	96-06-175-01	CAI-AC-1	ND
Activated Carbon	96-06-175-02	CAI-AC-2	ND
Activated Carbon	96-06-175-03	CAI-AC-3	ND
Quench Tower	96-06-172-04	CAI-QT-1	ND
Quench Tower	96-06-172-05	CAI-QT-2	ND
Quench Tower	96-06-172-06	CAI-QT-3	ND
Exhaust	96-07-017-01	CAI-EX-1	.32 J
Exhaust	96-07-017-03	CAI--EX-3	ND
Liquid Feed	96-07-017-04	CAI-LF-1	240
Liquid Feed	96-07-017-05	CAI-LF-2	.63 J
Liquid Feed	96-07-017-06	CAI-LF-3	1.1
Liquid Feed	96-07-017-07	CAI-LF-4	ND
Liquid Feed	96-07-017-08	CAI-LF-5	.57 J
Scrubber Tank	96-08-049-03	CAI-ST-1	ND
Ash Removal	96-09-024-01	CAI-AR-1	ND
Ash Removal	96-09-024-02	CAI-AR-2	ND
Ash Removal	96-09-024-03	CAI-AR-3	ND
Ash Removal	96-09-024-04	CAI-AR-4	ND
Ash Removal	96-09-024-05	CAI-AR-5	ND

NOTES:

HEPA = High-efficiency particulate air.
ND = Nondetect.
J = Estimated value

ATTACHMENT C

PCB Certificate of Destruction/Recycle

SD MYERS

CERTIFICATE OF DESTRUCTION/RECYCLE

S.D. Myers, Inc. 180 South Ave. Tallmadge, OH 44278 Phone 330-630-7000

Document # - 0086892- 1
EPA ID# - OHD053576294
Date - 12/19/96
P.O. Number - C-4125

This document is to certify that S.D. MYERS, INC. has completed the disposal of your tank by utilizing our RESOURCE RECOVERY PROCESS.

Under civil and criminal penalties of law for the making or submission of false or fraudulent statements or representations (18 U.S.C. 1001 and 15 U.S.C.2615), I certify that the information contained in or accompanying this document is true, accurate, and complete. As to the identified section(s) of this document for which I cannot personally verify truth and accuracy, I certify as the company official having supervisory responsibility for the persons who, acting under my direct instruction, made the verification that this information is true, accurate, and complete.

Generator: CHEM WASTE MANAGEMENT
Owner: P.O. BOX 1663 MSJ593
Customer: LOS ALAMOS NM
(505)667-7579

Generator: LOS ALAMOS NAT'L LAB
Owner: P.O. BOX 1663/MS J593
Customer: LOS ALAMOS NM 87545
(505)667-7579

R-No.	Serial Number	Cust Ref No.	Wt in Kg.	PPM	Liq	Incoming Manifest	Date Out of Service	Date Destroyed
0040753	C96073327	Tank	413	501	N	96536	09/24/96	11/25/96

Audited By:
Sheree Butcher
Contract Coordinator