REPORT

#932028

E-FILED

REMOVAL OF BARIUM WASTE
FINAL REPORT
TAM CERAMICS SITE

TAM Ceramics, Inc.

Niagara Falls, New York

June 1994

BLASLAND, BOUCK & LEE, INC.
ENGINEERS & SCIENTISTS

Report

Removal of Barium Waste Final Report TAM Ceramics Site

TAM Ceramics, Inc.
Niagara Falls, New York

June 1994

BLASLAND, BOUCK & LEE
ENGINEERS & SCIENTISTS

30 Corporate Woods
Suite 160
Rochester, New York 14623
(716) 292-6740

BLASLAND, BOUCK & LEE, INC.
ENGINEERS & SCIENTISTS
30 Corporate Woods, Suite 160, Rochester, New York 14623-1477
(716) 292-6740 FAX: (716) 292-6715

June 29, 1994

Mr. Michael J. Hinton, P.E.
Division of Hazardous Waste Remediation
Region 9
New York State Department
Of Environmental Conservation
270 Michigan Avenue
Buffalo, New York 14203-2999

Re: TAM Ceramics Site
Niagara Falls, New York
Removal of Barium Waste
Final Report

File: 163.02 #2

Dear Mr. Hinton:

Please find enclosed three (3) copies of the "Removal of Barium Waste Final Report", prepared by Blasland, Bouck & Lee, Inc. for the TAM Ceramics Site, as required and described in Section II Paragraph D of the Administrative Order on Consent, Index Number B9-0430-93-04.

This document has been prepared to detail the activities undertaken to remove the known quantity of barium waste from the TAM Ceramics Site, in accordance with the Consent Order and the approved Work Plan.

If you have any questions regarding this report, please do not hesitate to contact me at (716) 292-6740.

Very truly yours,

BLASLAND, BOUCK & LEE, INC.

William B. Popham
Vice President

WBP/lap
4394966H.let

cc: Mr. Thomas Reamon, NYSDEC
James Hazel, Esq., NYSDEC
Mr. Al Wakeman, NYSDOH
Mr. Russ Steiger, TAM Ceramics, Inc.
Jerrold Brown, Esq., Hodgson, Russ, Andrews, Woods & Goodyear
Mr. Jay Young, NL Industries

Table of Contents

FIGURES

ATTACHMENTS

Sworn Statement

"I certify that the information contained in and accompanying this submission to the New York State Department of Environmental Conservation is true, accurate and complete."

"As to the portion(s) of this submission that I cannot attest to as true, accurate and complete on the basis of personal knowledge, I hereby certify and/or declare that I have fully investigated the basis of this submission, and the submission itself in its entirety for the purpose of making this certification and/or declaration, and have concluded that it is true, accurate, and complete in every respect. I further certify and/or declare that I am fully responsible for its content to the fullest extent allowable by law."

Edward R. Lynch
Signature*

Date 6/29/94

Edward R. Lynch, P.E.
Printed Name*

* Responding on behalf of TAM Ceramics, Inc.

Introduction

1.0 Introduction

1.1 General

Blasland, Bouck & Lee, Inc. (BB&L) was retained by TAM Ceramics, Inc. (TAM) to provide professional services for the removal of barium waste from the TAM manufacturing facility, located in the Town of Niagara, New York. These services included the development and implementation of the Removal of Barium Waste Work Plan (BB&L, April 1993) to perform this Interim Remedial Measure (IRM). The Work Plan was approved by the New York State Department of Environmental Conservation (NYSDEC), and included in Administrative Order on Consent, Index Number B9-0430-93-04 (AOC), issued by the NYSDEC to TAM. This final report has been prepared to satisfy the requirements of Section 4.2 of the Removal of Barium Waste Work Plan and Section II, Paragraph D, of the AOC.

This Final Report provides a complete summary of actions implemented by TAM to fully comply with the requirements of the AOC and the approved Work Plan.

1.2 Site History and Background

The TAM Ceramics site occupies approximately thirty (30) acres in a commercial and residential area of the Town of Niagara. The facility is located immediately south of the Hyde Park Landfill Superfund Site, and approximately 0.4 miles east of the Niagara River. Figure 1-1 presents the approximate location of the facility. The facility consists of approximately 18 buildings situated on the west side of the Site dedicated to the manufacture of ceramic powders. The remaining portion of the facility consists of an undeveloped area.

The facility was first owned by Titanium Alloy Manufacturing Company (TAMCO), which began production at the facility in 1906. The first product produced was high carbon ferrocarbon titanium, which was used by the steel industry as a deoxidizer in the production of rail steel. In 1915, a sulphate process was developed using ilmenite ore for producing titanium dioxide (TiO_2). The Titanium Pigment Company was formed as a subsidiary of TAMCO and began operation as a manufacturing plant for titanium dioxide.

Titanium and zirconium metals were first produced by TAMCO at the facility in 1918. Experimental work on zirconium products began in 1914, and by 1919, a zirconium opacifier was produced. Milled zircon (zirconium silicate) ore was also produced and distributed from 1921 to 1937.

In 1920, NL Industries bought half of the Titanium Pigment company from TAMCO, and in 1933, NL acquired the balance of the company. NL Industries acquired TAMCO in 1948. NL Industries continued the same type of manufacturing operations at the facility. In 1978, NL Industrics sold the facility to TAM Ceramics, Inc., as part of Anzon America, Inc., a wholly owned subsidiary of Lead Industries Group. TAM continues to produce ceramics and ceramic products.

In December of 1983, the NYSDEC and the New York State Department of Health (NYSDOH) listed the TAM manufacturing facility as a Class 2a site on the New York State Registry of Inactive Hazardous Waste Disposal Sites. The classification was assigned based on the suspected disposal of magnesium chloride, as reported by NL Industries in the New York State Interagency Task Force on Hazardous Wastes (Task Force) questionnaire.

In March of 1991, TAM received notice from the NYSDEC that Ecology and Environment, P.C. (E&E) would be performing a Preliminary Site Assessment (PSA) at the facility. Thc "PSA approach" had recently been developed by the NYSDEC as a "hybrid" of Phase I and Phase II investigations. During visits in April and May of 1991, E&E and the NYSDEC identified two potential areas of concern in the eastern portion of the undeveloped area. One area contained a black, tar-like substance, and the other contained a white, solid material. The two areas were sampled and analyzed for Toxicity Characteristic Leaching Procedure (TCLP) parameters. The results were below regulatory maximum concentrations for toxicity characteristics, with the exception that the white material showed a TCLP concentration of 190 milligrams per liter (mg/l) for barium, which exceeds the United States Environmental Protection Agency (USEPA) maximum allowable concentration of 100 mg/l.

Early in 1992, Empire Soils Investigations (ESI) was authorized by TAM to perform a test pit excavation program, in order to estimate the quantities of piled waste in the eastern portion of the site, in the areas E&E identified in the May 1991 site walkover for the PSA. In May of 1992, ESI performed the test pit program, with NYSDEC personnel on site to observe. A total of 18 test pits were excavated, and three areas of waste disposal were identified and designated as Areas A (blue material), B (gold material, black liquid/water), and C (white material). ESI estimated the extents of waste, as follows:

- Area A 2,433 cubic feet;
- Area B 1,450 square feet; and
- Area C 8 cubic feet.

Four waste samples were obtained from these three waste areas, and split with both the NYSDEC and Chemical Waste Management (CWM). Sample results confirmed the original analysis, with the Area C material exceeding the USEPA maximum concentration of 100 mg/l for barium (The sample was tested using the EP Toxicity method, with a result of 5,130 mg/l.)

As a result of these findings, TAM contracted BB&L to develop a Work Plan to remove this only known quantity of hazardous waste on TAM property. The Work Plan identified the methods and procedures to be used for the removal of the barium waste, including removal activities, confirmatory sampling, decontamination, waste removal and disposal activities, and reporting. The Work Plan was approved by the NYSDEC, and its implementation was included in the AOC, dated February 17, 1994. A copy of the AOC is included as Appendix A.

1.3 Purpose and Scope

The purpose of this Final Report is to summarize the actions TAM has taken to comply with the IRM portion of the AOC, specifically with the Removal of Barium Waste Work Plan. These actions include the removal of the barium waste and all other activities associated with this removal, as described in the approved Work Plan.

This Final Report has been organized into the following sections:

- Section 1 - Introduction;
- Section 2 - Removal Action Summary;
- Section 3 - Health and Safety Summary;
- Figures; and
- Appendices.

Removal Action Summary

2.0 Removal Action Summary

2.1 General

This section, which provides a summary of all removal activities conducted to comply with the AOC, discusses the preliminary activities, barium waste removal activities, and backfilling activities, and provides a summary of waste storage, transportation, and disposal. The preliminary activities included the pre-project meeting, and construction of the decontamination pad. The discussion on the removal of barium waste summarizes the activities undertaken in the removal of the barium waste at the site, and includes analytical results and those activities which were not originally included in the approved Work Plan. The discussion on backfilling activities outlines those activities undertaken to backfill the excavation from which the barium waste was removed. Finally, a summary of all waste handling activities performed as part of the removal activities is included.

Field activities were performed by Chemical Waste Management, Inc.'s Technical Services Division. General Testing Corporation provided analytical services. BB&L provided project oversight and implemented the Site Health and Safety Plan during all Site activities. In addition, BB&L prepared daily inspection reports and photographs to document all removal activities. The photographs are found in Appendices B.

2.2 Preliminary Activities

The approved Work Plan identified several activities to be performed prior to the commencement of removal activities. These activities included selecting subcontractors, conducting a pre-project health and safety/pre-construction meeting, locating the decontamination pad, and receiving the waste storage containers and laboratory sample bottles.

2.2.1 Selection of Subcontractors

The approved Work Plan requires that Requests for Proposals (RFPs) be prepared and distributed for both remedial contractors and analytical laboratories. The RFPs were prepared and forwarded to a number of firms for each subcontract (eight remedial contractors and three laboratories). The RFP responses were reviewed by TAM, and subcontractors were selected for the project. Chemical

Waste Management, Inc. Technical Services Division (CWM) and General Testing Corporation, Inc. (GTC) were selected as the remedial contractor and analytical laboratory, respectively.

In accordance with Section XIII, Paragraph B of the AOC, a qualifications package which included the experience, capabilities and qualifications of the firms or individuals selected to perform the project was prepared and forwarded to the NYSDEC on March 3, 1994.

2.2.2 Pre-Project Health and Safety/Pre-Construction Meeting

On March 21, 1994, prior to the commencement of field activities, a pre-project health and safety/pre-construction meeting was held at TAM. The purpose of the meeting was to review the project activities, implementation schedule, and health and safety activities to be performed during the project. The following personnel were in attendance at the meeting:

- Mr. Russ Steiger of TAM;
- Mr. Darrin Costantini and Ms. Susan Coia-Ahlman of BB&L;
- Mr. Robert Bellinger of CWM;
- Mr. Michael Hinton, P.E., of the NYSDEC; and
- Mr. Matthew Forcucci of the NYSDOH.

Health and safety procedures, including the air monitoring program, levels of personal protection, provisions for upgrading and downgrading levels of personal protection, and emergency procedures, were discussed at the meeting. Implementation of these items is detailed in Section 3.5.

Mr. Hinton of the NYSDEC requested that an additional area of suspected barium disposal be removed. The area was identified during a site walkover by the NYSDEC and NYSDOH in the Fall of 1993. The area is located approximately 10 yards west-southwest of the area of known disposal, as shown on Figure 2-1. The physical characteristics of the waste are similar to those of the barium waste. Mr. Steiger of TAM agreed to remove the unknown waste, under the condition that the waste volume was fairly small, and excessive additional excavation and "chasing" the limits of the

waste would not be required, since additional waste identification activities will occur as part of the Site Characterization Program. All parties agreed to this condition.

2.2.3 Other Preliminary Activities

The following activities were also performed prior to the commencement of field activities:

- The preferred location of the decontamination pad was identified by TAM and discussed with CWM (March 21, 1994). The decontamination pad was constructed to the southeast of the existing asphalt cap, east of the railroad junction switch. The approximate location of the decontamination pad is shown on Figure 2-1 (The decontamination pad will be surveyed and located as part of the Preliminary Site Assessment, with the exact location of the pad to be provided in the Supplemental Work Plan);
- Excavation equipment required for removal of the barium waste, which included a backhoe and CWM health and safety supply truck, was transported to the site on March 21, 1994. In addition, a pick-up truck was used to transport lumber and other materials required for construction of the decontamination pad. Other equipment utilized included a plate tamper, electrical generator, sump pump, and pressure washer;
- CWM transported four, one-cubic-yard boxes to the site for storage and removal of the barium waste, and three 55-gallon drums for storage and removal of decontamination wastewater and personal protective equipment (PPE); and
- Laboratory sample bottles were shipped to BB&L by GTC and received March 18, 1994.

2.3 Removal of Barium Waste

The approved Work Plan defined the activities necessary to remove the barium waste. CWM conducted the removal activities, in accordance with the approved Work Plan and AOC, between March 21 and March 29, 1994, with BB&L providing daily oversight. BB&L utilized the following equipment to monitor air quality during the removal activities:

- RAM-1 Real-Time Aerosol Monitor (RAM-1) with data logger, to continuously monitor airborne dust levels;
- hNu IS-101 Photoionization Detector, to monitor airborne organic contaminant levels; and
- S.E. International 4EC MiniRad Radiation Survey, to monitor ambient radiation levels.

Section 3.5 provides a detailed discussion of the air monitoring procedures and results.

The following sections identify the activities undertaken in the removal of the barium waste. All activities were conducted in accordance with the approved Work Plan.

2.3.1 Construction of Decontamination Pad

The decontamination pad was constructed to the southeast of the existing asphalt cap, east of the railroad junction switch, as identified on Figure 2-1. Construction activities occurred on March 21, 22, and 28, 1994. The pad was constructed as shown on Figure 2-2. Section 3.5 provides a description of the air monitoring activities which were performed during construction of the decontamination pad. The following chronology details the construction of the pad:

- March 21, 1994: The area designated for construction of the pad was cleared and graded. Clearing and grading was initiated in Level C PPE and completed in modified Level D, as discussed in Section 3.5. Twenty, six-inch by six-inch wooden beams were laid out, nailed together and anchored to the ground (using rebar) to form a one-foot-high, 16-foot by 24-foot frame for the decontamination pad. A base of crush and run gravel was laid over the base of the pad (see photographs 1 through 3);

- March 22, 1994: The sump for the decontamination pad was excavated in the northern corner of the pad (see photographs 4 and 5). The excavation was performed in Level C PPE, as discussed in Section 3.5. Approximately one foot of crush and run gravel was placed within the framed pad. The gravel was graded towards the sump and compacted using a plate tamper (see photographs 6 through 9). Reinforced 60-mil polyethylene sheeting was laid over the gravel and frame, and anchored to the frame using 3/4-inch staples. A 30-gallon plastic drum was cut in half, slotted, and placed in the sump; and
- March 28, 1994: 12-mil polyethylene sheeting was placed over the 60-mil sheeting and anchored to the frame using 3/4-inch staples and 1-inch nails, as required (see photograph 10). A sheet of 1/4-inch cushioning geotextile fabric was then laid across the pad and fastened to the frame using 1-inch nails (see photograph 11). Wooden planks were placed across the pad to distribute the weight of the equipment (see photograph 12). Plywood sheets were placed over the pad after use to minimize water infiltration onto the pad and contamination release from the pad (see photographs 13 and 14).

2.3.2 Excavation of Barium Waste - March 23, 1994

Excavation of the barium waste pile commenced on March 23, 1994 (see photographs 15 through 18). During excavation of the barium waste, a blue-grey waste, similar in nature to the Area A waste sampled during the 1992 ESI investigation, was uncovered in and around the excavation. Most of this waste was removed along with the barium waste. A total of approximately 2.5 cubic yards of waste and soil were removed from the area of known waste disposal. The excavated soil/waste was placed into three, one-cubic-yard cardboard boxes.

Due to the limited depth of excavation and the identification of the blue-grey waste, soil sampling from the sidewalls of the excavation was not practical. Therefore, after conferring with the NYSDEC, five grab samples were taken from the bottom of the excavation. The samples were taken from the four corners and the center of the excavation (see photographs 19 through 22). Later in the day, the samples were hand delivered to GTC, where they were composited into a single sample and analyzed for total barium. Analytical results, received on March 24, 1994, indicated total barium was present at 1,930 parts per million (ppm). Analytical results are included as Attachment C. The result was above the established clean-up level of 300 ppm, so additional excavation was scheduled for March 25, per the approved Work Plan.

Upon further review of the analytical data from ESI's 1992 investigation, it was learned that the blue-grey waste exhibited analytical results for total barium of over 10,000 ppm, although the waste did not exceed the USEPA TCLP maximum concentration limit of 100 mg/l. It was then determined that the exceedance of the clean-up level of 300 ppm was most likely due to the presence of the blue-grey waste in the excavation.

2.3.3 Excavation of Barium Waste - March 25, 1994

The additional excavation of the barium waste area commenced on March 25, 1994. Prior to excavation, the following modifications had been made to the excavation methods:

- A 30-cubic-yard roll-off container was transported to the site. During the initial removal, one-cubic-yard boxes were used which were relatively small, and great care had to be taken to place the soils into the container. The larger container would allow larger volumes of soil and waste to be excavated and would facilitate the timely removal and placement of these wastes into the container; and

- A flat-bladed backhoe bucket (trench bucket) was brought to the site and placed on the backhoe to replace the toothed bucket CWM had originally brought to the site to excavate through the frost line. Since there was no frost in the ground, the toothed bucket would not be required, and the trench bucket would allow the complete removal of loose soils and wastes from the excavation without further disturbing the underlying soils.

Approximately 12 cubic yards of waste and soil were removed from the area, and the excavated soils and waste were placed into the roll-off container. The final dimensions of the excavation were approximately 9-feet by 7-feet by 2.75-feet deep (see photograph 23).

While sampling from the sidewalls was possible, BB&L and the NYSDEC decided that sampling from the bottom of the excavation would provide a better indication of the effectiveness of the removal action. Five grab samples were taken from the bottom of the excavation; the samples were taken from the four corners and the center of the excavation (see photographs 24 through 27). Later in the day, the samples were hand delivered to GTC, where they were composited into a single sample and analyzed for total barium. Analytical results, received on Monday, March 28, 1994, showed 185 ppm total barium. Analytical results are included as Attachment C. Since the analytical results were below the established clean-up level of 300 ppm, excavation was concluded.

2.3.4 Additional Activities Summary

Several additional activities were performed which were not part of the approved Work Plan. All of these activities pertained to the area of suspected waste disposal located southwest of the area of barium waste disposal, as defined during the pre-construction meeting on March 21, 1994 (see photograph 28). A chronology of events surrounding the second area of excavation is as follows:

- March 23, 1994 - After excavation of the known barium waste, a one-cubic-yard box was set up next to the second area of waste. The backhoe was used to determine the extent of the waste. Veins of the material were found to extend for several feet beyond the original area of the visible waste; therefore, the excavation was terminated (see photographs 29 through 31). One cubic yard of visible waste was removed from the area.

  A sample of the waste was collected and delivered to GTC for total barium and TCLP inorganics analyses. Analytical results are included as Attachment C. The total barium result was 1,230 ppm. All results for the TCLP inorganics analysis were below quantitation limits, with the exception of barium. The result for TCLP barium was 3.63 mg/l, well below the USEPA maximum contaminant concentration of 100 mg/l.

- March 25, 1994 - It was decided that additional efforts would be made to locate the limits of waste disposal in the second area, since excavation was continuing and a larger waste container was already on site. Soils were excavated away from the waste pile in each direction until no additional wastes were visible (see photographs 32 through 34). The limits of the waste were identified on all sides, except the north-west corner. A vein of waste continued in this direction. Excavation in this direction was discontinued when a total of 6 cubic yards of soil and waste had been removed from this area (See photographs 35 and 36). The soils and wastes were then loaded into the roll-off container. The personnel from CWM expressed a concern that loading any additional waste into the roll-off container might exceed the maximum weight allowable for transport in the area. The corner of the vein that remained was covered with clean fill (see photograph 37).

Three grab samples were taken from the south and east sides of the excavation (see photographs 38 and 39). These samples were sent to GTC where they were composited and analyzed for total barium. Analytical results showed 225 ppm of barium, below the NYSDEC-recommended clean-up level. Analytical results are included in Attachment C.

2.4 Backfilling Activities

In accordance with the approved Work Plan, the excavation was backfilled with crush and run gravel from a NYSDOT-approved fill source (Niagara Quarry). Following receipt of the analytical results, which confirmed that the remaining soils were below the regulatory limit of 300 ppm total barium, backfilling activities commenced. The gravel was delivered to the site on Monday, March 28, 1994 and placed in the excavation through use of the decontaminated backhoe. The gravel was placed to approximately one foot below existing grade, so that the blue-grey material which was left in place would not be covered (see photographs 40 and 41). The gravel was then compacted using a plate tamper.

2.5 Waste Storage, Transportation, and Disposal

2.5.1 Solid Waste

All PPE generated during site activities was discarded into a plastic-lined 55-gallon drum located adjacent to the decontamination pad. At the end of each work day, the waste PPE drum was capped. Following completion of all site decontamination activities, a 55-gallon drum containing PPE was capped and characterized as non-hazardous waste. Following completion of the site activities, the drum of PPE was loaded onto CWM's health and safety truck on Monday, March 28, 1994, for transportation to CWM's Model City (Model City) Landfill located in Model City, New York, for disposal. A bill-of-lading was generated to dispose of the PPE in accordance with applicable regulations. A copy of the bill-of-lading is contained in Appendix D.

The soils containing barium waste which were excavated on Wednesday, March 23, 1994, and placed into three, one-cubic-yard cardboard boxes, were banded and placed adjacent to the decontamination pad. The soils were characterized as characteristic hazardous waste for Barium (D005). Following completion of the site activities, the three boxes of contaminated soil were loaded onto CWM's health and safety truck on Monday, March 28, 1994, for transportation to Model City for disposal. Upon arrival at Model City, a routine radiation survey of the waste resulted in radiation readings above the CWM designated background levels. A sample of the waste was returned to TAM for analysis by an independent radiation testing laboratory. The sample was shipped to XRAL Activation Services Incorporated of Ann Arbor, Michigan for testing by neutron activation. Results of the analysis indicated equivalent Uranium at 120 ppm and Thorium at 55 ppm. A copy of the analytical results is included in Attachment C. This amount of radiation was deemed acceptable by CWM and accepted for disposal on June 2, 1994. A copy of the letter confirming the disposal of the waste is included with the Hazardous Waste Manifest in Attachment E.

The additional soils excavated on Friday, March 25, 1994 were placed in a covered, 30-cubic-yard, lined roll-off container. The roll-off container was transported off site by CWM on Tuesday, March 29, 1994 to Model City for disposal. A Hazardous Waste Manifest was generated to dispose of the waste in accordance with applicable regulations. A copy of the Hazardous Waste Manifest is contained in Appendix E

2.5.2 Wastewater

All wastewater collected in the collection sump during equipment decontamination was pumped into two 55-gallon drums located adjacent to the decontamination pad. The decontamination wastewater was characterized as a characteristic hazardous waste for barium (D005). Following completion of the site activities, the drums of wastewater were loaded onto CWM's health and safety truck on Monday, March 28, 1994, for transportation to Model City for disposal. A Hazardous Waste Manifest was generated to dispose of the wastes in accordance with applicable regulations. A copy of the Hazardous Waste Manifest is contained in Appendix E.

Health and Safety Summary

3.0 Health and Safety Summary

3.1 General

This section provides a summary of all health and safety procedures, methods, and requirements that were implemented during the IRM activities, in accordance with Sections 3.0 and 5.0 of the approved Work Plan. BB&L's on-site Health and Safety Supervisor (HSS) monitored all excavation activities and provided enforcement and implementation of the Site Health and Safety Plan (HASP) during all removal activities. CWM also had a Health and Safety Officer (HSO) on site to implement their HASP, and to assist BB&L's HSS.

Health and safety procedures, methods, and requirements were conducted in accordance with the approved HASP, and included the following:

- Personnel Training;
- Medical Surveillance;
- Personal Protective Equipment;
- Air Monitoring; and
- Personal and Equipment Decontamination.

3.2 Personnel Training

All personnel (BB&L and CWM) associated with removal activities were provided with the required training, in accordance with Section 5.0 of the HASP. This training included pre-assignment training, in accordance with the provisions outlined in 29 CFR 1910.120(e), and a complete review of the site HASP. Also, BB&L's on-site HSS had current first aid and CPR certification. A copy of personal training certificates for BB&L and CWM personnel are found in Appendix F.

As stated in Section 2.2.2, BB&L conducted a pre-project health and safety/pre-construction meeting. Health and safety protocols, including the air monitoring program, were reviewed. The levels of personal protection, provisions for upgrading and downgrading levels of personal protection, description of monitoring to be performed, and emergency procedures were also discussed.

3.3 Medical Surveillance

Medical surveillance for this project included the provisions established under Title 29 CFR 1910.120 (f), OSHA's medical surveillance requirements for hazardous waste operations. Personnel associated with the removal activities provided documentation regarding their physical ability to wear a respirator, including their examining physicians' written opinion regarding their health status. A copy of the medical surveillance information is contained in Appendix G.

No site-specific medical monitoring was required, per the NYSDEC-approved HASP.

3.4 Personal Protective Equipment

BB&L and CWM initiated all excavation activities in Level C PPE. Ambient levels of total dust, total organic vapors, and radiation were monitored during the excavation through the use of a RAM-1, hNu, and radiation survey, respectively. Since the ambient levels recorded during the first 15 minutes of excavation were below the action levels specified in Section 4.3 of the HASP, the level of protection was downgraded to modified Level D PPE. In accordance with the site HASP, all other site activities were performed in modified Level D PPE. A listing of selected protective equipment ensembles for these levels are found in Section 4.2 of the Site HASP. Upon completing a shift and/or exiting the Exclusion Zone, BB&L and CWM personnel removed their PPE for appropriate disposal.

3.5 Air Monitoring

3.5.1 Total Dust

In accordance with Section 4.5 of the HASP, background dust, vapor and radiation levels were established prior to excavation activities. A RAM-1 with a PDM-10 data logger was used to measure total airborne particulate levels both in the Exclusion Zone and downwind at the site perimeter during excavation activities to monitor total dust levels and determine if action levels were exceeded and an upgrade or downgrade of PPE levels was required/permissible. The RAM-1 was calibrated each day prior to use. As stated in Section 4.3.2 of the HASP, the action level for implementing dust control measures was 150 micrograms per cubic meter (ug/m^3), based on consecutive 15 minute time-average intervals.

As stated in Section 3.4, during the initial 15 minutes of excavation activities, the RAM-1 was used to monitor dust levels; the dust levels did not exceed the established action level. Therefore, PPE was downgraded to modified Level D during all site activities. Dust levels were continuously monitored during all excavation activities; however, neither action levels for upgrade to Level D PPE nor action levels for implementing dust control levels were exceeded. Copies of the RAM-1 monitoring data are found in Appendix H.

3.5.2 Organic Vapors

An hNu IS-101 photoionization detector with a 10.2 eV probe was used to monitor for organic vapors during all excavation activities. The hNu was calibrated to 98 ppm isobutylene and zeroed each day prior to the commencement of excavation activities. In accordance with Section 4.3.1 of the HASP, the action level for total organic vapors was 5 parts per million above background levels, for five consecutive minutes. The hNu probe did not record organic vapor levels in excess of the action level.

3.5.3 Radiation

In accordance with Section 4.4 of the HASP, a radiation monitor was used to survey the site for radiation levels above background. Background levels were established every morning prior to use, and radiation levels were monitored before and during all excavation activities. Elevated radiation levels were not detected.

3.6 Personnel and Equipment Decontamination

To prevent and/or reduce the physical transfer of potential contaminants by personnel and/or equipment from the site, procedures were implemented to decontaminate all personnel and field equipment exiting the Exclusion Zone and Contamination Reduction Zone (CRZ). Decontamination at the site consisted of removing PPE and rinsing equipment with a high pressure, low volume pressure washer on the newly constructed decontamination pad. The decontamination pad was constructed at the perimeter of the existing cap, as shown in Figure 2-1.

3.6.1 Personnel Decontamination

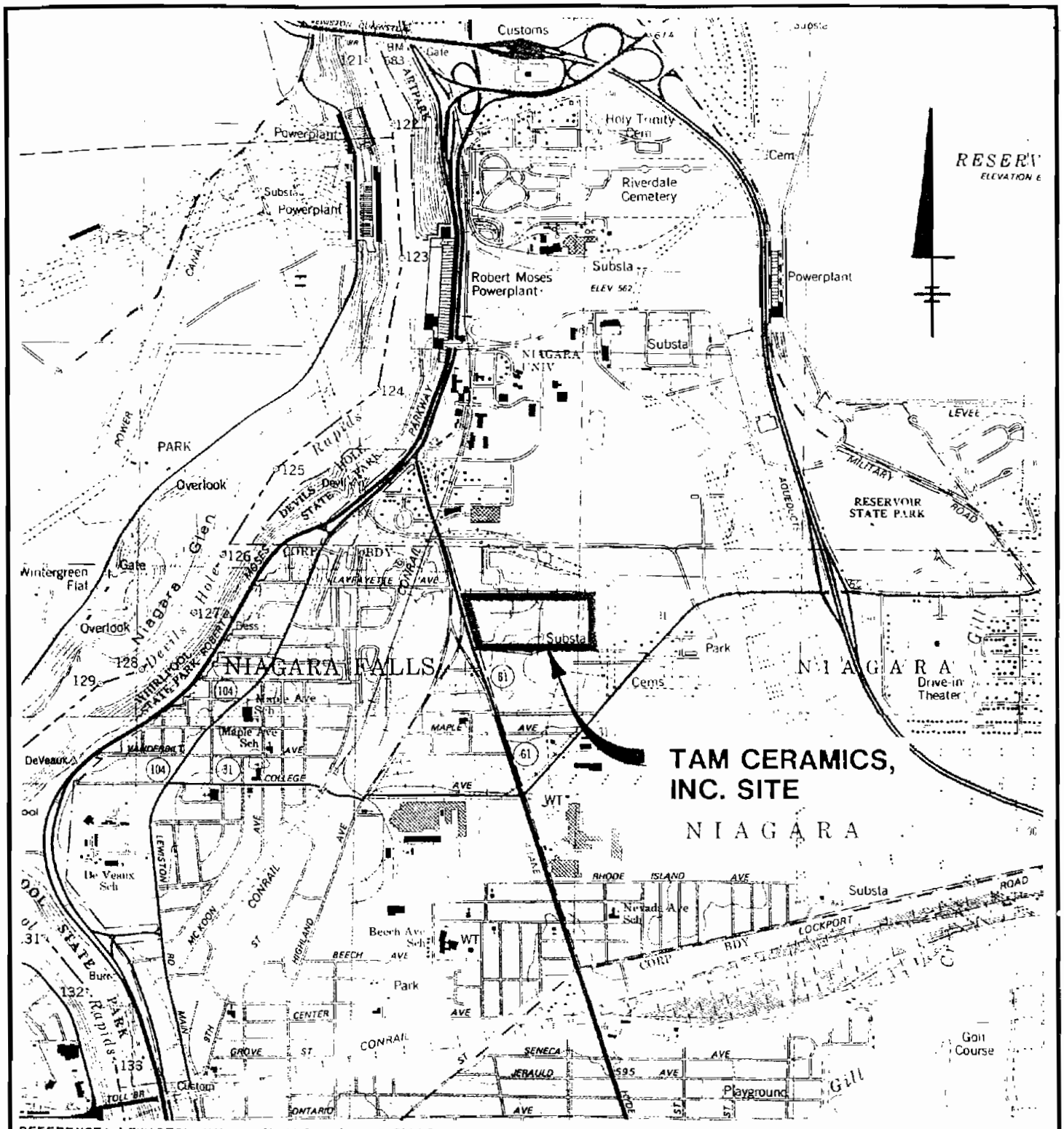
At the end of each day, or when exiting the Exclusion Zone, BB&L and CWM personnel removed all their PPE at the decontamination pad and discarded the disposable garments into a plastic-lined drum located adjacent to the decontamination pad prior to leaving the CRZ. The PPE was temporarily stored adjacent to the decontamination pad and was disposed of according to applicable regulations, as described in Section 2.5.1.

3.6.2 Equipment Decontamination

Prior to exiting the CRZ, CWM decontaminated their equipment with a pressure washer at the decontamination pad. The only equipment that came into contact with the barium waste was the backhoe, which included two bucket attachments and a shovel. Following completion of site activities, the equipment entered the decontamination pad from an access ramp, was pressure washed, and exited the decontamination pad from an exit ramp. The decontamination water drained into the collection sump and was then pumped into two 55-gallon drums for storage and disposal.

Following completion of the activities, the decontamination pad was covered with 4-foot by 8-foot plywood to minimize water infiltration into the pad and contaminant release from the pad.

Figures



REFERENCE: LEWISTON, N.Y. - ONT. AND NIAGARA FALLS, N.Y. - ONT. 1980 QUADS.

2000' 0 2000'

APPROX SCALE: 1" = 2000'

QUADRANGLE LOCATION

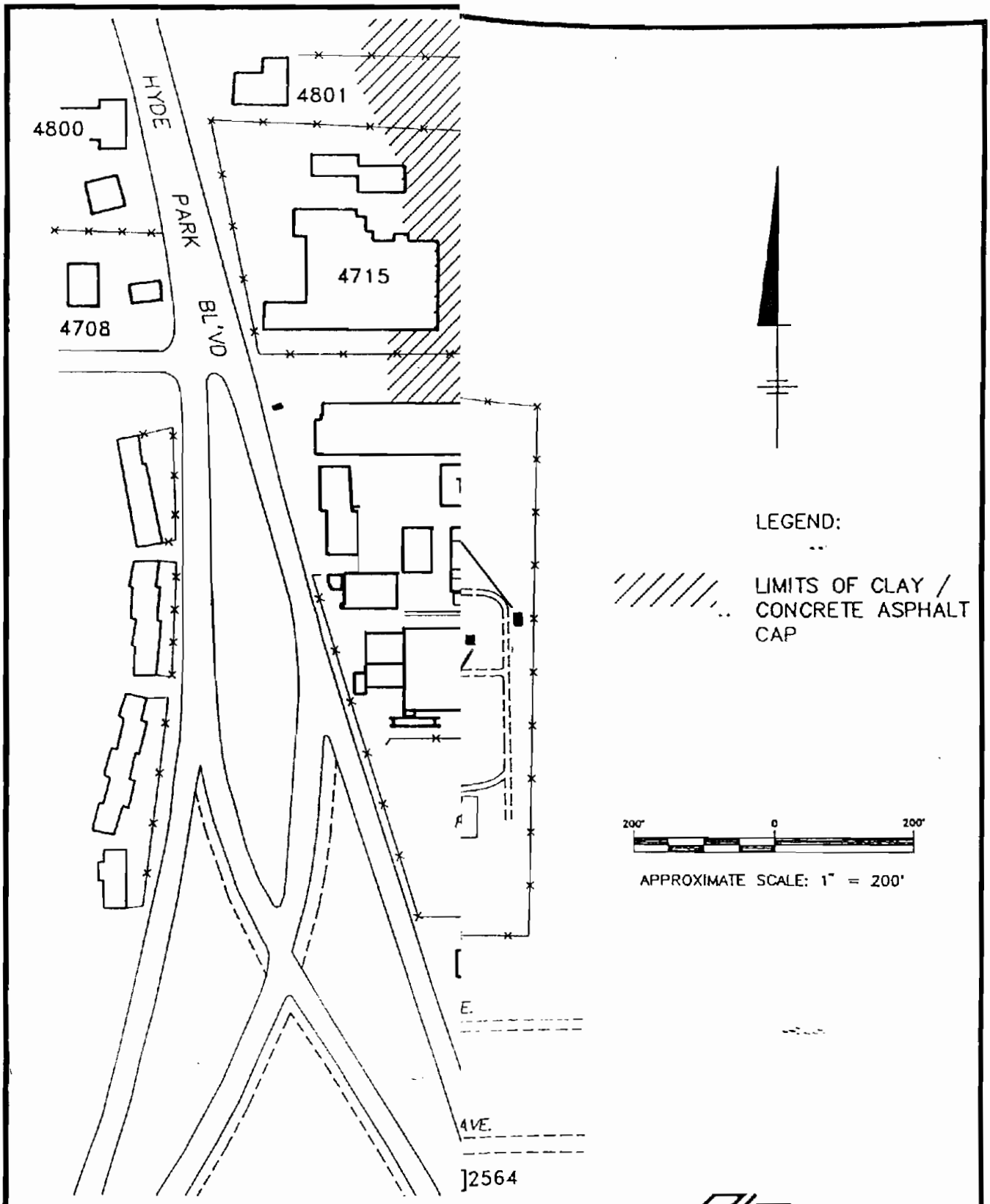
JAN. 1993 JVM
163.02.02

BLASLAND & BOUCK ENGINEERS, P.C.
ENGINEERS & GEOSCIENTISTS

TAM CERAMICS INC.
NIAGARA FALLS, NEW YORK
REMOVAL OF BARIUM WASTE
WORK PLAN

SITE LOCATION MAP

FIGURE
1-1



BLASLAND & BOUCK ENGINEERS, P.C.
ENGINEERS & GEOSCIENTISTS

TAM CERAMICS, INC.
NIAGARA FALLS, NEW YORK
REMOVAL OF BARIUM WASTE

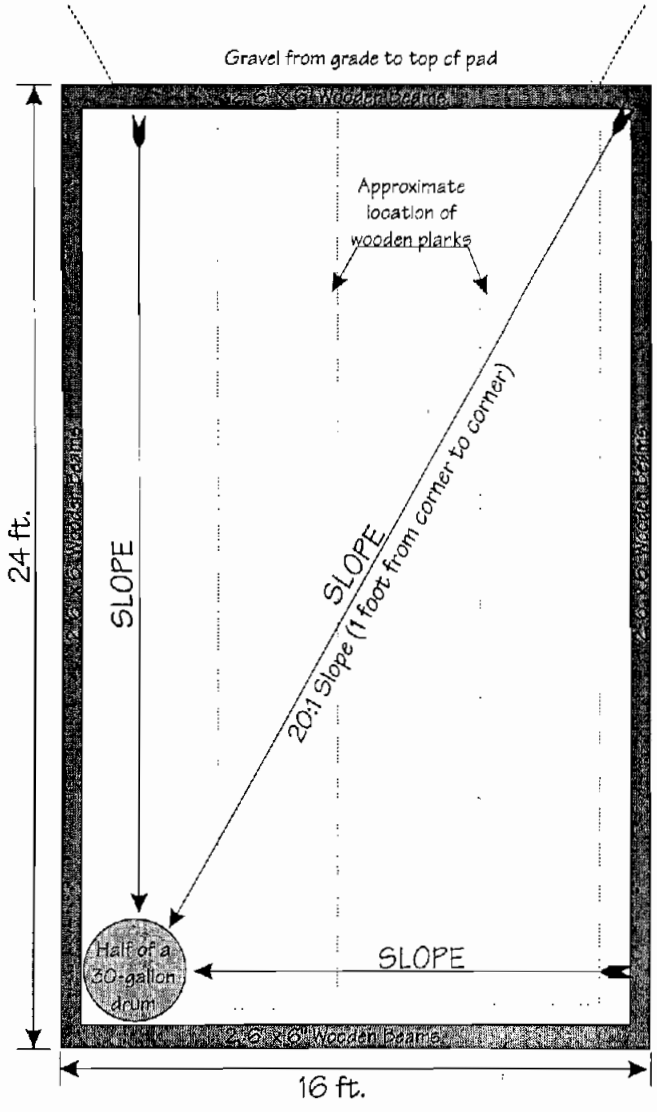
SITE PLAN

FIGURE
2-1

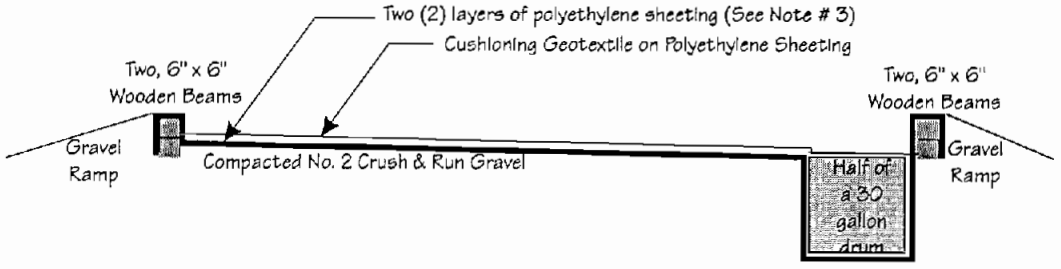
3/93 54-MRC, TWD
1630202R\1630201.DWG

FIGURE 2-2

TAM CERAMICS
REMOVAL OF BARIUM WASTE
DECONTAMINATION PAD



PLAN VIEW
Approximate Scale: 1" = 5'



CROSS-SECTION VIEW
Approximate Scale: 1" = 5'

NOTES

1. A total of 160 linear feet of 6"x6" wooden beams were required for construction. Beams were placed two-high around the 24'x16' decontamination pad.
2. The existing ground was cleared prior to placing the polyethylene sheeting. Number 2 crush and run gravel was placed, graded and compacted to the correct slope over the existing soils.
3. Two layers of polyethylene sheeting were laid over the compacted gravel. A 60-mil reinforced sheet was laid directly over the gravel, followed by 12-mil sheet. One sheet of each was required and covered the entire pad. The sheeting was stapled to the outside of the wooden beams. A cushioning geotextile fabric was placed over the sheeting.
4. One-half of a 30-gallon plastic drum with slots in the sides was buried in one corner of the decontamination pad. All sides of the pad slope to this drum. A sump pump was placed in the drum to pump decontamination waters from the "sump" into the water containers, as required.

BLASLAND, BOUCK & LEE, INC.
ENGINEERS & SCIENTISTS

Attachments

ATTACHMENT A

ADMINISTRATIVE ORDER ON CONSENT

Division of Environmental Enforcement
270 Michigan Avenue, Buffalo, NY 14203-2999
Telephone: (716) 851-7050 FAX: (716) 851-7067

February 22, 1994

VIA UNITED PARCEL

Jerrold S. Brown, Esq.
Hodgson, Russ, Andrews, Woods & Goodyear
Three City Square
Albany, New York 12207-2856

RE: TAM Ceramics, Inc., Site No. 932028
IRM/PSA Order on Consent
Index #B9-0430-93-04

Dear Mr. Brown:

Enclosed is a fully executed original of the subject Order on Consent, with Appendices. The Order was signed on behalf of the Commissioner on February 17, 1994, and that is the Order's effective date.

If you have any questions, please contact me.

Very truly yours,

James M. Hazel
Senior Attorney
Division of Environmental Enforcement

JMH:H:jab
H027TAM.2

Enclosure

cc: (With Copy of Order Only)

A. Carlson - DOH
M. Hinton - DEC
R. Steiger - TAM

STATE OF NEW YORK: DEPARTMENT OF ENVIRONMENTAL CONSERVATION

In the Matter of the Implementation of an Interim Remedial Measure Program and a Preliminary Site Assessment for an Inactive Hazardous Waste Disposal Site, Under Article 27, Title 13, and Article 71, Title 27 of the Environmental Conservation Law of the State of New York by

TAM CERAMICS, INC.

Respondent.

Site Code #932028

ORDER ON CONSENT

INDEX #B9-0430-93-04

WHEREAS,

1. The New York State Department of Environmental Conservation (the "Department") is responsible for enforcement of Article 27, Title 13 of the Environmental Conservation Law of the State of New York ("ECL"), entitled "Inactive Hazardous Waste Disposal Sites." This Order is entered into pursuant to the Department's authority under ECL Article 27, Title 13 and ECL 3-0301.

2. TAM Ceramics, Inc. ("Respondent"), is a corporation organized and existing under the laws of the State of Delaware, and owns and operates an industrial facility at 4511 Hyde Park Boulevard, Niagara Falls, New York (the "Site"). The facility produces ingredients for the manufacture of refractory products.

3. The Department has conducted a preliminary investigation to determine to what extent hazardous waste or other contamination exists at the Site. The Department's

investigation revealed, among other contaminants, a barium-contaminated waste pile.

4. The Department has concluded that the Site is an inactive hazardous waste disposal site, as that term is defined at ECL 27-1301.2. The Site has been listed in the Registry of Inactive Hazardous Waste Disposal Sites in New York State as Site Number 932028. The Department has classified the Site as a Classification "2a" pursuant to ECL 27-1305.4.b.

5. A. Any person under order pursuant to ECL 27-1313.3.a has a duty, subject to statutory authority and limitations, imposed by ECL Article 27, Title 13 to carry out the remedial program committed to under order.

B. The Department also has the power, inter alia, to provide for the prevention and abatement of all water, land, and air pollution. ECL 3-0301.1.i.

6. The Department and Respondent agree that the goals of this Order are for Respondent to: (i) implement a Department-approved Interim Remedial Measure Program ("IRM Program") for the Site requiring Respondent to remove and properly dispose of the barium waste pile; (ii) implement a Department-approved Preliminary Site Assessment ("PSA") to further investigate hazardous waste and other contamination at the Site; and (ii) reimburse the State's reasonable costs.

7. Respondent has submitted to the Department a Work Plan for the Removal of Barium Waste, a Site Characterization Work Plan and other data in its possession regarding conditions on-

Site and on-Site disposal of waste, including:

A. A brief history and description of the Site, including the types, quantities, physical state, location, and dates of disposal of all waste on-Site including methods of disposal and spillage of such wastes;

B. A concise summary of information held by Respondent concerning such disposal; and

C. Copies of sampling results in areas of suspected on-Site disposal and data from adjoining property where relevant.

8. Respondent, having waived its right to a hearing herein as provided by ECL §27-1313, and having consented to the issuance and entry of this Order, agrees to be bound by its terms. Respondent consents to and agrees not to contest the authority or jurisdiction of the Department to issue or enforce this Order, and agrees not to contest the validity of this Order or its terms.

NOW, having considered this matter and being duly advised, IT IS ORDERED THAT:

I. Site Information

Respondent, within 15 days of receipt of a written request of the Department, will provide, in accordance with and to the extent required by ECL §27-1307 and §27-1309, additional data and information, if any, within Respondent's possession or control.

II. Performance and Reporting of IRM Program

A. Within 30 days after the effective date of the Order, Respondent shall commence the IRM Program.

B. Respondent shall perform the IRM Program in accordance with the Department-approved IRM Work Plan which is attached to this Order as Appendix A and is an enforceable part hereof.

C. During the performance of the IRM Program, Respondent must have on-Site a full-time representative who is qualified to supervise the work done.

D. Within the time frame set forth in the IRM Work Plan, Respondent must prepare an IRM report ("IRM Report") that includes all data generated and all other information obtained during the IRM Program and identifies any additional data that must be collected. The IRM Report shall be prepared by and have the signature and seal of a professional engineer who shall certify that the IRM Report was prepared in accordance with this Order.

III. Performance and Reporting of PSA

A. Within 30 days after the effective date of the Order, Respondent shall commence the PSA.

B. Respondent shall perform the PSA in accordance with the Department-approved PSA Work Plan entitled "Site Characterization Program", which is attached to this Order as Appendix B and is an enforceable part hereof.

C. During the performance of PSA field work,

Respondent shall have on-Site a full-time representative who is qualified to supervise the work done.

D. Respondent shall prepare a PSA Report that shall:

1. include all data generated and all other information obtained during the PSA;

2. provide all of the assessments and evaluations required by the Department-approved PSA Work Plan;

3. identify any additional data that must be collected; and

4. include a certification by the individual or firm with primary responsibility for the day to day performance of the PSA that all activities that comprised the PSA were performed in full accordance with the Department-approved PSA Work Plan.

IV. Progress Reports

Respondent shall submit to the parties identified in subparagraph XII.B in the numbers specified therein copies of written monthly progress reports that: (i) describe the actions which have been taken toward achieving compliance with this Order during the previous month; (ii) include all results of sampling and tests and all other data received or generated by Respondent or Respondent's contractors or agents in the previous month, including quality assurance/quality control information, whether conducted pursuant to this Order or conducted independently by Respondent; (iii) identify all work plans, reports, and other deliverables required by this Order that were

completed and submitted during the previous month; (iv) describe all actions, including, but not limited to, data collection and implementation of work plans, that are scheduled for the next month and provide other information relating to the progress at the Site; (v) include information regarding percentage of completion, unresolved delays encountered or anticipated that may affect the future schedule for implementation of the Respondent's obligations under the Order, and efforts made to mitigate those delays or anticipated delays; and (vi) include any modifications to any work plans that Respondent has proposed to the Department or that the Department has approved. Respondent shall submit these progress reports to the Department by the tenth day of every month following the effective date of this Order.

V. Review of Submittals

A. The Department shall review each of the submittals Respondent makes pursuant to this Order to determine whether it was prepared, and whether the work done to generate the data and other information in the submittal was done, in accordance with this Order and the Department-approved IRM Work Plan and PSA Work Plan attached hereto as Appendices A and B, respectively.

B. The Department may require Respondent to modify and/or amplify and expand a submittal if the Department determines, as a result of reviewing data generated by an activity required under this Order or as a result of reviewing any other data or facts, that further work consistent with the

previously approved Work Plans is necessary.

C. 1. After receipt of any submittal, the Department shall provide written notification to Respondent of its approval or disapproval of the submittal. The submittal shall be approved if it reflects that the investigation or other work was performed and completed in accordance with this Order and the applicable Work Plan, as they may have been modified in accordance with the terms of this Order. All approved submittals shall be incorporated into this Order and shall become enforceable parts of this Order.

2. If the Department disapproves a submittal or determines that a previously approved submittal must be modified and/or amplified and expanded, the Department shall notify the Respondent, in writing, of the specific bases for the Department's objections/determinations. Respondent shall be available to meet with the Department within ten (10) days of its receipt of the Department's notice to discuss the bases for the Department's objections/determinations. Within twenty (20) days after the meeting between the parties, or such other period of time agreed to by the Department, the Respondent shall address the Department's objections/determinations by revising the submittal or by commencing any additional necessary work. If additional work is necessary to adequately address the Department's objections/determinations, Respondent shall propose such work to the Department for its concurrence. Respondent will then submit a revised submittal on or before a date set by

the Department.

3. After its receipt of a Revised Submittal, the Department shall provide written notification to Respondent of its approval or disapproval of the Revised Submittal. A Revised Submittal shall be approved if it has been revised in accordance with the Department's objections/determinations and to reflect any agreed additional work. If the Department approves a Revised Submittal, it shall be incorporated into and become an enforceable part of this Order.

4. If the Department disapproves a Revised Submittal, Respondent shall be available to meet informally with the Department within ten (10) days of Respondent's receipt of the Department's notice. If the parties hereto cannot agree to the terms or content of the Revised Submittal, Respondent shall be in violation of this Order unless Respondent invokes the dispute resolution mechanism set forth in subparagraph V.D. herein.

D. 1. If the Department disapproves a Revised Submittal or if Respondent fails to comply with a determination by the Department requiring Respondent to modify and/or amplify and expand a submittal pursuant to subparagraph V.B., Respondent shall be in violation of this Order unless, within ten (10) days of receipt of the Department's notice of disapproval/determination or a meeting with the Department on the dispute, whichever is later, Respondent requests to meet with the Director of the Division of Hazardous Waste Remediation

(the "Director") in order to discuss the Department's objections/determinations and Respondent is available to meet immediately thereafter. At this meeting, Respondent shall be given an opportunity to present its responses to the Department's objections/determinations, and the Director shall have the authority to modify and/or withdraw such objections/determinations. After the Director makes his decision(s), Respondent shall revise the submittal in accordance with the Department's specific comments, as modified, except for those which have been withdrawn by the Director, and shall submit a Revised Submittal. The submittal must be revised and submitted in accordance with the time frames set forth in the Director's decision, or such other time period as agreed to by the Department.

2. After receipt of the Revised Submittal, the Department shall notify the Respondent in writing of its approval or disapproval of the Revised Submittal.

3. If a Revised Submittal fails to address the Department's specific comments, as modified, and the Department disapproves the revised submittal for this reason, Respondent shall be in violation of this Order and the ECL.

4. The invocation of formal dispute resolution procedures under this Paragraph shall suspend and toll only those obligations of the Respondent under this Order which are in dispute or necessarily dependant upon resolution of the matter(s) in dispute.

VI. Penalties

A. Respondent's failure to comply with any term of this Order constitutes a violation of this Order and the ECL.

B. Respondent shall not suffer any penalty under this Order or be subject to any proceeding or action if it cannot comply with any requirement hereof because of war, riot, an unforeseeable disaster arising exclusively from natural causes which the exercise of ordinary human prudence could not have prevented or a labor dispute. Respondent shall, within five days of when it obtains knowledge of any such condition, notify the Department in writing. Respondent shall include in such notice the measures taken and to be taken by Respondent to prevent or minimize any delays and shall request an appropriate extension or modification of this Order. Failure to give such notice within such five-day period constitutes a waiver of any claim that a delay is not subject to penalties. Respondent shall have the burden of proving that an event is a defense to compliance with this Order pursuant to Subparagraph VI.B.

VII. Entry upon Site

Respondent hereby consents upon presentation of proper identification to the entry upon the Site or areas in the vicinity of the Site which may be under the control of the Respondent by any duly designated employee, consultant, contractor, or agent of the Department or any State agency for purposes of inspection, and, upon reasonable notice which need not exceed 24 hours, sampling and testing, and to ensure

Respondent's compliance with this Order. Respondent shall provide the Department with access to a telephone, and shall permit the Department full access to all records relating to matters addressed by this Order and job meetings.

VIII. Payment of State Costs

Within 45 days after receipt of an itemized invoice from the Department, Respondent shall pay to the Department a sum of money not to exceed $50,000.00 which shall represent reimbursement for the State's expenses including, but not limited to, direct labor, fringe benefits, indirect costs, travel, analytical costs, and contractor costs incurred by the State of New York for work performed at the Site to date, as well as for negotiating this Order, reviewing and revising submittals made pursuant to this Order, overseeing activities conducted pursuant to this Order, and collecting and analyzing samples. Such payment shall be made by certified check payable to the Department of Environmental Conservation. Payment shall be sent to the Bureau of Program Management, Division of Hazardous Waste Remediation, N.Y.S.D.E.C., 50 Wolf Road, Albany, NY 12233-7010. Itemization of the costs shall include an accounting of personal services indicating the employee name, title, biweekly salary, and time spent (in hours) on the project during the billing period, as identified by an assigned time and activity code. This information shall be documented by quarterly reports of Direct Personal Service. Approved agency fringe benefit and indirect cost rates shall be applied. Non-

personal service costs shall be summarized by category of expense (e.g., supplies, materials, travel, contractual) and shall be documented by the New York State Office of the State Comptroller's quarterly expenditure reports. A dispute, if any, as to the accuracy or scope of any invoices shall not constitute a violation of this Order. If the Department concludes that the total sum of money paid pursuant to this Paragraph VIII is insufficient to reimburse the State's costs, the Department may, at its option, in a separate proceeding, seek to recover additional reimbursement to the extent permitted by law.

IX. Department Reservation of Rights

A. Nothing contained in this Order shall be construed as barring, diminishing, adjudicating, or in any way affecting any of the Department's rights including, but not limited to nor exemplified by, the following:

1. the Department's right to bring any action or proceeding against anyone other than Respondent and/or any of Respondent's directors, officers, employees, servants, agents, successors, and assigns;

2. the Department's right to enforce this Order against Respondent and/or any of Respondent's directors, officers, employees, servants, agents, successors, and assigns if Respondent fails to satisfy any of the terms of this Order;

3. the Department's right to bring any action or proceeding against Respondent and/or any of Respondent's directors, officers, employees, servants, agents, successors,

and assigns with respect to claims for natural resources damages as a result of the release or threatened release of hazardous substances or constituents at or from the Site or areas in the vicinity of the Site;

4. the Department's right to bring any action or proceeding against Respondent and/or any of Respondent's directors, officers, employees, servants, agents, successors, and assigns with respect to hazardous substances that are present at the Site or that have migrated from the Site;

5. the Department's right to bring any criminal action against the Respondent and/or any of Respondent's directors, officers, employees, servants, agents, successors, and assigns; and

6. the Department's right to gather information and enter and inspect property and premises.

B. Nothing contained in this Order shall be construed to prohibit the Commissioner or his duly authorized representative from exercising any summary abatement powers.

X. Indemnification

Respondent shall indemnify and hold the Department, the State of New York, and their representatives and employees harmless for all claims, suits, actions, damages, and costs of every name and description arising out of or resulting from the fulfillment or attempted fulfillment of this Order by Respondent and/or any of Respondent's directors, officers, employees, servants, agents, successors, and assigns. In accordance with

ECL § 27-1313.1.b., in no event shall Respondent be required to indemnify or hold harmless the Department, the State of New York, or their representatives or employees for any unlawful, willful or malicious acts or omissions on the part of the Department, the State of New York and their representatives and employees.

XI. Public Notice

A. Within 30 days after the effective date of this Order, Respondent shall file a Declaration of Covenants and Restrictions with the Niagara County Clerk to give all parties who may acquire any interest in the Site notice of this Order.

B. If Respondent proposes to convey the whole or any part of Respondent's ownership interest in the Site, Respondent shall, not fewer than 60 days before the date of conveyance, notify the Department in writing of the identity of the transferee and of the nature and proposed date of the conveyance and shall notify the transferee in writing, with a copy to the Department, of the applicability of this Order.

XII. Communications

A. All written communications required by this Order shall be transmitted by United States Postal Service, by private courier service, or hand delivered as follows:

Communication from Respondent shall be sent to:

1. Walter Demick, P.E.
Bureau of Hazardous Site Control
Division of Hazardous Waste Remediation
New York State Department of Environmental Conservation
50 Wolf Road
Albany, New York 12233-7010

2. Mr. Al Wakeman
Director, Bureau of Environmental Exposure Investigation
New York State Department of Health
2 University Place
Albany, New York 12203

3. Michael Hinton, P.E.
Division of Hazardous Waste Remediation
Region 9
New York State Department of Environmental Conservation
270 Michigan Avenue
Buffalo, New York 14203-2999

4. James Hazel, Esq.
Division of Environmental Enforcement
New York State Department of Environmental Conservation
270 Michigan Avenue
Buffalo, New York 14203-2999

B. Copies of work plans and reports shall be submitted as follows:

1. Two copies to
Division of Hazardous Waste Remediation
New York State Department of Environmental Conservation
270 Michigan Avenue
Buffalo, New York 14203-2999

2. One copy to the Director,
Bureau of Environmental Exposure Investigation
New York State Department of Health
2 University Place
Albany, New York 12203

3. One copy to Bureau of Hazardous Site Control
Division of Hazardous Waste Remediation
New York State Department of Environmental Conservation
50 Wolf Road
Albany, New York 12233

4. One copy to
James Hazel, Esq.
Division of Environmental Enforcement
New York State Department of Environmental Conservation
270 Michigan Avenue
Buffalo, New York 14203-2999

C. Communication to be made from the Department to the Respondent shall be sent to:

Mr. Russell Steiger
TAM Ceramics, Inc.
4511 Hyde Park Boulevard
Niagara Falls, New York 14305

D. The Department and Respondent reserve the right to designate additional or different addressees for communication on written notice to the other.

XIII. Miscellaneous

A. All activities and submittals required by this Order shall address both on-Site and off-Site contamination resulting from the disposal of hazardous waste at the Site.

B. Respondent shall retain professional consultants, contractors, laboratories, quality assurance/quality control personnel, and data validators acceptable to the Department to perform the technical, engineering, and analytical obligations required by this Order. The experience, capabilities, and qualifications of the firms or individuals selected by Respondent shall be submitted to the Department within 10 days

after the effective date of this Order. The Department's approval of these firms or individuals shall be obtained before the start of any activities for which the Respondent and such firms or individuals will be responsible. The Department's approval shall not be unreasonably withheld. The responsibility for the performance of the professionals retained by Respondent shall rest solely with Respondent.

C. The Department and Respondent shall have the right to obtain split samples, duplicate samples, or both, of all substances and materials sampled, and the Department also shall have the right, upon reasonable notice which need not exceed 24 hours, to take its own samples. Respondent shall make available to the Department the results of all sampling and/or tests or other data generated by Respondent with respect to implementation of this Order and shall submit these results in the progress reports required by this Order. The Department shall make available to the Respondent the results of all samples and/or tests which it takes.

D. Respondent shall notify the Department at least 10 working days in advance of any field activities to be conducted pursuant to this Order.

E. Respondent shall use its best efforts to obtain all permits, easements, rights-of-way, rights-of-entry, approvals, or authorizations necessary to perform Respondent's obligations under this Order. If, despite its best efforts, Respondent is unable to obtain such access, Respondent shall

notify the Department in writing setting forth the steps it has taken and describing constraints and viable alternatives as a result of the failure to obtain access. The Department may, at its discretion and within its authority, assist Respondent in obtaining access or approve modifications to the IRM Work Plan and/or PSA Work Plan, or take any other action which may be appropriate and is otherwise available to the Department.

F. Respondent and Respondent's successors and assigns shall be bound by this Order. Respondent's officers, directors, employees, servants, and agents shall be obliged to comply with the relevant provisions of this Order only in the performance of their designated duties on behalf of Respondent and not in their personal capacity. Any change in ownership or corporate status of Respondent including, but not limited to, any transfer of assets or real or personal property shall in no way alter Respondent's responsibilities under this Order.

G. Respondent shall provide a copy of this Order to each contractor hired to perform work required by this Order and to each person representing Respondent with respect to the Site and shall condition all contracts entered into in order to carry out the obligations identified in this Order upon performance in conformity with the terms of this Order. Respondent or Respondent's contractors shall provide written notice of this Order to all subcontractors hired to perform any portion of the work required by this Order. Respondent shall nonetheless be responsible for ensuring that Respondent's contractors and

subcontractors perform the work in satisfaction of the requirements of this Order.

H. "Interim Remedial Measure" shall have the meaning set forth in 6 NYCRR Part 375.

I. All references to "professional engineer" in this Order are to an individual registered as a professional engineer in accordance with Article 145 of the New York State Education Law.

J. All references to "days" in this Order are to calendar days unless otherwise specified.

K. The section headings set forth in this Order are included for convenience of reference only and shall be disregarded in the construction and interpretation of any of the provisions of this Order.

L. 1. The terms of this Order shall constitute the complete and entire Order between Respondent and the Department concerning the Site. No term, condition, understanding, or agreement purporting to modify or vary any term of this Order shall be binding unless made in writing and subscribed by the party to be bound. No informal advice, guidance, suggestion, or comment by the Department regarding any report, proposal, plan, specification, schedule, or any other submittal shall be construed as relieving Respondent of Respondent's obligation to obtain such formal approvals as may be required by this Order.

2. If Respondent desires that any provision of this Order be changed, Respondent shall make timely written

application, signed by the Respondent, to the Commissioner setting forth reasonable grounds for the relief sought. Copies of such written application shall be delivered or mailed to:

James Hazel, Esq.
Division of Environmental Enforcement
New York State Department of
Environmental Conservation
270 Michigan Avenue
Buffalo, New York 14203-2999

Michael Hinton, P.E.
Division of Hazardous Waste Remediation
New York State Department of
Environmental Conservation
270 Michigan Avenue
Buffalo, New York 14203-2999

M. The effective date of this Order shall be the date it is signed by the Commissioner or his designee.

DATED: Albany, New York
February 17, 1994

THOMAS C. JORLING
Commissioner
New York State Department
of Environmental Conservation

By: _____
Ann Hill DeBarbieri
Deputy Commissioner

CONSENT BY RESPONDENT

Respondent hereby consents to the issuing and entering of this Order, waives Respondent's right to a hearing herein as provided by law, and agrees to be bound by this Order.

TAM CERAMICS, INC.

By: Robert Rieger, President

ROBERT RIEGER
(TYPE NAME OF SIGNER)

Title: PRESIDENT TAM

DATE: 1/18/94

STATE OF NEW YORK)
) s.s.:
COUNTY OF NIAGARA)

On this 18th day of JANUARY, 1994, before me personally came ROBERT H. RIEGER, to me known, who being duly sworn, did depose and say that he resides in 4103 RIVERVIEW DR. Youngstown, NY; that he is the PRESIDENT of TAM CERAMICS INC, the corporation described in and which executed the foregoing instrument; ~~that he knew the seal of said corporation; that the seal affixed to said instrument was such corporate seal; that it was so affixed by the order of the Board of Directors of said corporation and~~ that he IS AUTHORIZED ~~signed his name thereto by like order~~. BY THE CORPORATION TO SIGN THIS ORDER.

Leonina Adriatico
Notary Public

21

LEONINA ADRIATICO
Notary Public, State of New York
Qualified in Niagara County
My Commission Expires Nov. 20, 19..95

ATTACHMENT B

SITE PHOTOGRAPHS & PHOTOGRAPH LOG

TAM CERAMICS
REMOVAL OF BARIUM WASTE
FINAL REPORT

PHOTOGRAPH LOG

CONSTRUCTION OF DECONTAMINATION PAD

1 - 3	Construction on March 21, 1994
4 - 9	Construction on March 22, 1994
10 - 12	Construction on March 28, 1994
13 - 14	Completed, covered pad on March 28, 1994

EXCAVATION OF BARIUM WASTE

15 - 18	Excavation on March 23, 1994
19 - 22	Sample Locations on March 23, 1994
23 - 27	Sample Locations on March 25, 1994

EXCAVATION OF ADDITIONAL WHITE WASTE

28	White Waste / Sample Location on March 23, 1994
29 - 31	Excavation on March 23, 1994
32 - 37	Excavation on March 25, 1994
38 - 39	Sample Locations on March 25, 1994

BACKFILLING ACTIVITIES

40 - 41	Completed Backfill on March 28, 1994

PHOTOGRAPH #1

PHOTOGRAPH #2

PHOTOGRAPH #3

PHOTOGRAPH #4

PHOTOGRAPH #5

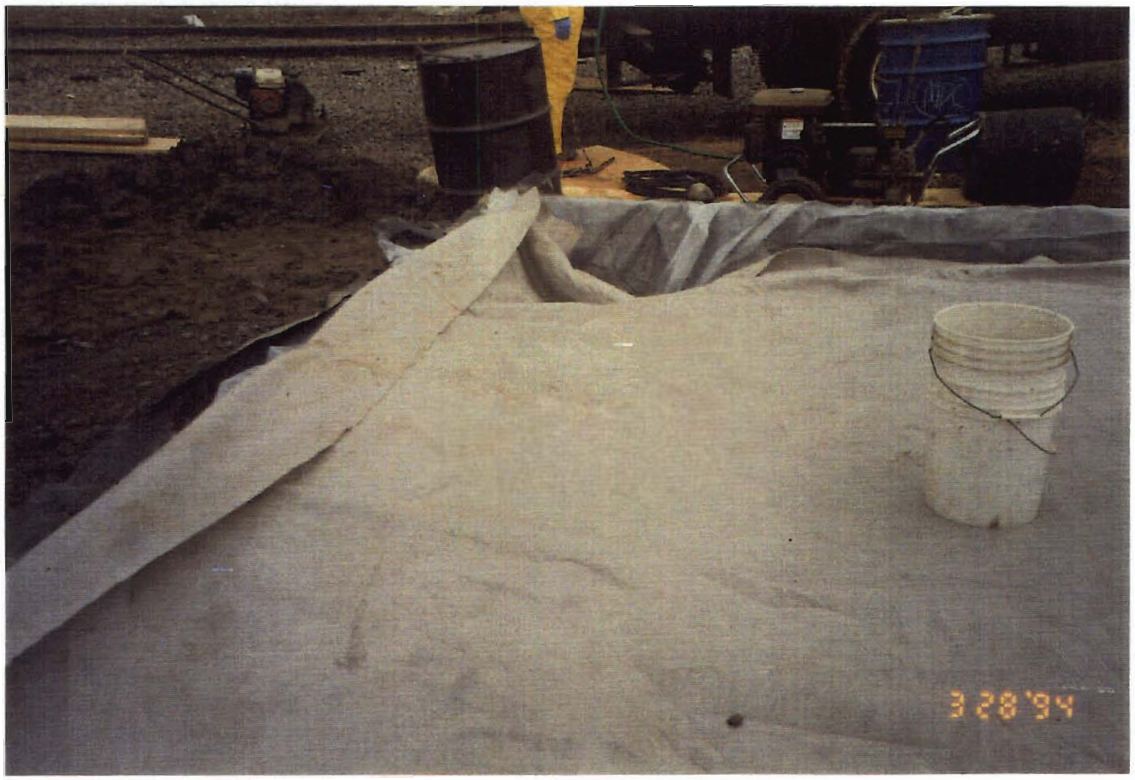
PHOTOGRAPH #6

PHOTOGRAPH #7

PHOTOGRAPH #8

PHOTOGRAPH #9

PHOTOGRAPH #10



PHOTOGRAPH #11

PHOTOGRAPH #12

PHOTOGRAPH #13

PHOTOGRAPH #14

PHOTOGRAPH #15

PHOTOGRAPH #16

PHOTOGRAPH #17

PHOTOGRAPH #18

PHOTOGRAPH #19

PHOTOGRAPH #20

PHOTOGRAPH #21

PHOTOGRAPH #22

PHOTOGRAPH #23

PHOTOGRAPH #24

PHOTOGRAPH #25

PHOTOGRAPH #26

PHOTOGRAPH #27

PHOTOGRAPH #28

PHOTOGRAPH #29

PHOTOGRAPH #30

PHOTOGRAPH #31

PHOTOGRAPH #32

PHOTOGRAPH #33

PHOTOGRAPH #34

PHOTOGRAPH #35

PHOTOGRAPH #36

PHOTOGRAPH #37

PHOTOGRAPH #38

PHOTOGRAPH #39

PHOTOGRAPH #40

PHOTOGRAPH #41

ATTACHMENT C

ANALYTICAL RESULTS

ATTACHMENT C-1

ANALYTICAL RESULTS FROM MARCH 23, 1994 SAMPLING OF BARIUM WASTE EXCAVATION (TOTAL BARIUM)

General Testing Corporation

A Full Service Environmental Laboratory

APR. 2 1994

Mr. Darrin Constantini
Blasland Bouck Engineers PC
30 Corporate Woods, Suite 160
Rochester, New York 14623

Re: TAM Ceramics-File 163.02
#2

Dear Mr. Darrin Constantini

Enclosed are the results of the analysis requested. The Analytical Data was provided to you on 03/24/94 per a Facsimile transmittal. All data has been reviewed prior to report submission.

Should you have any questions please contact me at 454-3760.

Thank you for letting us provide this service.

Sincerely,

GENERAL TESTING CORPORATION

Janice M. Jaeger

Janice Jaeger
Customer Service Representative

Enc.

710 Exchange Street • Rochester, NY 14608 • Tele: (716) 454-3760 • (716) 454-1245
85 Trinity Place • Hackensack, NJ 07601 • Tele: (201) 488-5242 • Fax: (201) 488-6386
435 Lawrence Bell Drive • Amherst, NY 14221 • Tele: (716) 634-0454 • Fax: (716) 634-9019
1201 E. Fayette Street, Suite 42 • Syracuse, NY 13210 • Tele: (315) 471-0936 • Fax: (315) 471-0943

General Testing Corporation

A Full Service Environmental Laboratory

Effective 10/1/91

GTC LIST OF QUALIFIERS

(The basis of this proposal are the EPA-CLP Qualifiers)

U - Indicates compound was analyzed for but was not detected. The sample quantitation limit must be corrected for dilution and for percent moisture.

J - Indicates an estimated value. For further explanation see case narrative / cover letter.

B - This flag is used when the analyte is found in the associated blank as well as in the sample.

E - This flag identifies compounds whose concentrations exceed the calibration range and reanalysis could not be performed.

A - This flag indicates that a TIC is a suspected aldol-condensation product.

N - Spiked sample recovery not within control limits. (Flag the entire batch - Inorganic analytes only)

* - Duplicate analysis not within control limits. (Flag the entire batch - Inorganic analysis only)

\- Also used to qualify Organics QC data outside limits. (Only used on the QC summary sheets)

M - Duplication injection precision not met (GFA only).

S - Reported value determined by Method of Standard Additions. (MSA)

X - As specified in the case narrative.

General Testing Corporation

CASE NARRATIVE

COMPANY: Blasland Bouck Engineers PC
TAM Ceramics-File 163.02
JOB #: R94/00840

INORGANIC ANALYSIS

BBE soil samples were analyzed for Barium using SW-846 ICP method 6010.

The Matrix Spike recovery for Barium on sample R94/00840-001 could not be determined since the amount of Barium detected in the sample was greater than four times the amount added to spike the sample. The recovery has been flagged with a "V".

No other analytical or QC problems were encountered with these analyses.

General Testing Corporation

A Full Service Environmental Laboratory

LABORATORY REPORT

Job No: R94/00840 Date: APR. 2 1994

Client:
Mr. Darrin Constantini
Blasland Bouck Engineers PC
30 Corporate Woods, Suite 160
Rochester, New York 14623

Sample(s) Reference
TAM Ceramics-File 163.02
#2

Received : 03/23/94

P.O. #:

ANALYTICAL RESULTS - ug/g Dry Wt.

Sample:		-001			
Location:		COMPOSITE OF 5 GRABS			
Date Collected:	PQL	03/23/94			
Time Collected:		10:30-10:50			
Solids, %		75.0			
Barium	0.500	2610			

Laboratory Director

GTC LABORATORY QUALITY CONTROL REPORT

CUSTOMER: Blasland Bouck Engineers PC JOB # : R94/00840 UNITS: ug/g Wet Wt. REPORT TYPE: Job Specific

		* PRECISION				* MATRIX SPIKING				BLANK SPIKES				REFERENCE STANDARD			
PARAMETER	SAMPLE	ORIGINAL RESULT	DUPLICATE RESULT	REL. ERROR	ACCEPT. LIMIT	ORIGINAL RESULT	SPIKE ADDED	PERCENT RECOVERY	ACCEPT. LIMIT %	METHOD BLANK	SPIKE ADDED	PERCENT RECOVERY	ACCEPT. LIMITS %	REFERENCE #	KNOWN PMVAL	PERCENT RECOVERY	ACCEPT. LIMITS %
Solids %	-001	75.0	75.5	1	10	NA				NA				Ref Std	NA		
Barium	-001	1960	1460	30	30	1960	196	V	80-120	2.00 U	276	111	80-120	Ref Std	1.00	99	90-110

* Analytical results previous to accounting for dilutions. ** Reference Check samples are not available for all analyses. ++ Outside of Quality Control Limits.
*** Sample does not ignite for BTU analysis.

General Testing Corporation

A Full Service Environmental Laboratory

LABORATORY REPORT

Job No: R94/00840 Date: APR. 2 1994

Client:

Blasland Bouck Engineers PC

Sample(s) Reference

TAM Ceramics-File 163.02
#2

Date Received: 03/23/94

Date Sample Taken: 03/23/94

LABORATORY CHRONICLE
DATE ANALYZED

Sample:		-001
Location:		COMPOSITE OF 5 GRABS
Solids, %		03/23/94
	Dilution:	1
Barium		03/24/94
	Dilution:	1

000002

GENERAL TESTING CORPORATION / CHAIN-OF-CUSTODY RECORD

710 Exchange St. Rochester, NY 14608 | 1201 E. Fayette St. Syracuse, NY 13210 | 85 Trinity Place Hackensack, NJ 07601 | 435 Lawrence Bell Dr. Amherst, NY 14221-7077

GTC Job. No. R94/840
Client Project No. 163.02

Sample Origination & Shipping Information

Collection Site TAM Ceramics
Address 4511 Hyde Park Blvd. (Street) Niagara Falls (City) NY (State) (Zip)
Collector DARREN COSTANTINI (Print) (Signature)

Bottles Prepared by GTC-VG — Rec'd by Client
Bottles Shipped to Client via UPS — Seal/Shipping # 3116944 Gardner
Samples Shipped via Hand Delivery — Seal/Shipping # 3/23/94 TYC

Sample(s) Relinquished by:	Received by:	Date/Time
1. Sign Darren Costantini	1. Sign	3/23/94
for Blasland, Bouck & Lee, Inc.	for GTC	1550
2. Sign	2. Sign	/ / :
for	for	
3. Sign	3. Sign	/ / :
for	for	

Sample(s) Received in Laboratory by Tom Hastings 3/23/94 @1550

	Client I.D. # / Lab #	Sample Location / Date/Time	*	Analyte or Analyte Group(s) Required (see below for additional)	Sample Prep Preserved Y	Sample Prep Preserved N	Sample Prep Filtered Y	Sample Prep Filtered N	Bottle Set(s) (see below)
1	TAM-1 -001	~~NORTH~~ EAST 3/23/94 : 10:30	S	DW-BA ; DW%Solids	✓			✓	3
2	TAM-2 -002	~~SOUTH~~ WEST 3/23/94 : 10:35	S		✓			✓	
3	R94/840-001 TAM-3 -003	SOUTH 3/23/94 : 10:10	S		✓			✓	
4	TAM-4 -004	NORTH 3/23/94 : 10:15	S		✓			✓	
5	TAM-5 -005	CENTER 3/23/94 : 10:50	S		✓			✓	

Use Bottle No. for indicating type bottles used in each bottle set and fill in box with # of bottles used for each type.

Bottle No.	1	2	3	4	5	6	7	8	9	10	11
Bottle Type	40 ml Vial	Pint Glass	~~4 oz.~~ 4 oz. Glass	4 oz. Plastic	8 oz. Plastic	16 oz. Plastic	Qt. Pl.	Gal. Pl.	Steril. Pl.		
# of each			1								

* Additional ~~Analytes~~ Instructions: Composite portions of all 5 samples, and analyze composite, 24-hr. turnaround. Remaining sample may be analyzed at a later date.

Shaded area for Lab use only; bottom copy for client; maximum of 5 samples per page.

* Source Codes: Monitoring Well (W), Soil (S), Treatment Plant (T), Drinking Water (D), Leachate (L), Hazardous Waste (H), River or Stream (R), Pond (P), Industrial Discharge (I), _____(X), _____(Y).

000005

GENERAL TESTING CORPORATION / CHAIN-OF-CUSTODY RECORD

710 Exchange St. Rochester, NY 14608 | 1201 E. Fayette St. Syracuse, NY 13210 | 85 Trinity Place Hackensack, NJ 07601 | 435 Lawrence Bell Dr. Amherst, NY 14221-7077

GTC Job. No. R94/80
Client Project No. 163.02

Sample Origination & Shipping Information

Collection Site TAM Ceramics Inc.
Address 4511 Hyde Park Blvd Rochester NY
Street City State Zip
Collector DARRIN Costantini (Darrin Costantini)
Print Signature

Bottles Prepared by GTC - UG
Bottles Shipped to Client via UPS
Samples Shipped via Hand Delivery

Rec'd by Client
Seal/~~Shipping~~ # 3/16/94 Gardner
Seal/~~Shipping~~ # 3/23/94 DJC

Sample(s) Relinquished by:	Received by:	Date//Time
1. Sign (Darrin Costantini)	1. Sign	3/23/94
for Blasland, Bouck & Lee, Inc.	for GTC	15:30
2. Sign	2. Sign	/ /
for	for	:
3. Sign	3. Sign	/ /
for	for	:

Sample(s) Received in Laboratory by _____ / / @ :

	Client I.D. # / Lab #	Sample Location / Date/Time	★	Analyte or Analyte Group(s) Required (see below for additional)	Sample Prep Preserved Y	Sample Prep Preserved N	Sample Prep Filtered Y	Sample Prep Filtered N	Bottle Set(s) (see below)	
1	TAM-6 / -006	CENTER / 3/23/94 : 10⁵⁰	S	Barium Matrix Spike	✓			✓	3	on hold
2	TAM-7 / -007	CENTER / 3/23/94 : 10⁵⁵	S	Barium + % Solids (Duplicate)	✓			✓		on hold
3	TAM-8 / -008	White Waste / 3/23/94 : 11⁰⁰		TCLP Metals (same sample)	✓			✓		
4	TAM-9 / -009	White Waste / 3/23/94 : 11⁰⁰								
5		/ / :								

Use Bottle No. for indicating type bottles used in each bottle set and fill in box with # of bottles used for each type.

Bottle No.	1	2	3	4	5	6	7	8	9	10	11
Bottle Type	40 ml Vial	Pint Glass	~~4 oz.~~ Glass	4 oz. Plastic	8 oz. Plastic	16 oz. Plastic	Qt. Pl.	Gal. Pl.	Steril. Pl.		
# of each			1								

Additional Analytes _____

Shaded area for Lab use only; bottom copy for client; maximum of 5 samples per page. 000031

* Source Codes: Monitoring Well (W), Soil (S), Treatment Plant (T), Drinking Water (D), Leachate (L), Hazardous Waste (H), River or Stream (R), Pond (P), Industrial Discharge (I), _____(X), _____(Y).

R

SDG #

JOB#
R94/0840- 001
QC

DATE/TIME REC'D
03/23/94 15:50

PARAMETERS	FRACTION ID	VOLUME	RELINQUISHED BY	RECEIVED BY	DATE	TIME
DWPS	SOIL	159.38g	Tom Hastings	BB	03/23/94	16:45
		139.15g	BB	BB	3/23/94	17:45

CoA

R

SDG #

JOB#
R94/0840- 001

DATE/TIME REC'D
03/23/94 15:50

PARAMETERS	FRACTION ID	VOLUME	RELINQUISHED BY	RECEIVED BY	DATE	TIME
DW-BA	SOIL	205.67g	Tom Hastings	M	03/23/94	1600
		202.67g	M	M	3/24/94	0900

6B

Laboratory Support Documentation

raw1.PRN
raw2.PRN

Na + Ag - do not use

GENERAL TESTING CORPORATION Folder: MAR24 Page 14
13:24:17 24 Mar 1994 Protocol: CLP-SM

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Standard: 1 Rep: 1				Seq: 2		13:24:17 24 Mar 1994 ICP		
Ag1	.0000	ppm		26930	29909	32000		
			Ave. Int. =	29613	S. D. =	2548		
Al3	.0000	ppm		1910	1735	-1800		
			Ave. Int. =	615	S. D. =	3093		
Ba1	.0000	ppm		4885	4408	5245		
			Ave. Int. =	4846	S. D. =	420		
Be2	.0000	ppm		-1230	-1095	-1195		
			Ave. Int. =	-1173	S. D. =	70		
Ca3	.0000	ppm		42522	40377	40326		
			Ave. Int. =	41075	S. D. =	1253		
Cd1	.0000	ppm		-174	-80	-3		
			Ave. Int. =	-86	S. D. =	86		
Co1	.0000	ppm		1718	2062	3094		
			Ave. Int. =	2291	S. D. =	716		
Cr4	.0000	ppm		7297	6801	6957		
			Ave. Int. =	7018	S. D. =	254		
Cu1	.0000	ppm		54656	50805	51264		
			Ave. Int. =	52242	S. D. =	2103		
Fe2	.0000	ppm		-3954	-5047	-6946		
			Ave. Int. =	-5316	S. D. =	1514		

405 1.02gms

000009

K 1	.0000	ppm	-102	252	143		
			Ave. Int. =	98	S. D. =	181	
Mg4	.0000	ppm	-1082	-719	-2097		
			Ave. Int. =	-1299	S. D. =	714	
Mn1	.0000	ppm	1955	1572	1518		
			Ave. Int. =	1682	S. D. =	238	
Na2	.0000	ppm	2336	1751	4016		
			Ave. Int. =	2701	S. D. =	1176	
Ni3	.0000	ppm	6668	4532	6082		
			Ave. Int. =	5761	S. D. =	1104	
Pb1	.0000	ppm	-512	528	-1532		
			Ave. Int. =	-505	S. D. =	1030	
Sb1	.0000	ppm	1223	2022	1687		
			Ave. Int. =	1644	S. D. =	401	
Tl1	.0000	ppm	193	145	-809		
			Ave. Int. =	-157	S. D. =	565	
V 2	.0000	ppm	27455	27915	28886		
			Ave. Int. =	28085	S. D. =	731	
Zn3	.0000	ppm	-1594	-1362	-1103		
			Ave. Int. =	-1353	S. D. =	246	

Line	Conc.	Units	SD/RSD	1	2	3	4	5

*** Standard: 1 Rep: 2 Seq: 3 13:25:08 24 Mar 1994 ICP

Ag1	.0000	ppm	26516	22544	30488		
			Ave. Int. =	26516	S. D. =	3972	
Al3	.0000	ppm	-1106	-2502	-1164		
			Ave. Int. =	-1591	S. D. =	790	
Ba1	.0000	ppm	4312	4247	5755		
			Ave. Int. =	4771	S. D. =	853	
Be2	.0000	ppm	-1219	-1133	-1196		
			Ave. Int. =	-1183	S. D. =	45	
Ca3	.0000	ppm	34686	37783	41115		
			Ave. Int. =	37861	S. D. =	3215	
Cd1	.0000	ppm	-52	-111	-90		
			Ave. Int. =	-84	S. D. =	30	
Co1	.0000	ppm	2922	2817	2452		
			Ave. Int. =	2730	S. D. =	247	
Cr4	.0000	ppm	6786	5141	7465		
			Ave. Int. =	6464	S. D. =	1195	
Cu1	.0000	ppm	50316	46361	52550		
			Ave. Int. =	49742	S. D. =	3134	
Fe2	.0000	ppm	-6967	-6218	-4077		
			Ave. Int. =	-5754	S. D. =	1500	

K 1	.0000	ppm	363	106	300			
			Ave. Int. =	256	S. D. =	134		
Mg4	.0000	ppm	-1381	-2101	-1970			
			Ave. Int. =	-1817	S. D. =	384		
Mn1	.0000	ppm	330	688	825			
			Ave. Int. =	614	S. D. =	256		
Na2	.0000	ppm	2668	1869	-38			
			Ave. Int. =	1500	S. D. =	1390		
Ni3	.0000	ppm	5961	6554	4461			
			Ave. Int. =	5659	S. D. =	1079		
Pb1	.0000	ppm	-1144	-1771	570			
			Ave. Int. =	-782	S. D. =	1212		
Sb1	.0000	ppm	1270	1190	2016			
			Ave. Int. =	1492	S. D. =	456		
Tl1	.0000	ppm	-58	-168	-2			
			Ave. Int. =	-76	S. D. =	84		
V 2	.0000	ppm	28526	28883	28230			
			Ave. Int. =	28546	S. D. =	327		
Zn3	.0000	ppm	-1887	-1635	-1417			
			Ave. Int. =	-1646	S. D. =	235		

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Standard: 2 Rep: 1				Seq: 4		13:28:30 24 Mar 1994 ICP		
Ag1	.5000	ppm	632315	630145	642413			
			Ave. Int. =	634958	S. D. =	6547		
Al3	1.000	ppm	137242	137245	137743			
			Ave. Int. =	137410	S. D. =	288		
Ba1	.5000	ppm	1466573	1440805	1459599			
			Ave. Int. =	1455659	S. D. =	13328		
Be2	.5000	ppm	104229	102237	102664			
			Ave. Int. =	103043	S. D. =	1049		
Ca3	10.00	ppm	6859624	6789549	6803893			
			Ave. Int. =	6817355	S. D. =	37209		
Cd1	.5000	ppm	37948	38671	38204			
			Ave. Int. =	38274	S. D. =	367		
Co1	1.000	ppm	123523	123623	122364			
			Ave. Int. =	123170	S. D. =	700		
Cr4	1.000	ppm	877927	866783	875314			
			Ave. Int. =	873341	S. D. =	5828		
Cu1	1.000	ppm	2614981	2572983	2601724			
			Ave. Int. =	2596563	S. D. =	21469		
Fe2	1.000	ppm	714018	707914	709443			
			Ave. Int. =	710458	S. D. =	3176		

K 1	10.00	ppm	9381	9160	9081
			Ave. Int. = 9207	S. D. =	156
Mg4	10.00	ppm	537427	531322	528064
			Ave. Int. = 532271	S. D. =	4753
Mn1	.5000	ppm	825413	816689	816371
			Ave. Int. = 819491	S. D. =	5131
Na2	1.000	ppm	303643	295684	301920
			Ave. Int. = 300416	S. D. =	4187
Ni3	1.000	ppm	238280	239252	242716
			Ave. Int. = 240083	S. D. =	2332
Pb1	1.000	ppm	54838	56766	56828
			Ave. Int. = 56144	S. D. =	1131
Sb1	1.000	ppm	10750	9939	10780
			Ave. Int. = 10490	S. D. =	477
Tl1	1.000	ppm	3461	2855	3613
			Ave. Int. = 3310	S. D. =	401
V 2	1.000	ppm	140461	139996	140687
			Ave. Int. = 140381	S. D. =	352
Zn3	.5000	ppm	66006	66332	65804
			Ave. Int. = 66047	S. D. =	266

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Standard: 2 Rep: 2				Seq: 5		13:29:21 24 Mar 1994 ICP		
Ag1	.5000	ppm	633861	624487	631843			
			Ave. Int. = 630064	S. D. =	4934			
Al3	1.000	ppm	136993	137030	133694			
			Ave. Int. = 135906	S. D. =	1915			
Ba1	.5000	ppm	1448635	1445232	1470130			
			Ave. Int. = 1454666	S. D. =	13500			
Be2	.5000	ppm	102524	102300	103552			
			Ave. Int. = 102792	S. D. =	668			
Ca3	10.00	ppm	6796364	6792950	6818152			
			Ave. Int. = 6802489	S. D. =	13672			
Cd1	.5000	ppm	38439	38637	38614			
			Ave. Int. = 38563	S. D. =	108			
Co1	1.000	ppm	121954	121019	123881			
			Ave. Int. = 122285	S. D. =	1459			
Cr4	1.000	ppm	874509	873849	879217			
			Ave. Int. = 875858	S. D. =	2927			
Cu1	1.000	ppm	2579399	2572872	2615473			
			Ave. Int. = 2589248	S. D. =	22945			
Fe2	1.000	ppm	700972	708230	711620			
			Ave. Int. = 706941	S. D. =	5440			

K 1	10.00	ppm	9283	9144	9088
			Ave. Int. = 9172	S. D. =	100
Mg4	10.00	ppm	525658	530450	532231
			Ave. Int. = 529446	S. D. =	3399
Mn1	.5000	ppm	809825	815019	818781
			Ave. Int. = 814542	S. D. =	4497
Na2	1.000	ppm	296259	298495	302608
			Ave. Int. = 299121	S. D. =	3220
Ni3	1.000	ppm	239011	242564	242145
			Ave. Int. = 241240	S. D. =	1942
Pb1	1.000	ppm	55723	55258	55482
			Ave. Int. = 55488	S. D. =	233
Sb1	1.000	ppm	11061	11124	10657
			Ave. Int. = 10947	S. D. =	253
Tl1	1.000	ppm	2435	2331	3350
			Ave. Int. = 2705	S. D. =	561
V 2	1.000	ppm	136248	138480	141231
			Ave. Int. = 138653	S. D. =	2496
Zn3	.5000	ppm	65613	67062	66210
			Ave. Int. = 66295	S. D. =	728

Line	Conc.	Units	SD/RSD	1	2	3	4	5

*** Standard: 3 Rep: 1 Seq: 6 13:32:44 24 Mar 1994 ICP

Ag1	2.000	ppm	2333802	2342909	2328109
			Ave. Int. = 2334940	S. D. =	7465
Al3	10.00	ppm	1336165	1328988	1328039
			Ave. Int. = 1331064	S. D. =	4443
Ba1	2.000	ppm	5565931	5569050	5552970
			Ave. Int. = 5562650	S. D. =	8527
Be2	2.000	ppm	407618	407015	404988
			Ave. Int. = 406540	S. D. =	1378
Ca3	100.0	ppm	64992408	64759714	64684460
			Ave. Int. = 64812194	S. D. =	160542
Cd1	2.000	ppm	145774	145694	145187
			Ave. Int. = 145552	S. D. =	318
Co1	10.00	ppm	1131025	1131692	1126616
			Ave. Int. = 1129778	S. D. =	2758
Cr4	10.00	ppm	8130989	8136984	8106514
			Ave. Int. = 8124829	S. D. =	16142
Cu1	10.00	ppm	24566148	24608946	24547899
			Ave. Int. = 24574331	S. D. =	31335
Fe2	10.00	ppm	6676018	6678124	6665497
			Ave. Int. = 6673213	S. D. =	6765

K 1	100.0	ppm	88271	88150	88089		
			Ave. Int. =	88170	S. D. =	93	
Mg4	100.0	ppm	5333096	5311013	5300666		
			Ave. Int. =	5314925	S. D. =	16565	
Mn1	2.000	ppm	3139721	3136515	3123688		
			Ave. Int. =	3133308	S. D. =	8484	
Na2	10.00	ppm	2921332	2925771	2918001		
			Ave. Int. =	2921701	S. D. =	3898	
Ni3	10.00	ppm	2175616	2157563	2172581		
			Ave. Int. =	2168587	S. D. =	9667	
Pb1	10.00	ppm	521034	526271	521966		
			Ave. Int. =	523090	S. D. =	2794	
Sb1	10.00	ppm	86830	88570	87216		
			Ave. Int. =	87539	S. D. =	914	
Tl1	10.00	ppm	27134	28518	27067		
			Ave. Int. =	27573	S. D. =	819	
V 2	10.00	ppm	1067811	1073258	1071247		
			Ave. Int. =	1070772	S. D. =	2754	
Zn3	2.000	ppm	255566	254042	256608		
			Ave. Int. =	255405	S. D. =	1291	

Line	Conc.	Units	SD/RSD	1	2	3	4	5

*** Standard: 3 Rep: 2 Seq: 7 13:33:34 24 Mar 1994 ICP

Ag1	2.000	ppm	2335545	2326286	2316557		
			Ave. Int. =	2326129	S. D. =	9495	
Al3	10.00	ppm	1329153	1327685	1321420		
			Ave. Int. =	1326086	S. D. =	4107	
Ba1	2.000	ppm	5554042	5545589	5524919		
			Ave. Int. =	5541517	S. D. =	14982	
Be2	2.000	ppm	405690	405770	405941		
			Ave. Int. =	405800	S. D. =	128	
Ca3	100.0	ppm	64508910	64546565	64540438		
			Ave. Int. =	64531971	S. D. =	20205	
Cd1	2.000	ppm	144998	145427	145961		
			Ave. Int. =	145462	S. D. =	482	
Co1	10.00	ppm	1121061	1124830	1126392		
			Ave. Int. =	1124094	S. D. =	2741	
Cr4	10.00	ppm	8081062	8087128	8069550		
			Ave. Int. =	8079247	S. D. =	8928	
Cu1	10.00	ppm	24515561	24482527	24442531		
			Ave. Int. =	24480206	S. D. =	36570	
Fe2	10.00	ppm	6653294	6654805	6641904		
			Ave. Int. =	6650001	S. D. =	7053	

K 1	100.0	ppm	88258	87491	87719	
			Ave. Int. =	87823	S. D. =	394
Mg4	100.0	ppm	5278749	5300657	5298284	
			Ave. Int. =	5292563	S. D. =	12022
Mn1	2.000	ppm	3116587	3117899	3115129	
			Ave. Int. =	3116538	S. D. =	1386
Na2	10.00	ppm	2916524	2916965	2907490	
			Ave. Int. =	2913660	S. D. =	5348
Ni3	10.00	ppm	2161747	2162774	2156492	
			Ave. Int. =	2160338	S. D. =	3370
Pb1	10.00	ppm	513886	518783	519200	
			Ave. Int. =	517290	S. D. =	2955
Sb1	10.00	ppm	84353	86563	86146	
			Ave. Int. =	85687	S. D. =	1174
Tl1	10.00	ppm	26984	28891	27579	
			Ave. Int. =	27818	S. D. =	976
V 2	10.00	ppm	1066097	1069665	1070215	
			Ave. Int. =	1068659	S. D. =	2236
Zn3	2.000	ppm	250231	251458	253084	
			Ave. Int. =	251591	S. D. =	1431

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: CAL STD 24-2			Seq: 9		13:43:16 24 Mar 1994 ICP			
Ag1	2.005	ppm	.1570 %	2.003	2.008	2.003		
Al3	10.10	ppm	.4971 %	10.06	10.16	10.09		
Ba1	1.934	ppm	.7642 %	1.919	1.949	1.935		
Be2	2.015	ppm	.3269 %	2.012	2.023	2.011		
Ca3	97.21	ppm	.3688 %	97.28	97.48	96.93		
Cd1	2.016	ppm	.4351 %	2.011	2.026	2.011		
Co1	9.895	ppm	.3861 %	9.888	9.937	9.862		
Cr4	10.13	ppm	.3227 %	10.10	10.16	10.10		
Cu1	9.847	ppm	.7675 %	9.769	9.920	9.852		
Fe2	9.927	ppm	.3283 %	9.896	9.961	9.925		
K 1	100.4	ppm	.8864 %	99.67	101.4	100.2		
Mg4	100.8	ppm	.1882 %	100.8	101.0	100.6		
Mn1	1.980	ppm	.4784 %	1.972	1.990	1.977		
Na2	10.01	ppm	.8683 %	9.917	10.09	10.03		
Ni3	9.776	ppm	.3835 %	9.753	9.819	9.756		
Pb1	9.769	ppm	.1495 %	9.779	9.775	9.752		
Sb1	9.974	ppm	1.053 %	9.903	9.924	10.09		
Tl1	10.02	ppm	1.357 %	9.890	10.00	10.16		
V 2	10.12	ppm	.4326 %	10.07	10.16	10.13		
Zn3	2.023	ppm	.4413 %	2.020	2.033	2.016		

Na shald be 100

000014

*** Sample ID: ICV 24-2 Seq: 10 13:46:31 24 Mar 1994 ICP

Ag1	1.023	ppm	.7367 %	1.024	1.031	1.015
Al3	9.626	ppm	.9770 %	9.668	9.692	9.519
Ba1	9.765	ppm	.9924 %	9.795	9.844	9.657
Be2	.2554	ppm	.5701 %	.2556	.2568	.2539
Ca3	47.10	ppm	.6756 %	47.30	47.27	46.73
Cd1	.9587	ppm	.5793 %	.9636	.9599	.9527
Co1	2.444	ppm	.7474 %	2.462	2.444	2.426
Cr4	1.023	ppm	.3961 %	1.027	1.023	1.019
Cu1	1.267	ppm	.8704 %	1.266	1.278	1.256
Fe2	5.012	ppm	.6195 %	5.035	5.024	4.977
K 1	49.14	ppm	.5548 %	49.09	49.43	48.90
Mg4	49.05	ppm	.5045 %	49.11	49.27	48.78
Mn1	1.567	ppm	.7301 %	1.572	1.575	1.554
Na2	5.058	ppm	.9698 %	5.048	5.111	5.014
Ni3	4.088	ppm	.3538 %	4.079	4.104	4.079
Pb1	1.001	ppm	.7262 %	1.009	.9940	1.001
Sb1	5.664	ppm	.5717 %	5.643	5.702	5.648
Tl1	1.947	ppm	8.599 %	2.139	1.862	1.839
V 2	2.554	ppm	.3167 %	2.563	2.549	2.549
Zn3	1.981	ppm	.7344 %	1.995	1.981	1.966

Na ? shall be 50.0

GENERAL TESTING CORPORATION Folder: MAR24 Page 21
13:49:46 24 Mar 1994 Protocol: CLP-SM

Line	Conc.	Units	SD/RSD	1	2	3	4	5

*** Sample ID: ICB 24-2 Seq: 11 13:49:46 24 Mar 1994 ICP

Ag1	-.0063 L	ppm	-6.066%	-.0065	-.0059	-.0066
Al3	-.0192 L	ppm	-59.01%	-.0069	-.0216	-.0291
Ba1	.0018 L	ppm	18.35 %	.0020	.0014	.0019
Be2	.0003 L	ppm	101.4 %	.0002	.0007	.0001
Ca3	.0160 L	ppm	30.05 %	.0212	.0150	.0119
Cd1	.0015 L	ppm	70.89 %	.0021	.0003	.0022
Co1	-.0041 L	ppm	-139.9%	-.0096	.0019	-.0044
Cr4	.0014 L	ppm	339.4 %	.0052	-.0013	.0003
Cu1	.0005 L	ppm	431.2 %	.0025	-.0019	.0010
Fe2	.0031 L	ppm	34.80 %	.0043	.0026	.0023
K 1	.0653 L	ppm	338.3 %	-.0088	-.1091	.3139
Mg4	.0136 L	ppm	75.65 %	.0037	.0242	.0129
Mn1	.0004 L	ppm	62.32 %	.0001	.0006	.0004
Na2	-.0054 L	ppm	-42.74%	-.0028	-.0071	-.0064
Ni3	-.0056 L	ppm	-26.98%	-.0060	-.0069	-.0039
Pb1	.0075 L	ppm	54.80 %	.0072	.0118	.0036
Sb1	-.0209 L	ppm	-119.3%	-.0329	-.0376	.0078
Tl1	.0960 L	ppm	148.4 %	.0478	.2564	-.0162
V 2	.0036 L	ppm	242.0 %	-.0063	.0104	.0068
Zn3	.0003 L	ppm	1074. %	.0033	-.0001	-.0024

*** Sample ID: CRI 24-2 Seq: 13 13:53:01 24 Mar 1994 ICP

	0.0095					
Ag1	.0097 L	ppm	28.26 %	~~.0071~~	.0125	.0094
Al3	.0062 L	ppm	180.1 %	.0187	-.0026	.0024
Ba1	.0007 L	ppm	14.55 %	.0007	.0006	.0007
Be2	.0106	ppm	1.746 %	.0106	.0103	.0107
Ca3	.0144 L	ppm	12.90 %	.0161	.0146	.0124
Cd1	.0093	ppm	5.677 %	.0088	.0098	.0093
Co1	.0997	ppm	1.628 %	.1016	.0986	.0989
Cr4	.0226	ppm	6.415 %	.0240	.0228	.0211
Cu1	.0512	ppm	2.373 %	.0500	.0525	.0511
Fe2	.0032 L	ppm	50.76 %	.0014	.0046	.0037
K 1	-.2121 L	ppm	-29.02%	-.2778	-.2026	-.1558
Mg4	-.0007 L	ppm	-2210.%	.0156	-.0040	-.0136
Mn1	.0327	ppm	.8846 %	.0324	.0329	.0329
Na2	.0091 L	ppm	24.75 %	.0066	.0109	.0099
Ni3	.0878	ppm	1.629 %	.0877	.0864	.0892
Pb1	.1008	ppm	4.594 %	.1061	.0985	.0977
Sb1	.0675	ppm	102.9 %	.1052	-.0126	.1099
Tl1	-.1353 L	ppm	-131.1%	-.1071	.0263	-.3250
V 2	.1020	ppm	3.927 %	.0999	.0996	.1067
Zn3	.0466	ppm	2.013 %	.0461	.0460	.0477

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: PB 3/24 24-2			Seq: 14		13:56:16 24 Mar 1994 ICP			
Ag1	-.0086 L	ppm	-28.35%	-.0102	-.0097	-.0058		
Al3	-.0018 L	ppm	-802.9%	-.0157	-.0023	.0127		
Ba1	.0009 L	ppm	27.92 %	.0011	.0006	.0009		
Be2	.0000 L	ppm	1265. %	-.0004	.0002	.0003		
Ca3	.1692 L	ppm	.5021 %	.1690	.1702	.1686		
Cd1	-.0006 L	ppm	-46.32%	-.0003	-.0007	-.0007		
Co1	-.0068 L	ppm	-80.94%	-.0131	-.0026	-.0048		
Cr4	.0027 L	ppm	62.96 %	.0025	.0046	.0012		
Cu1	.0036 L	ppm	47.76 %	.0054	.0020	.0035		
Fe2	.0296 L	ppm	3.909 %	.0293	.0287	.0309		
K 1	-.1361 L	ppm	-40.44%	-.1969	-.0897	-.1216		
Mg4	.0272 L	ppm	60.26 %	.0277	.0106	.0434		
Mn1	.0005 L	ppm	44.32 %	.0004	.0008	.0004		
Na2	.0259 L	ppm	25.92 %	.0325	.0262	.0191		
Ni3	.0007 L	ppm	898.4 %	-.0059	.0019	.0060		
Pb1	.0076 L	ppm	297.7 %	.0327	-.0109	.0009		
Sb1	.0391 L	ppm	157.3 %	.1024	.0356	-.0206		
Tl1	.0048 L	ppm	2221. %	-.1186	.0633	.0698		
V 2	-.0119 L	ppm	-50.90%	-.0182	-.0115	-.0061		
Zn3	.0078 L	ppm	41.48 %	.0095	.0041	.0099		
*** Sample ID: LCSS 3/24 24-2			Seq: 15		13:59:31 24 Mar 1994 ICP			
Ag1	.9931	ppm	.7251 %	.9890	.9890	1.001		
Al3	53.80	ppm	.4985 %	53.79	53.53	54.06		
Ba1	3.072	ppm	.7092 %	3.073	3.050	3.093		
Be2	.9927	ppm	.4852 %	.9905	.9894	.9983		
Ca3	39.35	ppm	.3096 %	39.32	39.24	39.48		
Cd1	1.052	ppm	.4202 %	1.047	1.053	1.056		
Co1	1.063	ppm	.2058 %	1.065	1.064	1.061		
Cr4	1.754	ppm	.4861 %	1.750	1.748	1.764		
Cu1	1.295	ppm	.7596 %	1.294	1.285	1.305		
Fe2	95.31	ppm	.3343 %	95.18	95.07	95.67		
K 1	27.74	ppm	1.020 %	28.06	27.56	27.59		
Mg4	20.26	ppm	.2029 %	20.34	20.24	20.31		
Mn1	2.228	ppm	.4439 %	2.231	2.217	2.236		
Na2	.6736	ppm	.4396 %	.6750	.6702	.6756		
Ni3	1.744	ppm	.5735 %	1.739	1.738	1.756		
Pb1	1.585	ppm	.6111 %	1.593	1.574	1.589		
Sb1	.4832	ppm	12.61 %	.4919	.4184	.5393		
Tl1	.8439	ppm	14.26 %	.7049	.9275	.8994		
V 2	.9231	ppm	1.434 %	.9090	.9353	.9250		
Zn3	1.359	ppm	.6546 %	1.354	1.354	1.369		

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: PB 3/18 24-2			Seq: 17		14:02:47 24 Mar 1994 ICP			
Ag1	-.0088 L	ppm	-40.77%	-.0126	-.0055	-.0082		
Al3	-.0147 L	ppm	-38.39%	-.0140	-.0206	-.0094		
Ba1	.0578	ppm	1.404 %	.0582	.0583	.0568		
Be2	.0003 L	ppm	117.9 %	-.0000	.0007	.0003		
Ca3	.3302 L	ppm	1.001 %	.3272	.3296	.3337		
Cd1	-.0001 L	ppm	-532.6%	-.0006	-.0006	.0007		
Co1	-.0116 L	ppm	-35.88%	-.0136	-.0068	-.0144		
Cr4	.0010 L	ppm	115.5 %	-.0003	.0017	.0015		
Cu1	.0011 L	ppm	140.9 %	.0025	-.0005	.0012		
Fe2	.0243 L	ppm	12.27 %	.0256	.0264	.0209		
K 1	-.3261 L	ppm	-12.40%	-.3622	-.2824	-.3337		
Mg4	.0546 L	ppm	45.31 %	.0330	.0492	.0816		
Mn1	.0001 L	ppm	511.0 %	-.0004	.0003	.0003		
Na2	.0107 L	ppm	67.78 %	.0031	.0114	.0176		
Ni3	-.0068 L	ppm	-30.77%	-.0044	-.0083	-.0078		
Pb1	.0001 L	ppm	26340 %	-.0145	.0180	-.0033		
Sb1	.0240 L	ppm	318.5 %	-.0640	.0724	.0635		
Tl1	-.0624 L	ppm	-283.7%	-.2610	.0791	-.0054		
V 2	-.0034 L	ppm	-301.3%	-.0069	-.0114	.0082		
Zn3	.0014 L	ppm	228.7 %	.0004	.0049	-.0012		
*** Sample ID: LCSS 3/18 24-2			Seq: 18		14:06:03 24 Mar 1994 ICP			
Ag1	.9981	ppm	.5973 %	.9980	.9923	1.004		
Al3	50.03	ppm	.2217 %	50.13	49.91	50.05		
Ba1	3.021	ppm	.2252 %	3.027	3.013	3.023		
Be2	.9863	ppm	.1911 %	.9885	.9854	.9851		
Ca3	39.67	ppm	.3472 %	39.82	39.55	39.64		
Cd1	1.073	ppm	.4623 %	1.079	1.068	1.072		
Co1	1.065	ppm	1.904 %	1.079	1.042	1.075		
Cr4	1.721	ppm	.2959 %	1.727	1.717	1.720		
Cu1	1.300	ppm	.0731 %	1.299	1.300	1.301		
Fe2	85.51	ppm	.3130 %	85.77	85.23	85.52		
K 1	25.97	ppm	.9307 %	26.03	25.71	26.18		
Mg4	20.20	ppm	.5824 %	20.25	20.07	20.29		
Mn1	2.207	ppm	.3733 %	2.216	2.200	2.205		
Na2	.6229	ppm	.6369 %	.6252	.6184	.6253		
Ni3	1.745	ppm	.3952 %	1.745	1.738	1.751		
Pb1	1.583	ppm	2.466 %	1.626	1.550	1.574		
Sb1	.3290	ppm	35.06 %	.3502	.4322	.2045		
Tl1	1.065	ppm	16.92 %	.9323	.9920	1.270		
V 2	.9229	ppm	1.814 %	.9055	.9243	.9389		
Zn3	1.269	ppm	.5925 %	1.277	1.264	1.264		

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: ICSAI	24-2	Seq: 19	14:09:19 24 Mar 1994 ICP					
Ag1	.0011 L	ppm	391.7 %	-.0010	-.0018	.0062		
Al3	445.8	ppm	.5294 %	446.9	443.1	447.4		
Ba1	.0002 L	ppm	20.74 %	.0002	.0003	.0002		
Be2	.0011 L	ppm	44.20 %	.0016	.0008	.0008		
Ca3	449.4	ppm	.3854 %	450.9	447.5	449.8		
Cd1	.0035 L	ppm	28.39 %	.0044	.0024	.0036		
Co1	-.0027 L	ppm	-69.78%	-.0007	-.0044	-.0031		
Cr4	.0071 L	ppm	35.61 %	.0096	.0045	.0073		
Cu1	.0340	ppm	4.783 %	.0358	.0335	.0327		
Fe2	172.1	ppm	.4169 %	172.6	171.2	172.4		
K 1	-.1724 L	ppm	-71.59%	-.0589	-.3038	-.1546		
Mg4	490.6	ppm	.4551 %	492.5	488.1	491.0		
Mn1	.0185	ppm	2.081 %	.0189	.0181	.0186		
Na2	-.2614 L	ppm	-1.570%	-.2575	-.2611	-.2657		
Ni3	.0117 L	ppm	28.93 %	.0099	.0096	.0156		
Pb1	.0275 L	ppm	88.20 %	.0552	.0171	.0102		
Sb1	.0891	ppm	172.3 %	-.0882	.1816	.1740		
Tl1	.1672 L	ppm	59.57 %	.0754	.2731	.1530		
V 2	.0123 L	ppm	55.80 %	.0085	.0081	.0202		
Zn3	.0294	ppm	17.46 %	.0328	.0318	.0235		
*** Sample ID: ICSABI	24-2	Seq: 21	14:12:35 24 Mar 1994 ICP					
Ag1	.8258	ppm	1.212 %	.8373	.8215	.8187		
Al3	436.7	ppm	.2550 %	436.1	438.0	436.1		
Ba1	.4243	ppm	.2877 %	.4248	.4252	.4229		
Be2	.4323	ppm	.2009 %	.4321	.4332	.4315		
Ca3	444.6	ppm	.1235 %	444.1	445.2	444.6		
Cd1	.7938	ppm	.4735 %	.7929	.7979	.7906		
Co1	.4233	ppm	2.181 %	.4166	.4195	.4339		
Cr4	.4316	ppm	1.165 %	.4260	.4357	.4331		
Cu1	.4653	ppm	.1889 %	.4644	.4661	.4653		
Fe2	168.6	ppm	.1300 %	168.5	168.9	168.5		
K 1	-.4223 L	ppm	-13.67%	-.3603	-.4745	-.4322		
Mg4	482.8	ppm	.2142 %	481.7	483.8	482.8		
Mn1	.4519	ppm	.4444 %	.4505	.4509	.4542		
Na2	-.2590 L	ppm	-2.953%	-.2536	-.2678	-.2557		
Ni3	.8397	ppm	1.175 %	.8386	.8510	.8357		
Pb1	.8123	ppm	4.747 %	.8068	.7768	.8533		
Sb1	.0957	ppm	154.0 %	.2593	.0546	-.0267		
Tl1	.1630 L	ppm	102.7 %	.3531	.0976	.0382		
V 2	.4625	ppm	.1988 %	.4618	.4636	.4622		
Zn3	.8401	ppm	.8868 %	.8320	.8467	.8416		

Line	Conc.	Units	SD/RSD	1	2	3	4	5

*** Check Standard: 2 Ck2 Seq: 22 14:15:54 24 Mar 1994 ICP

Line	Flag	%Rcv.	Found	True	Units		SD/RSD
Ag1		101.9	1.019	1.000	ppm		.5439 %
Al3		102.6	5.131	5.000	ppm		.2893 %
Ba1		98.85 102.0	.9885	1.000	ppm		.6111 %
Be2	L	~~20.40~~	1.020	~~5.000~~	ppm	1.00	.6089 %
Ca3		99.68	49.84	50.00	ppm		.6461 %
Cd1		104.7	1.047	1.000	ppm		.7979 %
Co1		102.5	5.126	5.000	ppm		.4026 %
Cr4		104.0	5.201	5.000	ppm		.5203 %
Cu1		100.3	5.016	5.000	ppm		.6719 %
Fe2		102.8	5.142	5.000	ppm		.6153 %
K 1	H	~~1021.~~ 102.1	51.06	~~5.000~~	ppm	50.0	1.158 %
Mg4		101.0	50.51	50.00	ppm		.8334 %
Mn1	L	~~20.33~~ 101.7	1.017	~~5.000~~	ppm	1.00	.5029 %
Na2		101.7	5.087	5.000	ppm		.5219 %
Ni3		101.6	5.081	5.000	ppm		.2016 %
Pb1		100.8	5.041	5.000	ppm		.6139 %
Sb1		102.6	5.130	5.000	ppm		3.413 %
Tl1		103.8	5.191	5.000	ppm		.3962 %
V 2		104.6	5.231	5.000	ppm		.8647 %
Zn3	L	~~20.75~~ 103.8	1.038	~~5.000~~	ppm	1.00	.7924 %

*** Check Standard: 3 Ck3 Seq: 23 14:19:15 24 Mar 1994 ICP

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Ag1		-60.27	-.0060	.0100	ppm	-31.62%
Al3		5.655	.0057	.1000	ppm	125.0 %
Ba1		10.00	.0005	.0050	ppm	72.96 %
Be2		5.217	.0003	.0050	ppm	136.3 %
Ca3		3.052	.0153	.5000	ppm	2.705 %
Cd1		11.14	.0006	.0050	ppm	166.2 %
Co1		-16.71	-.0084	.0500	ppm	-21.63%
Cr4		-.7555	-.0001	.0100	ppm	-619.9%
Cu1		2.749	.0005	.0200	ppm	200.6 %
Fe2		26.43	.0133	.0500	ppm	5.729 %
K 1		-.1550	-.0015	1.000	ppm	-17060%
Mg4		-1.442	-.0072	.5000	ppm	-300.2%
Mn1		-3.258	-.0003	.0100	ppm	-79.04%
Na2		-.7436	-.0037	.5000	ppm	-128.1%
Ni3		-5.018	-.0024	.0400	ppm	-263.6%
Pb1		-35.54	-.0178	.0500	ppm	-90.36%
Sb1		10.36	.0062	.0600	ppm	412.3 %
Tl1		-7.301	-.0146	.2000	ppm	-1068.%
V 2		-.0180	-.0000	.0500	ppm	^^^^^^%
Zn3		45.87	.0046	.0100	ppm	57.61 %

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: 840-1S			24-2	Seq: 24		14:22:33 24 Mar 1994 ICP		
			1.18					
Ag1	.2917	ppm	1.127 %	.2952	.2912	.2887		
Al3	113.4	ppm	.2564 %	113.1	113.7	113.4		
Ba1	23.17	ppm 1960	.3178 %	23.08	23.22	23.20		
Be2	.0076	ppm	6.023 %	.0074	.0081	.0073		
Ca3	41.56	ppm	.0874 %	41.52	41.59	41.57		
Cd1	.0053	ppm	15.07 %	.0058	.0058	.0044		
Co1	.1168	ppm	5.344 %	.1222	.1100	.1182		
Cr4	.4602	ppm	1.032 %	.4577	.4572	.4657		
Cu1	.5519	ppm	.2169 %	.5521	.5531	.5507		
Fe2	184.4	ppm	.2023 %	184.0	184.8	184.4		
K 1	12.07	ppm	1.244 %	12.00	12.24	11.96		
Mg4	46.65	ppm	.0682 %	46.62	46.66	46.68		
Mn1	9.043	ppm	.2010 %	9.022	9.057	9.050		
Na2	.1000 L	ppm	3.518 %	.1000	.0964	.1034		
Ni3	.3806	ppm	3.608 %	.3930	.3659	.3829		
Pb1	.8074	ppm	1.155 %	.7968	.8142	.8112		
Sb1	.0408 L	ppm	9.375 %	.0431	.0364	.0430		
Tl1	.0518 L	ppm	146.3 %	-.0088	.1367	.0275		
V 2	.3590	ppm	3.987 %	.3430	.3706	.3633		
Zn3	1.475	ppm	.3339 %	1.473	1.480	1.471		
*** Sample ID: 840-1QCS			24-2	Seq: 25		14:25:49 24 Mar 1994 ICP		
			1.13					
Ag1	.2759	ppm	.6457 %	.2775	.2761	.2740		
Al3	107.5	ppm	.2571 %	107.4	107.8	107.3		
Ba1	16.45	ppm 1460	.2953 %	16.44	16.50	16.40		
Be2	.0079	ppm	4.248 %	.0076	.0078	.0072		
Ca3	41.21	ppm	.1185 %	41.23	41.25	41.15		
Cd1	.0057	ppm	36.13 %	.0067	.0033	.0070		
Co1	.1177	ppm	4.715 %	.1183	.1118	.1229		
Cr4	.4355	ppm	.7067 %	.4321	.4365	.4380		
Cu1	.5235	ppm	.5857 %	.5247	.5257	.5200		
Fe2	179.5	ppm	.1748 %	179.6	179.8	179.2		
K 1	10.96	ppm	2.319 %	11.01	10.69	11.19		
Mg4	45.74	ppm	.1466 %	45.69	45.82	45.72		
Mn1	8.448	ppm	.1463 %	8.449	8.461	8.436		
Na2	.0659 L	ppm	4.479 %	.0682	.0669	.0626		
Ni3	.3358	ppm	1.059 %	.3395	.3324	.3356		
Pb1	.8164	ppm	3.101 %	.7855	.8353	.8283		
Sb1	.0814	ppm	51.54 %	.1048	.1065	.0330		
Tl1	-.0744 L	ppm	-189.0%	.0555	-.0549	-.2239		
V 2	.3453	ppm	2.131 %	.3375	.3521	.3461		
Zn3	1.399	ppm	1.397 %	1.405	1.377	1.415		

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: 840-1SPS 24-2			Seq: 27		14:29:05 24 Mar 1994 ICP			
			1.62					
Ag1	.2372	ppm	.6736 %	.2361	.2365	.2390		
Al3	98.41	ppm	.5346 %	97.92	98.34	98.97		
Ba1	17.62	ppm 1730	.5184 %	17.53	17.64	17.71		
Be2	.0067	ppm	1.915 %	.0066	.0067	.0068		
Ca3	34.44	ppm	.2707 %	34.34	34.45	34.52		
Cd1	.0044 L	ppm	31.39 %	.0029	.0057	.0047		
Co1	.0928	ppm	2.951 %	.0915	.0909	.0959		
Cr4	.5926	ppm	.2908 %	.5911	.5945	.5921		
Cu1	.4722	ppm	.2309 %	.4730	.4710	.4727		
Fe2	158.6	ppm	.3119 %	158.0	158.7	159.0		
K 1	10.62	ppm	2.677 %	10.63	10.32	10.89		
Mg4	39.81	ppm	.4448 %	39.61	39.87	39.95		
Mn1	7.378	ppm	.3715 %	7.349	7.382	7.404		
Na2	.0839 L	ppm	1.794 %	.0848	.0848	.0822		
Ni3	.3184	ppm	1.020 %	.3147	.3206	.3199		
Pb1	.7055	ppm	3.726 %	.7304	.7081	.6780		
Sb1	.0975	ppm	107.3 %	.0429	.2180	.0315		
Tl1	-.1873 L	ppm	-49.87%	-.2673	-.0847	-.2098		
V 2	.3041	ppm	3.312 %	.2931	.3128	.3064		
Zn3	1.268	ppm	.2983 %	1.266	1.267	1.273		
*** Sample ID: 840-1SPBS 24-2			Seq: 28		14:32:21 24 Mar 1994 ICP			
Ag1	.2872	ppm	2.618 %	.2785	.2914	.2917		
Al3	107.9	ppm	.4980 %	107.2	108.3	107.9		
Ba1	23.17	ppm	.4365 %	23.06	23.27	23.17		
Be2	.0494	ppm	1.466 %	.0495	.0487	.0501		
Ca3	47.32	ppm	.3566 %	47.14	47.47	47.35		
Cd1	.0501	ppm	3.412 %	.0510	.0482	.0513		
Co1	.5527	ppm	.5749 %	.5504	.5513	.5563		
Cr4	.5995	ppm	.8628 %	.5935	.6024	.6026		
Cu1	.7283	ppm	.3204 %	.7284	.7306	.7260		
Fe2	173.1	ppm	.3248 %	172.5	173.6	173.0		
K 1	20.50	ppm	1.382 %	20.47	20.80	20.24		
Mg4	52.72	ppm	.3876 %	52.49	52.89	52.77		
Mn1	8.931	ppm	.2897 %	8.902	8.950	8.941		
Na2	1.024	ppm	.5947 %	1.023	1.030	1.018		
Ni3	.8081	ppm	.5327 %	.8069	.8045	.8129		
Pb1	1.243	ppm	1.542 %	1.261	1.223	1.245		
Sb1	.4887	ppm	12.29 %	.4216	.5376	.5068		
Tl1	1.493	ppm	15.42 %	1.737	1.278	1.465		
V 2	.7856	ppm	1.091 %	.7768	.7940	.7860		
Zn3	1.827	ppm	.3375 %	1.821	1.827	1.833		

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: 905-1			24-2	Seq: 29		14:35:37 24 Mar 1994 ICP		
			1.02				prep 3/18	
~~Ag1~~	-.0000 L	ppm	-3610.%	.0005	-.0014	.0008		
Al3	53.96	ppm 5290	.9080 %	53.82	54.51	53.56		
Ba1	.3735	ppm 36.6	1.170 %	.3725	.3783	.3698		
Be2	.0032 L	ppm <0.5	4.682 %	.0033	.0030	.0031		
Ca3	21.86	ppm 2140	.3498 %	21.89	21.92	21.77		
Cd1	.0236	ppm 2.31	4.456 %	.0242	.0224	.0242		
Co1	.0149 L	ppm <5.0	7.877 %	.0154	.0136	.0158		
Cr4	.1448	ppm 14.2	2.986 %	.1475	.1471	.1398		
Cu1	3.996	ppm 392	.9512 %	3.993	4.036	3.960		
Fe2	125.4	ppm 12,300	.6618 %	125.6	126.2	124.5		
K 1	6.372	ppm 625	1.708 %	6.273	6.354	6.489		
Mg4	22.72	ppm 2230	.1699 %	22.74	22.74	22.67		
Mn1	1.407	ppm 138	.7165 %	1.405	1.418	1.398		
~~Na2~~	.0281 L	ppm	9.252 %	.0301	.0252	.0291		
Ni3	.1569	ppm 15.4	1.532 %	.1552	.1558	.1597		
Pb1	.0985	ppm	22.46 %	.0803	.0920	.1231		
Sb1	.0569 L	ppm <10	116.6 %	.1069	.0822	-.0183		
Tl1	-.0490 L	ppm	-298.2%	.0879	-.0319	-.2030		
V 2	.1518	ppm 14.9	5.074 %	.1591	.1526	.1437		
Zn3	.5563	ppm 54.5	.4137 %	.5572	.5579	.5536		
*** Sample ID: PB 3/11			24-2	Seq: 31		14:38:51 24 Mar 1994 ICP		
Ag1	-.0064 L	ppm	-43.86%	-.0092	-.0036	-.0063		
Al3	-.0024 L	ppm	-465.9%	.0046	.0034	-.0153		
Ba1	.0030 L	ppm	8.182 %	.0028	.0030	.0033		
Be2	.0002 L	ppm	100.2 %	-.0000	.0004	.0003		
Ca3	.4580 L	ppm	.7251 %	.4591	.4543	.4607		
Cd1	-.0004 L	ppm	-248.1%	-.0015	.0001	.0003		
Co1	-.0124 L	ppm	-24.90%	-.0157	-.0096	-.0120		
Cr4	.0005 L	ppm	209.9 %	.0002	.0017	-.0004		
Cu1	.0026 L	ppm	95.62 %	.0001	.0051	.0026		
Fe2	.1635	ppm	1.183 %	.1638	.1652	.1614		
K 1	-.2181 L	ppm	-11.92%	-.2231	-.1900	-.2413		
Mg4	.0871 L	ppm	43.41 %	.0482	.0892	.1237		
Mn1	.0033 L	ppm	7.529 %	.0035	.0034	.0030		
~~Na2~~	.0108 L	ppm	25.43 %	.0113	.0079	.0134		
Ni3	-.0026 L	ppm	-134.9%	-.0052	.0015	-.0078		
Pb1	-.0018 L	ppm	-1580.%	-.0139	.0302	-.0216		
Sb1	-.0225 L	ppm	-346.9%	.0407	-.0637	-.0445		
Tl1	-.0714 L	ppm	-320.5%	-.2035	.1029	-.1136		
V 2	.0027 L	ppm	148.2 %	.0004	.0072	.0003		
Zn3	.0045 L	ppm	6.759 %	.0049	.0043	.0045		

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: LCSS 3/11 24-2			Seq: 32		14:42:02 24 Mar 1994 ICP			
			1.01					
Ag1	1.003	ppm	.6531 %	.9957	1.006	1.008		
Al3	57.09	ppm	.5145 %	56.89	57.43	56.97		
Ba1	3.030	ppm	.5892 %	3.015	3.050	3.025		
Be2	1.002	ppm	.4912 %	.9991	1.007	.9988		
Ca3	40.81	ppm	.3828 %	40.80	40.97	40.66		
Cd1	1.102	ppm	.2176 %	1.104	1.099	1.102		
Co1	1.089	ppm	.7110 %	1.086	1.097	1.082		
Cr4	1.822	ppm	.2032 %	1.822	1.825	1.818		
Cu1	1.310	ppm	.4414 %	1.306	1.316	1.307		
Fe2	106.0	ppm	.3725 %	105.8	106.5	105.8		
K 1	27.86	ppm	1.239 %	28.21	27.84	27.52		
Mg4	21.28	ppm	.3859 %	21.23	21.37	21.23		
Mn1	2.302	ppm	.5376 %	2.300	2.315	2.291		
Na2	.6950	ppm	.7308 %	.6916	.7008	.6925		
Ni3	1.781	ppm	.0378 %	1.781	1.781	1.782		
Pb1	1.606	ppm	3.346 %	1.586	1.565	1.667		
Sb1	.3407	ppm	12.56 %	.3561	.2923	.3737		
Tl1	.8732	ppm	43.52 %	1.092	.4344	1.093		
V 2	.9742	ppm	.8058 %	.9710	.9831	.9684		
Zn3	1.316	ppm	.2183 %	1.315	1.319	1.313		
*** Sample ID: 823-1S			24-2 Seq: 33		14:45:13 24 Mar 1994 ICP			
			1.03					
Ag1	.0003 L	ppm	1220. %	-.0019	.0052	-.0022		
Al3	35.39	ppm	.6977 %	35.33	35.19	35.67		
Ba1	.4709	ppm 45.7	.6578 %	.4704	.4681	.4742		
Be2	.0051	ppm	11.31 %	.0046	.0057	.0051		
Ca3	70.57	ppm 0.54	.1931 %	70.62	70.42	70.68		
Cd1	.0056	ppm 5.45	19.20 %	.0043	.0062	.0062		
Co1	.0383 L	ppm	13.70 %	.0392	.0431	.0327		
Cr4	.1335	ppm 13.0	.6112 %	.1343	.1335	.1327		
Cu1	.7991	ppm 77.6	.6453 %	.7998	.7936	.8038		
Fe2	169.1	ppm	.2902 %	169.3	168.6	169.5		
K 1	3.401	ppm	5.306 %	3.278	3.318	3.608		
Mg4	33.34	ppm	.1973 %	33.27	33.36	33.40		
Mn1	2.399	ppm 233	.2238 %	2.397	2.395	2.405		
Na2	.0779 L	ppm	2.098 %	.0791	.0786	.0761		
Ni3	.1444	ppm	1.686 %	.1423	.1469	.1441		
Pb1	3.631	ppm 255	3.744 %	3.662	3.683	3.549		
Sb1	.0335 L	ppm	115.6 %	.0762	.0009	.0233		
Tl1	-.0411 L	ppm	-284.6%	-.0539	.0817	-.1510		
V 2	.1491	ppm	5.321 %	.1405	.1561	.1506		
Zn3	1.121	ppm	.6151 %	1.119	1.116	1.129		

GENERAL TESTING CORPORATION Folder: MAR24 Page 1
14:59:14 24 Mar 1994 Protocol: CLP-SM

Line	Conc.	Units		SD/RSD	1	2	3	4	5
*** Sample ID: 823-1QCS				24-2		Seq: 35		14:48:24 24 Mar 1994 ICP	
				1.00					
Ag1	-.0023 L	ppm		-155.8%	-.0013	-.0063	.0007		
Al3	35.41	ppm		.6712 %	35.14	35.57	35.53		
Ba1	.4697	ppm	47.0	.6369 %	.4663	.4717	.4712		
Be2	.0050	ppm		12.13 %	.0056	.0044	.0050		
Ca3	70.72	ppm		.3799 %	70.42	70.93	70.81		
Cd1	.0039 L	ppm	0.90 U	48.68 %	.0050	.0017	.0050		
Co1	.0418 L	ppm		11.59 %	.0429	.0460	.0365		
Cr4	.1356	ppm	13.6	1.728 %	.1345	.1341	.1383		
Cu1	.7992	ppm	79.9	.4269 %	.7956	.8025	.7995		
Fe2	169.3	ppm		.4028 %	168.6	169.9	169.5		
K 1	3.383	ppm		3.951 %	3.424	3.233	3.491		
Mg4	33.45	ppm		.3661 %	33.32	33.47	33.56		
Mn1	2.400	ppm	240	.4880 %	2.387	2.409	2.405		
Na2	.0746 L	ppm		8.205 %	.0712	.0816	.0709		
Ni3	.1435	ppm		3.383 %	.1422	.1488	.1394		
Pb1	2.588	ppm	259	2.153 %	2.542	2.650	2.572		
Sb1	.0677	ppm		80.62 %	.0050	.1046	.0935		
Tl1	-.0486 L	ppm		-637.2%	-.1071	.2862	-.3250		
V 2	.1571	ppm		4.858 %	.1486	.1632	.1597		
Zn3	1.130	ppm		.3401 %	1.126	1.134	1.130		
*** Sample ID: 823-1SPS				24-2		Seq: 36		14:51:36 24 Mar 1994 ICP	
				106					
Ag1	.0540	ppm		5.858 %	.0561	.0504	.0557		
Al3	33.91	ppm		.2710 %	33.81	33.96	33.98		
Ba1	2.638	ppm	249	.2760 %	2.632	2.636	2.646		
Be2	.0048 L	ppm		7.577 %	.0050	.0051	.0044		
Ca3	309.3	ppm		.0541 %	309.5	309.2	309.2		
Cd1	.0509	ppm	4.80	2.697 %	.0510	.0523	.0496		
Co1	.0386 L	ppm		5.919 %	.0412	.0373	.0372		
Cr4	.3961	ppm	37.4	.4627 %	.3944	.3957	.3981		
Cu1	1.063	ppm	100	.3311 %	1.060	1.063	1.067		
Fe2	190.6	ppm		.0129 %	190.6	190.6	190.6		
K 1	12.86	ppm		1.867 %	12.99	12.59	13.01		
Mg4	77.44	ppm		.1545 %	77.43	77.33	77.57		
Mn1	2.883	ppm	272	.0711 %	2.881	2.884	2.885		
Na2	1.047	ppm		.4003 %	1.050	1.042	1.049		
Ni3	.7348	ppm		.5452 %	.7343	.7391	.7311		
Pb1	2.717	ppm	256	.7318 %	2.709	2.740	2.703		
Sb1	-.0194 L	ppm		-556.4%	.0964	-.1166	-.0379		
Tl1	-.0313 L	ppm		-355.7%	.0539	.0096	-.1576		
V 2	.1453	ppm		3.046 %	.1500	.1412	.1446		
Zn3	1.902	ppm		.0947 %	1.902	1.903	1.900		

Line	Conc.	Units	SD/RSD	1	2	3	4	5

*** Check Standard: 2 Ck2 Seq: 37 14:54:53 24 Mar 1994 ICP

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Ag1		103.8	1.038	1.000	ppm	.3677 %
Al3		103.6	5.182	5.000	ppm	.9169 %
Ba1		99.43	.9943	1.000	ppm	.6693 %
Be2	L	20.24	1.012	5.000	ppm	.4858 %
Ca3		99.64	49.82	50.00	ppm	.2579 %
Cd1		106.3	1.063	1.000	ppm	.5678 %
Co1		104.6	5.229	5.000	ppm	.5759 %
Cr4		103.9	5.194	5.000	ppm	.4877 %
Cu1		101.2	5.058	5.000	ppm	.6758 %
Fe2		103.3	5.163	5.000	ppm	.3928 %
K 1	H	1027.	51.36	5.000	ppm	.7593 %
Mg4		102.0	51.01	50.00	ppm	.4430 %
Mn1	L	20.51	1.025	5.000	ppm	.4053 %
Na2		103.3	5.166	5.000	ppm	.6318 %
Ni3		101.7	5.084	5.000	ppm	.7304 %
Pb1		101.8	5.088	5.000	ppm	1.089 %
Sb1		101.6	5.082	5.000	ppm	2.025 %
Tl1		102.5	5.125	5.000	ppm	5.724 %
V 2		107.0	5.352	5.000	ppm	1.447 %
Zn3	L	21.17	1.058	5.000	ppm	.1967 %

*** Check Standard: 3 Ck3 Seq: 38 14:58:14 24 Mar 1994 ICP

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Ag1		-95.27	-.0095	.0100	ppm	-49.48%
Al3		-9.250	-.0093	.1000	ppm	-102.7%
Ba1		15.43	.0008	.0050	ppm	21.02 %
Be2		5.733	.0003	.0050	ppm	73.91 %
Ca3		5.970	.0299	.5000	ppm	22.71 %
Cd1		25.86	.0013	.0050	ppm	140.7 %
Co1		-12.46	-.0062	.0500	ppm	-67.54%
Cr4		17.39	.0017	.0100	ppm	10.87 %
Cu1		6.736	.0013	.0200	ppm	197.8 %
Fe2		45.23	.0226	.0500	ppm	13.73 %
K 1		-14.29	-.1429	1.000	ppm	-101.2%
Mg4		2.814	.0141	.5000	ppm	148.1 %
Mn1		1.454	.0001	.0100	ppm	415.5 %
Na2		-.5713	-.0029	.5000	ppm	-100.8%
Ni3		-3.738	-.0015	.0400	ppm	-99.57%
Pb1		6.099	.0030	.0500	ppm	1240. %
Sb1		-13.81	-.0078	.0600	ppm	-252.7%
Tl1		.4900	.0010	.2000	ppm	10670 %
V 2		17.16	.0086	.0500	ppm	122.8 %
Zn3		-18.65	-.0019	.0100	ppm	-37.24%

GENERAL TESTING CORPORATION Folder: MAR24 Page 1
15:02:08 24 Mar 1994 Protocol: CLP-SM

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: 823-1SPBS 24-2			Seq: 40	15:02:08 24 Mar 1994 ICP				
Ag1	.0470	ppm	14.39 %	.0466	.0540	.0405		
Al3	34.32	ppm	.2374 %	34.41	34.25	34.29		
Ba1	2.290	ppm	.2938 %	2.297	2.284	2.290		
Be2	.0504	ppm	1.464 %	.0496	.0505	.0511		
Ca3	73.54	ppm	.0334 %	73.52	73.53	73.57		
Cd1	.0496	ppm	1.558 %	.0494	.0505	.0490		
Co1	.5199	ppm	1.525 %	.5132	.5287	.5180		
Cr4	.3142	ppm	.5049 %	.3132	.3133	.3160		
Cu1	.9537	ppm	.2479 %	.9564	.9526	.9521		
Fe2	154.5	ppm	.0877 %	154.6	154.4	154.6		
K 1	12.75	ppm	1.169 %	12.61	12.91	12.74		
Mg4	39.98	ppm	.2644 %	39.94	40.11	39.91		
Mn1	2.686	ppm	.0990 %	2.688	2.683	2.686		
~~Na2~~	1.049	ppm	.6081 %	1.051	1.041	1.053		
Ni3	.6081	ppm	1.251 %	.6165	.6017	.6062		
Pb1	2.848	ppm	2.047 %	2.812	2.816	2.915		
Sb1	.5502	ppm	1.172 %	.5530	.5549	.5429		
Tl1	1.749	ppm	9.878 %	1.606	1.941	1.699		
V 2	.6356	ppm	2.745 %	.6180	.6529	.6359		
Zn3	1.495	ppm	.7334 %	1.483	1.504	1.498		
*** Sample ID: 823-2			24-2 Seq: 41	15:05:20 24 Mar 1994 ICP				
			1.04					
Ag1	-.0024 L	ppm	-63.48%	-.0032	-.0006	-.0033		
Al3	38.29	ppm	.9738 %	37.97	38.60	38.38		
Ba1	.3135	ppm 30.1	1.074 %	.3097	.3160	.3149		
Be2	.0074	ppm	11.31 %	.0078	.0079	0064		
Ca3	144.4	ppm	.2848 %	144.2	144.9	144.3		
Cd1	-.0058 L	ppm <0.50	-22.98%	-.0059	-.0044	-.0071		
Co1	.0413 L	ppm	15.58 %	.0478	.0349	.0411		
Cr4	.1902	ppm 18.3	.5710 %	.1892	.1913	.1900		
Cu1	.1684	ppm 16.2	1.328 %	.1682	.1707	.1662		
Fe2	972.9 H	ppm	.3255 %	970.7	976.5	971.4		
K 1	5.745	ppm	3.207 %	5.741	5.931	5.562		
Mg4	27.16	ppm	.4528 %	27.02	27.26	27.19		
Mn1	8.736	ppm 8.40	.4608 %	8.694	8.774	8.742		
~~Na2~~	-.0872 L	ppm	-8.971%	-.0806	-.0850	-.0958		
Ni3	.1612	ppm	3.434 %	.1608	.1669	.1559		
Pb1	.0548	ppm 5.46	37.15 %	.0686	.0394	.0565		
Sb1	.0651	ppm	63.93 %	.0615	.0254	.1084		
Tl1	.1168 L	ppm	169.2 %	.1239	.3107	-.0843		
V 2	.2725	ppm	5.694 %	.2613	.2660	.2902		
Zn3	.2315	ppm	1.992 %	.2266	.2323	.2357		

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: 823-3			24-2	Seq: 42		15:08:32 24 Mar 1994 ICP		
			1.05					
Ag1	-.0032 L	ppm	-29.04%	-.0028	-.0026	-.0043		
Al3	25.31	ppm	.4664 %	25.20	25.29	25.43		
Ba1	.7460	ppm 71.0	.3838 %	.7440	.7446	.7493		
Be2	.0106	ppm	3.369 %	.0105	.0104	.0110		
Ca3	122.3	ppm	.0555 %	122.4	122.3	122.2		
Cd1	.0059	ppm 0.56 J	20.99 %	.0059	.0047	.0072		
Co1	.1889	ppm	2.767 %	.1838	.1943	.1885		
Cr4	5.713	ppm 544	.1162 %	5.707	5.720	5.712		
Cu1	1.654	ppm 158	.5509 %	1.647	1.652	1.664		
Fe2	457.4	ppm	.1028 %	457.9	457.1	457.1		
K 1	3.706	ppm	6.495 %	3.511	3.975	3.632		
Mg4	38.20	ppm	.2311 %	38.19	38.29	38.12		
Mn1	3.823	ppm 364	.0989 %	3.821	3.820	3.827		
Na2	.0460 L	ppm	3.040 %	.0474	.0446	.0461		
Ni3	.6246	ppm	.5152 %	.6263	.6266	.6209		
Pb1	3.742	ppm 356	1.496 %	3.785	3.678	3.762		
Sb1	.1721	ppm	15.19 %	.1583	.1557	.2022		
Tl1	.0587 L	ppm	70.10 %	.1062	.0375	.0325		
V 2	2.412	ppm	.5630 %	2.416	2.424	2.397		
Zn3	2.588	ppm	.6421 %	2.579	2.607	2.577		
*** Sample ID: 823-4			24-2	Seq: 44		15:11:44 24 Mar 1994 ICP		
			1.00					
Ag1	-.0070 L	ppm	-41.15%	-.0099	-.0042	-.0069		
Al3	76.93	ppm	.3298 %	76.64	77.05	77.11		
Ba1	.3925	ppm 39.2	.4164 %	.3907	.3928	.3939		
Be2	.0041 L	ppm	6.210 %	.0044	.0041	.0038		
Ca3	39.55	ppm	.1757 %	39.58	39.59	39.47		
Cd1	.0004 L	ppm 0.50 U	445.5 %	.0001	-.0012	.0024		
Co1	.0364 L	ppm	4.372 %	.0361	.0350	.0382		
Cr4	.1007	ppm 10.1	.6338 %	.1005	.1003	.1015		
Cu1	.0978	ppm 9.78	1.917 %	.0964	.0971	.0999		
Fe2	116.9	ppm	.1269 %	116.9	117.0	116.7		
K 1	8.081	ppm	1.784 %	8.001	8.247	7.994		
Mg4	30.96	ppm	.1448 %	31.00	30.96	30.91		
Mn1	4.168	ppm 417	.0657 %	4.167	4.171	4.165		
Na2	.0685 L	ppm	7.411 %	.0718	.0711	.0626		
Ni3	.0882	ppm	.2019 %	.0884	.0881	.0881		
Pb1	.1306	ppm 12.1	19.46 %	.1319	.1263	.1035		
Sb1	.0157 L	ppm	108.5 %	-.0037	.0283	.0226		
Tl1	-.0578 L	ppm	-328.4%	.1506	-.1029	-.2212		
V 2	.1809	ppm	3.800 %	.1885	.1792	.1751		
Zn3	.3656	ppm	.9713 %	.3692	.3621	.3656		

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: 823-5			24-2	Seq: 45		15:14:56 24 Mar 1994 ICP		
			1.00					
Ag1	-.0046 L	ppm	-72.82%	-.0026	-.0027	-.0084		
Al3	83.83	ppm	.0363 %	83.83	83.81	83.87		
Ba1	.6149	ppm 61.5	.1518 %	.6157	.6139	.6152		
Be2	.0048 L	ppm	10.06 %	.0048	.0043	.0052		
Ca3	54.89	ppm	.1859 %	54.91	54.97	54.77		
Cd1	.0020 L	ppm <0.5	28.17 %	.0026	.0015	.0020		
Co1	.0489 L	ppm	1.703 %	.0480	.0490	.0497		
Cr4	.1367	ppm 13.7	.8573 %	.1356	.1379	.1366		
Cu1	.4043	ppm 40.4	.7638 %	.4041	.4014	.4075		
Fe2	151.2	ppm	.1999 %	151.5	151.3	150.9		
K 1	7.914	ppm	1.391 %	7.988	7.787	7.966		
Mg4	39.36	ppm	.1025 %	39.37	39.31	39.39		
Mn1	2.278	ppm 228	.1713 %	2.274	2.282	2.279		
Na2	.1217 L	ppm	4.307 %	.1272	.1168	.1212		
Ni3	.1112	ppm	8.101 %	.1008	.1154	.1172		
Pb1	.4253	ppm 42.5	5.070 %	.4210	.4486	.4062		
Sb1	.0335 L	ppm	216.9 %	-.0495	.0854	.0646		
Tl1	-.1943 L	ppm	-56.95%	-.0796	-.3003	-.2029		
V 2	.2295	ppm	5.887 %	.2198	.2450	.2239		
Zn3	.9803	ppm	1.060 %	.9694	.9901	.9814		
*** Sample ID: 823-6			24-2	Seq: 46		15:18:08 24 Mar 1994 ICP		
			1.01					
Ag1	-.0078 L	ppm	-54.33%	-.0089	-.0113	-.0031		
Al3	107.9	ppm	.3038 %	108.2	108.0	107.5		
Ba1	.4693	ppm 46.5	.6989 %	.4711	.4714	.4656		
Be2	.0056	ppm	.7895 %	.0056	.0056	.0057		
Ca3	13.72	ppm	.3113 %	13.77	13.70	13.69		
Cd1	.0004 L	ppm <0.50	117.8 %	.0001	.0009	.0002		
Co1	.0441 L	ppm	8.453 %	.0465	.0398	.0460		
Cr4	.1325	ppm 13.1	1.347 %	.1346	.1313	.1317		
Cu1	.1037	ppm 10.3	.8134 %	.1047	.1033	.1031		
Fe2	154.0	ppm	.3578 %	154.6	153.8	153.5		
K 1	8.914	ppm	2.021 %	9.121	8.822	8.797		
Mg4	19.88	ppm	.1746 %	19.92	19.89	19.85		
Mn1	3.044	ppm 301	.2648 %	3.053	3.041	3.037		
Na2	.1476 L	ppm	3.603 %	.1489	.1417	.1521		
Ni3	.1041	ppm	4.191 %	.1042	.0998	.1085		
Pb1	.1079	ppm 10.7	13.02 %	.1179	.0918	.1139		
Sb1	-.0203 L	ppm	-231.4%	.0314	-.0319	-.0604		
Tl1	-.1086 L	ppm	-114.3%	-.0450	-.0292	-.2517		
V 2	.2432	ppm	5.086 %	.2318	.2563	.2415		
Zn3	.4009	ppm	.6436 %	.4012	.4033	.3982		

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: 823-7			24-2	Seq: 48		15:21:20 24 Mar 1994 ICP		
			1.03					
Ag1	-.0059 L	ppm	-20.69%	-.0059	-.0047	-.0071		
Al3	56.42	ppm	.6530 %	56.08	56.81	56.38		
Ba1	.4609	ppm 44.7	.5317 %	.4585	.4634	.4608		
Be2	.0098	ppm	7.034 %	.0094	.0094	.0106		
Ca3	32.67	ppm	.3224 %	32.67	32.77	32.56		
Cd1	.0009 L	ppm 40.50	68.93 %	.0013	.0002	.0011		
Co1	.1201	ppm	3.995 %	.1244	.1149	.1211		
Cr4	6.078	ppm 590	.3150 %	6.073	6.100	6.062		
Cu1	1.589	ppm 154	.5074 %	1.580	1.595	1.592		
Fe2	614.1 H	ppm	.2468 %	614.0	615.6	612.6		
K 1	4.105	ppm	9.373 %	3.759	4.519	4.037		
Mg4	7.105	ppm	.1088 %	7.105	7.113	7.097		
Mn1	6.787	ppm 659	.2922 %	6.770	6.809	6.783		
Na2	-.0236 L	ppm	-33.22%	-.0323	-.0214	-.0171		
Ni3	.7873	ppm	1.019 %	.7891	.7786	.7944		
Pb1	.1782	ppm 17.3	18.39 %	.1405	.1945	.1997		
Sb1	.0958	ppm	41.44 %	.0978	.0552	.1346		
Tl1	-.1022 L	ppm	-193.1%	.0693	-.0580	-.3179		
V 2	.2651	ppm	4.233 %	.2707	.2725	.2522		
Zn3	.7996	ppm	.6253 %	.7961	.8053	.7973		
*** Sample ID: 823-8			24-2	Seq: 49		15:24:33 24 Mar 1994 ICP		
			1.08					
Ag1	-.0005 L	ppm	-300.2%	.0011	-.0017	-.0008		
Al3	43.93	ppm	.3106 %	44.07	43.79	43.92		
Ba1	.3295	ppm 30.5	.4707 %	.3312	.3282	.3291		
Be2	.0037 L	ppm	5.535 %	.0035	.0039	.0039		
Ca3	300.2	ppm	.4698 %	301.7	300.1	298.9		
Cd1	.0021 L	ppm 0.50	46.41 %	.0033	.0014	.0018		
Co1	.0303 L	ppm	14.71 %	.0284	.0354	.0271		
Cr4	.1306	ppm 12.1	3.550 %	.1343	.1294	.1280		
Cu1	.1621	ppm 15.0	1.628 %	.1647	.1622	.1594		
Fe2	212.0	ppm	.4254 %	213.0	211.9	211.2		
K 1	8.103	ppm	2.595 %	8.000	7.964	8.345		
Mg4	36.67	ppm	.1401 %	36.68	36.71	36.61		
Mn1	3.920	ppm 363	.2333 %	3.930	3.916	3.913		
Na2	.0856 L	ppm	7.219 %	.0844	.0801	.0923		
Ni3	.0955	ppm	3.128 %	.0965	.0979	.0921		
Pb1	.0913	ppm 8.45	43.25 %	.1140	.1143	.0457		
Sb1	.1215	ppm	14.39 %	.1345	.1016	.1285		
Tl1	.0995 L	ppm	23.99 %	.0789	.1257	.0941		
V 2	.2213	ppm	4.372 %	.2255	.2102	.2281		
Zn3	.3568	ppm	1.811 %	.3635	.3580	.3498		

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: 823-9			24-2	Seq: 50		15:27:46 24 Mar 1994 ICP		
			1.01					
Ag1	-.0004 L	ppm	-703.8%	-.0026	-.0014	.0028		
Al3	56.03	ppm	.4538 %	55.77	56.05	56.28		
Ba1	.4843	ppm 48.0	.3457 %	.4827	.4841	.4860		
Be2	.0043 L	ppm	4.638 %	.0041	.0043	.0045		
Ca3	215.6	ppm	.0998 %	215.4	215.7	215.8		
Cd1	.0020 L	ppm <0.50	113.2 %	.0013	.0045	.0002		
Co1	.0460 L	ppm	6.117 %	.0455	.0435	.0490		
Cr4	.0823	ppm 8.14	5.398 %	.0805	.0873	.0790		
Cu1	.2358	ppm 23.3	.5782 %	.2343	.2362	.2370		
Fe2	144.2	ppm	.1094 %	144.1	144.2	144.4		
K 1	7.327	ppm	2.531 %	7.137	7.336	7.508		
Mg4	82.53	ppm	.0584 %	82.49	82.52	82.59		
Mn1	2.820	ppm 279	.3050 %	2.812	2.820	2.829		
Na2	.1392 L	ppm	1.675 %	.1368	.1414	.1395		
Ni3	.0989	ppm	11.15 %	.1061	.0862	.1045		
Pb1	.2514	ppm 24.9	5.485 %	.2377	.2653	.2511		
Sb1	.0234 L	ppm	179.8 %	.0154	-.0141	.0690		
Tl1	-.0203 L	ppm	-1474.%	.2881	-.0412	-.3077		
V 2	.1594	ppm	3.191 %	.1554	.1577	.1651		
Zn3	.3886	ppm	.6255 %	.3882	.3912	.3864		
*** Sample ID: 823-10			24-2	Seq: 52		15:31:00 24 Mar 1994 ICP		
			1.00					
Ag1	-.0045 L	ppm	-62.28%	-.0023	-.0036	-.0076		
Al3	95.67	ppm	.2796 %	95.65	95.95	95.41		
Ba1	.9888	ppm 98.9	.2222 %	.9887	.9910	.9866		
Be2	.0082	ppm	7.529 %	.0075	.0086	.0087		
Ca3	75.96	ppm	.3169 %	76.17	76.01	75.69		
Cd1	-.0027 L	ppm <0.5	-31.32%	-.0022	-.0037	-.0022		
Co1	.0801	ppm	4.278 %	.0817	.0762	.0824		
Cr4	.3826	ppm 38.3	.6982 %	.3836	.3846	.3796		
Cu1	.3081	ppm 30.8	.4671 %	.3065	.3091	.3087		
Fe2	415.5	ppm	.3087 %	416.1	416.3	414.0		
K 1	7.577	ppm	3.322 %	7.393	7.772	7.667		
Mg4	34.70	ppm	.2449 %	34.76	34.73	34.60		
Mn1	4.581	ppm 458	.1972 %	4.584	4.588	4.571		
Na2	.0946 L	ppm	3.995 %	.0987	.0939	.0912		
Ni3	.3266	ppm	.9322 %	.3284	.3231	.3284		
Pb1	.2903	ppm 40.5 9.03	31.33 %	.1201	.0638	.0872		
Sb1	-.0388 L	ppm	-146.7%	-.0044	-.1044	-.0075		
Tl1	.0548 L	ppm	560.1 %	-.2112	.3903	-.0148		
V 2	.6160	ppm	2.134 %	.6262	.6207	.6012		
Zn3	.4504	ppm	.7284 %	.4541	.4490	.4480		

Line Conc. Units SD/RSD 1 2 3 4 5

*** Check Standard: 2 Ck2 Seq: 53 15:34:18 24 Mar 1994 ICP

Line	Flag	%Rcv.	Found	True	Units		SD/RSD
Ag1		104.9	1.049	1.000	ppm		.7399 %
Al3		104.9	5.243	5.000	ppm		.2714 %
Ba1		98.27	.9827	1.000	ppm		.8977 %
Be2	99.7 L	19.93	.9966	~~5.000~~	ppm	1.00	.4076 %
Ca3		99.29	49.64	50.00	ppm		.0977 %
Cd1		108.3	1.083	1.000	ppm		.6567 %
Co1		105.9	5.296	5.000	ppm		.2039 %
Cr4		103.3	5.166	5.000	ppm		.3370 %
Cu1		101.7	5.087	5.000	ppm		.9419 %
Fe2		103.3	5.163	5.000	ppm		.1341 %
K 1	104.7 H	1047.	52.33	~~5.000~~	ppm	50.0	1.507 %
Mg4		103.1	51.56	50.00	ppm		.1936 %
Mn1	103.2 L	20.63	1.032	~~5.000~~	ppm	1.00	.2032 %
Na2		103.2	5.161	5.000	ppm		1.139 %
Ni3		103.1	5.156	5.000	ppm		.2744 %
Pb1		103.5	5.175	5.000	ppm		.5799 %
Sb1		103.1	5.153	5.000	ppm		3.856 %
Tl1		103.9	5.195	5.000	ppm		3.550 %
V 2		108.2	5.408	5.000	ppm		.1961 %
Zn3	103.4 L	20.68	1.034	~~5.000~~	ppm	1.00	.4870 %

We should be 50

mc 3/25

*** Check Standard: 3 Ck3 Seq: 54 15:37:37 24 Mar 1994 ICP

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Ag1		-31.46	-.0031	.0100	ppm	-148.3%
Al3		2.953	.0030	.1000	ppm	444.6 %
Ba1		11.16	.0006	.0050	ppm	16.87 %
Be2		.8900	.0000	.0050	ppm	451.4 %
Ca3		4.559	.0228	.5000	ppm	18.65 %
Cd1		15.97	.0008	.0050	ppm	54.43 %
Co1		-24.60	-.0123	.0500	ppm	-53.21%
Cr4		-8.741	-.0009	.0100	ppm	-68.41%
Cu1		-15.04	-.0030	.0200	ppm	-42.35%
Fe2		67.32	.0337	.0500	ppm	10.86 %
K 1		-18.13	-.1813	1.000	ppm	-170.6%
Mg4		3.042	.0152	.5000	ppm	79.28 %
Mn1		3.081	.0003	.0100	ppm	77.20 %
Na2		-1.259	-.0063	.5000	ppm	-49.18%
Ni3		-15.64	-.0067	.0400	ppm	-21.27%
Pb1		-.0489	-.0000	.0500	ppm	-34790%
Sb1		98.89	.0593	.0600	ppm	38.29 %
Tl1		5.763	.0115	.2000	ppm	795.6 %
V 2		15.46	.0077	.0500	ppm	77.63 %
Zn3		14.94	.0015	.0100	ppm	43.86 %

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: 823-11		24-2	Seq: 55	15:40:52 24 Mar 1994 ICP				
			1.00					
Ag1	-.0019 L	ppm	-171.1%	-.0013	.0010	-.0053		
Al3	61.26	ppm	.6429 %	61.21	60.90	61.68		
Ba1	.4501	ppm 45.0	.8001 %	.4493	.4470	.4541		
Be2	.0041 L	ppm	14.03 %	.0040	.0047	.0036		
Ca3	196.9	ppm	.1275 %	196.9	196.7	197.2		
Cd1	.0012 L	ppm <0.5	70.39 %	.0022	.0006	.0010		
Co1	.0372 L	ppm	14.23 %	.0407	.0311	.0399		
Cr4	.1269	ppm 12.7	2.779 %	.1310	.1252	.1247		
Cu1	.2470	ppm 24.7	.7192 %	.2479	.2449	.2481		
Fe2	220.8	ppm	.2610 %	220.7	220.3	221.5		
K 1	5.583	ppm	3.831 %	5.754	5.479	5.338		
Mg4	74.54	ppm	.2160 %	74.60	74.36	74.66		
Mn1	4.299	ppm 430	.2977 %	4.294	4.290	4.314		
Na2	.1179 L	ppm	4.030 %	.1140	.1165	.1232		
Ni3	.0991	ppm	4.704 %	.0938	.1027	.1008		
Pb1	.7062	ppm 70.6	3.193 %	.7001	.6873	.7312		
Sb1	.0771	ppm	61.09 %	.1187	.0868	.0259		
Tl1	-.0307 L	ppm	-496.4%	.0705	.0435	-.2061		
V 2	.2107	ppm	2.556 %	.2064	.2167	.2090		
Zn3	.5274	ppm	.9210 %	.5247	.5330	.5244		
*** Sample ID: 823-12		24-2	Seq: 56	15:44:01 24 Mar 1994 ICP				
			1.08					
Ag1	-.0034 L	ppm	-124.3%	-.0034	-.0077	.0008		
Al3	76.67	ppm	.0451 %	76.64	76.70	76.65		
Ba1	.5203	ppm 48.2	.2478 %	.5191	.5217	.5202		
Be2	.0045 L	ppm	6.291 %	.0044	.0048	.0043		
Ca3	48.17	ppm	.0789 %	48.21	48.14	48.15		
Cd1	.0016 L	ppm <0.5	193.6 %	.0046	-.0015	.0017		
Co1	.0398 L	ppm	10.54 %	.0384	.0444	.0364		
Cr4	.1100	ppm 10.2	3.138 %	.1112	.1073	.1115		
Cu1	.1397	ppm 12.9	2.229 %	.1388	.1371	.1432		
Fe2	159.2	ppm	.1317 %	159.4	159.3	159.0		
K 1	5.106	ppm	4.047 %	5.166	4.876	5.277		
Mg4	28.89	ppm	.2221 %	28.83	28.96	28.88		
Mn1	1.878	ppm 174	.1906 %	1.880	1.880	1.874		
Na2	.1314 L	ppm	2.591 %	.1308	.1284	.1351		
Ni3	.0928	ppm	4.975 %	.0913	.0979	.0891		
Pb1	.2045	ppm 18.9	3.897 %	.2046	.1966	.2125		
Sb1	.0064 L	ppm	669.7 %	-.0046	.0535	-.0298		
Tl1	-.0779 L	ppm	-119.0%	-.1757	.0087	-.0668		
V 2	.1859	ppm	3.750 %	.1936	.1801	.1840		
Zn3	.5200	ppm	.4869 %	.5171	.5211	.5218		

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: 823-13			24-2	Seq: 58		15:47:10 24 Mar 1994 ICP		
			1.07					
Ag1	-.0012 L	ppm	-120.6%	-.0006	-.0028	-.0002		
Al3	77.02	ppm	.2370 %	76.81	77.11	77.14		
Ba1	.5090	ppm 47.8	.4171 %	.5066	.5099	.5106		
Be2	.0047 L	ppm	5.534 %	.0049	.0044	.0049		
Ca3	189.9	ppm	.1444 %	189.6	189.9	190.1		
Cd1	.0021 L	ppm <0.5	79.06 %	.0004	.0038	.0022		
Co1	.0530	ppm	10.02 %	.0472	.0576	.0541		
Cr4	.1109	ppm 10.4	1.239 %	.1119	.1094	.1115		
Cu1	.1642	ppm 15.3	.7501 %	.1631	.1641	.1656		
Fe2	143.4	ppm	.1481 %	143.2	143.6	143.6		
K 1	8.822	ppm	2.868 %	8.607	8.757	9.101		
Mg4	77.15	ppm	.2716 %	77.00	77.39	77.06		
Mn1	3.368	ppm 315	.2478 %	3.359	3.375	3.370		
Na2	.1229 L	ppm	4.208 %	.1179	.1283	.1226		
Ni3	.1351	ppm	3.532 %	.1297	.1367	.1388		
Pb1	.0591	ppm 5.52	50.44 %	.0923	.0346	.0503		
Sb1	.0261 L	ppm	241.2 %	-.0434	.0795	.0422		
Tl1	.0667 L	ppm	214.6 %	.1637	-.0977	.1342		
V 2	.2049	ppm	3.954 %	.1957	.2085	.2107		
Zn3	.3714	ppm	.4381 %	.3709	.3700	.3732		
*** Sample ID: 823-14			24-2	Seq: 59		15:50:19 24 Mar 1994 ICP		
			1.00					
Ag1	-.0044 L	ppm	-76.05%	-.0012	-.0080	-.0041		
Al3	58.25	ppm	.3986 %	58.07	58.17	58.51		
Ba1	.4307	ppm 43.1	.6910 %	.4287	.4293	.4341		
Be2	.0037 L	ppm	11.64 %	.0041	.0032	.0038		
Ca3	115.4	ppm	.2648 %	115.8	115.2	115.3		
Cd1	.0026 L	ppm <0.5	62.71 %	.0009	.0029	.0041		
Co1	.0363 L	ppm	8.412 %	.0397	.0357	.0337		
Cr4	.0898	ppm 89.8	2.547 %	.0922	.0896	.0877		
Cu1	.0931	ppm 93.1	.5878 %	.0925	.0932	.0936		
Fe2	131.7	ppm	.1514 %	131.8	131.5	131.9		
K 1	7.599	ppm	1.929 %	7.604	7.450	7.743		
Mg4	75.11	ppm	.2134 %	75.29	74.98	75.06		
Mn1	2.216	ppm 222	.1037 %	2.216	2.215	2.219		
Na2	.0830 L	ppm	1.889 %	.0845	.0814	.0831		
Ni3	.0874	ppm	11.76 %	.0756	.0938	.0930		
Pb1	.1202	ppm 12.0	34.07 %	.0929	.1171	.1505		
Sb1	.2607	ppm	33.40 %	.0620	.0398	.0802		
Tl1	-.3554 L	ppm	-55.29%	-.2077	-.5785	-.2801		
V 2	.1708	ppm	9.238 %	.1838	.1755	.1533		
Zn3	.5403	ppm	1.672 %	.5352	.5508	.5350		

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: 823-15		24-2	Seq: 60	15:53:28 24 Mar 1994 ICP				
Ag1	-.0082 L	ppm	-45.01%	-.0068	-.0124	-.0054		
Al3	71.06	ppm	.2667 %	71.23	71.09	70.86		
Ba1	.5109	ppm 57.1	.5103 %	.5138	.5102	.5088		
Be2	.0047 L	ppm	3.378 %	.0046	.0048	.0046		
Ca3	111.7	ppm	.1358 %	111.8	111.8	111.5		
Cd1	.0024 L	ppm <0.5	72.66 %	.0013	.0043	.0015		
Co1	.0371 L	ppm	15.82 %	.0403	.0303	.0407		
Cr4	.0997	ppm 9.97	.5164 %	.0998	.0992	.1002		
Cu1	.1428	ppm 14.3	.4709 %	.1426	.1436	.1423		
Fe2	128.9	ppm	.2087 %	129.2	128.9	128.6		
K 1	7.734	ppm	.5727 %	7.723	7.696	7.782		
Mg4	39.85	ppm	.2225 %	39.96	39.80	39.81		
Mn1	3.300	ppm 330	.1454 %	3.304	3.300	3.295		
~~Na2~~	.0653 L	ppm	3.838 %	.0668	.0624	.0668		
Ni3	.0837	ppm	8.202 %	.0773	.0909	.0830		
Pb1	.2471	ppm 24.7	5.459 %	.2460	.2341	.2610		
Sb1	.0095 L	ppm	684.6 %	-.0580	.0144	.0722		
Tl1	-.0612 L	ppm	-157.2%	-.1608	-.0540	.0312		
V 2	.1841	ppm	3.592 %	.1809	.1917	.1797		
Zn3	.3470	ppm	.4626 %	.3488	.3465	.3457		
*** Sample ID: 823-16		24-2	Seq: 62	15:56:38 24 Mar 1994 ICP				
Ag1	-.0003 L	ppm	-427.7%	-.0006	.0011	-.0014		
Al3	35.64	ppm	.1771 %	35.61	35.61	35.72		
Ba1	2.310	ppm 231	.2801 %	2.305	2.307	2.317		
Be2	.0060	ppm	16.46 %	.0053	.0056	.0071		
Ca3	181.8	ppm	.1284 %	181.6	182.0	181.9		
Cd1	.0025 L	ppm <0.5	95.35 %	.0044	.0033	-.0002		
Co1	.0591	ppm	12.94 %	.0652	.0614	.0505		
Cr4	.1009	ppm 10.1	.6410 %	.1014	.1002	.1010		
Cu1	.6179	ppm 61.8	.1068 %	.6187	.6176	.6174		
Fe2	580.0 H	ppm	.0697 %	579.9	580.4	579.6		
K 1	5.653	ppm	.3224 %	5.640	5.653	5.665		
Mg4	26.80	ppm	.4731 %	26.88	26.88	26.66		
Mn1	2.457	ppm 246	.1795 %	2.453	2.456	2.462		
~~Na2~~	-.0182 L	ppm	-35.04%	-.0163	-.0130	-.0253		
Ni3	.2003	ppm	3.436 %	.1945	.1985	.2079		
Pb1	52.31	ppm 5230	.8507 %	52.08	52.63	52.22		
Sb1	.1558	ppm	15.56 %	.1840	.1405	.1431		
Tl1	.1855 L	ppm	122.0 %	.4279	.1492	-.0205		
V 2	.1336	ppm	6.421 %	.1290	.1435	.1283		
Zn3	1.049	ppm	1.184 %	1.039	1.063	1.045		

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: CRIF			24-2	Seq: 63		15:59:47 24 Mar 1994 ICP		
Ag1	.0092 L	ppm	12.19 %	.0104	.0092	.0082		
Al3	.0129 L	ppm	168.1 %	-.0109	.0181	.0315		
Ba1	.0005 L	ppm	65.45 %	.0002	.0009	.0004		
Be2	.0101	ppm	3.567 %	.0100	.0098	.0105		
Ca3	.0614 L	ppm	24.46 %	.0537	.0787	.0519		
Cd1	.0109	ppm	4.106 %	.0104	.0113	.0111		
Co1	.0991	ppm	1.771 %	.0976	.1011	.0987		
Cr4	.0207	ppm	16.47 %	.0175	.0202	.0243		
Cu1	.0492	ppm	3.714 %	.0474	.0493	.0510		
Fe2	.1592	ppm	21.94 %	.1374	.1995	.1408		
K 1	-.2546 L	ppm	-33.25%	-.3508	-.1912	-.2220		
Mg4	-.0050 L	ppm	-742.9%	-.0454	.0281	.0028		
Mn1	.0329	ppm	3.230 %	.0317	.0334	.0337		
Na2	.0030 L	ppm	91.95 %	.0036	-.0000	.0054		
Ni3	.0863	ppm	4.598 %	.0908	.0845	.0835		
Pb1	.1366	ppm	22.58 %	.1179	.1722	.1196		
Sb1	.0767	ppm	30.79 %	.0505	.0832	.0964		
Tl1	.0438 L	ppm	315.2 %	.1625	-.1075	.0762		
V 2	.1216	ppm	4.277 %	.1271	.1168	.1210		
Zn3	.0445	ppm	6.051 %	.0468	.0451	.0416		
*** Sample ID: ICSAF			24-2	Seq: 64		16:02:57 24 Mar 1994 ICP		
Ag1	.0046 L	ppm	77.85 %	.0086	.0019	.0032		
Al3	475.8	ppm	.3607 %	474.3	477.7	475.5		
Ba1	.0005 L	ppm	19.51 %	.0005	.0004	.0006		
Be2	.0006 L	ppm	77.33 %	.0010	.0008	.0001		
Ca3	477.7	ppm	.1111 %	477.4	478.3	477.5		
Cd1	.0059	ppm	28.09 %	.0076	.0043	.0059		
Co1	-.0002 L	ppm	-2529.%	-.0012	.0043	-.0036		
Cr4	.0059 L	ppm	13.10 %	.0054	.0057	.0068		
Cu1	.0352	ppm	6.729 %	.0380	.0339	.0338		
Fe2	176.5	ppm	.1647 %	176.3	176.8	176.3		
K 1	-.4180 L	ppm	-56.68%	-.3150	-.6890	-.2500		
Mg4	530.1	ppm	.0706 %	530.0	530.6	529.9		
Mn1	.0194	ppm	3.641 %	.0186	.0198	.0199		
Na2	-.2745 L	ppm	-1.343%	-.2776	-.2755	-.2705		
Ni3	.0141 L	ppm	30.39 %	.0092	.0172	.0159		
Pb1	.0083 L	ppm	309.5 %	-.0203	.0298	.0155		
Sb1	.1166	ppm	92.70 %	.1329	.2155	.0013		
Tl1	.4440	ppm	48.21 %	.6902	.3025	.3392		
V 2	.0205 L	ppm	13.47 %	.0195	.0236	.0184		
Zn3	.0264	ppm	18.04 %	.0274	.0306	.0213		

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: ICSABF 24-2 Seq: 66 16:06:07 24 Mar 1994 ICP								
Ag1	1.004	ppm	.3070 %	1.006	1.005	1.000		
Al3	475.6	ppm	.2261 %	475.6	474.5	476.6		
Ba1	.4599	ppm	.2635 %	.4609	.4585	.4602		
Be2	.4676	ppm	.1974 %	.4673	.4669	.4687		
Ca3	477.1	ppm	.1546 %	477.3	476.2	477.7		
Cd1	.8870	ppm	.5551 %	.8839	.8845	.8927		
Co1	.4662	ppm	1.904 %	.4696	.4728	.4561		
Cr4	.4726	ppm	.7947 %	.4745	.4683	.4751		
Cu1	.5086	ppm	.7281 %	.5114	.5044	.5100		
Fe2	177.0	ppm	.1730 %	177.1	176.6	177.2		
K 1	-.3572 L	ppm	-8.348%	-.3492	-.3902	-.3321		
Mg4	529.2	ppm	.2093 %	529.6	527.9	529.9		
Mn1	.4914	ppm	.0453 %	.4916	.4912	.4913		
Na2	-.2736 L	ppm	-1.101%	-.2710	-.2730	-.2769		
Ni3	.9127	ppm	.0808 %	.9119	.9133	.9129		
Pb1	.8949	ppm	2.825 %	.8659	.9062	.9125		
Sb1	.1448	ppm	44.27 %	.1072	.2189	.1085		
Tl1	.3185	ppm	111.5 %	.7250	.0687	.1619		
V 2	.5279	ppm	2.600 %	.5190	.5437	.5211		
Zn3	.9349	ppm	1.636 %	.9445	.9172	.9429		

*** Check Standard: 2 Ck2 Seq: 67 16:09:22 24 Mar 1994 ICP

Line	Flag	%Rcv.	Found	True	Units		SD/RSD
Ag1		104.9	1.049	1.000	ppm		.2529 %
Al3		105.6	5.280	5.000	ppm		.0636 %
Ba1		99.34	.9934	1.000	ppm		.1834 %
Be2	100.6 L	20.12	1.006	~~5.000~~	ppm	1.00	.3232 %
Ca3		99.16	49.58	50.00	ppm		.3436 %
Cd1		106.9	1.069	1.000	ppm		.5057 %
Co1		105.5	5.274	5.000	ppm		.6664 %
Cr4		103.9	5.193	5.000	ppm		.2215 %
Cu1		101.8	5.088	5.000	ppm		.1884 %
Fe2		101.8	5.092	5.000	ppm		.5953 %
K 1	1039 H	1039.	51.95	~~5.000~~	ppm	50.0	.2746 %
Mg4		102.4	51.18	50.00	ppm		.2534 %
Mn1	101.9 L	20.38	1.019	~~5.000~~	ppm	1.00	.3615 %
Na2		104.2	5.209	5.000	ppm		.4440 %
Ni3		101.8	5.092	5.000	ppm		.4289 %
Pb1		101.8	5.088	5.000	ppm		.8054 %
Sb1		104.8	5.239	5.000	ppm		2.149 %
Tl1		106.5	5.325	5.000	ppm		2.181 %
V 2		109.0	5.448	5.000	ppm		.5556 %
Zn3	L	20.93	1.046	~~5.000~~	ppm	1.00	.5987 %

104.8%

cc 3/25

Line	Conc.	Units	SD/RSD	1	2	3	4	5

*** Check Standard: 3 Ck3 Seq: 68 16:12:43 24 Mar 1994 ICP

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Ag1		-53.55	-.0054	.0100	ppm	-51.01%
Al3		5.367	.0054	.1000	ppm	105.2 %
Ba1		11.70	.0006	.0050	ppm	10.21 %
Be2		11.71	.0006	.0050	ppm	48.26 %
Ca3		7.256	.0363	.5000	ppm	13.68 %
Cd1		23.02	.0012	.0050	ppm	67.11 %
Co1		-17.73	-.0089	.0500	ppm	-93.75%
Cr4		-3.168	-.0003	.0100	ppm	-290.3%
Cu1		-2.101	-.0004	.0200	ppm	-112.4%
Fe2		68.61	.0343	.0500	ppm	6.168 %
K 1		-26.91	-.2691	1.000	ppm	-37.82%
Mg4		6.381	.0319	.5000	ppm	26.31 %
Mn1		-2.670	-.0003	.0100	ppm	-122.0%
Na2		-1.745	-.0087	.5000	ppm	-26.65%
Ni3		-10.15	-.0041	.0400	ppm	-138.8%
Pb1		26.93	.0135	.0500	ppm	232.9 %
Sb1		-3.635	-.0022	.0600	ppm	-1264.%
Tl1		-18.21	-.0364	.2000	ppm	-370.9%
V 2		35.56	.0178	.0500	ppm	19.10 %
Zn3		-2.473	-.0002	.0100	ppm	-507.2%

PRECISION DUPLICATE ICP METALS QUALITY CONTROL WORKSHEET

ANALYST: M. MILLER
DATE: 03/24/94

Job #	Original Result	Analytic Result #2	High or Low	Rel. % Diff.	Matrix	Dilut'n	In Limits Low	In Limits High	Data Flag
Ba soil samples		MDL: 2.00			unit: ug/g				
840-1S	1968 ~~1970~~	1460	High	29.7	soil	1	---	Y *	
823-1S	36.8 45.7	47.0	High	2.8	soil	1	---	Y	
Cd soil samples		MDL: 0.50			unit: ug/g				
823-1S	.544	U	Low	NC	soil	1	---	---	
Cr soil samples		MDL: 1.00			unit: ug/g				
823-1S	13.0	13.6	High	4.5	soil	1	---	Y	
Cu soil samples		MDL: 2.00			unit: ug/g				
823-1S	77.6	79.9	High	2.9	soil	1	---	Y	

MATRIX SPIKE ICP METALS QUALITY CONTROL WORKSHEET

ANALYST: M. MILLER
DATE: 03/24/94

Job #	Original Result	mls. of spk added	Sample Vol/Wgt	mg/L of Spike	Spiked Sample	Percent Recover	In Limits (y or n)	Data Flag
Ba soil	samples	MDL: 2.00		unit: ug/g		[spk sol.]=200 mg/L		
840-1S	1960 ~~1970~~	1.00	1.02	196	1730	V	----	
823-1S	45.7	1.00	1.06	189	249	107.6	Y	
Cd soil	samples	MDL: 0.50		unit: ug/g		[spk sol.]=5.00 mg/L		
823-1S	.544	1.00	1.06	4.72	4.81	90.4	Y	
Cr soil	samples	MDL: 1.00		unit: ug/g		[spk sol.]=20.0 mg/L		
823-1S	13.0	1.00	1.06	18.9	37.4	129.1	N	
Cu soil	samples	MDL: 2.00		unit: ug/g		[spk sol.]=25.0 mg/L		
823-1S	77.6	1.00	1.06	23.6	100	94.9	Y	

BLANK SPIKE ICP METALS QUALITY CONTROL WORKSHEET

ANALYST: M. MILLER
DATE: 03/24/94

	Blk Ave. Less Than (mg/L)	mls. of spk added (mg/L)	Sample Volume (mls)	mg/L of Spike	Spiked Sample (mg/L)	Percent Recover	Within Limits (y or n)	Data Flag
Al	MDL:10.00			unit: ug/g				
Blk Spike	10.0	1.00	1.00	4800	5000	104.2		
Ba	MDL:2.00			unit: ug/g				
Blk Spike	2.00	1.00	1.00	276	307	111.2		
Blk Spike	2.00	1.00	1.00	276	302	109.4		
Blk Spike	2.00	1.00	1.01	276	300	108.7		
Be	MDL:0.50			unit: ug/g				
Blk Spike	1.00	1.00	1.00	95.1	98.6	103.7		
Ca	MDL:50.00			unit: ug/g				
Blk Spike	50.0	1.00	1.00	3680	3970	107.9		
Cd	MDL:0.50			unit: ug/g				
Blk Spike	1.00	1.00	1.00	102	107	104.9		
Blk Spike	1.00	1.00	1.01	102	109	106.8		
Co	MDL:5.00			unit: ug/g				
Blk Spike	5.00	1.00	1.00	95.8	107	111.7		

(continued)
BLANK SPIKE ICP METALS QUALITY CONTROL WORKSHEET

ANALYST: M. MILLER
DATE: 03/24/94

	Blk Ave. Less Than (mg/L)	mls. of spk added (mg/L)	Sample Volume (mls)	mg/L of Spike	Spiked Sample (mg/L)	Percent Recover	Within Limits (y or n)	Data Flag
Cr	MDL:1.00		unit: ug/g					
Blk Spike	1.00	1.00	1.00	154	172	111.7		
Blk Spike	1.00	1.00	1.01	154	180	117.0		
Cu	MDL:2.00		unit: ug/g					
Blk Spike	2.00	1.00	1.00	119	130	109.2		
Blk Spike	2.00	1.00	1.01	119	130	109.0		
Fe	MDL:5.00		unit: ug/g					
Blk Spike	5.00	1.00	1.00	8640	8550	99.0		

REFERENCE STANDARD ICP METALS QUALITY CONTROL WORKSHEET

ANALYST: M. MILLER
DATE: 03/24/94

	True Valu	Result (mg/L)	% Recovery	In Limits (y/n)
Al	unit: mg/L			
Ref Std	5.00	5.13	102.6	Y
Ref Std	5.00	5.18	103.6	Y
Ref Std	5.00	5.24	104.8	Y
Ref Std	5.00	5.28	105.6	Y
Ba	unit: mg/L			
Ref Std	1.00	.989	98.9	Y
Ref Std	1.00	.994	99.4	Y
Ref Std	1.00	.983	98.3	Y
Ref Std	1.00	.993	99.3	Y
Be	unit: mg/L			
Ref Std	1.00	1.02	102.0	Y
Ref Std	1.00	1.01	101.0	Y
Ref Std	1.00	.997	99.7	Y
Ref Std	1.00	1.01	101.0	Y
Ca	unit: mg/L			
Ref Std	50.0	49.8	99.6	Y
Ref Std	50.0	49.8	99.6	Y
Ref Std	50.0	49.6	99.2	Y
Ref Std	50.0	49.6	99.2	Y
Cd	unit: mg/L			
Ref Std	1.00	1.05	105.0	Y
Ref Std	1.00	1.06	106.0	Y
Ref Std	1.00	1.08	108.0	Y
Ref Std	1.00	1.07	107.0	Y
Co	unit: mg/L			
Ref Std	5.00	5.13	102.6	Y
Ref Std	5.00	5.23	104.6	Y
Ref Std	5.00	5.30	106.0	Y
Ref Std	5.00	5.27	105.4	Y

(continued)
REFERENCE STANDARD ICP METALS QUALITY CONTROL WORKSHEET

ANALYST: M. MILLER
DATE: 03/24/94

	True Valu	Result (mg/L)	% Recovery	In Limits (y/n)
Cr	unit: mg/L			
Ref Std	5.00	5.20	104.0	Y
Ref Std	5.00	5.19	103.8	Y
Ref Std	5.00	5.17	103.4	Y
Ref Std	5.00	5.19	103.8	Y
Cu	unit: mg/L			
Ref Std	5.00	5.02	100.4	Y
Ref Std	5.00	5.06	101.2	Y
Ref Std	5.00	5.09	101.8	Y
Ref Std	5.00	5.09	101.8	Y
Fe	unit: mg/L			
Ref Std	5.00	5.14	102.8	Y
Ref Std	5.00	5.16	103.2	Y
Ref Std	5.00	5.16	103.2	Y
Ref Std	5.00	5.09	101.8	Y

PRECISION DUPLICATE ICP METALS QUALITY CONTROL WORKSHEET

ANALYST: M. MILLER
DATE: 03/24/94

Job #	Original Result	Analytic Result #2	High or Low	Rel. % Diff.	Matrix	Dilut'n	In Limits Low	In Limits High	Data Flag
Mn soil samples		MDL: 1.00			unit: ug/g				
823-1S	233	240	High	3.0	soil	1	---	Y	
Pb soil samples		MDL: 5.00			unit: ug/g				
823-1S	255	259	High	1.6	soil	1	---	Y	

MATRIX SPIKE ICP METALS QUALITY CONTROL WORKSHEET

ANALYST: M. MILLER
DATE: 03/24/94

Job #	Original Result	mls. of spk added	Sample Vol/Wgt	mg/L of Spike	Spiked Sample	Percent Recover	In Limits (y or n)	Data Flag
Mn soil samples	MDL: 1.00			unit: ug/g		[spk sol.]=50.0 mg/L		
823-1S	233	1.00	1.06	47.2	272	V	----	
Pb soil samples	MDL: 5.00			unit: ug/g		[spk sol.]=50.0 mg/L		
823-1S	255	1.00	1.06	47.2	257	V	----	

BLANK SPIKE ICP METALS QUALITY CONTROL WORKSHEET

ANALYST: M. MILLER
DATE: 03/24/94

	Blk Ave. Less Than (mg/L)	mls. of spk added (mg/L)	Sample Volume (mls)	mg/L of Spike	Spiked Sample (mg/L)	Percent Recover	Within Limits (y or n)	Data Flag
K	MDL:100.00			unit: ug/g				
Blk Spike	100	1.00	1.00	2200	2600	118.2		
Mg	MDL:50.00			unit: ug/g				
Blk Spike	50.0	1.00	1.00	1830	2020	110.4		
Mn	MDL:1.00			unit: ug/g				
Blk Spike	1.00	1.00	1.00	191	221	115.7		
Blk Spike	1.00	1.00	1.01	191	228	119.2		
Ni	MDL:4.00			unit: ug/g				
Blk Spike	4.00	1.00	1.00	163	175	107.4		
Pb	MDL:5.00			unit: ug/g				
Blk Spike	5.00	1.00	1.00	147	158	107.5		
Blk Spike	5.00	1.00	1.01	147	159	108.4		
Sb	MDL:10.00			unit: ug/g				
Blk Spike	10.0	1.00	1.00	43.9	32.9	74.9		

(continued)
BLANK SPIKE ICP METALS QUALITY CONTROL WORKSHEET

ANALYST: M. MILLER
DATE: 03/24/94

	Blk Ave. Less Than (mg/L)	mls. of spk added (mg/L)	Sample Volume (mls)	mg/L of Spike	Spiked Sample (mg/L)	Percent Recover	Within Limits (y or n)	Data Flag
V	MDL:5.00		unit: ug/g					
Blk Spike	5.00	1.00	1.00	81.8	92.3	112.8		
Zn	MDL:1.00		unit: ug/g					
Blk Spike	1.00	1.00	1.00	120	127	105.8		

REFERENCE STANDARD ICP METALS QUALITY CONTROL WORKSHEET

ANALYST: M. MILLER
DATE: 03/24/94

	True Valu	Result (mg/L)	% Recovery	In Limits (y/n)
K	unit: mg/L			
Ref Std	50.0	51.1	102.2	Y
Ref Std	50.0	51.4	102.8	Y
Ref Std	50.0	52.3	104.6	Y
Ref Std	50.0	52.0	104.0	Y
Mg	unit: mg/L			
Ref Std	50.0	50.5	101.0	Y
Ref Std	50.0	51.0	102.0	Y
Ref Std	50.0	51.6	103.2	Y
Ref Std	50.0	51.2	102.4	Y
Mn	unit: mg/L			
Ref Std	1.00	1.02	102.0	Y
Ref Std	1.00	1.02	102.0	Y
Ref Std	1.00	1.03	103.0	Y
Ref Std	1.00	1.02	102.0	Y
Ni	unit: mg/L			
Ref Std	5.00	5.08	101.6	Y
Ref Std	5.00	5.08	101.6	Y
Ref Std	5.00	5.16	103.2	Y
Ref Std	5.00	5.09	101.8	Y
Pb	unit: mg/L			
Ref Std	5.00	5.04	100.8	Y
Ref Std	5.00	5.09	101.8	Y
Ref Std	5.00	5.18	103.6	Y
Ref Std	5.00	5.09	101.8	Y
Sb	unit: mg/L			
Ref Std	5.00	5.13	102.6	Y
Ref Std	5.00	5.08	101.6	Y
Ref Std	5.00	5.15	103.0	Y
Ref Std	5.00	5.24	104.8	Y

(continued)
REFERENCE STANDARD ICP METALS QUALITY CONTROL WORKSHEET

ANALYST: M. MILLER
DATE: 03/24/94

	True Valu	Result (mg/L)	% Recovery	In Limits (y/n)
V	unit: mg/L			
Ref Std	5.00	5.23	104.6	Y
Ref Std	5.00	5.35	107.0	Y
Ref Std	5.00	5.41	108.2	Y
Ref Std	5.00	5.45	109.0	Y
Zn	unit: mg/L			
Ref Std	1.00	1.04	104.0	Y
Ref Std	1.00	1.06	106.0	Y
Ref Std	1.00	1.03	103.0	Y
Ref Std	1.00	1.05	105.0	Y

ATTACHMENT C-2

ANALYTICAL RESULTS FROM MARCH 25, 1994 SAMPLING OF BARIUM WASTE EXCAVATION AND WHITE WASTE (TOTAL BARIUM)

General Testing Corporation

A Full Service Environmental Laboratory

APR. 5 1994

Mr. Darrin Constantini
Blasland Bouck Engineers PC
30 Corporate Woods, Suite 160
Rochester, New York 14623

Re: TAM Ceramics
File 163.02 #2

Dear Mr. Darrin Constantine

Enclosed are the results of the analysis requested. The Analytical Data was provided to you on 03/28/94 per a Facsimile transmittal. All data has been reviewed prior to report submission.

Should you have any questions please contact me at 454-3760.

Thank you for letting us provide this service.

Sincerely,

GENERAL TESTING CORPORATION

Janice Jaeger
Customer Service Representative

Enc.

710 Exchange Street • Rochester, NY 14608 • Tele: (716) 454-3760 • (716) 454-1245
85 Trinity Place • Hackensack, NJ 07601 • Tele: (201) 488-5242 • Fax: (201) 488-6386
435 Lawrence Bell Drive • Amherst, NY 14221 • Tele: (716) 634-0454 • Fax: (716) 634-9019
1201 E. Fayette Street, Suite 42 • Syracuse, NY 13210 • Tele: (315) 471-0936 • Fax: (315) 471-0943

General Testing Corporation

A Full Service Environmental Laboratory

Effective 10/1/91

GTC LIST OF QUALIFIERS

(The basis of this proposal are the EPA-CLP Qualifiers)

U - Indicates compound was analyzed for but was not detected. The sample quantitation limit must be corrected for dilution and for percent moisture.

J - Indicates an estimated value. For further explanation see case narrative / cover letter.

B - This flag is used when the analyte is found in the associated blank as well as in the sample.

E - This flag identifies compounds whose concentrations exceed the calibration range and reanalysis could not be performed.

A - This flag indicates that a TIC is a suspected aldol-condensation product.

N - Spiked sample recovery not within control limits. (Flag the entire batch - Inorganic analytes only)

* - Duplicate analysis not within control limits. (Flag the entire batch - Inorganic analysis only)

- Also used to qualify Organics QC data outside limits. (Only used on the QC summary sheets)

M - Duplication injection precision not met (GFA only).

S - Reported value determined by Method of Standard Additions. (MSA)

X - As specified in the case narrative.

General Testing Corporation

CASE NARRATIVE

COMPANY: Blasland Bouck Engineers PC
TAM Ceramics-File 163.02
JOB #: R94/00993

INORGANIC ANALYSIS

BBE soil samples were analyzed for Barium using SW-846 ICP method 6010.

No analytical or QC problems were encountered.

General Testing Corporation

A Full Service Environmental Laboratory

LABORATORY REPORT

Job No: R94/00993 Date: APR. 5 1994

Client:
Mr. Darrin Constantini
Blasland Bouck Engineers PC
30 Corporate Woods, Suite 160
Rochester, New York 14623

Sample(s) Reference
TAM Ceramics
File 163.02 #2

Received : 03/25/94 P.O. #:

ANALYTICAL RESULTS - ug/g Dry Wt.

Sample:		-001	-002		
Location:		5 GRAB COMPOSITE	3 GRAB COMPOSITE		
Date Collected:	PQL	03/25/94	03/25/94		
Time Collected:		12:30-12:50	13:30-13:40		
Solids, %		82.5	81.4		
Barium	2.00	185	225		

Laboratory Director

000991

General Testing Corporation

A Full Service Environmental Laboratory

LABORATORY REPORT

Job No: R94/00993 Date: APR. 5 1994

Client:

Blasland Bouck Engineers PC

Sample(s) Reference

TAM Ceramics
File 163.02 #2

Date Received: 03/25/94

Date Sample Taken: 03/25/94

LABORATORY CHRONICLE
DATE ANALYZED

Sample:	-001	-002
Location:	5 GRAB COMPOSITE	3 GRAB COMPOSITE
Solids, %	03/28/94	03/28/94
Barium	03/28/94	03/28/94
Dilution:	1	1

000001

GENERAL TESTING CORPORATION / CHAIN-OF-CUSTODY RECORD

710 Exchange St. Rochester, NY 14608 | 1201 E. Fayette St. Syracuse, NY 13210 | 85 Trinity Place Hackensack, NJ 07601 | 435 Lawrence Bell Dr. Amherst, NY 14221-7077

GTC Job. No. R94193
Client Project No. 163.02

Sample Origination & Shipping Information

Collection Site TAM Ceramics
Address 4511 Hyde Park Blvd (Street) Niagara Falls (City) NY (State) (Zip)
Collector Darrin Costantini (Print) (Signature)

Bottles Prepared by GTC
Bottles Shipped to Client via Hand delivered
Samples Shipped via Hand delivered
Rec'd by BB&L
Seal/Shipping #
Seal/Shipping # 33574 DJC

Sample(s) Relinquished by:	Received by:	Date//Time
1. Sign [signature] for BB&L	1. Sign [signature] for	3/25/94 16:52
2. Sign	2. Sign	/ / :
for	for	
3. Sign	3. Sign	/ / :
for	for	

Sample(s) Received in Laboratory by Tom Hastings 3/25/94 @ 16:52

	Client I.D. # / Lab #	Sample Location / Date/Time	*	Analyte or Analyte Group(s) Required (see below for additional)	Sample Prep Preserved Y	Preserved N	Filtered Y	Filtered N	Bottle Set(s) (see below)
1	TAM-A / 1	Southeast / 3/25/94 : 12.30	S		✓			✓	3
2	TAM-B / 2	Southwest / 3/25/94 : 12.35		001 COMPOSITE					3
3	TAM-C / 3	Northwest / 3/25/94 : 12.40		DW-BC1 DW-To Solid					3
4	TAM-D / 4	Northeast / 3/25/94 : 12.45							3
5	TAM-E / 5	CENTER / 3/25/94 : 12.50	✓		✓			✓	3

Use Bottle No. for indicating type bottles used in each bottle set and fill in box with # of bottles used for each type.

Bottle No.	1	2	3	4	5	6	7	8	9	10	11
Bottle Type	40 ml Vial	Pint Glass	Qt. Glass	4 oz. Plastic	8 oz. Plastic	16 oz. Plastic	Qt. Pl.	Gal. Pl.	Steril. Pl.		
# of each			1								

Additional Analytes 24-hour turnaround

Shaded area for Lab use only; bottom copy for client; maximum of 5 samples per page.

* Source Codes: Monitoring Well (W), Soil (S), Treatment Plant (T), Drinking Water (D), Leachate (L), Hazardous Waste (H), River or Stream (R), Pond (P), Industrial Discharge (I), _____(X), _____(Y).

GENERAL TESTING CORPORATION / CHAIN-OF-CUSTODY RECORD

710 Exchange St. Rochester, NY 14608 | 1201 E. Fayette St. Syracuse, NY 13210 | 85 Trinity Place Hackensack, NJ 07601 | 435 Lawrence Bell Dr. Amherst, NY 14221-7077

GTC Job. No. R94/993
Client Project No. 163.02

Sample Origination & Shipping Information

Collection Site: TAM Ceramics
Address: 4511 Hyde Park Blvd (Street) Niagara Falls, NY (City, State) Zip:
Collector: DARRIN COSTANTINI (Print) D. Costantini (Signature)

Bottles Prepared by: GTC | Rec'd by: BB+L
Bottles Shipped to Client via: Road Runner | Seal/Shipping #:
Samples Shipped via: " " | Seal/Shipping #: 32594 DJC

Sample(s) Relinquished by:	Received by:	Date//Time
1. Sign D. Costantini	1. Sign [illegible]	3/25/94
for BB+L	for GTC	16:52
2. Sign	2. Sign	/ /
for	for	:
3. Sign	3. Sign	/ /
for	for	:

Sample(s) Received in Laboratory by: Tom Hastings 3/25/94 @16:52

	Client I.D. # / Lab #	Sample Location / Date/Time	*	Analyte or Analyte Group(s) Required (see below for additional)	Preserved Y	Preserved N	Filtered Y	Filtered N	Bottle Set(s) (see below)
1	THM-F	Pit - Southeast	S		✓		✓		3
	6	3/25/94 : 1:35		002					
2	THM-G	Pit - Southwest		COMPOSITE	✓		✓		3
	7	3/25/94 : 1:35		DW Ba					
3	THM-H	Pit - North		DW % solids	✓		✓		3
	8	3/25/94 : 1:45							
4									
		/ / :							
5									
		/ / :							

Use Bottle No. for indicating type bottles used in each bottle set and fill in box with # of bottles used for each type.

Bottle No.	1	2	3	4	5	6	7	8	9	10	11
Bottle Type	40 ml Vial	Pint Glass	Qt. Glass (4 oz)	4 oz. Plastic	8 oz. Plastic	16 oz. Plastic	Qt. Pl.	Gal. Pl.	Steril. Pl.		
# of each			1								

Additional Analytes: 24-hour turnaround

Shaded area for Lab use only; bottom copy for client; maximum of 5 samples per page.

* Source Codes: Monitoring Well (W), Soil (S), Treatment Plant (T), Drinking Water (D), Leachate (L), Hazardous Waste (H), River or Stream (R), Pond (P), Industrial Discharge (I), ____________(X), ____________(Y).

R

SDG # JOB# R94/993-001 DATE/TIME REC'D 3/25/94 16:52

PARAMETERS	FRACTION ID	VOLUME	RELINQUISHED BY	RECEIVED BY	DATE	TIME
DWBa		96.779	Tom Hastings	[illegible]	3/28/94	9:00
		95.0	[illegible]	[illegible]	3/28/94	9:00

000006

R

SDG # JOB# R94/993-002 DATE/TIME REC'D 3/25/94 16:52

PARAMETERS	FRACTION ID	VOLUME	RELINQUISHED BY	RECEIVED BY	DATE	TIME
DWBa		68.95	Tom Hastings	[illegible]	3/25/94	09:00
		67.00	[illegible]	[illegible]	3/28/94	09:00

000009

R

SDG # JOB# R94/993-001 DATE/TIME REC'D

PARAMETERS	FRACTION ID	VOLUME	RELINQUISHED BY	RECEIVED BY	DATE	TIME
DWPS		65.30g	Tom Hastings	BB	3/28/94	09:15
		45.00g	BB	BB	3/28/94	10:00

000001

R

SDG # JOB# R94/993-002 DATE/TIME REC'D 03/28/94 16:52

PARAMETERS	FRACTION ID	VOLUME	RELINQUISHED BY	RECEIVED BY	DATE	TIME
DWPS		71.72g	Tom Hastings	BB	3/28/94	09:15
		61.60g	BB	BB	3/28/94	10:00

Laboratory Support Documentation

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Standard: 1 Rep: 1				Seq: 2		10:45:44 28 Mar 1994 ICP		
Al3	.0000	ppm		1648	-996	1764		
			Ave. Int. =	805	S. D. =	1561		
Ba1	.0000	ppm		6124	6166	4662		
			Ave. Int. =	5651	S. D. =	656		
Ca3	.0000	ppm		41605	40063	39943		
			Ave. Int. =	40537	S. D. =	927		
Fe2	.0000	ppm		726	-3327	-3588		
			Ave. Int. =	-2063	S. D. =	2419		
Mg4	.0000	ppm		-2104	178	-1505		
			Ave. Int. =	-1144	S. D. =	1183		
Pb1	.0000	ppm		3808	1384	2011		
			Ave. Int. =	2401	S. D. =	1258		
*** Standard: 1 Rep: 2				Seq: 3		10:46:31 28 Mar 1994 ICP		
Al3	.0000	ppm		-1548	-1104	-1068		
			Ave. Int. =	-1240	S. D. =	267		
Ba1	.0000	ppm		6606	6245	5366		
			Ave. Int. =	6072	S. D. =	638		
Ca3	.0000	ppm		42422	48714	50174		
			Ave. Int. =	47103	S. D. =	4119		
Fe2	.0000	ppm		-3044	-248	517		
			Ave. Int. =	-925	S. D. =	1875		
Mg4	.0000	ppm		-3958	-177	-8		
			Ave. Int. =	-1381	S. D. =	2233		
Pb1	.0000	ppm		-347	-407	2105		
			Ave. Int. =	450	S. D. =	1433		
*** Standard: 2 Rep: 1				Seq: 4		10:49:51 28 Mar 1994 ICP		
Al3	1.000	ppm		129346	132988	137390		
			Ave. Int. =	133241	S. D. =	4028		
Ba1	.5000	ppm		1439431	1452254	1454986		
			Ave. Int. =	1448890	S. D. =	8305		
Ca3	10.00	ppm		43817	42609	42929		
			Ave. Int. =	43118	S. D. =	626		
Fe2	1.000	ppm		741272	746959	748492		
			Ave. Int. =	745574	S. D. =	3804		
Mg4	10.00	ppm		518532	529740	522161		
			Ave. Int. =	523478	S. D. =	5719		
Pb1	1.000	ppm		53908	54579	57597		
			Ave. Int. =	55361	S. D. =	1965		

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Standard: 2 Rep: 2			Seq: 5		10:50:38 28 Mar 1994 ICP			
Al3	1.000	ppm		131125	135171	133578		
			Ave. Int. =	133291	S. D. =	2038		
Ba1	.5000	ppm		1456300	1471225	1471650		
			Ave. Int. =	1466392	S. D. =	8742		
Ca3	10.00	ppm		42263	42034	44355		
			Ave. Int. =	42884	S. D. =	1279		
Fe2	1.000	ppm		745349	748455	745206		
			Ave. Int. =	746337	S. D. =	1836		
Mg4	10.00	ppm		521380	524350	523030		
			Ave. Int. =	522920	S. D. =	1488		
Pb1	1.000	ppm		54348	55433	56721		
			Ave. Int. =	55501	S. D. =	1188		
*** Standard: 3 Rep: 1			Seq: 6		10:53:58 28 Mar 1994 ICP			
Al3	10.00	ppm		1299534	1295059	1305921		
			Ave. Int. =	1300171	S. D. =	5459		
Ba1	2.000	ppm		5715703	5754694	5764214		
			Ave. Int. =	5744870	S. D. =	25704		
Ca3	100.0	ppm		69003	69650	69791		
			Ave. Int. =	69481	S. D. =	420		
Fe2	10.00	ppm		7188926	7226838	7212420		
			Ave. Int. =	7209395	S. D. =	19136		
Mg4	100.0	ppm		5372166	5360722	5346750		
			Ave. Int. =	5359879	S. D. =	12729		
Pb1	10.00	ppm		523512	519666	524461		
			Ave. Int. =	522546	S. D. =	2539		
*** Standard: 3 Rep: 2			Seq: 7		10:54:45 28 Mar 1994 ICP			
Al3	10.00	ppm		1294048	1297925	1294760		
			Ave. Int. =	1295578	S. D. =	2064		
Ba1	2.000	ppm		5702424	5746921	5760641		
			Ave. Int. =	5736662	S. D. =	30434		
Ca3	100.0	ppm		67920	67656	68123		
			Ave. Int. =	67900	S. D. =	234		
Fe2	10.00	ppm		7182200	7174854	7189078		
			Ave. Int. =	7182044	S. D. =	7113		
Mg4	100.0	ppm		5329049	5319823	5317463		
			Ave. Int. =	5322112	S. D. =	6123		
Pb1	10.00	ppm		511747	517683	518172		
			Ave. Int. =	515867	S. D. =	3577		

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: ICV		28-1	Seq: 9		11:07:21 28 Mar 1994 ICP			
Al3	9.706	ppm	.2672 %	9.694	9.688	9.736		
Ba1	9.921	ppm	.3021 %	9.944	9.887	9.931		
Fe2	4.936	ppm	.2641 %	4.949	4.923	4.937		
Mg4	48.22	ppm	.2073 %	48.32	48.13	48.21		
Pb1	1.007	ppm	1.909 %	1.027	1.006	.9887		
*** Sample ID: ICB		28-1	Seq: 10		11:10:33 28 Mar 1994 ICP			
Al3	-.0261 L	ppm	-43.42%	-.0247	-.0380	-.0155		
Ba1	.0215	ppm	2.174 %	.0212	.0213	.0220		
Fe2	-.0089 L	ppm	-26.86%	-.0108	-.0097	-.0062		
Mg4	.0906 L	ppm	4.129 %	.0863	.0925	.0929		
Pb1	-.0104 L	ppm	-294.3%	.0133	.0004	-.0449		
*** Sample ID: BLK		28-1	Seq: 11		11:13:45 28 Mar 1994 ICP			
Al3	-.0272 L	ppm	-8.873%	-.0296	-.0272	-.0248		
Ba1	.0098	ppm	3.852 %	.0101	.0099	.0094		
Fe2	-.0169 L	ppm	-14.12%	-.0167	-.0147	-.0195		
Mg4	.0662 L	ppm	33.32 %	.0836	.0414	.0737		
Pb1	-.0199 L	ppm	-46.70%	-.0279	-.0097	-.0219		
*** Sample ID: CRII		28-1	Seq: 13		11:16:57 28 Mar 1994 ICP			
Al3	-.0274 L	ppm	-37.84%	-.0240	-.0390	-.0191		
Ba1	.0037 L	ppm	2.058 %	.0037	.0036	.0038		
Fe2	-.0191 L	ppm	-6.257%	-.0203	-.0179	-.0193		
Mg4	.0335 L	ppm	18.85 %	.0287	.0407	.0313		
Pb1	.0762	ppm	21.06 %	.0586	.0800	.0901		
*** Sample ID: PBS 3/18		28-1	Seq: 14		11:20:09 28 Mar 1994 ICP			
Al3	-.0317 L	ppm	-31.51%	-.0333	-.0408	-.0210		
Ba1	.0056	ppm	4.045 %	.0058	.0056	.0054		
Fe2	.3341	ppm	.6690 %	.3365	.3336	.3322		
Mg4	.0859 L	ppm	28.34 %	.0986	.1013	.0578		
Pb1	-.0266 L	ppm	-31.57%	-.0207	-.0363	-.0230		
*** Sample ID: BLK		28-1	Seq: 15		11:23:21 28 Mar 1994 ICP			
Al3	-.0430 L	ppm	-49.72%	-.0585	-.0186	-.0520		
Ba1	.0014 L	ppm	5.508 %	.0014	.0014	.0015		
Fe2	-.0203 L	ppm	-7.823%	-.0190	-.0199	-.0221		
Mg4	-.0159 L	ppm	-124.0%	-.0385	-.0062	-.0029		
Pb1	.0014 L	ppm	1821. %	.0244	-.0257	.0055		

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: LCSS 3/18 28-1			Seq: 17	11:26:33 28 Mar 1994 ICP				
Al3	27.80	ppm	.2838 %	27.86	27.82	27.71		
Ba1	1.600	ppm	.2020 %	1.603	1.598	1.598		
Fe2	47.66	ppm	.2982 %	47.78	47.69	47.50		
Mg4	10.54	ppm	.9129 %	10.65	10.48	10.49		
Pb1	.8125	ppm	.6358 %	.8083	.8110	.8183		
*** Sample ID: CAL STD 28-1			Seq: 18	11:29:45 28 Mar 1994 ICP				
Al3	9.990	ppm	.0797 %	9.987	10.00	9.985		
Ba1	1.991	ppm	.1088 %	1.988	1.991	1.993		
Fe2	10.07	ppm	.1317 %	10.09	10.08	10.06		
Mg4	102.2	ppm	.1763 %	102.2	102.3	102.0		
Pb1	10.11	ppm	.1820 %	10.09	10.12	10.13		
*** Sample ID: ICSAI 28-1			Seq: 19	11:32:57 28 Mar 1994 ICP				
Al3	487.0	ppm	.2425 %	488.3	486.9	485.9		
Ba1	.0054	ppm	4.634 %	.0057	.0052	.0054		
Fe2	181.4	ppm	.2096 %	181.8	181.5	181.0		
Mg4	525.2	ppm	.1347 %	526.0	525.0	524.6		
Pb1	.0319 L	ppm	144.0 %	.0680	-.0198	.0476		
*** Sample ID: ICSABI 28-1			Seq: 21	11:36:09 28 Mar 1994 ICP				
Al3	485.8	ppm	.3753 %	486.7	487.0	483.7		
Ba1	.4833	ppm	.4727 %	.4842	.4850	.4807		
Fe2	182.6	ppm	.2851 %	183.2	182.6	182.1		
Mg4	527.5	ppm	.2598 %	529.0	527.4	526.2		
Pb1	.9704	ppm	1.917 %	.9585	.9608	.9918		

*** Check Standard: 2 Ck2 Seq: 22 11:39:25 28 Mar 1994 ICP

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Al3	H	120.7	6.036	5.000	ppm	.6731 %
Ba1		101.0	1.010	1.000	ppm	.5350 %
Fe2	H	112.0	5.602	5.000	ppm	.3665 %
Mg4		102.8	51.42	50.00	ppm	.2992 %
Pb1		102.0	5.101	5.000	ppm	.6561 %

*** Check Standard: 3 Ck3 Seq: 23 11:42:43 28 Mar 1994 ICP

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Al3		505.2	.5052	.1000	ppm	8.596 %
Ba1		57.83	.0029	.0050	ppm	6.837 %
Fe2		433.1	.2166	.0500	ppm	5.197 %
Mg4		135.8	.6791	.5000	ppm	2.752 %
Pb1		-8.033	-.0040	.0500	ppm	-812.8%

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: 755-1		28-1		Seq: 24		11:45:57 28 Mar 1994 ICP		
Al3	28.34	ppm	.9176 %	28.24	28.64	28.15		
Ba1	.5300	ppm	1.039 %	.5278	.5363	.5260		
Fe2	61.34	ppm	.6379 %	61.25	61.77	61.00		
Mg4	44.54	ppm	.6851 %	44.52	44.85	44.24		
Pb1	.3651	ppm	6.411 %	.3396	.3702	.3855		
*** Sample ID: 755-2		28-1		Seq: 25		11:49:10 28 Mar 1994 ICP		
Al3	34.79	ppm	1.045 %	34.50	35.20	34.68		
Ba1	1.382	ppm	1.143 %	1.370	1.400	1.376		
Fe2	234.7	ppm	.6373 %	233.4	236.3	234.5		
Mg4	64.23	ppm	.3339 %	63.99	64.41	64.29		
Pb1	8.941	ppm	.0422 %	8.937	8.944	8.943		
*** Sample ID: 755-3		28-1		Seq: 27		11:52:23 28 Mar 1994 ICP		
Al3	27.77	ppm	.1058 %	27.81	27.75	27.76		
Ba1	5.324	ppm	.1171 %	5.330	5.323	5.318		
Fe2	1348. H	ppm	.3294 %	1352.	1347.	1343.		
Mg4	22.29	ppm	.0511 %	22.30	22.29	22.28		
Pb1	18.60	ppm	.5103 %	18.71	18.57	18.53		
*** Sample ID: 755-4		28-1		Seq: 28		11:55:36 28 Mar 1994 ICP		
Al3	74.02	ppm	.5183 %	74.11	74.35	73.59		
Ba1	18.61	ppm	.6284 %	18.66	18.69	18.47		
Fe2	573.1 H	ppm	.3168 %	573.9	574.3	571.0		
Mg4	92.70	ppm	.2154 %	92.72	92.88	92.48		
Pb1	10.34	ppm	1.141 %	10.22	10.45	10.37		
*** Sample ID: 755-5		28-1		Seq: 29		11:58:49 28 Mar 1994 ICP		
Al3	29.98	ppm	.4925 %	30.05	30.08	29.81		
Ba1	2.024	ppm	.5767 %	2.030	2.033	2.011		
Fe2	651.4 H	ppm	.3369 %	651.0	653.7	649.4		
Mg4	58.17	ppm	.2908 %	58.05	58.37	58.10		
Pb1	17.32	ppm	.3123 %	17.26	17.37	17.32		
*** Sample ID: 755-6		28-1		Seq: 31		12:02:00 28 Mar 1994 ICP		
Al3	24.81	ppm	.5800 %	24.65	24.93	24.86		
Ba1	2.566	ppm	.5047 %	2.552	2.578	2.568		
Fe2	990.1 H	ppm	.2991 %	986.7	992.3	991.3		
Mg4	22.11	ppm	.2925 %	22.04	22.12	22.16		
Pb1	28.51	ppm	.3059 %	28.42	28.52	28.60		

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: 755-7		28-1	Seq: 32		12:05:08 28 Mar 1994 ICP			
Al3	55.65	ppm	.5197 %	55.32	55.83	55.80		
Ba1	.3906	ppm	.4274 %	.3888	.3911	.3920		
Fe2	151.2	ppm	.1061 %	151.0	151.3	151.3		
Mg4	49.19	ppm	.2105 %	49.28	49.08	49.20		
Pb1	.5310	ppm	3.580 %	.5516	.5141	.5274		
*** Sample ID: 755-7D		28-1	Seq: 33		12:08:16 28 Mar 1994 ICP			
Al3	65.93	ppm	.2747 %	65.96	65.73	66.09		
Ba1	.4375	ppm	.2764 %	.4382	.4361	.4382		
Fe2	139.5	ppm	.1416 %	139.6	139.3	139.7		
Mg4	59.79	ppm	.2527 %	59.88	59.62	59.87		
Pb1	.3480	ppm	11.42 %	.3310	.3196	.3934		
*** Sample ID: 755-7S		28-1	Seq: 35		12:11:24 28 Mar 1994 ICP			
Al3	47.68	ppm	.7697 %	48.10	47.50	47.43		
Ba1	.4498	ppm	.7515 %	.4536	.4482	.4474		
Fe2	113.7	ppm	.5863 %	114.4	113.4	113.2		
Mg4	66.35	ppm	.4083 %	66.66	66.15	66.24		
Pb1	1.318	ppm	3.725 %	1.374	1.280	1.302		
*** Sample ID: 755-7A		28-1	Seq: 36		12:14:32 28 Mar 1994 ICP			
Al3	52.43	ppm	.5254 %	52.51	52.13	52.66		
Ba1	2.179	ppm	.4975 %	2.184	2.167	2.187		
Fe2	135.4	ppm	.2981 %	135.8	135.0	135.6		
Mg4	53.89	ppm	.3206 %	54.08	53.75	53.84		
Pb1	.9205	ppm	.8308 %	.9247	.9116	.9251		

*** Check Standard: 2 Ck2 Seq: 37 12:17:44 28 Mar 1994 ICP

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Al3		102.0	5.099	5.000	ppm	.2630 %
Ba1		101.4	1.014	1.000	ppm	.9469 %
Fe2	H	112.3	5.616	5.000	ppm	.4996 %
Mg4		99.60	49.80	50.00	ppm	.7513 %
Pb1		101.8	5.091	5.000	ppm	1.218 %

*** Check Standard: 3 Ck3 Seq: 38 12:21:01 28 Mar 1994 ICP

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Al3		45.89	.0459	.1000	ppm	10.91 %
Ba1		87.21	.0044	.0050	ppm	5.777 %
Fe2		529.9	.2650	.0500	ppm	.7998 %
Mg4		38.01	.1900	.5000	ppm	14.41 %
Pb1		-12.16	-.0061	.0500	ppm	-124.7%

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: 755-7L		28-1	Seq: 39	12:24:14 28 Mar 1994 ICP				
Al3	11.17	ppm	.6126 %	11.16	11.10	11.24		
Ba1	.0794	ppm	.3346 %	.0796	.0791	.0795		
Fe2	30.25	ppm	.1095 %	30.27	30.21	30.26		
Mg4	9.923	ppm	.2881 %	9.912	9.955	9.901		
Pb1	.0833	ppm	28.99 %	.0719	.1110	.0670		
*** Sample ID: 755-8		28-1	Seq: 41	12:27:23 28 Mar 1994 ICP				
Al3	55.02	ppm	.7280 %	54.96	54.64	55.44		
Ba1	4.774	ppm	.8298 %	4.776	4.734	4.813		
Fe2	561.8 H	ppm	.2941 %	562.2	560.0	563.3		
Mg4	26.66	ppm	.1549 %	26.70	26.61	26.66		
Pb1	37.30	ppm	.1893 %	37.35	37.22	37.34		
*** Sample ID: 755-9		28-1	Seq: 42	12:30:32 28 Mar 1994 ICP				
Al3	22.98	ppm	.7606 %	23.18	22.90	22.86		
Ba1	4.228	ppm	.8441 %	4.268	4.214	4.201		
Fe2	1185. H	ppm	.5765 %	1192.	1184.	1178.		
Mg4	10.45	ppm	.6720 %	10.51	10.46	10.37		
Pb1	15.99	ppm	.6457 %	16.11	15.92	15.94		
*** Sample ID: 755-10		28-1	Seq: 43	12:33:41 28 Mar 1994 ICP				
Al3	3.938	ppm	.4950 %	3.937	3.958	3.920		
Ba1	.0752	ppm	.6563 %	.0747	.0752	.0757		
Fe2	28.53	ppm	.1955 %	28.57	28.47	28.56		
Mg4	25.59	ppm	.2019 %	25.56	25.56	25.65		
Pb1	.4389	ppm	7.043 %	.4458	.4051	.4657		
*** Sample ID: 755-11		28-1	Seq: 45	12:36:50 28 Mar 1994 ICP				
Al3	39.25	ppm	.4781 %	39.04	39.29	39.41		
Ba1	26.73	ppm	.5231 %	26.57	26.77	26.84		
Fe2	732.8 H	ppm	.4173 %	729.7	732.8	735.8		
Mg4	64.53	ppm	.4330 %	64.22	64.61	64.76		
Pb1	44.59	ppm	.6253 %	44.35	44.52	44.90		
*** Sample ID: 755-12		28-1	Seq: 46	12:39:59 28 Mar 1994 ICP				
Al3	28.69	ppm	.7483 %	28.46	28.89	28.73		
Ba1	6.268	ppm	.8597 %	6.213	6.321	6.270		
Fe2	160.9	ppm	.3067 %	160.4	161.4	161.0		
Mg4	40.15	ppm	.2803 %	40.04	40.27	40.15		
Pb1	16.66	ppm	.0951 %	16.67	16.65	16.64		

Line	Conc.	Units	SD/RSD	1	2	3	4	5

*** Sample ID: 755-13 28-1 Seq: 47 12:43:08 28 Mar 1994 ICP

Line	Conc.	Units	SD/RSD	1	2	3
Al3	36.16	ppm	.1132 %	36.12	36.17	36.20
Ba1	11.90	ppm	.1641 %	11.89	11.90	11.92
Fe2	397.0	ppm	.0470 %	397.2	396.9	396.8
Mg4	22.64	ppm	.4807 %	22.73	22.52	22.67
Pb1	50.18	ppm	.2920 %	50.07	50.13	50.35

*** Sample ID: 755-14 28-1 Seq: 49 12:46:17 28 Mar 1994 ICP

Line	Conc.	Units	SD/RSD	1	2	3
Al3	11.20	ppm	.3297 %	11.16	11.20	11.24
Ba1	4.013	ppm	.4752 %	3.991	4.025	4.023
Fe2	1528. H	ppm	.1273 %	1528.	1530.	1526.
Mg4	4.393	ppm	.9502 %	4.354	4.390	4.437
Pb1	14.01	ppm	.7148 %	13.91	14.11	14.00

*** Sample ID: 755-15 28-1 Seq: 50 12:49:27 28 Mar 1994 ICP

Line	Conc.	Units	SD/RSD	1	2	3
Al3	71.03	ppm	.3488 %	70.79	71.29	71.01
Ba1	1.003	ppm	.5058 %	.9991	1.009	1.002
Fe2	1392. H	ppm	.2319 %	1393.	1394.	1388.
Mg4	6.958	ppm	.5092 %	6.943	6.999	6.933
Pb1	3.392	ppm	.6342 %	3.368	3.397	3.410

*** Sample ID: 755-16 28-1 Seq: 51 12:52:37 28 Mar 1994 ICP

Line	Conc.	Units	SD/RSD	1	2	3
Al3	51.83	ppm	.7546 %	51.40	51.93	52.16
Ba1	12.05	ppm	1.046 %	11.92	12.06	12.17
Fe2	1224. H	ppm	.0761 %	1223.	1224.	1224.
Mg4	24.05	ppm	.4756 %	23.92	24.07	24.15
Pb1	17.02	ppm	.3575 %	17.06	16.95	17.05

*** Check Standard: 2 Ck2 Seq: 52 12:55:52 28 Mar 1994 ICP

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Al3		102.9	5.143	5.000	ppm	.2419 %
Ba1		103.3	1.033	1.000	ppm	.1007 %
Fe2	H	186.6	9.330	5.000	ppm	.8426 %
Mg4		100.3	50.14	50.00	ppm	.2252 %
Pb1		102.6	5.128	5.000	ppm	.2718 %

*** Check Standard: 3 Ck3 Seq: 53 12:59:10 28 Mar 1994 ICP

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Al3		33.25	.0333	.1000	ppm	14.40 %
Ba1		233.7	.0117	.0050	ppm	2.332 %
Fe2		3646.	1.823	.0500	ppm	3.395 %
Mg4		23.10	.1155	.5000	ppm	5.380 %
Pb1		-.4485	-.0002	.0500	ppm	-15100%

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: 755-17		28-1	Seq: 55	13:02:22 28 Mar 1994 ICP				
Al3	33.73	ppm	.5636 %	33.73	33.54	33.92		
Ba1	3.028	ppm	.8817 %	3.030	3.000	3.053		
Fe2	1087. H	ppm	.3585 %	1088.	1083.	1091.		
Mg4	13.83	ppm	.3689 %	13.78	13.83	13.88		
Pb1	11.08	ppm	.7799 %	11.11	10.99	11.15		
*** Sample ID: 755-18		28-1	Seq: 56	13:05:27 28 Mar 1994 ICP				
Al3	26.96	ppm	.8281 %	26.78	26.89	27.21		
Ba1	.3590	ppm	.9035 %	.3557	.3592	.3622		
Fe2	135.2	ppm	.4455 %	134.6	135.4	135.8		
Mg4	111.8	ppm	.1585 %	111.6	111.9	111.8		
Pb1	.6416	ppm	1.418 %	.6331	.6405	.6512		
*** Sample ID: 755-19		28-1	Seq: 57	13:08:32 28 Mar 1994 ICP				
Al3	22.00	ppm	.1706 %	21.96	22.02	22.02		
Ba1	22.76	ppm	.1385 %	22.72	22.76	22.79		
Fe2	1010. H	ppm	.0374 %	1010.	1011.	1010.		
Mg4	24.42	ppm	.2905 %	24.48	24.43	24.34		
Pb1	27.71	ppm	.2778 %	27.71	27.79	27.63		
*** Sample ID: 755-20		28-1	Seq: 59	13:11:37 28 Mar 1994 ICP				
Al3	36.15	ppm	.2978 %	36.26	36.05	36.13		
Ba1	25.18	ppm	.1879 %	25.23	25.18	25.14		
Fe2	619.4 H	ppm	.2993 %	621.5	618.4	618.2		
Mg4	46.41	ppm	.5404 %	46.69	46.20	46.34		
Pb1	45.55	ppm	.4426 %	45.78	45.41	45.46		
*** Sample ID: PBS 3/28		28-1	Seq: 60	13:14:43 28 Mar 1994 ICP				
Al3	.0547 L	ppm	9.072 %	.0586	.0491	.0564		
Ba1	.0497	ppm	3.895 %	.0518	.0479	.0493		
Fe2	1.894	ppm	4.317 %	1.988	1.836	1.859		
Mg4	.1229 L	ppm	10.92 %	.1267	.1080	.1340		
Pb1	.0675	ppm	18.71 %	.0529	.0750	.0746		
*** Sample ID: LCSS 3/28		28-1	Seq: 61	13:17:50 28 Mar 1994 ICP				
Al3	52.24	ppm	.5781 %	52.59	52.08	52.05		
Ba1	3.120	ppm	.7801 %	3.148	3.104	3.109		
Fe2	100.5	ppm	.6422 %	101.3	100.3	100.0		
Mg4	20.24	ppm	1.117 %	20.47	20.23	20.02		
Pb1	1.581	ppm	2.443 %	1.589	1.614	1.539		

1.00

M - samples > 10x PBS value

Ba w/in limits

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: 993-1		28-1	Seq: 63		13:20:57 28 Mar 1994 ICP			
			1.01					
Al3	140.0	ppm	.3044 %	139.7	140.0	140.5		
Ba1	1.545	ppm 153	.2848 %	1.543	1.541	1.550		
Fe2	214.4	ppm	.2846 %	213.9	214.3	215.1		
Mg4	38.36	ppm	.4531 %	38.17	38.39	38.51		
Pb1	.3435	ppm	3.183 %	.3408	.3342	.3556		
*** Sample ID: 993-2		28-1	Seq: 64		13:24:04 28 Mar 1994 ICP			
			1.00					
Al3	110.9	ppm	.1186 %	111.1	110.9	110.8		
Ba1	1.834	ppm 183	.1471 %	1.837	1.834	1.831		
Fe2	190.6	ppm	.2103 %	191.0	190.4	190.3		
Mg4	60.20	ppm	.0968 %	60.23	60.24	60.14		
Pb1	.3162	ppm	1.993 %	.3193	.3203	.3089		
*** Sample ID: 960-2		28-1	Seq: 65		13:27:11 28 Mar 1994 ICP			
			1.00					
Al3	11.78	ppm	.5877 %	11.82	11.70	11.82		
Ba1	9.825	ppm 982	.4701 %	9.853	9.772	9.851		
Fe2	25.69	ppm	.2496 %	25.73	25.62	25.72		
Mg4	6.782	ppm	.1922 %	6.775	6.774	6.797		
Pb1	.2303	ppm	10.47 %	.2578	.2206	.2125		
*** Sample ID: CRIF		28-1	Seq: 67		13:30:18 28 Mar 1994 ICP			
Al3	.0609 L	ppm	31.43 %	.0395	.0763	.0668		
Ba1	.0219	ppm	1.032 %	.0219	.0222	.0217		
Fe2	.2615	ppm	7.642 %	.2493	.2507	.2846		
Mg4	.0487 L	ppm	38.12 %	.0424	.0341	.0696		
Pb1	.0959	ppm	27.04 %	.0763	.1254	.0861		

*** Check Standard: 2 Ck2 Seq: 68 13:33:29 28 Mar 1994 ICP

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Al3		101.5	5.073	5.000	ppm	.5407 %
Ba1		101.4	1.014	1.000	ppm	.7710 %
Fe2		102.8	5.139	5.000	ppm	.7450 %
Mg4		101.0	50.52	50.00	ppm	.4591 %
Pb1		103.1	5.154	5.000	ppm	.6707 %

*** Check Standard: 3 Ck3 Seq: 69 13:36:46 28 Mar 1994 ICP

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Al3		-9.626	-.0096	.1000	ppm	-30.09%
Ba1		121.1	.0061	.0050	ppm	2.333 %
Fe2		184.3	.0922	.0500	ppm	2.958 %
Mg4		28.11	.1405	.5000	ppm	20.63 %
Pb1		-7.610	-.0038	.0500	ppm	-737.0%

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: ICSAF		28-1	Seq: 70		13:39:59 28 Mar 1994 ICP			
Al3	485.6	ppm	.1212 %	485.5	486.3	485.1		
Ba1	.0033 L	ppm	3.415 %	.0032	.0034	.0032		
Fe2	175.8	ppm	.0855 %	175.9	175.9	175.6		
Mg4	525.8	ppm	.0959 %	525.7	526.4	525.4		
Pb1	.0229 L	ppm	121.5 %	.0074	.0550	.0063		
*** Sample ID: ICSABF		28-1	Seq: 71		13:43:06 28 Mar 1994 ICP			
Al3	485.1	ppm	.8313 %	487.9	487.0	480.5		
Ba1	.4776	ppm	1.082 %	.4812	.4799	.4717		
Fe2	177.0	ppm	.7624 %	178.2	177.2	175.6		
Mg4	527.7	ppm	.6739 %	531.2	527.9	524.1		
Pb1	.9393	ppm	2.878 %	.9592	.9501	.9085		

*** Check Standard: 2 Ck2 Seq: 72 13:46:19 28 Mar 1994 ICP

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Al3	H	123.1	6.155	5.000	ppm	1.107 %
Ba1		99.69	.9969	1.000	ppm	.2905 %
Fe2		109.8	5.491	5.000	ppm	.5652 %
Mg4		102.9	51.45	50.00	ppm	.4276 %
Pb1		102.0	5.098	5.000	ppm	.6893 %

*** Check Standard: 3 Ck3 Seq: 73 13:49:36 28 Mar 1994 ICP

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Al3		488.9	.4889	.1000	ppm	3.762 %
Ba1		48.96	.0024	.0050	ppm	8.721 %
Fe2		444.7	.2224	.0500	ppm	3.685 %
Mg4		124.3	.6215	.5000	ppm	4.677 %
Pb1		-60.68	-.0303	.0500	ppm	-15.48%

METALS (ICP) QUALITY CONTROL WORKSHEET

Parameter:Ba Analyst: M. MILLER Date: 03/21994

A.) Linear Regression (if applicable):

1) Number of Stds. used: N.A. 3) Y-intercept: N.A.

2) Corr. Coefficient: N.A. 4) Slope: N.A.

B.) Precision duplicates (as Relative Percent Deviation - RPD)

MDL = 2 Low Level = <5xMDL High Level = >=5xMDL

Job #	Original Result (ug/g)	Analytic Result #2 (ug/g)	High or Low Level	Rel. % Diff. (RPD)	Matrix	Dilut'n	In Limits (y or n) Low	High	Da Fl

C.) Spiked Recovery (one for every ten samples run)

Job #	Original Result (ug/g)	mls. of 20 mg/L spk added	Sample Weight (g)	mg/L of Spike	Spiked Sample (ug/g)	Percent Recover	Within Limits (y or n)	Da Fl

METALS (ICP) QUALITY CONTROL WORKSHEET

Parameter: Ba Analyst: M. MILLER Date: 03/28

D.) Blank Spike Recovery (one for every ten samples run)

Job #	(B) Blank Average (ug/g) Less Than	mls. of 20 mg/L spk added	Sample Weight (g)	(C) mg/L of Spike	(A) Value Spiked Sample (ug/g)	Percent Recover	Within Limits (y or n)	Data Flags
Blk Spk	2.00	1.00	1.0	276.0	312	113.0	Y	

E. Reference Standard Recovery:

	True Valu	Result (mg/L)	% Recovery	W/in Limits (y or n)	Data Flags
Ref Std	1.00	1.01	101.0	Y	
Ref Std	1.00	1.01	101.4	Y	
Ref Std	1.00	1.03	103.3	Y	
Ref Std	1.00	1.01	101.4	Y	
Ref Std	1.00	1.00	99.7	Y	

NOTES:

1. All QC calculations to 3 sig. fig.
3. Sample duplicates out of limits (on Ave.) disqualify run.
3. Blank spikes out of limits (on Ave.) disqualify run.

ATTACHMENT C-3

ANALYTICAL RESULTS FROM MARCH 23, 1994 SAMPLING OF WHITE WASTE (TCLP INORGANICS)

General Testing Corporation

A Full Service Environmental Laboratory

APR. 7 1994

Mr. Darrin Constantini
Blasland, Bouck & Lee Inc.
30 Corporate Woods Ste. 160
Rochester, NY 14623

Re: TAM Ceramics

Dear Mr. Darrin Constantini

Enclosed are the results of the analysis requested. All data has been reviewed prior to report submission. Should you have any questions please contact me at 454-3760.

Thank you for letting us provide this service.

Sincerely,

GENERAL TESTING CORPORATION

Janice Jaeger
Customer Service Representative

Enc.

710 Exchange Street • Rochester, NY 14608 • Tele: (716) 454-3760 • (716) 454-1245
85 Trinity Place • Hackensack, NJ 07601 • Tele: (201) 488-5242 • Fax: (201) 488-6386
435 Lawrence Bell Drive • Amherst, NY 14221 • Tele: (716) 634-0454 • Fax: (716) 634-9019
1201 E. Fayette Street, Suite 42 • Syracuse, NY 13210 • Tele: (315) 471-0936 • Fax: (315) 471-0943

General Testing Corporation

A Full Service Environmental Laboratory

Effective 10/1/91

GTC LIST OF QUALIFIERS

(The basis of this proposal are the EPA-CLP Qualifiers)

U - Indicates compound was analyzed for but was not detected. The sample quantitation limit must be corrected for dilution and for percent moisture.

J - Indicates an estimated value. For further explanation see case narrative / cover letter.

B - This flag is used when the analyte is found in the associated blank as well as in the sample.

E - This flag identifies compounds whose concentrations exceed the calibration range and reanalysis could not be performed.

A - This flag indicates that a TIC is a suspected aldol-condensation product.

N - Spiked sample recovery not within control limits. (Flag the entire batch - Inorganic analytes only)

* - Duplicate analysis not within control limits. (Flag the entire batch - Inorganic analysis only)

- Also used to qualify Organics QC data outside limits. (Only used on the QC summary sheets)

M - Duplication injection precision not met (GFA only).

S - Reported value determined by Method of Standard Additions. (MSA)

X - As specified in the case narrative.

General Testing Corporation

CASE NARRATIVE

COMPANY: Blasland Bouck Engineers PC
TAM Ceramics
JOB #: R94/00960

INORGANIC ANALYSIS

BBE soil samples were analyzed for Barium using SW-846 ICP method 6010. BBE soil sample was also analyzed for TCLP metals following the TCLP extraction procedure - method 1311.

No analytical or QC problems were encountered.

General Testing Corporation

A Full Service Environmental Laboratory

LABORATORY REPORT

Job No: R94/00960 Date: APR. 7 1994

Client:
Mr. Darrin Constantini
Blasland, Bouck & Lee Inc.
30 Corporate Woods Ste. 160
Rochester, NY 14623

Sample(s) Reference

TAM Ceramics

Received : 03/23/94 P.O. #:

ANALYTICAL RESULTS - mg/l

Sample:	-001							
Location:	WHITE WASTE							
Date Collected:	03/23/94							
Time Collected:	11:00							
TCLP Extraction Metals								
Arsenic	0.500 U							
Barium	3.63							
Cadmium	0.100 U							
Chromium	0.100 U							
Lead	0.100 U							
Mercury	0.0010 U							
Selenium	0.500 U							
Silver	0.100 U							

Unless otherwise noted, analytical methodology has been obtained from references as cited in 40 CFR, parts #136 & #261.
NY ID# in Rochester: 10145
NJ ID# in Rochester: 73331
NJ ID# in Hackensack: 02317
NY ID# in Hackensack: 10801

***TCLP Toxicity Characteristic Leaching Procedure.
Federal Register, Part 261, Vol. 55, No. 126,
June 29, 1990.

Data reported is unbiased on the above regulation.

000001

Michael F. Penny

Laboratory Director

General Testing Corporation

A Full Service Environmental Laboratory

LABORATORY REPORT

Job No: R94/00960 Date: APR. 7 1994

Client:
Mr. Darrin Constantini
Blasland, Bouck & Lee Inc.
30 Corporate Woods Ste. 160
Rochester, NY 14623

Sample(s) Reference

TAM Ceramics

Received : 03/23/94 P.O. #:

ANALYTICAL RESULTS - ug/g Dry Wt.

Sample:		-002			
Location:		WHITE WASTE			
Date Collected:	PQL	03/23/94			
Time Collected:		11:00			
Solids, %		79.6			
Barium	2.00	1230			

Laboratory Director

000003

General Testing Corporation

A Full Service Environmental Laboratory

LABORATORY REPORT

Job No: R94/00960 Date: APR. 7 1994

Client:

Blasland, Bouck & Lee Inc.

Sample(s) Reference

TAM Ceramics

Date Received: 03/23/94

Date Sample Taken: 03/23/94

LABORATORY CHRONICLE
DATE ANALYZED

Sample:	-001
Location:	WHITE WASTE
TCLP Extraction Metals	
Arsenic	04/05/94
Barium	04/05/94
Cadmium	04/05/94
Chromium	04/05/94
Lead	04/05/94
Mercury	04/06/94
Selenium	04/05/94
Silver	04/05/94

General Testing Corporation

A Full Service Environmental Laboratory

LABORATORY REPORT

Job No: R94/00960 Date: APR. 7 1994

Client:

Blasland, Bouck & Lee Inc.

Sample(s) Reference

TAM Ceramics

Date Received: 03/23/94

Date Sample Taken: 03/23/94

LABORATORY CHRONICLE
DATE ANALYZED

Sample:	-002	
Location:	WHITE WASTE	
Solids, %	03/28/94	
Barium	03/28/94	
Dilution:	1	

GENERAL TESTING CORPORATION / CHAIN-OF-CUSTODY RECORD

960

710 Exchange St. Rochester, NY 14608 | 1201 E. Fayette St. Syracuse, NY 13210 | 85 Trinity Place Hackensack, NJ 07601 | 435 Lawrence Bell Dr. Amherst, NY 14221-7077

GTC Job. No. R94/~~80~~

Client Project No. 163.02

Sample Origination & Shipping Information

Collection Site TAM Ceramics Inc.

Address 4511 Hyde Park Blvd Rochester NY

Street City State Zip

Collector DARRIN COSTANTINI (Print) Darrin Costantini (Signature)

Bottles Prepared by GTC - VG Rec'd by Client

Bottles Shipped to Client via UPS Seal/Shipping # 3/16/94 Gardner

Samples Shipped via Hand Delivery Seal/Shipping # 3/23/94 DJC

Sample(s) Relinquished by:	Received by:	Date//Time
1. Sign Darrin Costantini	1. Sign	3/23/94
for Blasland, Bouck + Lee, Inc.	for GTC	15:50
2. Sign	2. Sign	/ /
for	for	:
3. Sign	3. Sign	/ /
for	for	:

Sample(s) Received in Laboratory by Tom Hastings 3/23/94 @ 15:50

	Client I.D. # / Sample Location / Date/Time	*	Analyte or Analyte Group(s) Required (see below for additional)	Sample Prep Preserved Y	Preserved N	Filtered Y	Filtered N	Bottle Set(s) (see below)
1	TAM-6 / CENTER / 3/23/94 : 10:50	S	Barium Matrix Spike	✓			✓	3 on hold
2	TAM-7 / CENTER / 3/23/94 : 10:50	S	Barium Liquids & Solids (Duplicate)	✓			✓	on hold
3	TAM-8 / White Waste / 3/23/94 : 11:00		TCLP Metals (same sample)	✓			✓	
4	TAM-9 / White Waste / 3/23/94 : 11:00							
5	DWBa / / / :							

RM 4/6/94 002

Use Bottle No. for indicating type bottles used in each bottle set and fill in box with # of bottles used for each type.

Bottle No.	1	2	3	4	5	6	7	8	9	10	11
Bottle Type	40 ml Vial	Pint Glass	4 ~~oz.~~ oz. Glass	4 oz. Plastic	8 oz. Plastic	16 oz. Plastic	Qt. Pl.	Gal. Pl.	Steril. Pl.		
# of each			1								

Additional Analytes _____

Shaded area for Lab use only; bottom copy for client; maximum of 5 samples per page. 000006

* Source Codes: Monitoring Well (W), Soil (S), Treatment Plant (T), Drinking Water (D), Leachate (L), Hazardous Waste (H), River or Stream (R), Pond (P), Industrial Discharge (I), _____(X), _____(Y).

R

SDG #

JOB#
R94/0960- 002

DATE/TIME REC'D
03/23/94 15:50

PARAMETERS	FRACTION ID	VOLUME	RELINQUISHED BY	RECEIVED BY	DATE	TIME
DWBA	SOIL	247.77g	Tom Hastings	RW	03/24/94	08:00
		246.00g	RW	RW	3/28/94	08:00

SAMPLE OFF HOLD 3/24/94 @ 09:00

000007

OG # JOB# R94/960-001 DATE/TIME REC'D 3/23/94 15:50

ARAMETERS	FRACTION ID	VOLUME	RELINQUISHED BY	RECEIVED BY	DATE	TIME
TCLP Metals		230.48 g	Tom Hastings	DN	3/24/94	8:30
		130.48 g	DN	DN	3/24/94	13:30

000008

Laboratory Support Documentation

GENERAL TESTING CORPORATION   Folder: 3-28-94   Page
10:45:44 28 Mar 1994   Protocol: CLP-SM

Line   Conc.   Units   SD/RSD   1   2   3   4   5

*** Standard: 1 Rep: 1   Seq: 2   10:45:44 28 Mar 1994 ICP

Al3	.0000	ppm	1546	-996	1764			
			Ave. Int. =	505	S. D. =	1551		
Ba1	.0000	ppm	6124	6166	4662			
			Ave. Int. =	5651	S. D. =	836		
Ca3	.0000	ppm	41605	42063	39943			
			Ave. Int. =	42537	S. D. =	917		
Fe2	.0000	ppm	726	-3327	-3588			
			Ave. Int. =	-2063	S. D. =	2419		
Mg4	.0000	ppm	-2104	173	-1505			
			Ave. Int. =	-1144	S. D. =	1183		
Pb1	.0000	ppm	3806	1384	2011			
			Ave. Int. =	2401	S. D. =	1258		

*** Standard: 1 Rep: 2   Seq: 3   10:46:31 28 Mar 1994 ICP

Al3	.0000	ppm	-1543	-1104	-1066			
			Ave. Int. =	-1240	S. D. =	257		
Ba1	.0000	ppm	6606	6245	5366			
			Ave. Int. =	6073	S. D. =	638		
Ca3	.0000	ppm	42422	48714	50174			
			Ave. Int. =	47103	S. D. =	4119		
Fe2	.0000	ppm	-3044	-248	517			
			Ave. Int. =	-925	S. D. =	1875		
Mg4	.0000	ppm	-3953	-177	-8			
			Ave. Int. =	-1381	S. D. =	2233		
Pb1	.0000	ppm	-347	-407	2105			
			Ave. Int. =	450	S. D. =	1433		

*** Standard: 2 Rep: 1   Seq: 4   10:48:21 28 Mar 1994 ICP

Al3	1.000	ppm	129346	132988	137390			
			Ave. Int. =	133241	S. D. =	4028		
Ba1	.5000	ppm	1439431	1452254	1454986			
			Ave. Int. =	1448890	S. D. =	8205		
Ca3	10.00	ppm	43817	42609	42929			
			Ave. Int. =	43118	S. D. =	626		
Fe2	1.000	ppm	741272	746959	748492			
			Ave. Int. =	745574	S. D. =	3834		
Mg4	10.00	ppm	518522	529740	522161			
			Ave. Int. =	523479	S. D. =	5719		
Pb1	1.000	ppm	52903	54573	57597			
			Ave. Int. =	55061	S. D. =	1965		

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Standard: 2 Rep: 3				Seq: 5		10:50:38 28 Mar 1994 ICP		
Al3	1.000	ppm		131125	135171	133578		
			Ave. Int. =	133291	S. D. =	2038		
Ba1	.5000	cor		1469300	1471825	1471650		
			Ave. Int. =	1466398	S. D. =	3742		
Ca2	10.00	ppm		42263	43034	44355		
			Ave. Int. =	43884	S. D. =	1079		
Fe2	1.000	ppm		745048	748455	745206		
			Ave. Int. =	746337	S. D. =	1836		
Mg4	10.00	ppm		521380	524350	523030		
			Ave. Int. =	522920	S. D. =	1488		
Pb1	1.000	ppm		54346	55433	56721		
			Ave. Int. =	55501	S. D. =	1188		
*** Standard: 3 Rep: 1				Seq: 6		10:53:58 28 Mar 1994 ICP		
Al3	10.00	ppm		1299534	1295059	1305921		
			Ave. Int. =	1300171	S. D. =	5459		
Ba1	2.000	ppm		5715703	5754694	5764214		
			Ave. Int. =	5744870	S. D. =	25704		
Ca3	100.0	ppm		69003	69650	69791		
			Ave. Int. =	69481	S. D. =	420		
Fe2	10.00	ppm		7188935	7226838	7212420		
			Ave. Int. =	7209395	S. D. =	19136		
Mg4	100.0	ppm		5372165	5360722	5346750		
			Ave. Int. =	5359879	S. D. =	12729		
Pb1	10.00	ppm		523512	519646	524461		
			Ave. Int. =	522546	S. D. =	2539		
*** Standard: 3 Rep: 2				Seq: 7		10:54:45 28 Mar 1994 ICP		
Al3	10.00	ppm		1294048	1297925	1294760		
			Ave. Int. =	1295578	S. D. =	2064		
Ba1	2.000	ppm		5702424	5746921	5760641		
			Ave. Int. =	5736662	S. D. =	30434		
Ca3	100.0	ppm		67920	67656	68123		
			Ave. Int. =	67900	S. D. =	234		
Fe2	10.00	ppm		7182200	7174854	7189078		
			Ave. Int. =	7182044	S. D. =	7113		
Mg4	100.0	ppm		5329049	5319823	5317463		
			Ave. Int. =	5322112	S. D. =	6123		
Pb1	10.00	ppm		511747	517682	519172		
			Ave. Int. =	515867	S. D. =	3577		

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: ICV		28-1	Seq: 9		11:07:21 28 Mar 1994 ICP			
Al3	9.706	ppm	.2672 %	9.694	9.688	9.736		
Ba1	9.921	ppm	.3021 %	9.944	9.887	9.921		
Fe2	4.936	ppm	.2541 %	4.949	4.923	4.937		
Mg4	48.22	ppm	.2073 %	48.22	48.13	48.21		
Pb1	1.007	ppm	1.909 %	1.027	1.006	.9887		
*** Sample ID: ICB		28-1	Seq: 10		11:10:33 28 Mar 1994 ICP			
Al3	-.0261 L	ppm	-43.43%	-.0247	-.0380	-.0155		
Ba1	.0215	ppm	2.174 %	.0212	.0213	.0220		
Fe2	-.0089 L	ppm	-26.86%	-.0108	-.0097	-.0062		
Mg4	.0906 L	ppm	4.189 %	.0863	.0925	.0929		
Pb1	-.0104 L	ppm	-254.3%	.0133	.0004	-.0449		
*** Sample ID: BLK		28-1	Seq: 11		11:13:45 28 Mar 1994 ICP			
Al3	-.0272 L	ppm	-8.873%	-.0298	-.0272	-.0248		
Ba1	.0098	ppm	3.852 %	.0101	.0099	.0094		
Fe2	-.0159 L	ppm	-14.12%	-.0167	-.0147	-.0195		
Mg4	.0662 L	ppm	33.32 %	.0936	.0414	.0737		
Pb1	-.0199 L	ppm	-46.70%	-.0279	-.0097	-.0219		
*** Sample ID: CRII		28-1	Seq: 13		11:16:57 28 Mar 1994 ICP			
Al3	-.0374 L	ppm	-37.84%	-.0340	-.0390	-.0191		
Ba1	.0037 L	ppm	2.058 %	.0037	.0036	.0038		
Fe2	-.0191 L	ppm	-6.257%	-.0205	-.0179	-.0193		
Mg4	.0335 L	ppm	18.85 %	.0337	.0407	.0313		
Pb1	.0762	ppm	21.04 %	.0536	.0920	.0981		
*** Sample ID: PBS 3/18		28-1	Seq: 14		11:20:09 28 Mar 1994 ICP			
Al3	-.0317 L	ppm	-31.51%	-.0333	-.0408	-.0210		
Ba1	.0056	ppm	4.045 %	.0058	.0056	.0054		
Fe2	.3341	ppm	.6690 %	.3365	.3336	.3322		
Mg4	.0859 L	ppm	28.34 %	.0986	.1313	.0578		
Pb1	-.0266 L	ppm	-31.57%	-.0207	-.0363	-.0230		
*** Sample ID: BLK		28-1	Seq: 15		11:23:21 28 Mar 1994 ICP			
Al3	-.0120 L	ppm	-47.72%	-.0255	-.0154	-.0020		
Ba1	.0014 L	ppm	8.503 %	.0014	.0014	.0015		
Fe2	-.0203 L	ppm	-7.023%	-.0190	-.0199	-.0221		
Mg4	-.0139 L	ppm	-194.7%	-.0235	-.0362	-.0239		
Pb1	.0014 L	ppm	1321. %	.0064	-.0257	.0055		

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: LCSS 3/18 88-1				Seq: 17		11:26:33 28 Mar 1994 ICP		
Al3	37.80	ppm	.3638 %	37.66	37.88	37.71		
Ba1	1.600	ppm	.3020 %	1.602	1.599	1.598		
Fe2	47.66	ppm	.2982 %	47.78	47.69	47.50		
Mn4	10.54	ppm	.9129 %	10.65	10.48	10.49		
Pb1	.8125	ppm	.6338 %	.8083	.8110	.8183		
*** Sample ID: CAL STD 22-1				Seq: 18		11:29:45 28 Mar 1994 ICP		
Al3	9.990	ppm	.0797 %	9.987	10.00	9.985		
Ba1	1.991	ppm	.1088 %	1.988	1.991	1.993		
Fe2	10.07	ppm	.1317 %	10.09	10.08	10.06		
Mn4	102.2	ppm	.1763 %	102.2	102.3	102.0		
Pb1	10.11	ppm	.1980 %	10.09	10.13	10.13		
*** Sample ID: ICSAI 28-1				Seq: 19		11:32:57 28 Mar 1994 ICP		
Al3	487.0	ppm	.3425 %	488.3	486.9	485.9		
Ba1	.0054	ppm	4.634 %	.0057	.0052	.0054		
Fe2	181.4	ppm	.2096 %	181.9	181.5	181.0		
Mg4	525.2	ppm	.1347 %	526.0	525.0	524.6		
Pb1	.0319 L	ppm	144.0 %	.0680	-.0198	.0476		
*** Sample ID: ICSABI 28-1				Seq: 21		11:35:09 28 Mar 1994 ICP		
Al3	485.8	ppm	.3753 %	486.7	487.3	483.7		
Ba1	.4833	ppm	.4727 %	.4842	.4850	.4807		
Fe2	182.4	ppm	.2851 %	183.2	182.6	182.1		
Mg4	527.8	ppm	.2598 %	529.3	527.4	526.2		
Pb1	.9704	ppm	1.817 %	.9585	.9838	.9918		

*** Check Standard: 3 CK2 Seq: 23 11:39:25 28 Mar 1994 ICP

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Al3	H	120.7	6.036	5.000	ppm	.6731 %
Ba1		101.0	1.010	1.000	ppm	.5350 %
Fe2	H	112.0	5.602	5.000	ppm	.3665 %
Mn4		102.8	51.42	50.00	ppm	.2998 %
Pb1		102.0	5.101	5.000	ppm	.6561 %

*** Check Standard: 3 CK3 Seq: 33 11:42:43 28 Mar 1994 ICP

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Al3		93.2	.9352	1.000	ppm	8.596 %
Ba1		57.63	.0329	.0050	ppm	6.037 %
Fe2		-33.1	-.8166	.0500	ppm	5.197 %
Mn4		93.3	.4791	.5000	ppm	2.752 %
Pb1		-5.137	-.0349	.0500	ppm	-816.8%

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: 755-1		28-1		Seq: 24		11:45:57 28 Mar 1994 ICP		
Al3	28.34	ppm	.9176 %	28.24	28.64	28.13		
Ba1	.5300	ppm	1.039 %	.5278	.5363	.5260		
Fe2	61.34	ppm	.6379 %	61.25	61.77	61.00		
Mg4	44.54	ppm	.6351 %	44.52	44.25	44.84		
Pb1	.3651	ppm	5.411 %	.3296	.3702	.3955		
*** Sample ID: 755-2		28-1		Seq: 25		11:49:10 28 Mar 1994 ICP		
Al3	34.79	ppm	1.045 %	34.50	35.20	34.68		
Ba1	1.382	ppm	1.143 %	1.370	1.400	1.376		
Fe2	834.7	ppm	.6373 %	833.4	836.3	834.5		
Mg4	64.23	ppm	.3339 %	63.99	64.41	64.29		
Pb1	8.941	ppm	.0422 %	8.937	8.944	8.943		
*** Sample ID: 755-3		28-1		Seq: 27		11:52:23 28 Mar 1994 ICP		
Al3	27.77	ppm	.1058 %	27.81	27.75	27.76		
Ba1	5.324	ppm	.1171 %	5.330	5.323	5.318		
Fe2	1348. H	ppm	.3294 %	1352.	1347.	1343.		
Mg4	22.29	ppm	.0511 %	22.30	22.29	22.28		
Pb1	18.60	ppm	.5102 %	18.71	18.57	18.53		
*** Sample ID: 755-4		28-1		Seq: 28		11:55:36 28 Mar 1994 ICP		
Al3	74.02	ppm	.5183 %	74.11	74.33	73.59		
Ba1	18.61	ppm	.6284 %	18.66	18.69	18.47		
Fe2	573.1 H	ppm	.3168 %	573.9	574.3	571.2		
Mg4	92.70	ppm	.2154 %	92.72	92.88	92.48		
Pb1	10.34	ppm	1.141 %	10.22	10.45	10.37		
*** Sample ID: 755-5		28-1		Seq: 29		11:58:49 28 Mar 1994 ICP		
Al3	29.98	ppm	.4925 %	30.05	30.08	29.81		
Ba1	2.024	ppm	.5767 %	2.030	2.033	2.011		
Fe2	651.4 H	ppm	.3369 %	651.0	653.7	649.4		
Mg4	58.17	ppm	.2908 %	58.05	58.37	58.10		
Pb1	17.32	ppm	.3123 %	17.26	17.37	17.32		
*** Sample ID: 755-6		28-1		Seq: 31		12:02:00 28 Mar 1994 ICP		
Al3	24.81	ppm	.5800 %	24.65	24.93	24.84		
Ba1	2.566	ppm	.5047 %	2.552	2.578	2.568		
Fe2	990.1 H	ppm	.2991 %	986.7	992.3	991.3		
Mg4	82.11	ppm	.3925 %	82.24	82.12	82.16		
Pb1	28.51	ppm	.3059 %	28.42	28.52	28.60		

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: 755-7		28-1		Seq: 32		12:05:08 28 Mar 1994 ICP		
Al3	55.65	ppm	.5197 %	55.32	55.83	55.80		
Ba1	.3906	ppm	.4274 %	.3868	.3911	.3920		
Fe2	151.2	ppm	.1961 %	151.0	151.3	151.3		
Mg4	49.19	ppm	.2105 %	49.28	49.08	49.20		
Pb1	.5310	ppm	3.520 %	.5516	.5141	.5274		
*** Sample ID: 755-7D		28-1		Seq: 33		12:08:16 28 Mar 1994 ICP		
Al3	65.93	ppm	.2747 %	65.84	65.73	66.09		
Ba1	.4375	ppm	.2764 %	.4382	.4361	.4382		
Fe2	139.5	ppm	.1416 %	139.6	139.3	139.7		
Mn4	59.79	ppm	.2527 %	59.88	59.62	59.87		
Pb1	.3480	ppm	11.42 %	.3310	.3196	.3934		
*** Sample ID: 755-7S		28-1		Seq: 35		12:11:24 28 Mar 1994 ICP		
Al3	47.68	ppm	.7697 %	46.10	47.50	47.43		
Ba1	.4498	ppm	.7515 %	.4536	.4482	.4474		
Fe2	113.7	ppm	.5863 %	114.4	113.4	113.2		
Mg4	66.35	ppm	.4083 %	65.66	66.15	66.24		
Pb1	1.318	ppm	3.725 %	1.374	1.280	1.302		
*** Sample ID: 755-7A		28-1		Seq: 36		12:14:32 28 Mar 1994 ICP		
Al3	52.43	ppm	.8854 %	52.51	52.13	52.66		
Ba1	2.179	ppm	.4975 %	2.134	2.167	2.187		
Fe2	135.4	ppm	.2981 %	135.8	135.0	135.6		
Mg4	53.89	ppm	.3806 %	54.08	53.75	53.84		
Pb1	.9205	ppm	.8309 %	.9347	.9116	.9231		

*** Check Standard: 2 Ck2 Seq: 37 12:17:44 28 Mar 1994 ICP

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Al3		102.0	5.099	5.000	ppm	.2630 %
Ba1		101.4	1.014	1.000	ppm	.9469 %
Fe2	H	112.3	5.616	5.000	ppm	.4996 %
Mg4		99.60	49.80	50.00	ppm	.7513 %
Pb1		101.8	5.091	5.000	ppm	1.218 %

*** Check Standard: 3 Ck3 Seq: 38 12:21:01 28 Mar 1994 ICP

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Al3		45.89	.0459	.1000	ppm	10.91 %
Ba1		87.21	.0044	.0050	ppm	5.777 %
Fe2		529.9	.1590	.0300	ppm	.7998 %
Mn4		38.01	.1903	.5000	ppm	14.41 %
Pb1		-13.14	-.0061	.0500	ppm	-134.7%

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: 755-7L		28-1	Seq: 35		12:24:14 28 Mar 1994 ICP			
Al7	11.17	ppm	.6186 %	11.16	11.10	11.24		
Ba1	.0794	ppm	.3346 %	.0796	.0791	.0795		
Fe2	30.25	ppm	.1095 %	30.27	30.21	30.26		
Mg4	9.923	ppm	.2881 %	9.912	9.955	9.901		
Pb1	.0833	ppm	38.99 %	.0719	.1110	.0670		
*** Sample ID: 755-8		28-1	Seq: 41		12:27:23 28 Mar 1994 ICP			
Al3	55.02	ppm	.7280 %	54.96	54.64	55.44		
Ba1	4.774	ppm	.8298 %	4.776	4.734	4.813		
Fe2	561.8 H	ppm	.2941 %	562.2	560.0	563.3		
Mg4	26.66	ppm	.1549 %	26.70	26.61	26.66		
Pb1	37.39	ppm	.1993 %	37.35	37.22	37.34		
*** Sample ID: 755-9		28-1	Seq: 42		12:30:32 28 Mar 1994 ICP			
Al3	22.98	ppm	.7606 %	23.18	22.90	22.86		
Ba1	4.228	ppm	.3441 %	4.268	4.214	4.201		
Fe2	1185. H	ppm	.5765 %	1192.	1184.	1178.		
Mg4	10.45	ppm	.6720 %	10.51	10.46	10.37		
Pb1	15.99	ppm	.6457 %	16.11	15.93	15.94		
*** Sample ID: 755-10		28-1	Seq: 43		12:33:41 28 Mar 1994 ICP			
Al3	3.930	ppm	.4950 %	3.937	3.953	3.920		
Ba1	.0752	ppm	.6563 %	.0747	.0753	.0757		
Fe2	28.53	ppm	.1955 %	28.57	28.47	28.56		
Mg4	25.59	ppm	.2019 %	25.56	25.55	25.65		
Pb1	.4399	ppm	7.043 %	.4458	.4051	.4687		
*** Sample ID: 755-11		28-1	Seq: 45		12:36:50 28 Mar 1994 ICP			
Al3	39.25	ppm	.4781 %	39.04	39.29	39.41		
Ba1	26.73	ppm	.5231 %	26.67	26.77	26.84		
Fe2	732.8 H	ppm	.4173 %	729.7	732.8	735.8		
Mg4	64.53	ppm	.4330 %	64.22	64.61	64.76		
Pb1	44.59	ppm	.6253 %	44.35	44.52	44.90		
*** Sample ID: 755-12		28-1	Seq: 46		12:39:59 28 Mar 1994 ICP			
Al3	28.60	ppm	.7463 %	28.46	28.59	28.72		
Ba1	6.268	ppm	.8597 %	6.213	6.321	6.270		
Fe2	60.9	ppm	.3067 %	160.4	161.4	161.9		
Mg4	40.18	ppm	.2903 %	40.04	40.27	40.15		
Pb1	16.16	ppm	.0951 %	16.17	16.15	16.16		

Line	Conc.	Units	SD/RSD	1	2	3	4	5

*** Sample ID: 755-13   28-1   Seq: 47   12:43:08 28 Mar 1994 ICP

Al3	36.16	ppm	.1132 %	36.12	36.17	36.20
Ba1	11.90	ppm	.1641 %	11.89	11.90	11.92
Fe2	397.0	ppm	.0470 %	397.2	396.9	396.8
Mn4	22.64	ppm	.4807 %	22.73	22.52	22.67
Pb1	50.18	ppm	.2923 %	50.07	50.13	50.35

*** Sample ID: 755-14   28-1   Seq: 49   12:46:17 28 Mar 1994 ICP

Al3	11.20	ppm	.3297 %	11.16	11.20	11.24
Ba1	4.013	ppm	.4752 %	3.991	4.025	4.023
Fe2	1528. H	ppm	.1273 %	1529.	1530.	1526.
Mn4	4.393	ppm	.9502 %	4.354	4.390	4.437
Pb1	14.01	ppm	.7148 %	13.91	14.11	14.00

*** Sample ID: 755-15   28-1   Seq: 50   12:49:27 28 Mar 1994 ICP

Al3	71.03	ppm	.3488 %	70.79	71.29	71.01
Ba1	1.003	ppm	.5058 %	.9991	1.009	1.002
Fe2	1392. H	ppm	.2319 %	1393.	1394.	1388.
Mn4	6.958	ppm	.5092 %	6.943	6.999	6.933
Pb1	3.392	ppm	.6242 %	3.368	3.397	3.410

*** Sample ID: 755-16   28-1   Seq: 51   12:52:37 28 Mar 1994 ICP

Al3	51.83	ppm	.7546 %	51.40	51.93	52.16
Ba1	12.05	ppm	1.046 %	11.92	12.06	12.17
Fe2	1224. H	ppm	.0761 %	1223.	1224.	1224.
Mn4	24.05	ppm	.4756 %	23.92	24.07	24.15
Pb1	17.02	ppm	.3375 %	17.06	16.95	17.05

*** Check Standard: 2 Ck2   Seq: 52   12:55:52 28 Mar 1994 ICP

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Al3		102.9	5.143	5.000	ppm	.2419 %
Ba1		103.3	1.033	1.000	ppm	.1007 %
Fe2	H	186.6	9.330	5.000	ppm	.8426 %
Mn4		100.3	50.14	50.00	ppm	.2252 %
Pb1		102.6	5.128	5.000	ppm	.2713 %

*** Check Standard: 3 Ck3   Seq: 53   12:59:10 28 Mar 1994 ICP

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Al3		33.25	.0333	.1000	ppm	14.40 %
Ba1		633.7	.0117	.0050	ppm	2.332 %
Fe2		3546.	1.[illegible]	.0300	ppm	2.592 %
Mn4		23.10	.1155	.5000	ppm	5.280 %
Pb1		-.4465	-.0102	[illegible]	ppm	-15100%

000017

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: 755-17		23-1		Seq: 55		13:02:22 28 Mar 1994 ICP		
Al3	33.73	ppm	.5636 %	33.73	33.54	33.92		
Ba1	3.028	ppm	.8817 %	3.030	3.000	3.053		
Fe2	1087. H	ppm	.3585 %	1088.	1083.	1091.		
Mg4	13.83	ppm	.3669 %	13.78	13.83	13.86		
Pb1	11.08	ppm	.7799 %	11.11	10.99	11.15		
*** Sample ID: 755-18		23-1		Seq: 56		13:05:27 28 Mar 1994 ICP		
Al3	26.96	ppm	.8881 %	26.78	26.89	27.21		
Ba1	.3590	ppm	.9035 %	.3557	.3592	.3622		
Fe2	135.2	ppm	.4455 %	134.6	135.4	135.8		
Mg4	111.8	ppm	.1585 %	111.6	111.9	111.8		
Pb1	.6416	ppm	1.418 %	.6331	.6405	.6512		
*** Sample ID: 755-19		23-1		Seq: 57		13:08:32 28 Mar 1994 ICP		
Al3	22.00	ppm	.1726 %	21.96	22.02	22.02		
Ba1	22.76	ppm	.1385 %	22.72	22.76	22.79		
Fe2	1010. H	ppm	.0374 %	1010.	1011.	1010.		
Mg4	24.42	ppm	.2905 %	24.48	24.43	24.34		
Pb1	27.71	ppm	.3778 %	27.71	27.79	27.63		
*** Sample ID: 755-20		28-1		Seq: 59		13:11:37 28 Mar 1994 ICP		
Al3	36.15	ppm	.3978 %	36.26	36.25	36.13		
Ba1	25.18	ppm	.1879 %	25.23	25.18	25.14		
Fe2	619.4 H	ppm	.8992 %	621.5	618.4	618.2		
Mg4	46.41	ppm	.5434 %	46.69	46.20	46.34		
Pb1	43.35	ppm	.4433 %	43.76	43.41	43.48		
*** Sample ID: PBS 3/23		25-1		Seq: 60		13:14:43 28 Mar 1994 ICP		
Al3	.0547 L	ppm	9.078 %	.0586	.0491	.0564		
Ba1	.0497	ppm	3.895 %	.0518	.0479	.0493		
Fe2	1.894	ppm	4.317 %	1.988	1.836	1.859		
Mg4	.1229 L	ppm	10.92 %	.1267	.1080	.1340		
Pb1	.0675	ppm	18.71 %	.0529	.0750	.0746		
*** Sample ID: LCSS 3/28		23-1		Seq: 61		13:17:50 28 Mar 1994 ICP		
		1.00						
Al3	55.84	ppm	.5761 %	52.59	52.08	52.85		
Ba1	3.182	ppm	.7801 %	3.148	3.104	3.109		
Fe2	100.5	ppm	.3488 %	101.3	100.3	100.0		
Mg4	20.24	ppm	1.117 %	20.47	20.23	20.02		
Pb1	1.281	ppm	2.443 %	1.289	1.314	1.337		

M - samples > 10x PBS value

Ba w/in limits

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: 993-1		28-1	Seq: 63	13:20:57 28 Mar 1994 ICP				
Al3	140.0	ppm	.3244 %	139.7	140.0	140.5		
Ba1	1.545	ppm	.2848 %	1.543	1.541	1.550		
Fe2	214.4	ppm	.2946 %	213.9	214.3	215.1		
Mg4	38.36	ppm	.4531 %	38.17	38.39	38.51		
Pb1	.3435	ppm	3.183 %	.3408	.3342	.3556		
*** Sample ID: 993-2		28-1	Seq: 64	13:24:04 28 Mar 1994 ICP				
Al3	110.9	ppm	.1186 %	111.1	110.9	110.8		
Ba1	1.834	ppm	.1471 %	1.837	1.834	1.831		
Fe2	190.6	ppm	.2103 %	191.0	190.4	190.3		
Mg4	60.20	ppm	.0968 %	60.23	60.24	60.14		
Pb1	.3162	ppm	1.993 %	.3192	.3203	.3089		
*** Sample ID: 960-2		28-1	Seq: 65	13:27:11 28 Mar 1994 ICP				
Al3	11.78	ppm	.5877 %	11.82	11.70	11.82		
Ba1	9.825	ppm	.4701 %	9.853	9.772	9.851		
Fe2	25.69	ppm	.2496 %	25.73	25.68	25.73		
Mg4	6.782	ppm	.1922 %	6.775	6.774	6.797		
Pb1	.2303	ppm	10.47 %	.2579	.2206	.2125		
*** Sample ID: CRIF		28-1	Seq: 67	13:30:18 28 Mar 1994 ICP				
Al3	.0609 L	ppm	31.43 %	.0395	.0763	.0668		
Ba1	.0219	ppm	1.032 %	.0219	.0222	.0217		
Fe2	.2615	ppm	7.642 %	.2492	.2507	.2846		
Mg4	.0487 L	ppm	36.12 %	.0424	.0341	.0696		
Pb1	.0959	ppm	27.04 %	.0763	.1254	.0861		

*** Check Standard: 2 Ck2 Seq: 68 13:33:29 28 Mar 1994 ICP

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Al3		101.5	5.073	5.000	ppm	.5407 %
Ba1		101.4	1.014	1.000	ppm	.7710 %
Fe2		102.8	5.139	5.000	ppm	.7450 %
Mg4		101.0	50.52	50.00	ppm	.4591 %
Pb1		103.1	5.154	5.000	ppm	.6707 %

*** Check Standard: 3 Ck3 Seq: 69 13:36:46 28 Mar 1994 ICP

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Al3		-9.636	-.0096	.1000	ppm	-30.09%
Ba1		121.1	.0061	.0050	ppm	2.333 %
Fe2		184.3	.0392	.0500	ppm	2.958 %
Mg4		38.11	.1405	.5000	ppm	20.63 %
Pb1		-7.610	-.0038	.0500	ppm	-707.0%

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: ICSAF 28-1 Seq: 70 13:39:59 28 Mar 1994 ICP								
Al3	485.6	ppm	.1618 %	485.5	486.3	485.1		
Ba1	.2033 L	ppm	3.413 %	.2038	.2024	.2038		
Fe2	175.6	ppm	.2855 %	175.7	175.9	175.6		
Mg4	525.8	ppm	.2959 %	525.7	526.4	525.4		
Pb1	.0269 L	ppm	121.5 %	.0074	.0550	.0063		
*** Sample ID: ICSA2F 28-1 Seq: 71 13:43:06 28 Mar 1994 ICP								
Al3	485.1	ppm	.8313 %	487.9	487.0	480.5		
Ba1	.4776	ppm	1.082 %	.4812	.4799	.4717		
Fe2	177.3	ppm	.7624 %	178.2	177.2	175.6		
Mg4	527.7	ppm	.6739 %	531.2	527.9	524.1		
Pb1	.9393	ppm	8.678 %	.8892	.8501	.9885		
*** Check Standard: 2 CK2 Seq: 72 13:46:19 28 Mar 1994 ICP								
Line	Flag	%Rcv.	Found	True	Units	SD/RSD		
Al3	W	123.1	6.155	5.000	ppm	1.107 %		
Ba1		99.69	.9969	1.000	ppm	.2905 %		
Fe2		109.8	5.491	5.000	ppm	.5652 %		
Mg4		102.9	51.45	50.00	ppm	.4276 %		
Pb1		102.0	5.098	5.000	ppm	.6893 %		
*** Check Standard: 3 CK3 Seq: 73 13:49:36 28 Mar 1994 ICP								
Line	Flag	%Rcv.	Found	True	Units	SD/RSD		
Al3		488.9	.4889	.1000	ppm	3.762 %		
Ba1		48.86	.0024	.0050	ppm	2.721 %		
Fe2		44.7	.2234	.0500	ppm	3.665 %		
Mg4		134.3	.6715	.2000	ppm	4.677 %		
Pb1		-63.68	- 0303	.0150	ppm	-13.48%		

METALS (ICP) QUALITY CONTROL WORKSHEET

Parameter:Ba Analyst: M. MILLER Date: 03/21994

A.) Linear Regression (if applicable):

1) Number of Stds. used: N.A. 3) Y-intercept: N.A.

2) Corr. Coefficient: N.A. 4) Slope: N.A.

B.) Precision duplicates (as Relative Percent Deviation - RPD)

MDL = 2 Low Level = <5xMDL High Level = >=5xMDL

Job #	Original Result (ug/g)	Analytic Result #2 (ug/g)	High or Low Level	Rel. % Diff. (RPD)	Matrix	Dilut'n	In Limits (y or n) Low	High	Da Fl

C.) Spiked Recovery (one for every ten samples run)

Job #	Original Result (ug/g)	mls. of 20 mg/L spk added	Sample Weight (g)	mg/L of Spike	Spiked Sample (ug/g)	Percent Recover	Within Limits (y or n)	Da Fl

METALS (ICP) QUALITY CONTROL WORKSHEET

Parameter:Ba Analyst: M. MILLER Date: 03/28

D.) Blank Spike Recovery (one for every ten samples run)

Job #	(B) Blank Average (ug/g) Less Than	mls. of 20 mg/L spk added	Sample Weight (g)	(C) mg/L of Spike	(A) Value Spiked Sample (ug/g)	Percent Recover	Within Limits (y or n)	Data Flags
Blk Spk	2.00	1.00	1.0	276.0	312	113.0	Y	

E. Reference Standard Recovery:

	True Valu	Result (mg/L)	% Recovery	W/in Limits (y or n)	Data Flags
Ref Std	1.00	1.01	101.0	Y	
Ref Std	1.00	1.01	101.4	Y	
Ref Std	1.00	1.03	103.3	Y	
Ref Std	1.00	1.01	101.4	Y	
Ref Std	1.00	1.00	99.7	Y	

NOTES:
1. All QC calculations to 3 sig. fig.
3. Sample duplicates out of limits (on Ave.) disqualify run.
3. Blank spikes out of limits (on Ave.) disqualify run.

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Standard: 1 Rep: 1				Seq: 9		09:54:24 05 Apr 1994 ICP		
Ag1	.0000	ppm		23118	18334	28018		
			Ave. Int. =	23157	S. D. =	4842		
Al3	.0000	ppm		-556	4365	3653		
			Ave. Int. =	2487	S. D. =	2660		
As2	.0000	ppm		674	785	303		
			Ave. Int. =	587	S. D. =	252		
Ba1	.0000	ppm		5222	4945	5888		
			Ave. Int. =	5352	S. D. =	485		
Ca3	.0000	ppm		46574	48598	49328		
			Ave. Int. =	48167	S. D. =	1427		
Cd1	.0000	ppm		-413	-490	-455		
			Ave. Int. =	-453	S. D. =	39		
Cr4	.0000	ppm		10995	11263	10220		
			Ave. Int. =	10826	S. D. =	542		
Fe2	.0000	ppm		-8611	-8055	-6436		
			Ave. Int. =	-7701	S. D. =	1130		
Mg4	.0000	ppm		-4827	-5318	-4198		
			Ave. Int. =	-4781	S. D. =	561		
Na2	.0000	ppm		4817	4701	4875		
			Ave. Int. =	4798	S. D. =	89		
Pb1	.0000	ppm		-5856	-3432	-6311		
			Ave. Int. =	-5200	S. D. =	1548		
Se4	.0000	ppm		-1475	-720	-257		
			Ave. Int. =	-817	S. D. =	615		

Straight: Matt Miller
calc by: CM 4/5

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Standard: 1 Rep: 2				Seq: 10		09:55:13 05 Apr 1994 ICP		
Ag1	.0000	ppm		26964	23939	30096		
			Ave. Int. =	27000	S. D. =	3079		
Al3	.0000	ppm		2533	3234	3034		
			Ave. Int. =	2934	S. D. =	361		
As2	.0000	ppm		686	654	-359		
			Ave. Int. =	327	S. D. =	594		
Ba1	.0000	ppm		5010	4516	5198		
			Ave. Int. =	4908	S. D. =	352		
Ca3	.0000	ppm		49096	50815	48571		
			Ave. Int. =	49494	S. D. =	1174		
Cd1	.0000	ppm		-305	-204	-239		
			Ave. Int. =	-249	S. D. =	51		
Cr4	.0000	ppm		8656	11448	8846		
			Ave. Int. =	9650	S. D. =	1560		
Fe2	.0000	ppm		-5953	-7871	-7338		
			Ave. Int. =	-7054	S. D. =	990		
Mg4	.0000	ppm		-4806	-3715	-2786		
			Ave. Int. =	-3769	S. D. =	1011		
Na2	.0000	ppm		953	4930	2842		
			Ave. Int. =	2908	S. D. =	1989		
Pb1	.0000	ppm		-7906	-4654	-5800		
			Ave. Int. =	-6120	S. D. =	1649		
Se4	.0000	ppm		-2298	-1508	-1233		
			Ave. Int. =	-1680	S. D. =	553		

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Standard: 2 Rep: 1				Seq: 11		09:58:34 05 Apr 1994 ICP		
Ag1	1.000	ppm		1053685	1038996	1035894		
			Ave. Int. =	1042858	S. D. =	9504		
Al3	1.000	ppm		116756	113537	110583		
			Ave. Int. =	113625	S. D. =	3087		
As2	1.000	ppm		9633	8164	9426		
			Ave. Int. =	9074	S. D. =	795		
Ba1	1.000	ppm		2417017	2397957	2362367		
			Ave. Int. =	2392447	S. D. =	27739		
Ca3	10.00	ppm		6735540	6685763	6617053		
			Ave. Int. =	6679452	S. D. =	59495		
Cd1	1.000	ppm		81635	81760	81011		
			Ave. Int. =	81469	S. D. =	401		
Cr4	1.000	ppm		822275	826924	806506		
			Ave. Int. =	818568	S. D. =	10702		
Fe2	1.000	ppm		648689	646831	635636		
			Ave. Int. =	643719	S. D. =	7061		
Mg4	10.00	ppm		535037	534999	533001		
			Ave. Int. =	534346	S. D. =	1165		
Na2	10.00	ppm		248737	241964	238790		
			Ave. Int. =	243164	S. D. =	5081		
Pb1	1.000	ppm		52090	51938	50852		
			Ave. Int. =	51627	S. D. =	675		
Se4	1.000	ppm		6101	5782	6512		
			Ave. Int. =	6132	S. D. =	366		

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Standard: 2 Rep: 2				Seq: 12		09:59:23 05 Apr 1994 ICP		
Ag1	1.000	ppm		1044582	1039032	1053299		
			Ave. Int. =	1045638	S. D. =	7192		
Al3	1.000	ppm		114173	110422	112226		
			Ave. Int. =	112274	S. D. =	1876		
As2	1.000	ppm		7496	8774	8838		
			Ave. Int. =	8369	S. D. =	757		
Ba1	1.000	ppm		2380984	2377959	2425557		
			Ave. Int. =	2394833	S. D. =	26650		
Ca3	10.00	ppm		6657197	6658673	6757951		
			Ave. Int. =	6691274	S. D. =	57749		
Cd1	1.000	ppm		80796	81361	82119		
			Ave. Int. =	81425	S. D. =	664		
Cr4	1.000	ppm		818165	819163	830415		
			Ave. Int. =	822581	S. D. =	6803		
Fe2	1.000	ppm		638722	647268	651137		
			Ave. Int. =	645709	S. D. =	6353		
Mg4	10.00	ppm		532137	534952	544897		
			Ave. Int. =	537329	S. D. =	6704		
Na2	10.00	ppm		241948	241803	251052		
			Ave. Int. =	244934	S. D. =	5299		
Pb1	1.000	ppm		52077	48629	54937		
			Ave. Int. =	51881	S. D. =	3159		
Se4	1.000	ppm		6187	4939	3867		
			Ave. Int. =	4998	S. D. =	1161		

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Standard: 3 Rep: 1				Seq: 13		10:02:44 05 Apr 1994 ICP		
Ag1	10.00	ppm		10512383	10370030	10117960		
			Ave. Int. =	10333458	S. D. =	199739		
Al3	10.00	ppm		1168249	1149592	1120980		
			Ave. Int. =	1146274	S. D. =	23809		
As2	10.00	ppm		85430	84423	83178		
			Ave. Int. =	84344	S. D. =	1128		
Ba1	10.00	ppm		24657696	24189749	23633496		
			Ave. Int. =	24160314	S. D. =	512734		
Ca3	100.0	ppm		68740690	67957042	66652586		
			Ave. Int. =	67783439	S. D. =	1054821		
Cd1	10.00	ppm		811853	808208	790852		
			Ave. Int. =	803638	S. D. =	11222		
Cr4	10.00	ppm		8237451	8143960	7981683		
			Ave. Int. =	8121031	S. D. =	129416		
Fe2	10.00	ppm		6874259	6752933	6648223		
			Ave. Int. =	6758472	S. D. =	113120		
Mg4	100.0	ppm		5722755	5654403	5543212		
			Ave. Int. =	5640123	S. D. =	90619		
Na2	100.0	ppm		2510501	2481140	2414752		
			Ave. Int. =	2468798	S. D. =	49053		
Pb1	10.00	ppm		582927	576660	566796		
			Ave. Int. =	575461	S. D. =	8132		
Se4	10.00	ppm		76671	74898	68489		
			Ave. Int. =	73353	S. D. =	4304		

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Standard: 3 Rep: 2			Seq: 14	10:03:33 05 Apr 1994 ICP				
Ag1	10.00	ppm		9715653	10158499	10130420		
			Ave. Int. =	10001524	S. D. =	247969		
Al3	10.00	ppm		1078814	1127975	1123845		
			Ave. Int. =	1110211	S. D. =	27269		
As2	10.00	ppm		80817	82620	82732		
			Ave. Int. =	82056	S. D. =	1075		
Ba1	10.00	ppm		22545347	23728797	23625949		
			Ave. Int. =	23300031	S. D. =	655595		
Ca3	100.0	ppm		64391788	67022698	66710430		
			Ave. Int. =	66041639	S. D. =	1437318		
Cd1	10.00	ppm		771404	794507	793576		
			Ave. Int. =	786496	S. D. =	13078		
Cr4	10.00	ppm		7711798	8032515	8007034		
			Ave. Int. =	7917116	S. D. =	178266		
Fe2	10.00	ppm		6401437	6690158	6647416		
			Ave. Int. =	6579670	S. D. =	155827		
Mg4	100.0	ppm		5365624	5571758	5559341		
			Ave. Int. =	5498908	S. D. =	115594		
Na2	100.0	ppm		2305423	2423477	2411858		
			Ave. Int. =	2380253	S. D. =	65064		
Pb1	10.00	ppm		549430	567101	572330		
			Ave. Int. =	562954	S. D. =	12000		
Se4	10.00	ppm		68379	70310	71446		
			Ave. Int. =	70045	S. D. =	1551		

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: CAL STD	5-1	Seq: 16	10:10:41 05 Apr 1994 ICP					
Ag1	10.40	ppm	1.904 %	10.26	10.63	10.32		
Al3	10.71	ppm	2.230 %	10.53	10.98	10.62		
As2	10.45	ppm	1.160 %	10.33	10.57	10.44		
Ba1	10.42	ppm	2.105 %	10.28	10.68	10.32		
Ca3	105.1	ppm	1.664 %	103.8	107.1	104.3		
Cd1	10.10	ppm	1.306 %	9.981	10.24	10.06		
Cr4	10.34	ppm	1.713 %	10.21	10.54	10.27		
Fe2	10.77	ppm	1.768 %	10.63	10.99	10.69		
Mg4	104.5	ppm	1.626 %	103.3	106.4	103.8		
Na2	105.4	ppm	2.077 %	103.8	107.9	104.4		
Pb1	10.33	ppm	1.108 %	10.21	10.44	10.35		
Se4	10.47	ppm	1.949 %	10.24	10.58	10.60		
*** Sample ID: ICV	5-1	Seq: 17	10:13:55 05 Apr 1994 ICP					
Ag1	**5.411**	ppm	.9581 %	5.469	5.371	5.392		
Al3	5.380	ppm	.7905 %	5.429	5.359	5.352		
As2	**5.441**	ppm	2.913 %	5.260	5.508	5.554		
Ba1	**5.528**	ppm	1.285 %	5.610	5.489	5.486		
Ca3	55.37	ppm	.8614 %	55.93	55.10	55.09		
Cd1	**4.877**	ppm	.7169 %	4.918	4.856	4.858		
Cr4	**5.265**	ppm	.9305 %	5.321	5.236	5.237		
Fe2	5.517	ppm	.6927 %	5.561	5.495	5.494		
Mg4	54.77	ppm	.8193 %	55.29	54.46	54.58		
Na2	54.80	ppm	1.263 %	55.60	54.37	54.44		
Pb1	**5.384**	ppm	1.713 %	5.455	5.280	5.418		
Se4	**5.517**	ppm	2.180 %	5.449	5.656	5.446		
*** Sample ID: ICB	5-1	Seq: 18	10:17:08 05 Apr 1994 ICP					
Ag1	-.0041 L	ppm<	-94.78%	-.0087	-.0018	-.0019		
Al3	-.0247 L	ppm	-22.94%	-.0267	-.0291	-.0183		
As2	.0849 L	ppm<	17.10 %	.0761	.1016	.0769		
Ba1	.0004 L	ppm<	94.83 %	.0008	.0001	.0003		
Ca3	.0049 L	ppm	27.77 %	.0063	.0036	.0049		
Cd1	-.0001 L	ppm<	-1579.%	.0010	.0003	-.0015		
Cr4	.0000 L	ppm<	18990 %	-.0006	-.0009	.0015		
Fe2	-.0001 L	ppm	-2151.%	.0011	-.0027	.0018		
Mg4	-.0181 L	ppm	-158.2%	.0143	-.0288	-.0397		
Na2	-.0545 L	ppm	-20.96%	-.0451	-.0513	-.0672		
Pb1	.0109 L	ppm<	159.1 %	.0280	-.0067	.0114		
Se4	.0002 L	ppm<	26910 %	.0651	-.0119	-.0526		

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: CRI		5-1	Seq:	20	10:20:22 05 Apr 1994 ICP			
Ag1	.0232	ppm	5.764 %	.0235	.0218	.0244		
Al3	.0036 L	ppm	260.4 %	.0134	-.0051	.0024		
As2	.0791 L	ppm	97.10 %	.1390	.1059	-.0075		
Ba1	.0003 L	ppm	24.74 %	.0002	.0004	.0002		
Ca3	-.0015 L	ppm	-30.61%	-.0015	-.0019	-.0010		
Cd1	.0128	ppm	3.380 %	.0131	.0123	.0130		
Cr4	.0235	ppm	12.12 %	.0203	.0258	.0245		
Fe2	-.0034 L	ppm	-89.03%	-.0003	-.0064	-.0036		
Mg4	.0202 L	ppm	88.69 %	.0040	.0172	.0394		
Na2	.0027 L	ppm	1380. %	.0030	.0392	-.0342		
Pb1	.1167	ppm	21.49 %	.1194	.0904	.1404		
Se4	.0607 L	ppm	52.47 %	.0414	.0974	.0432		
*** Sample ID: PB 3/30		5-1	Seq:	21	10:23:35 05 Apr 1994 ICP			
Ag1	.0026 L	ppm<	100.4 %	.0025	.0052	.0000		
Al3	.0474 L	ppm	43.96 %	.0530	.0650	.0244		
As2	-.0060 L	ppm<	-1040.%	-.0781	.0382	.0217		
Ba1	.4607	ppm<	1.001 %	.4555	.4645	.4620		
Ca3	2.238	ppm	.7806 %	2.218	2.245	2.251		
Cd1	.0046 L	ppm<	17.67 %	.0054	.0046	.0037		
Cr4	.0056 L	ppm<	25.92 %	.0043	.0054	.0072		
Fe2	.1417	ppm	.4437 %	.1417	.1410	.1423		
Mg4	.7273	ppm	2.849 %	.7439	.7339	.7040		
Na2	1459. H	ppm	1.049 %	1442.	1471.	1465.		
Pb1	.0128 L	ppm<	186.1 %	-.0126	.0347	.0162		
Se4	.1666 L	ppm<	65.30 %	.0482	.2621	.1896		
*** Sample ID: LCS 3/30		5-1	Seq:	22	10:26:49 05 Apr 1994 ICP			
Ag1	**5.533**	ppm	1.145 %	5.561	5.461	5.578		
Al3	.0694 L	ppm	15.21 %	.0589	.0693	.0800		
As2	**5.615**	ppm	1.139 %	5.676	5.549	5.620		
Ba1	**5.781**	ppm	1.464 %	5.836	5.683	5.823		
Ca3	2.344	ppm	.8035 %	2.351	2.322	2.358		
Cd1	**1.015**	ppm	.4863 %	1.021	1.012	1.012		
Cr4	5.475	ppm	1.028 %	5.507	5.410	5.508		
Fe2	.1505	ppm	1.643 %	.1528	.1479	.1508		
Mg4	.7516	ppm	7.844 %	.7190	.8197	.7162		
Na2	1533. H	ppm	1.352 %	1545.	1509.	1544.		
Pb1	**5.788**	ppm	.6507 %	5.802	5.746	5.818		
Se4	**3.008**	ppm	3.774 %	3.082	2.877	3.064		

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: BLK		5-1	Seq: 24	10:30:03 05 Apr 1994 ICP				
Ag1	-.0035 L	ppm	-120.4%	.0005	-.0079	-.0032		
Al3	-.0224 L	ppm	-29.46%	-.0256	-.0148	-.0268		
As2	.0534 L	ppm	79.32 %	.0133	.0492	.0977		
Ba1	.0001 L	ppm	763.0 %	.0003	.0004	-.0005		
Ca3	.0012 L	ppm	316.4 %	.0045	-.0029	.0019		
Cd1	-.0001 L	ppm	-1972.%	-.0021	.0019	-.0001		
Cr4	-.0005 L	ppm	-344.3%	.0009	-.0000	-.0024		
Fe2	.0253 L	ppm	5.522 %	.0255	.0238	.0266		
Mg4	.0063 L	ppm	110.4 %	-.0014	.0120	.0082		
Na2	.3656 L	ppm	7.386 %	.3943	.3407	.3618		
Pb1	-.0098 L	ppm	-230.7%	-.0355	.0002	.0061		
Se4	.0095 L	ppm	536.6 %	-.0347	.0653	-.0020		
*** Sample ID: BLK		5-1	Seq: 25	10:33:17 05 Apr 1994 ICP				
Ag1	-.0020 L	ppm	-175.1%	.0001	-.0000	-.0059		
Al3	-.0024 L	ppm	-867.5%	-.0257	.0042	.0143		
As2	.0604 L	ppm	113.3 %	-.0108	.0664	.1256		
Ba1	.0000 L	ppm	203.1 %	.0000	.0000	-.0000		
Ca3	.0018 L	ppm	43.27 %	.0027	.0017	.0011		
Cd1	.0011 L	ppm	52.14 %	.0012	.0015	.0005		
Cr4	-.0003 L	ppm	-971.8%	.0021	-.0029	.0001		
Fe2	-.0001 L	ppm	-2926.%	-.0027	.0018	.0006		
Mg4	.0027 L	ppm	437.6 %	.0032	-.0095	.0145		
Na2	.2355 L	ppm	36.43 %	.2804	.2896	.1366		
Pb1	.0184 L	ppm	122.3 %	.0157	.0422	-.0026		
Se4	.0489 L	ppm	234.3 %	-.0052	-.0286	.1803		
*** Sample ID: ICSAI		5-1	Seq: 26	10:36:31 05 Apr 1994 ICP				
Ag1	.0115	ppm	22.00 %	.0135	.0087	.0122		
Al3	554.4 H	ppm	.3564 %	552.1	555.9	555.0		
As2	.4993 L	ppm	14.89 %	.4341	.5802	.4835		
Ba1	.0006 L	ppm	49.53 %	.0003	.0008	.0009		
Ca3	568.4	ppm	.2716 %	566.9	569.9	568.5		
Cd1	.0094	ppm	7.500 %	.0091	.0103	.0090		
Cr4	.0050 L	ppm	25.96 %	.0038	.0048	.0063		
Fe2	212.9	ppm	.2334 %	212.3	213.3	213.0		
Mg4	588.5	ppm	.2556 %	586.9	589.8	588.9		
Na2	.3205 L	ppm	30.42 %	.2683	.2602	.4330		
Pb1	.0145 L	ppm	123.8 %	-.0008	.0100	.0342		
Se4	.0687 L	ppm	306.3 %	.2718	-.1484	.0827		

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: ICSABI 5-1			Seq: 28	10:39:45 05 Apr 1994 ICP				
Ag1	1.119	ppm	.9058 %	1.109	1.129	1.120		
Al3	557.6 H	ppm	1.302 %	549.8	564.1	558.8		
As2	.4933 L	ppm	12.76 %	.5177	.4218	.5404		
Ba1	.5435	ppm	1.311 %	.5364	.5507	.5435		
Ca3	572.9	ppm	.9469 %	567.4	578.2	573.0		
Cd1	.9724	ppm	.7128 %	.9645	.9776	.9751		
Cr4	.5340	ppm	.9300 %	.5284	.5378	.5358		
Fe2	215.1	ppm	1.055 %	212.7	217.2	215.5		
Mg4	596.9	ppm	.9662 %	590.5	601.8	598.2		
Na2	.2988 L	ppm	22.89 %	.2236	.3157	.3572		
Pb1	1.042	ppm	4.109 %	1.014	1.091	1.020		
Se4	.1095 L	ppm	127.1 %	.0406	.0182	.2699		

*** Check Standard: 2 Ck2 Seq: 29 10:43:01 05 Apr 1994 ICP

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Ag1		104.9	5.245	5.000	ppm	2.357 %
Al3		103.0	5.149	5.000	ppm	1.891 %
As2		103.0	5.149	5.000	ppm	4.436 %
Ba1		106.0	5.299	5.000	ppm	2.420 %
Ca3		1081.	54.03	5.000	ppm	1.805 %
Cd1		94.93	4.746	5.000	ppm	1.390 %
Cr4		101.8	5.091	5.000	ppm	2.014 %
Fe2		107.9	5.395	5.000	ppm	2.030 %
Mg4		1064.	53.19	5.000	ppm	1.684 %
Na2		1056.	52.82	5.000	ppm	2.164 %
Pb1		105.6	5.279	5.000	ppm	1.082 %
Se4		104.3	5.214	5.000	ppm	4.176 %

*** Check Standard: 3 Ck3 Seq: 30 10:46:21 05 Apr 1994 ICP

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Ag1		-1.722	-.0002<	.0100	ppm	-1180.%
Al3		17.18	.0172	.1000	ppm	42.48 %
As2		-3.181	-.0159<	.5000	ppm	-466.6%
Ba1		6.220	.0003<	.0050	ppm	69.45 %
Ca3		1.498	.0075	.5000	ppm	53.07 %
Cd1		14.89	.0007<	.0050	ppm	50.71 %
Cr4		-21.89	-.0022<	.0100	ppm	-62.51%
Fe2		49.65	.0248	.0500	ppm	4.540 %
Mg4		4.212	.0211	.5000	ppm	96.56 %
Na2		21.48	.1074	.5000	ppm	49.42 %
Pb1		-17.43	-.0087<	.0500	ppm	-128.8%
Se4		9.126	.0456<	.5000	ppm	91.92 %

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: 960-1TC	5-1	Seq: 31	10:49:37 05 Apr 1994 ICP					
Ag1	**.0077** L	ppm<0.100	47.39 %	.0076	.0115	.0042		
Al3	.1006	ppm	3.985 %	.0964	.1044	.1012		
As2	**-.0015** L	ppm<0.500	-6269.%	.0941	-.0045	-.0941		
Ba1	**3.634**	ppm 3.603	1.011 %	3.673	3.600	3.630		
Ca3	55.27	ppm	.8868 %	55.75	54.77	55.30		
Cd1	**.0528**	ppm<0.100	3.103 %	.0526	.0512	.0545		
Cr4	**.0022** L	ppm<0.100	51.28 %	.0033	.0020	.0012		
Fe2	.0844	ppm	.7675 %	.0849	.0847	.0837		
Mg4	5.360	ppm	.9362 %	5.392	5.302	5.385		
Na2	1384. H	ppm	1.001 %	1398.	1371.	1382.		
Pb1	**.0588**	ppm<0.100	21.12 %	.0707	.0597	.0459		
Se4	**.1420** L	ppm<0.500	119.6 %	.0702	.0198	.3359		
*** Sample ID: 960-1QC	5-1	Seq: 32	10:52:51 05 Apr 1994 ICP					
Ag1	**.0045** L	ppm<0.100	49.59 %	.0022	.0047	.0067		
Al3	.1115	ppm	7.370 %	.1037	.1201	.1107		
As2	**.0650** L	ppm<0.500	38.53 %	.0399	.0650	.0900		
Ba1	**3.706**	ppm 3.71	.2917 %	3.717	3.707	3.695		
Ca3	56.01	ppm	.2844 %	56.16	55.84	56.03		
Cd1	**.0505**	ppm<0.100	2.765 %	.0519	.0491	.0507		
Cr4	**.0000** L	ppm<0.100	1382. %	-.0002	-.0005	.0008		
Fe2	.0914	ppm	2.472 %	.0889	.0924	.0931		
Mg4	5.366	ppm	.3097 %	5.361	5.385	5.352		
Na2	1402. H	ppm	.3021 %	1405.	1402.	1397.		
Pb1	**.0378** L	ppm<0.100	18.30 %	.0425	.0411	.0299		
Se4	**.1838** L	ppm<0.500	39.63 %	.2675	.1491	.1349		
*** Sample ID: 960-1SP	5-1	Seq: 34	10:56:06 05 Apr 1994 ICP					
Ag1	**5.287**	ppm/106%	1.057 %	5.222	5.313	5.325		
Al3	.1050	ppm	12.99 %	.1203	.0941	.1006		
As2	**5.264**	ppm/105%	3.328 %	5.062	5.364	5.367		
Ba1	**8.746**	ppm/102%	.8839 %	8.659	8.806	8.773		
Ca3	56.36	ppm	.8636 %	55.80	56.61	56.68		
Cd1	**1.005**	ppm/100%	1.180 %	.9931	1.017	1.006		
Cr4	**5.170**	ppm/103%	.8981 %	5.117	5.201	5.193		
Fe2	.1054	ppm	1.952 %	.1031	.1062	.1070		
Mg4	5.423	ppm	.6734 %	5.388	5.420	5.461		
Na2	1413. H	ppm	.9309 %	1399.	1424.	1418.		
Pb1	**5.511**	ppm/110%	.3850 %	5.523	5.487	5.524		
Se4	**2.945**	ppm/118%	4.449 %	2.971	3.061	2.803		

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: CONT.BLK#1 5-1			Seq: 35	10:59:21 05 Apr 1994 ICP				
Ag1	-.0012 L	ppm	-228.9%	-.0018	.0018	-.0034		
Al3	.0894 L	ppm	13.62 %	.0820	.1034	.0828		
As2	.0114 L	ppm	315.3 %	-.0189	.0021	.0510		
Ba1	.5902	ppm	1.363 %	.5812	.5966	.5928		
Ca3	.6494	ppm	.9217 %	.6436	.6555	.6491		
Cd1	.0036 L	ppm	34.21 %	.0022	.0046	.0040		
Cr4	.0022 L	ppm	51.14 %	.0031	.0024	.0010		
Fe2	.1262	ppm	3.936 %	.1273	.1306	.1208		
Mg4	-.2441 L	ppm	-12.46%	-.2423	-.2146	-.2754		
Na2	1407. H	ppm	1.384 %	1385.	1423.	1413.		
Pb1	.0239 L	ppm	6.075 %	.0256	.0230	.0232		
Se4	.1391 L	ppm	56.60 %	.1094	.2284	.0796		
*** Sample ID: #2		5-1	Seq: 36	11:02:36 05 Apr 1994 ICP				
Ag1	.0010 L	ppm	232.7 %	.0032	-.0013	.0010		
Al3	.0581 L	ppm	41.12 %	.0579	.0343	.0821		
As2	.0320 L	ppm	93.26 %	.0496	-.0025	.0489		
Ba1	.6039	ppm	.7887 %	.6077	.5985	.6055		
Ca3	.6367	ppm	.7439 %	.6372	.6317	.6411		
Cd1	.0039 L	ppm	15.88 %	.0033	.0039	.0045		
Cr4	-.0016 L	ppm	-85.85%	-.0011	-.0005	-.0032		
Fe2	.0572	ppm	2.687 %	.0581	.0554	.0580		
Mg4	-.2387 L	ppm	-3.284%	-.2303	-.2399	-.2459		
Na2	1394. H	ppm	.8312 %	1404.	1382.	1398.		
Pb1	.1590	ppm	22.29 %	.1349	.1425	.1997		
Se4	.0396 L	ppm	67.28 %	.0477	.0613	.0099		
*** Sample ID: #3		5-1	Seq: 38	11:05:49 05 Apr 1994 ICP				
Ag1	-.0022 L	ppm	-251.9%	-.0022	-.0078	.0034		
Al3	.0835 L	ppm	10.12 %	.0880	.0888	.0738		
As2	.0424 L	ppm	297.4 %	-.0504	.1859	-.0083		
Ba1	.6647	ppm	.3821 %	.6668	.6619	.6654		
Ca3	.5804	ppm	.6942 %	.5792	.5771	.5849		
Cd1	.0032 L	ppm	40.47 %	.0040	.0017	.0039		
Cr4	.0014 L	ppm	123.2 %	.0005	.0035	.0004		
Fe2	.0873	ppm	1.166 %	.0862	.0881	.0878		
Mg4	-.2272 L	ppm	-1.006%	-.2269	-.2297	-.2251		
Na2	1360. H	ppm	.4360 %	1363.	1353.	1363.		
Pb1	.0406 L	ppm	67.50 %	.0722	.0274	.0224		
Se4	.1019 L	ppm	91.22 %	.0154	.0901	.2003		

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: #4		5-1	Seq: 39	11:08:59 05 Apr 1994 ICP				
Ag1	.0029 L	ppm	198.8 %	.0042	.0078	-.0034		
Al3	.0973 L	ppm	33.18 %	.1278	.1008	.0634		
As2	-.0160 L	ppm	-193.2%	-.0302	.0194	-.0371		
Ba1	.6472	ppm	1.046 %	.6444	.6549	.6423		
Ca3	.6700	ppm	.8886 %	.6705	.6758	.6639		
Cd1	.0038 L	ppm	20.53 %	.0045	.0039	.0029		
Cr4	.0007 L	ppm	334.3 %	.0012	-.0019	.0029		
Fe2	.0975	ppm	4.042 %	.0948	.1021	.0958		
Mg4	-.2409 L	ppm	-15.28%	-.2770	-.2034	-.2423		
Na2	1386. H	ppm	1.090 %	1381.	1403.	1374.		
Pb1	-.0017 L	ppm	-168.3%	-.0034	-.0034	.0016		
Se4	.0528 L	ppm	166.8 %	.0195	-.0138	.1526		
*** Sample ID: #5		5-1	Seq: 40	11:12:09 05 Apr 1994 ICP				
Ag1	.0014 L	ppm	117.2 %	-.0005	.0025	.0021		
Al3	.1067	ppm	15.71 %	.1179	.0875	.1149		
As2	.0319 L	ppm	34.42 %	.0341	.0200	.0416		
Ba1	.6680	ppm	1.376 %	.6756	.6706	.6577		
Ca3	.7693	ppm	.7355 %	.7759	.7667	.7655		
Cd1	.0038 L	ppm	35.52 %	.0042	.0023	.0048		
Cr4	.0020 L	ppm	84.07 %	.0014	.0007	.0039		
Fe2	.0870	ppm	4.191 %	.0907	.0870	.0834		
Mg4	-.2399 L	ppm	-6.823%	-.2455	-.2528	-.2215		
Na2	1438. H	ppm	1.148 %	1450.	1444.	1419.		
Pb1	.0037 L	ppm	335.4 %	.0159	-.0089	.0041		
Se4	.0992 L	ppm	54.70 %	.1108	.1467	.0401		
*** Sample ID: #6		5-1	Seq: 42	11:15:19 05 Apr 1994 ICP				
Ag1	.0038 L	ppm	83.13 %	.0016	.0024	.0073		
Al3	.0686 L	ppm	9.892 %	.0629	.0668	.0761		
As2	-.0026 L	ppm	-1574.%	-.0498	.0150	.0269		
Ba1	.6150	ppm	1.139 %	.6212	.6163	.6074		
Ca3	.6058	ppm	.8312 %	.6027	.6116	.6030		
Cd1	.0044 L	ppm	29.16 %	.0030	.0054	.0049		
Cr4	.0027 L	ppm	151.9 %	.0064	.0036	-.0018		
Fe2	.0784	ppm	2.223 %	.0804	.0778	.0771		
Mg4	-.2584 L	ppm	-0.692%	-.2567	-.2602	-.2584		
Na2	1425. H	ppm	1.116 %	1438.	1428.	1407.		
Pb1	.0097 L	ppm	109.8 %	.0015	.0218	.0059		
Se4	.0878 L	ppm	48.17 %	.0576	.0697	.1362		

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: #7		5-1		Seq: 43		11:18:29 05 Apr 1994 ICP		
Ag1	.0039	L ppm	102.0 %	.0060	-.0007	.0063		
Al3	.0672	L ppm	26.33 %	.0866	.0521	.0628		
As2	.0405	L ppm	201.1 %	-.0379	.1245	.0348		
Ba1	.5090	ppm	.6030 %	.5061	.5087	.5122		
Ca3	.4501	L ppm	.3537 %	.4483	.4509	.4511		
Cd1	.0031	L ppm	26.26 %	.0027	.0027	.0041		
Cr4	.0011	L ppm	70.93 %	.0013	.0002	.0017		
Fe2	.0708	ppm	4.140 %	.0686	.0741	.0696		
Mg4	-.2622	L ppm	-6.192%	-.2450	-.2644	-.2773		
Na2	1430.	H ppm	.6545 %	1422.	1429.	1440.		
Pb1	-.0031	L ppm	-880.9%	.0285	-.0160	-.0219		
Se4	.1496	L ppm	30.80 %	.2026	.1201	.1259		

*** Check Standard: 2 Ck2 Seq: 44 11:21:44 05 Apr 1994 ICP

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Ag1		107.5	5.375	5.000	ppm	.7947 %
Al3		106.5	5.324	5.000	ppm	.8583 %
As2		103.8	5.189	5.000	ppm	.8329 %
Ba1		108.2	5.408	5.000	ppm	.9640 %
Ca3		1089.	54.44	5.000	ppm	.7672 %
Cd1		97.16	4.858	5.000	ppm	.8271 %
Cr4		103.9	5.196	5.000	ppm	.8570 %
Fe2		108.5	5.427	5.000	ppm	1.086 %
Mg4		1091.	54.55	5.000	ppm	.7534 %
Na2		1080.	54.00	5.000	ppm	1.157 %
Pb1		108.5	5.424	5.000	ppm	1.060 %
Se4		103.0	5.152	5.000	ppm	2.663 %

*** Check Standard: 3 Ck3 Seq: 45 11:25:02 05 Apr 1994 ICP

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Ag1		-9.803	-.0010	.0100	ppm	-343.4%
Al3		15.77	.0158	.1000	ppm	183.8 %
As2		2.896	.0145	.5000	ppm	146.8 %
Ba1		2.934	.0001	.0050	ppm	193.9 %
Ca3		1.421	.0071	.5000	ppm	11.39 %
Cd1		26.10	.0013	.0050	ppm	116.6 %
Cr4		1.459	.0001	.0100	ppm	194.6 %
Fe2		10.21	.0051	.0500	ppm	16.07 %
Mg4		.2541	.0013	.5000	ppm	379.4 %
Na2		84.06	.4203	.5000	ppm	10.22 %
Pb1		23.82	.0119	.0500	ppm	223.5 %
Se4		10.90	.0545	.5000	ppm	211.1 %

Line	Conc.	Units	SD/RSD	1	2	3	4	5
*** Sample ID: CRIF		5-1	Seq: 46	11:28:17 05 Apr 1994 ICP				
Ag1	.0208	ppm	9.018 %	.0225	.0188	.0210		
Al3	.0097 L	ppm	95.33 %	.0046	.0041	.0203		
As2	.0680 L	ppm	43.31 %	.0348	.0910	.0783		
Ba1	.0004 L	ppm	29.19 %	.0004	.0002	.0004		
Ca3	-.0024 L	ppm	-182.1%	-.0063	-.0035	.0024		
Cd1	.0111	ppm	6.574 %	.0107	.0106	.0119		
Cr4	.0223	ppm	7.373 %	.0211	.0216	.0242		
Fe2	-.0034 L	ppm	-99.35%	-.0003	-.0071	-.0029		
Mg4	.0249 L	ppm	81.67 %	.0119	.0483	.0144		
Na2	.3445 L	ppm	8.114 %	.3124	.3579	.3632		
Pb1	.1181	ppm	13.52 %	.1253	.1293	.0998		
Se4	.0387 L	ppm	203.4 %	-.0129	-.0003	.1294		
*** Sample ID: ICSAF		5-1	Seq: 48	11:31:27 05 Apr 1994 ICP				
Ag1	.0083 L	ppm	29.10 %	.0056	.0102	.0092		
Al3	546.5 H	ppm	1.106 %	553.3	541.7	544.6		
As2	.4378 L	ppm	18.09 %	.5094	.4513	.3527		
Ba1	.0003 L	ppm	73.61 %	.0001	.0005	.0004		
Ca3	556.0	ppm	.8757 %	561.4	551.9	554.8		
Cd1	.0060	ppm	23.12 %	.0052	.0075	.0051		
Cr4	.0066 L	ppm	25.94 %	.0085	.0057	.0055		
Fe2	209.0	ppm	.8746 %	211.0	207.5	208.6		
Mg4	586.0	ppm	.7701 %	591.0	582.2	585.0		
Na2	.3983 L	ppm	6.361 %	.4030	.3710	.4210		
Pb1	.0134 L	ppm	105.8 %	-.0023	.0254	.0172		
Se4	.1185 L	ppm	115.4 %	.2536	-.0199	.1218		
*** Sample ID: ICSABF		5-1	Seq: 49	11:34:37 05 Apr 1994 ICP				
Ag1	1.093	ppm	.5333 %	1.087	1.097	1.097		
Al3	546.3 H	ppm	.1364 %	546.8	546.6	545.4		
As2	.5687	ppm	9.805 %	.5183	.5594	.6286		
Ba1	.5301	ppm	.1774 %	.5308	.5304	.5290		
Ca3	562.0	ppm	.2453 %	563.3	562.3	560.5		
Cd1	.9606	ppm	.4652 %	.9648	.9611	.9559		
Cr4	.5282	ppm	.4784 %	.5309	.5260	.5277		
Fe2	210.6	ppm	.2138 %	211.1	210.6	210.2		
Mg4	588.4	ppm	.2035 %	589.2	589.0	587.0		
Na2	.3687 L	ppm	12.42 %	.3189	.3784	.4089		
Pb1	1.022	ppm	2.479 %	1.023	1.047	.9966		
Se4	.1096 L	ppm	168.4 %	-.0882	.2771	.1397		

Line	Conc.	Units	SD/RSD	1	2	3	4	5

*** Check Standard: 2 Ck2 Seq: 50 11:37:53 05 Apr 1994 ICP

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Ag1		104.5	5.227	5.000	ppm	.7233 %
Al3		103.3	5.165	5.000	ppm	1.157 %
As2		99.26	4.963	5.000	ppm	2.326 %
Ba1		105.7	5.287	5.000	ppm	1.067 %
Ca3		1075.	53.77	5.000	ppm	.9107 %
Cd1		95.03	4.752	5.000	ppm	.6923 %
Cr4		102.0	5.099	5.000	ppm	.6071 %
Fe2		107.7	5.387	5.000	ppm	.9526 %
Mg4		1064.	53.18	5.000	ppm	.8294 %
Na2		1052.	52.59	5.000	ppm	1.006 %
Pb1		105.9	5.294	5.000	ppm	1.317 %
Se4		102.4	5.118	5.000	ppm	.6354 %

*** Check Standard: 3 Ck3 Seq: 51 11:41:12 05 Apr 1994 ICP

Line	Flag	%Rcv.	Found	True	Units	SD/RSD
Ag1		2.310	.0002	.0100	ppm	2304. %
Al3		-10.67	-.0107	.1000	ppm	-219.1%
As2		9.237	.0462	.5000	ppm	106.2 %
Ba1		6.585	.0003	.0050	ppm	82.40 %
Ca3		2.006	.0100	.5000	ppm	29.10 %
Cd1		1.107	.0001	.0050	ppm	922.2 %
Cr4		-22.78	-.0023	.0100	ppm	-47.44%
Fe2		53.76	.0269	.0500	ppm	14.90 %
Mg4		5.669	.0283	.5000	ppm	41.78 %
Na2		56.81	.2840	.5000	ppm	13.37 %
Pb1		44.91	.0225	.0500	ppm	100.9 %
Se4		4.251	.0213	.5000	ppm	385.5 %

PRECISION DUPLICATE ICP METALS QUALITY CONTROL WORKSHEET

ANALYST: M. MILLER]
DATE: 04/05/94

Job #	Original Result	Analytic Result #2	High or Low	Rel. % Diff.	Matrix	Dilut'n	In Limits Low	In Limits High	Data Flag
Ag water samples		MDL:0.100			unit: mg/L				
960-1TC	U	U	Low	NC	water	1	---	---	
As water samples		MDL:0.500			unit: mg/L				
960-1TC	U	U	Low	NC	water	1	---	---	
Ba water samples		MDL:1.00			unit: mg/L				
960-1TC	3.63	3.71	Low	2.2	water	1	Y	---	
Cd water samples		MDL:0.100			unit: mg/L				
960-1TC	U	U	Low	NC	water	1	---	---	
Cr water samples		MDL:0.100			unit: mg/L				
960-1TC	U	U	Low	NC	water	1	---	---	
Pb water samples		MDL:0.100			unit: mg/L				
960-1TC	U	U	Low	NC	water	1	---	---	

(continued)
PRECISION DUPLICATE ICP METALS QUALITY CONTROL WORKSHEET

ANALYST: M. MILLER]
DATE: 04/05/94

Job #	Original Result	Analytic Result #2	High or Low	Rel. % Diff.	Matrix	Dilut'n	In Limits Low	In Limits High	Data Flag
Se water samples		MDL:0.500			unit: mg/L				
960-1TC	U	U	Low	NC	water	1	---	---	

MATRIX SPIKE ICP METALS QUALITY CONTROL WORKSHEET

ANALYST: M. MILLER]
DATE: 04/05/94

Job #	Original Result	mls. of spk added	Sample Vol/Wgt	mg/L of Spike	Spiked Sample	Percent Recover	In Limits (y or n)	Data Flag
Ag water samples		MDL:0.100		unit: mg/L		[spk sol.]=500 mg/L		
960-1TC	U	1.00	100.0	5.00	5.29	105.8	Y	
As water samples		MDL:0.500		unit: mg/L		[spk sol.]=500 mg/L		
960-1TC	U	1.00	100.0	5.00	5.26	105.2	Y	
Ba water samples		MDL:1.00		unit: mg/L		[spk sol.]=500 mg/L		
960-1TC	3.63	1.00	100.0	5.00	8.75	102.4	Y	
Cd water samples		MDL:0.100		unit: mg/L		[spk sol.]=100 mg/L		
960-1TC	U	1.00	100.0	1.00	1.00	100.0	Y	
Cr water samples		MDL:0.100		unit: mg/L		[spk sol.]=500 mg/L		
960-1TC	U	1.00	100.0	5.00	5.17	103.4	Y	
Pb water samples		MDL:0.100		unit: mg/L		[spk sol.]=500 mg/L		
960-1TC	U	1.00	100.0	5.00	5.51	110.2	Y	

(continued)
MATRIX SPIKE ICP METALS QUALITY CONTROL WORKSHEET

ANALYST: M. MILLER]
DATE: 04/05/94

Job #	Original Result	mls. of spk added	Sample Vol/Wgt	mg/L of Spike	Spiked Sample	Percent Recover	In Limits (y or n)	Data Flag
Se water samples	MDL:0.500		unit: mg/L		[spk sol.]=250 mg/L			
960-1TC	U	1.00	100.0	2.50	2.95	118.0	Y	

BLANK SPIKE ICP METALS QUALITY CONTROL WORKSHEET

ANALYST: M. MILLER]
DATE: 04/05/94

	Blk Ave. Less Than (mg/L)	mls. of spk added (mg/L)	Sample Volume (mls)	mg/L of Spike	Spiked Sample (mg/L)	Percent Recover	Within Limits (y or n)	Data Flag
Ag	MDL:0.100			unit: mg/L				
Blk Spike	0.100	1.00	100.0	5.000	5.53	110.6	Y	
As	MDL:0.500			unit: mg/L				
Blk Spike	0.500	1.00	100.0	5.000	5.62	112.4	Y	
Ba	MDL:1.00			unit: mg/L				
Blk Spike	1.00	1.00	100.0	5.000	5.78	115.6	Y	
Cd	MDL:0.100			unit: mg/L				
Blk Spike	0.100	1.00	100.0	1.000	1.01	101.0	Y	
Cr	MDL:0.100			unit: mg/L				
Blk Spike	0.100	1.00	100.0	5.000	5.48	109.6	Y	
Pb	MDL:0.100			unit: mg/L				
Blk Spike	0.100	1.00	100.0	5.000	5.79	115.8	Y	

(continued)
BLANK SPIKE ICP METALS QUALITY CONTROL WORKSHEET

ANALYST: M. MILLER]
DATE: 04/05/94

	Blk Ave. Less Than (mg/L)	mls. of spk added (mg/L)	Sample Volume (mls)	mg/L of Spike	Spiked Sample (mg/L)	Percent Recover	Within Limits (y or n)	Data Flag
Se	MDL:0.500			unit: mg/L				
Blk Spike	0.500	1.00	100.0	2.500	3.01	120.4	Y LAS 4/6/94	

REFERENCE STANDARD ICP METALS QUALITY CONTROL WORKSHEET

ANALYST: M. MILLER]
DATE: 04/05/94

	True Valu	Result (mg/L)	% Recovery	In Limits (y/n)
Ag	unit: mg/L			
Ref Std	5.00	5.25	105.0	Y
Ref Std	5.00	5.38	107.6	Y
Ref Std	5.00	5.23	104.6	Y
As	unit: mg/L			
Ref Std	5.00	5.15	103.0	Y
Ref Std	5.00	5.19	103.8	Y
Ref Std	5.00	4.96	99.2	Y
Ba	unit: mg/L			
Ref Std	5.00	5.30	106.0	Y
Ref Std	5.00	5.41	108.2	Y
Ref Std	5.00	5.29	105.8	Y
Cd	unit: mg/L			
Ref Std	5.00	4.75	95.0	Y
Ref Std	5.00	4.86	97.2	Y
Ref Std	5.00	4.75	95.0	Y
Cr	unit: mg/L			
Ref Std	5.00	5.09	101.8	Y
Ref Std	5.00	5.20	104.0	Y
Ref Std	5.00	5.10	102.0	Y
Pb	unit: mg/L			
Ref Std	5.00	5.28	105.6	Y
Ref Std	5.00	5.42	108.4	Y
Ref Std	5.00	5.29	105.8	Y

(continued)
REFERENCE STANDARD ICP METALS QUALITY CONTROL WORKSHEET

ANALYST: M. MILLER]
DATE: 04/05/94

	True Valu	Result (mg/L)	% Recovery	In Limits (y/n)
Se	unit: mg/L			
Ref Std	5.00	5.21	104.2	Y
Ref Std	5.00	5.15	103.0	Y
Ref Std	5.00	5.12	102.4	Y

MERCURY/CR+6 ANALYSIS DATA SHEET

Wave Length 253.7 Lamp Voltage _____ Lamp Current 4

Prep: 4/5/94
Date Run: 4/6/94 Analyst: C. Monfalcone Method No. (+ H_2O 7470 / Ha soil; Cr+6 7471; 7197)

STANDARD CALIBRATION

Standard	Conc. ug/ml	Absor.	Actual Conc. ug/ml	Absor.	Actual Conc. ug/ml	Absor.	Actual Conc. ug/ml
Blank	0	0					
Std #1	0.00050	0.020					
Std #2	0.0010	0.049					
Std #3	0.0020	0.096					
Std #4	0.0050	0.235					
Std #5	0.010	0.446					

START TIME: 12:30 - 14:05

Correlation Coefficient CC=0.99952 Signature: Christine Monfalcone

Sample ID	Absorb.	Initial Conc ug/ml	Init. Vol./wt.	Final Volume	Dil.	Final Conc. ug/ml : ug/g	Description
ICV	0.148	0.00324	100ml	100ml		0.00324	108%
ICB	0.001	<0.00010				<0.00010	
CRI	0.020	0.00038				0.00038	95%
Pb	0.00	<0.00010				<0.00010	
LCS	0.047	0.00099				0.00099	99%
CCV	0.146	0.00319				0.00319	106%
CCB	0.00	<0.00010				<0.00010	
Sanifill 990-1	0.001	<0.00010				<0.00010	
-2	0.00	<0.00010				<0.00010	
-3	0.00	<0.00010				<0.00010	
-4	-0.001	<0.00010				<0.00010	
-6	0.00	<0.00010				<0.00010	
-7	0.001	<0.00010				<0.00010	
-8	0.00	<0.00010				<0.00010	
-9	0.001	<0.00010				<0.00010	
V. of Londonville 943-1	0.002	<0.00010				<0.00010	
Newell 985-1	0.004	<0.00010				<0.00010	
CCV	0.148	0.00324				0.00324	108%
CCB	0.001	<0.00010				<0.00010	
Express Lab 1050-1	-0.001	<0.00010				<0.00010	
Day Eng. 1030-1	0.00	<0.00010				<0.00010	
-2	-0.001	<0.00010				<0.00010	
C.S. Osborne 1035-1	0.032	~~<0.00010~~ 0.00065				~~<0.00010~~ 0.00065	

CM 4/6

MERCURY/CR-6 ANALYSIS DATA SHEET

Wave Length _____ Lamp Voltage _____ Lamp Current _____

Date _____ Analyst: _____ Method No.: Hg H2O / Hg soil ; Cr-6 7470 / 7471 ; 7197

STANDARD CALIBRATION

Standard	Conc. ug/ml	Absor.	Actual Conc. ug/ml	Absor.	Actual Conc. ug/ml	Absor.	Actual Conc. ug/ml
Blank							
Std #1							
Std #2							
Std #3							
Std #4							
Std #5							

START TIME: _____

Correlation Coefficient _____ Signature: _____

Sample ID	Absorb.	Initial Conc.ug/ml	Init. Vol./wt.	Final Volume	Dil.	Final Conc. ug/ml : ug/g	Description
Co-Op Screw 998-1	-0.001	<0.00010	100ml	100ml		<0.00010	
Xerox 963-1	0.002	<0.00010				<0.00010	
-1DC	0.004	<0.00010				<0.00010	
-1SP	0.049	0.00103				0.00103	103%
-2	0.001	<0.00010				<0.00010	
-3	0.002	<0.00010				<0.00010	
CCV	0.146	0.00319				0.00319	106%
CCB	0.00	<0.00010				<0.00010	
Xerox 963-4	0.00	<0.00010				<0.00010	
-5	-0.001	<0.00010				<0.00010	
-6	-0.001	<0.00010				<0.00010	
-7	0.001	<0.00010				<0.00010	
-8	0.00	<0.00010				<0.00010	
-9	0.002	<0.00010				<0.00010	
-11	0.001	<0.00010				<0.00010	
-12	0.001	<0.00010				<0.00010	
-13	0.002	<0.00010				<0.00010	
-14	0.001	<0.00010				<0.00010	
CCV	0.146	0.00319				0.00319	106%
CCB	0.00	<0.00010				<0.00010	
963-15	0.00	<0.00010	↓	↓		<0.00010	
-16	0.00	<0.00010				<0.00010	
TC Pb 3/24	-0.001	<0.00010	10ml	100ml	1/10	<0.0010	

MERCURY CR+6 ANALYSIS DATA SHEET

Wave Length _____ Lamp Voltage _____ Lamp Current _____

Date _____ Analyst: _____ Method No.: ~~H2O~~ 7470 / ~~soil~~ 7471 ; ~~Cr+6~~ 7197

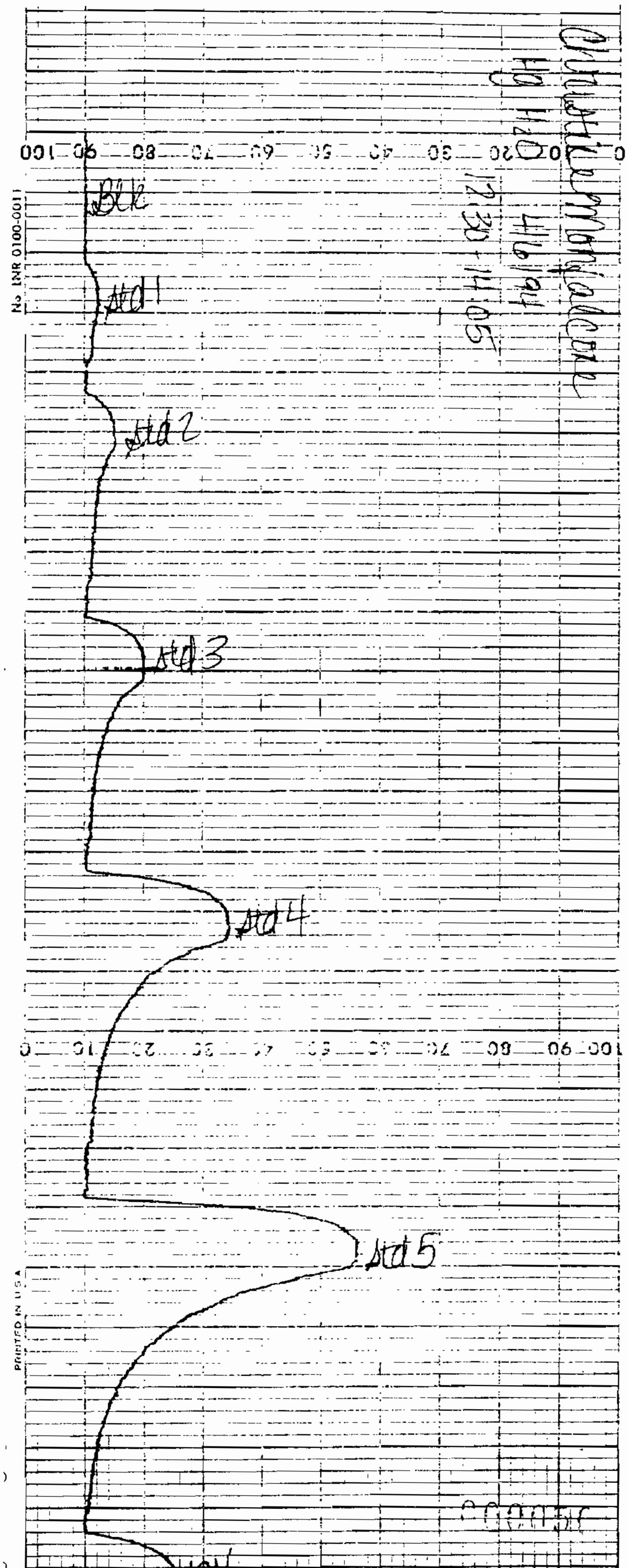
STANDARD CALIBRATION

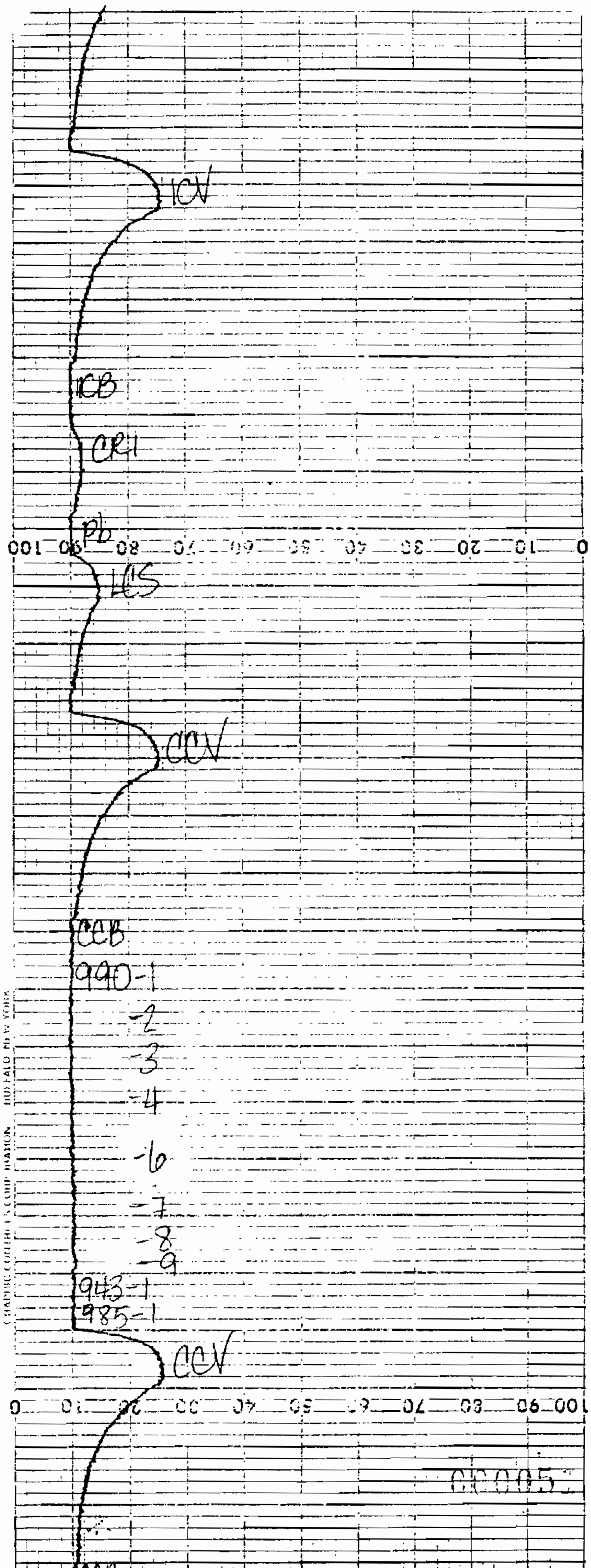
Standard	Conc. ug/ml	Absor.	Actual Conc. ug/ml	Absor.	Actual Conc. ug/ml	Absor.	Actual Conc. ug/ml
Blank							
Std #1							
Std #2							
Std #3							
Std #4							
Std #5							

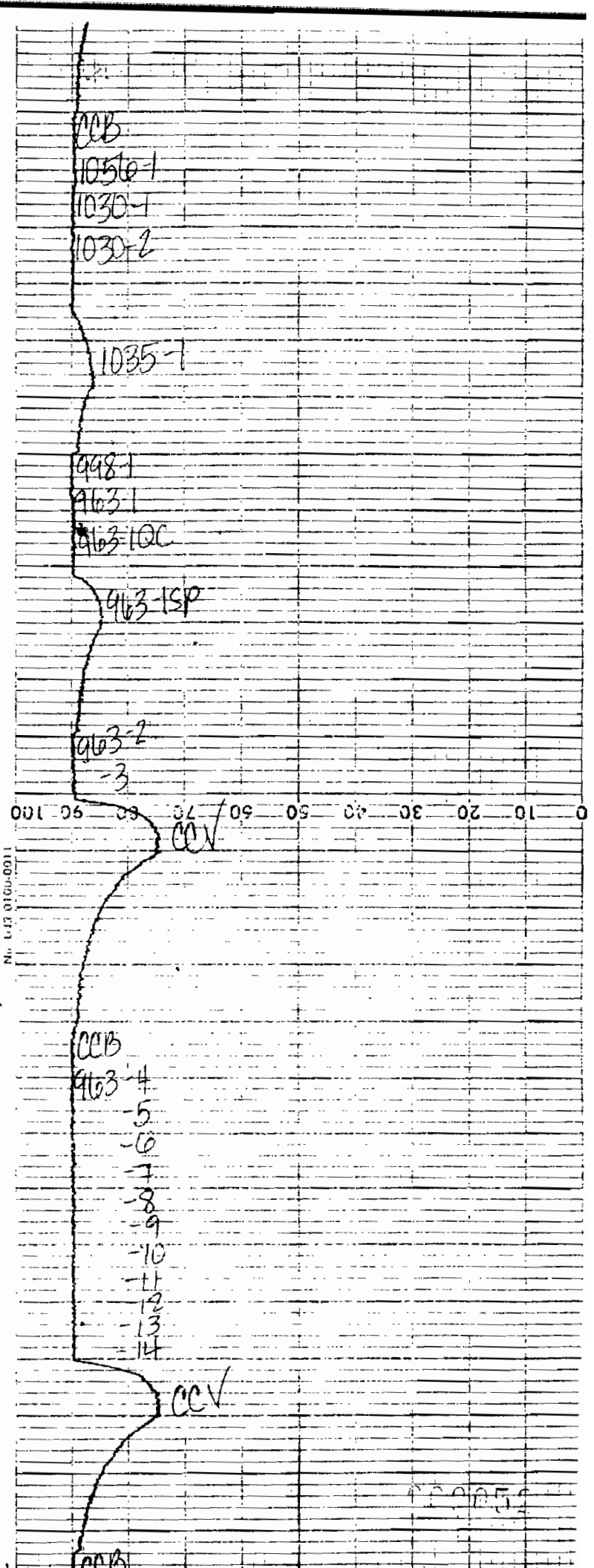
START TIME: _____

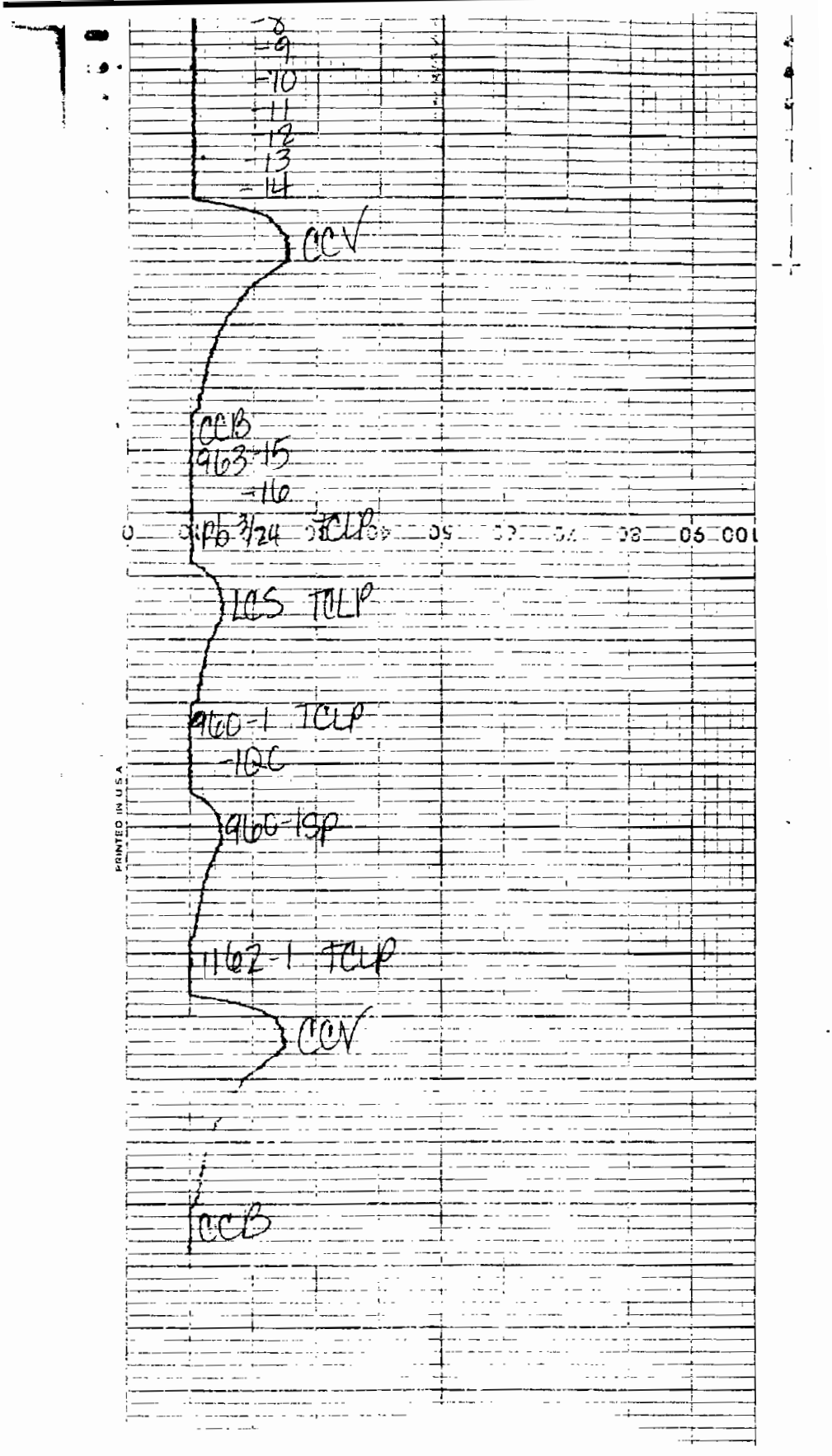
Correlation Coefficient _____ Signature: _____

Sample ID	Absorb.	Initial Conc.ug/ml	Init. Vol./wt.	Final Volume	Dil.	Final Conc. ug/ml : uo/g	Descriotion
TC LCS	0.047	0.00099	10ml	100ml	1/10	0.0099	99%
TC 9100-1	-0.00	<0.00010	↓	↓	↓	<0.0010	
TC -12C	0.00	<0.00010	↓	↓	↓	<0.0010	
TC -1SD	0.046	0.00096	↓	↓	↓	0.0096	96%
TC 1102-1 ~~CCV~~ CMS	0.00	<0.00010	↓	↓	↓	<0.0010	
CCV ~~CCB~~	0.145	0.00317	100ml	↓		0.00317	106%
CCB	0.00	<0.00010	↓	↓		<0.00010	


Hg H2O
4/6/94
1230-1405
Blk
std 1
std 2
std 3
std 4
std 5
PRINTED IN U.S.A.


ICV
ICB
CRI
Pb
LCS
CCV
CCB
990-1
-2
-3
-4
-6
-7
-8
-9
943-1
985-1
CCV
0 10 20 30 40 50 60 70 80 90 100
GRAPHIC CONTROLS CORPORATION BUFFALO NEW YORK


CCB
1056-1
1030-1
1030-2
1035-1
948-1
963-1
963-1QC
963-1SP
963-2
-3
CCV
CCB
963-4
-5
-6
-7
-8
-9
-10
-11
-12
-13
-14
CCV
CCB



METALS (DIRECT ASPIRATION) QUALITY CONTROL WORKSHEET

Parameter:Hg Analyst:C. MONFALCONE Date: 04/06 1994

A.) Linear Regression (if applicable):

1) Number of Stds. used: N.A. 3) Y-intercept: N.A.

2) Corr. Coefficient: 0.999 4) Slope: N.A.

B.) Precision duplicates (as Relative Percent Deviation - RPD)

MDL = 0.0001 Low Level = <5xMDL High Level = >=5xMDL

Job #	Original Result (mg/L)	Analytic Result #2 (mg/L)	High or Low Level	Rel. % Diff. (RPD)	Matrix	Dilut'n	In Limits (y or n) Low	High	Dat Fla
R/963-1	U	U	Low	N C	water	1	----	----	

C.) Spiked Recovery (one for every ten samples run)

Job #	Original Result (mg/L)	mls. of 0.1 mg/L spk added	Sample Volume (mls)	mg/L of Spike	Spiked Sample (mg/L)	Percent Recover	Within Limits (y or n)	Dat Fla
R/963-1	U	1.00	100.0	0.0010	0.00103	103.0	Y	

METALS (DIRECT ASPIRATION) QUALITY CONTROL WORKSHEET

Parameter:Hg Analyst:C. MONFALCONE Date: 04/06

D.) Blank Spike Recovery (one for every ten samples run)

Job #	(B) Blank Average (mg/L) Less Than	mls. of 0.1 mg/L spk added	Sample Volume (mls)	(C) mg/L of Spike	(A) Value Spiked Sample (mg/L)	Percent Recover	Within Limits (y or n)	Dat Fla
Blk Spk	0.00010	1.00	100.0	0.0010	0.00099	99.0	Y	

E. Reference Standard Recovery:

	True Valu	Result (mg/L)	% Recovery	W/in Limits (y or n)	Dat Fla
Ref Std	0.00300	0.00324	108.0	Y	
Ref Std	0.00300	0.00319	106.3	Y	
Ref Std	0.00300	0.00324	108.0	Y	
Ref Std	0.00300	0.00319	106.3	Y	
Ref Std	0.00300	0.00319	106.3	Y	
Ref Std	0.00300	0.00317	105.7	Y	

NOTES:

1. All QC calculations to 3 sig. fig.
3. Sample duplicates out of limits (on Ave.) disqualify run.
3. Blank spikes out of limits (on Ave.) disqualify run.
4. Ref. Std. recovery out of limits (on Ave.) disqualify run.
5. Spiked samples out of limits - repeat sample and all others similar.

ATTACHMENT C-4

ANALYTICAL RESULTS FROM NEUTRON ACTIVATION ANALYSIS OF BARIUM WASTE (RADIOACTIVITY)

XRAL ACTIVATION SERVICES INCORPORATED

3915 RESEARCH PARK, SUITE A-12, ANN ARBOR, MICHIGAN, 48108

PHONE: (800) 232-4130 FAX: (313) 662-3260

CERTIFICATE OF ANALYSIS

TO: TAM CERAMICS INC.
ATTN: DR. TERRY DEAN
P.O. BOX 67
4511 HYDE PARK BOULEVARD
NIAGARA FALLS, N.Y.
14305-0067

CUSTOMER NO. 336/01/01

DATE SUBMITTED
04-MAY-94

REPORT: 4694 FILE NUMBER: 4741

1 SAMPLE

WAS ANALYZED AS FOLLOWS:

ELEMENTS	DETECTION LIMIT	UNITS	METHOD	ELEMENTS	DETECTION LIMIT	UNITS	METHOD
TH	0.5000	PPM	INAA	U	0.5000	PPM	INAA

COMMENTS:

THIS IS YOUR P.O. #94-1890.
THIS IS A FINAL REPORT.

DATE 16-MAY-94

XRAL ACTIVATION SERVICES INC.

CERTIFIED BY .....

*** UNLESS INSTRUCTED OTHERWISE WE WILL DISCARD ALL SAMPLES ***
IRRADIATED SAMPLES AFTER 30 DAYS. ANY OTHER MATERIAL AFTER 120 DAYS.

XRAL ACTIVATION SERVICES INCORPORATED

DATE: 16-MAY-94 REPORT: 4694 FILE NUMBER: 4741 PAGE: 1

S A M P L E	TH PPM	U PPM
BA CO3 SLUDGE	55	120

ATTACHMENT D

BILL-OF-LADING

BILL OF LADING

Chemical Waste Management, Inc.

Technical Services Division
4400 River Road
Tonawanda, New York 14151
(716) 879-0650 Fax: (716) 879-0655

PROJECT NO.	WORK ORDER #
30428	
LOAD NO.	DATE
	3/28/94
TRACTOR	TRAILER
347791	

PICK UP

SHIPPER
NAME: TAM CERAMICS
STREET: 4511 Hyde Park Blvd.
CITY: Niagara Falls STATE: NY ZIP CODE: 14305
CONTACT NAME: Russ Steiger / (716)278-9473
SCHEDULED TIME:

ADDITIONAL INFORMATION:

DELIVERY

CONSIGNEE
NAME: CWM Chemical Services, Inc.
STREET: 1550 Balmer Road
CITY: Model City STATE: NY ZIP CODE: 14107
CONTACT NAME: Anthony Calabro / (716)879-0650
SCHEDULED TIME:

ADDITIONAL INFORMATION:

PRODUCT CODE	MATERIAL DESCRIPTION	QUANTITY	DRUM SIZE	DRUM TYPE	ULTIMATE SITE	DRUM NUMBERS
K57878	(Debris) Non-Regulated MATERIAL DB 3/28/94	1	55	DM	MDC	
	**INVOICE: TONAWANDA TECHNICAL SERVICES					

PICK UP

ARRIVAL TIME ____ AM/PM RELEASE TIME ____ AM/PM

TRAILER EMPTY UPON ARRIVAL (If not, explain below) ☐ YES ☐ NO

DIP MEASUREMENT (Tankers Only) ____ INCHES

COMMENTS: (EXPLAIN ALL DELAYS) ____

I, THE UNDERSIGNED, CERTIFY THAT THE ABOVE INFORMATION IS TRUE AND COMPLETE.

X ____
DRIVER'S SIGNATURE

X ____ FIRM
SHIPPER'S SIGNATURE

DELIVERY

DRIVER ____ DATE ____

ARRIVAL TIME ____ AM/PM RELEASE TIME ____ AM/PM

TRAILER EMPTY UPON DEPARTURE (If not, explain below) ☐ YES ☐ NO

COMMENTS: (EXPLAIN ALL DELAYS) ____

I, THE UNDERSIGNED, CERTIFY THAT THE ABOVE INFORMATION IS TRUE AND COMPLETE.

X ____
DRIVER'S SIGNATURE

X ____ FIRM
CONSIGNEE'S SIGNATURE

BILLING COPY GREEN - TSDF COPY YELLOW - TRANSPORTATION PINK - GENERATOR COPY GOLD - DRIVER

ATTACHMENT E

HAZARDOUS WASTE MANIFESTS

8-14-1 (3/89)—71

STATE OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF HAZARDOUS SUBSTANCES REGULATION

HAZARDOUS WASTE MANIFEST

P.O. Box 12820, Albany, New York 12212

CCWM

Please print or type. Do not Staple.

Form Approved. OMB No. 2050-0039. Expires 9-30-94

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA No. NYD097649016 — Manifest Document No. 32894

2. Page 1 of 1 — Information in the shaded areas is not required by Federal Law.

3. Generator's Name and Mailing Address: TAM CERAMICS, 4511 Hyde Park Blvd, Niagara Falls NY 14305

A. State Manifest Document No. NY B 7028415

4. Generator's Phone (716) 278-9423

B. Generator's ID: same

5. Transporter 1 (Company Name): CHEMICAL WASTE MANAGEMENT, INC.

6. US EPA ID Number: ILD099202681

C. State Transporter's ID: NY PA96

D. Transporter's Phone (716) 879-0600

7. Transporter 2 (Company Name)

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone ( )

9. Designated Facility Name and Site Address: CWM CHEMICAL SERVICES, INC., 1550 BALMER ROAD, MODEL CITY NY 14107

10. US EPA ID Number: NYD049836679

G. State Facility's ID

H. Facility's Phone (716) 754-8231

11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
GENERATOR a. RQ Hazardous Waste Solid, N.O.S., 9, NA3077, III (Barium, Lead) RQ 0008 = 1lb. ERG #31	XX	4CF	XXXX4	Y	EPA D005 STATE
b. [redacted] Hazardous Waste Liquid, N.O.S., 9, NA3082, III (Barium) ERG#31	XX	20M	XX11	G	EPA D005 STATE
c.					EPA STATE
d.					EPA STATE

J. Additional Descriptions for Materials Listed Above
a. Barium Carbonate Sludge MDC: J46323
b. Barium Decon Water MDC: BN4672 → M06007

K. Handling Codes for Wastes Listed Above
a. L c.
b. T d.

15. Special Handling Instructions and Additional Information
CWM EMERGENCY RESPONSE INFORMATION (800)765-8713 SR # _____
PROJECT # 30428
INVOICE: TECH SVC., TONAWANDA a) D006, D008 b) D005

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations and state laws and regulations.

If I am a large quantity generator, I certify that I have program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR if I am a small generator, I have made a good faith effort to minimize my waste and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Mo.	Day	Year
Russ Staab		03	28	94

TRANSPORTER

17. Transporter 1 (Acknowledgement of Receipt of Materials)

Printed/Typed Name	Signature	Mo.	Day	Year
Robert Bellinger		03	28	94

18. Transporter 2 (Acknowledgement of Receipt of Materials)

Printed/Typed Name	Signature	Mo.	Day	Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 19.

Printed/Typed Name	Signature	Mo.	Day	Year

In case of emergency or spill immediately call the National response center

EPA Form 8700-22 (Rev. 9-88) Previous editions are obsolete.

CWM Chemical Services, Inc.

Model City Facility
P.O. Box 200
1550 Balmer Road
Model City, New York 14107
716/754-8231

June 3, 1994

Russ Steiger
Tam Ceramics, Inc.
4511 Hyde Park Blvd.
P.O. Box 67
Niagara Falls, New York
14305-0067

Dear Mr. Steiger:

This written correspondence will serve as verification for the disposal of Tam Ceramic's barium sludge profile J46323 on Thursday June 2, 1994. Should you require further information to document the disposal please contact me at our facility.

Sincerely:

Gregory Damm
Facility Service Representative.

Chemical Waste Management, Inc.

WASTE PROFILE

BN 4672
Profile #

Reference MDC007

☐ Check here if this is a Recertification

LOCATION OF ORIGINAL TS TON

TEC

GENERAL INFORMATION

1. GENERATOR NAME: TAM CERAMICS — Generator USEPA ID: NYD097649016
2. Generator Address: 4511 Hyde Park Blvd, Niagara Falls NY 14305 — Billing Address: ☐ Same CWM Inc Tech Svcs Div, 4400 River Road, Tonawanda NY 14151
3. Technical Contact/Phone: Russ Steiger / (716) 278-9423
4. Alternate Contact/Phone: — Billing Contact/Phone: Anthony Calabro / (716) 879-065

PROPERTIES AND COMPOSITION

5. Process Generating Waste: Decontamination of equipment used to excavate Barium Contaminated Soil
6. Waste Name: Decon Water Contaminated With Barium
7. A. Is this a USEPA hazardous waste (40 CFR Part 261)? Yes ☒ No ☐
   B. Identify ALL USEPA listed and characteristic waste code numbers (D,F,K,P,U): D005
   State Waste Codes:
8. Physical State @ 70°F: A. Solid ☐ Liquid ☒ Both ☒ B. Single Layer ☐ Multilayer ☐ C. Free liquid range 95 to 100 %
9. A. pH: Range 5 to 9 or Not applicable ☐ B. Strong Odor ☐; describe
10. Liquid Flash Point: < 73°F ☐ 73-99°F ☐ 100-139°F ☐ 140-199°F ☐ ≥ 200°F ☐ N.A. ☒ Closed Cup ☐ Open Cup ☐
11. CHEMICAL COMPOSITION: List ALL constituents (including halogenated organics) present in any concentration and forward available analysis.

Constituents	Range	Units	Constituents	Range	Units
Water	80 - 100	%			
Silt Soil	0 - 10	%			
Barium	0 - 4	%			

TOTAL COMPOSITION MUST EQUAL OR EXCEED 100%

12. OTHER: PCBs if yes, concentration ____ ppm, PCBs regulated by 40 CFR 761 ☐. Pyrophoric ☐ Explosive ☐ Radioactive ☐
    Benzene if yes, concentration ____ ppm. Shock Sensitive ☐ Oxidizer ☐ Carcinogen ☐ Infectious ☐ Other
13. If the waste is subject to the land ban and meets the treatment standards, check here: ____, and supply analytical results where applicable.

SHIPPING INFORMATION

14. PACKAGING: Bulk Solid ☐ Bulk Liquid ☐ Drum ☒ Type/Size: 55gal DM Other
15. ANTICIPATED ANNUAL VOLUME: 4 Units: drums Shipping Frequency: annually

SAMPLING INFORMATION

16a. Sample source (drum, lagoon, pond, tank, vat, etc.)
Date Sampled: Sampler's Name/Company:
16b. Generator's Agent Supervising Sampling: 17. ☐ No sample required (See Instructions.)

GENERATOR'S CERTIFICATION

I hereby certify that all information submitted in this and all attached documents contains true and accurate descriptions of this waste. Any sample submitted is representative as defined in 40 CFR 261, Appendix I or by using an equivalent method. All relevant information regarding known or suspected hazards in the possession of the generator has been disclosed. I authorize CWM to obtain a sample from any waste shipment for purposes of recertification.

Signature — Russ Steiger HSE Mgr (Printed (or typed) name and title) — 3/28/97 (Date)

CWM Form 6000-C replaces and is equivalent to the following forms: CWM-51, CWM-6000, CWM 50-A-2 and CWM 50-B

erator: TAM LEPANICO Manifest Doc. No.: 3121819177

M Profile Number: 5:4:4:3:2:1:3: State Manifest No.: NYB7028415

s this waste a non-wastewater or a wastewater? (See 40 CFR 268.2) Check ONE: X Non-Wastewater ☐ Wastewater

f this waste is subject to any California List restrictions enter the letter from below (either A, B1, or B2) next to each restriction that is applicab
____HOCs ____PCBs ____Acid ____Metals ____Cyanides

/6NYCRR371

dentify ALL USEPA hazardous waste codes that apply to this waste shipment, as defined by 40 CFR 261/. For each waste code, identify the corre sponding subdivision, or check NONE if the waste code has no subdivision. Also check which treatment standards apply. Spent solvent and Californ List treatment standards are listed on the back of this form. If F039, multi-source leachate applies, those standards must be attached by the generato

4. US EPA HAZARDOUS WASTE CODE(S)	5. SUBDIVISION — ENTER THE SUBDIVISION DESCRIPTION (IF NOT APPLICABLE SIMPLY CHECK NONE): DESCRIPTION	NONE	6. APPLICABLE TREATMENT STANDARDS — 6.a PERFORMANCE-BASED: CHECK AS APPLICABLE: 268.41(a)/376.4(b)	268.43(a)/376.4(d)	6.b SPECIFIED TECHNOLOGY: IF APPLICABLE ENTER THE 40 CFR 268.42-TABLE 1 TREATMENT CODE(S): 268.42(a)/376.4(c)	7. HOW MUST THE WASTE BE MANAGED? ENTER THE LETTER FROM BELOW
D005		X	X			A
D006		X	X			A
D008		X	X			A

To list additional USEPA waste code(s) and subcategory(s), use the supplemental sheet provided (CWM-[illegible]) and check here: ☐

W MUST THE WASTE BE MANAGED? In column 7 above, enter the letter (A, B1, B2, B3, C, or D) below that describes how the waste must be managed to comply with the land disposal regulations (40 CFR 268.7). Please understand that if you enter the letter B1, B2, B3, or D, you are making the appropriate certification as provided below.

RESTRICTED WASTE REQUIRES TREATMENT
This waste must be treated to the applicable treatment standards set forth in 40 CFR Part 268 Subpart D, 268.32, or RCRA Section 3004(d). /6NYCRR 376.4

. RESTRICTED WASTE TREATED TO PERFORMANCE STANDARDS
"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and that, based upon my inquiry of those individuals immediately responsible for obtaining this information, I believe that the treatment process has been operated and maintained properly so as to comply with the performance levels specified in 40 CFR part 268 Subpart D and all applicable prohibitions set forth in 40 CFR 268.32 or RCRA Section 3004(d) without impermissible dilution of the prohibited waste. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment." /6NYCRR 376.4

2 RESTRICTED WASTES FOR WHICH THE TREATMENT STANDARD IS EXPRESSED AS A SPECIFIED TECHNOLOGY (AND THE WASTE HAS BEEN TREATED BY THAT TECHNOLOGY) /6NYCRR 376.4(c)
"I certify under penalty of law that the waste has been treated in accordance with the requirements of 40 CFR 268.42. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

3 GOOD FAITH ANALYTICAL CERTIFICATION - FOR INCINERATED ORGANICS
"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and that, based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the nonwastewater organic constituents have been treated by incineration in units operated in accordance with 40 CFR Part 264 Subpart O or Part 265 Subpart O, or by combustion in fuel substitution units operating in accordance with applicable technical requirements, and I have been unable to detect the nonwastewater organic constituents despite having used best good faith efforts to analyze for such constituents. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

RESTRICTED WASTE SUBJECT TO A VARIANCE
This waste is subject to a national capacity variance, a treatability variance, or a case-by-case extension. Enter the effective date of prohibition in column 7 above.

/6NYCRR 376.4

RESTRICTED WASTE CAN BE LAND DISPOSED WITHOUT FURTHER TREATMENT
"I have determined that this waste meets all applicable treatment standards set forth in 40 CFR Part 268 Subpart D, and all applicable prohibition levels set forth in Section 268.32 or RCRA Section 3004(d), and therefore, can be land disposed without further treatment. A copy of all applicable treatment standards and specified treatment methods is maintained at the treatment, storage and disposal facility named above. "I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D and all applicable prohibitions set forth in 40 CFR 268.32 or RCRA section 3004(d). I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting false certification, including the possibility of a fine and imprisonment." /6NYCRR 376.4 /6NYCRR 376.4

. WASTE IS NOT CURRENTLY SUBJECT TO PART 268 RESTRICTIONS
This waste is a newly identified waste that is not currently subject to any 40 CFR Part 268 restrictions. or 6NYCRR 376.4 restrictions.

hereby certify that all information submitted in this and all associated documents is complete and accurate, to the best of my knowledge and information.

[signature] — RUSS STRONG, HSE Manager — 3/28/97

Generator Name: IAM CERAMICS Manifest Doc. No.: 312819 14

VM Profile Number: B:N:416:712 State Manifest No.: NYB702841 5

Is this waste a non-wastewater or a wastewater? (See 40 CFR 268.2) Check ONE: ☐ Non-Wastewater ☒ Wastewater

If this waste is subject to any California List restrictions enter the letter from below (either A, B1, or B2) next to each restriction that is applicable:
_____HOCs. _____PCBs. _____Acid. _____Metals. _____Cyanides. /6NYCRR 371

Identify ALL USEPA hazardous waste codes that apply to this waste shipment, as defined by 40 CFR 261. For each waste code, identify the corresponding subdivision, or check NONE if the waste code has no subdivision. Also check which treatment standards apply. Spent solvent and California List treatment standards are listed on the back of this form. If F039, multi-source leachate applies, those standards must be attached by the generator.

4. US EPA HAZARDOUS WASTE CODE(S)	5. SUBDIVISION ENTER THE SUBDIVISION DESCRIPTION (IF NOT APPLICABLE SIMPLY CHECK NONE)		6. APPLICABLE TREATMENT STANDARDS			7. HOW MUST THE WASTE BE MANAGED? ENTER THE LETTER FROM BELOW
			6.a - PERFORMANCE-BASED: CHECK AS APPLICABLE		6.b - SPECIFIED TECHNOLOGY: IF APPLICABLE ENTER THE 40 CFR 268.42 TABLE 1 TREATMENT CODE(S)	
	DESCRIPTION	NONE	268.41(a)/ 376.4 (b)	268.43(a)/ 376.4 (d)	268.42(a)/ 376.4 (c)	
D005		X	X			A

To list additional USEPA waste code(s) and subcategory(s), use the supplemental sheet provided (CWM-2001-E) and check here: ☐

HOW MUST THE WASTE BE MANAGED? In column 7 above, enter the letter (A, B1, B2, B3, C, or D) below that describes how the waste must be managed to comply with the land disposal regulations (40 CFR 268.7). Please understand that if you enter the letter B1, B2, B3, or D, you are making the appropriate certification as provided below.

A. RESTRICTED WASTE REQUIRES TREATMENT

This waste must be treated to the applicable treatment standards set forth in 40 CFR Part 268 Subpart D, 268.32, or RCRA Section 3004(d). /6NYCRR 376.4

B1. RESTRICTED WASTE TREATED TO PERFORMANCE STANDARDS

"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and that, based upon my inquiry of those individuals immediately responsible for obtaining this information, I believe that the treatment process has been operated and maintained properly so as to comply with the performance levels specified in 40 CFR part 268 Subpart D and all applicable prohibitions set forth in 40 CFR 268.32 or RCRA Section 3004(d) without impermissible dilution of the prohibited waste. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment." /6NYCRR 376.4

B2. RESTRICTED WASTES FOR WHICH THE TREATMENT STANDARD IS EXPRESSED AS A SPECIFIED TECHNOLOGY (AND THE WASTE HAS BEEN TREATED BY THAT TECHNOLOGY)

"I certify under penalty of law that the waste has been treated in accordance with the requirements of 40 CFR 268.42. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment." /6NYCRR 376.4 (c)

B3. GOOD FAITH ANALYTICAL CERTIFICATION - FOR INCINERATED ORGANICS

"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and that, based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the nonwastewater organic constituents have been treated by incineration in units operated in accordance with 40 CFR Part 264 Subpart O or Part 265 Subpart O, or by combustion in fuel substitution units operating in accordance with applicable technical requirements, and I have been unable to detect the nonwastewater organic constituents despite having used best good faith efforts to analyze for such constituents. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

C. RESTRICTED WASTE SUBJECT TO A VARIANCE

This waste is subject to a national capacity variance, a treatability variance, or a case-by-case extension. Enter the effective date of prohibition in column 7 above. /6NYCRR 376.4

D. RESTRICTED WASTE CAN BE LAND DISPOSED WITHOUT FURTHER TREATMENT

"I have determined that this waste meets all applicable treatment standards set forth in 40 CFR Part 268 Subpart D, and all applicable prohibition levels set forth in Section 268.32 or RCRA Section 3004(d), and therefore, can be land disposed without further treatment. A copy of all applicable treatment standards and specified treatment methods is maintained at the treatment, storage and disposal facility named above. "I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D and all applicable prohibitions set forth in 40 CFR 268.32 or RCRA section 3004(d). I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting false certifications, including the possibility of a fine and imprisonment." /6NYCRR 376.4 /6NYCRR 376.4

E. WASTE IS NOT CURRENTLY SUBJECT TO PART 268/RESTRICTIONS

This waste is a newly identified waste that is not currently subject to any 40 CFR Part 268 restrictions. or 6NYCRR 376.4 restrictions.

I hereby certify that all information submitted in this and all attached documents is complete and accurate, to the best of my knowledge and information.

Russ Steiger — 3/28/97

48-14-1 (3/89)—7f

STATE OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF HAZARDOUS SUBSTANCES REGULATION

HAZARDOUS WASTE MANIFEST

P.O. Box 12820, Albany, New York 12212

CCNR

Please print or type. Do not Staple.

Form Approved. OMB No. 2050-0039. Expires 9-30-94

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA No. NYD097649916 — Manifest Document No. 32999

2. Page 1 of 1 — Information in the shaded areas is not required by Federal Law.

3. Generator's Name and Mailing Address: TAM Ceramics, 4511 Hyde Park Blvd, Niagara Falls NY 14305

4. Generator's Phone (716) 278-9423

A. State Manifest Document No. NYB 7028532

B. Generator's ID

C. State Transporter's ID

D. Transporter's Phone

E. State Transporter's ID

F. Transporter's Phone

G. State Facility's ID

H. Facility's Phone

5. Transporter 1 (Company Name): CHEMICAL WASTE MANAGEMENT, INC.

6. US EPA ID Number: I L D 0 9 9 2 0 2 6 8 1

7. Transporter 2 (Company Name)

8. US EPA ID Number

9. Designated Facility Name and Site Address: CWM CHEMICAL SERVICES, INC., 1550 BALMER ROAD, MODEL CITY NY 14107

10. US EPA ID Number: N Y D 0 4 9 8 3 6 6 7 9

11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	Waste No.
GENERATOR a. RQ Hazardous Waste Solid, N.O.S., 9, NA3077, III (Barrium Carbonate, Lead) RQ D008 = 1lb. ERG#31	XX	CM	XXX	18 Y	EPA D005 / STATE
b.					EPA / STATE
c.					EPA / STATE
d.					EPA / STATE

J. Additional Descriptions for Materials Listed Above
a J46323 (MDC) Barium Carbonate Sludge
c
b
d

K. Handling Codes for Wastes Listed Above
a L
c
b
d

15. Special Handling Instructions and Additional Information
CWM EMERGENCY RESPONSE INFORMATION (800)766-8715 SR # 92142
PROJECT # 30428
a) D006, D008
INVOICE: TECH SVC., TONAWANDA

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations and state laws and regulations.

If I am a large quantity generator, I certify that I have program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR if I am a small generator, I have made a good faith effort to minimize my waste and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Mo.	Day	Year
Russ Steiger		03	29	94

TRANSPORTER

17. Transporter 1 (Acknowledgement of Receipt of Materials)

Printed/Typed Name	Signature	Mo.	Day	Year
Wm. Schimschack	Wm. Schimschack	03	29	94

18. Transporter 2 (Acknowledgement or Receipt of Materials)

Printed/Typed Name	Signature	Mo.	Day	Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Mo.	Day	Year

EPA Form 8700-22 (Rev. 9-88) Previous editions are obsolete.

COPY 2 - Disposer State - mailed by generator

...erator Name: IHM CERAMICS Manifest Doc. No.: 31219141

...M Profile Number: J:4:6:3:2:3: State Manifest No.: NYB7028532

Is this waste a non-wastewater or a wastewater? (See 40 CFR 268.2) Check ONE: ☒ Non-Wastewater ☐ Wastewater

If this waste is subject to any California List restrictions enter the letter from below (either A, B1, or B2) next to each restriction that is applicabl.
_____HOCs. _____PCBs. _____Acid. _____Metals. _____Cyanides. /6NYCRR371

Identify ALL USEPA hazardous waste codes that apply to this waste shipment, as defined by 40 CFR 261/. For each waste code, identify the corre-sponding subdivision, or check NONE if the waste code has no subdivision. Also check which treatment standards apply. Spent solvent and Californ-List treatment standards are listed on the back of this form. If F039, multi-source leachate applies, those standards must be attached by the generato...

4. US EPA HAZARDOUS WASTE CODE(S)	5. SUBDIVISION ENTER THE SUBDIVISION DESCRIPTION (IF NOT APPLICABLE SIMPLY CHECK NONE)		6. APPLICABLE TREATMENT STANDARDS			7. HOW MUST THE WASTE BE MANAGED? ENTER THE LETTER FROM BELOW
			6.a - PERFORMANCE-BASED: CHECK AS APPLICABLE		6.b - SPECIFIED TECHNOLOGY: IF APPLICABLE ENTER THE 40 CFR 268.42-TABLE 1 TREATMENT CODE(S)	
	DESCRIPTION	NONE	268.41(a)/ 376.4(b)	268.43(a)/ 376.4(d)	268.42(a)/ 376.4(c)	
D005		X	X			A
D006		X	X			A
D008		X	X			A

To list additional USEPA waste code(s) and subcategory(s), use the supplemental sheet provided (CWM-2001-B) and check here: ☐

...W MUST THE WASTE BE MANAGED? In column 7 above, enter the letter (A, B1, B2, B3, C, or D) below that describes how the waste must be ...naged to comply with the land disposal regulations (40 CFR 268.7). Please understand that if you enter the letter B1, B2, B3, or D, you are making the ...propriate certification as provided below.

RESTRICTED WASTE REQUIRES TREATMENT
This waste must be treated to the applicable treatment standards set forth in 40 CFR Part 268 Subpart D, 268.32, or RCRA Section 3004(d). /6NYCRR 376.4

. RESTRICTED WASTE TREATED TO PERFORMANCE STANDARDS
"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and that, based upon my inquiry of those individuals immediately responsible for obtaining this information, I believe that the treatment process has been operated and maintained properly so as to comply with the performance levels specified in 40 CFR part 268 Subpart D and all applicable prohibitions set forth in 40 CFR 268.32 or RCRA Section 3004(d)/without impermissible dilution of the prohibited waste. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment." /6NYCRR 376.4

2 RESTRICTED WASTES FOR WHICH THE TREATMENT STANDARD IS EXPRESSED AS A SPECIFIED TECHNOLOGY (AND THE WASTE HAS BEEN TREATED BY THAT TECHNOLOGY) /6NYCRR 376.4(c)
"I certify under penalty of law that the waste has been treated in accordance with the requirements of 40 CFR 268.42/. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

3 GOOD FAITH ANALYTICAL CERTIFICATION - FOR INCINERATED ORGANICS
"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and that, based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the nonwastewater organic constituents have been treated by incineration in units operated in accordance with 40 CFR Part 264 Subpart O or Part 265 Subpart O, or by combustion in fuel substitution units operating in accordance with applicable technical requirements, and I have been unable to detect the nonwastewater organic constituents despite having used best good faith efforts to analyze for such constituents. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

RESTRICTED WASTE SUBJECT TO A VARIANCE
This waste is subject to a national capacity variance, a treatability variance, or a case-by-case extension. Enter the effective date of prohibition in column 7 above. /6NYCRR 376.4

RESTRICTED WASTE CAN BE LAND DISPOSED WITHOUT FURTHER TREATMENT
"I have determined that this waste meets all applicable treatment standards set forth in 40 CFR Part 268 Subpart D, and all applicable prohibition levels set forth in Section 268.32 or RCRA Section 3004(d), and therefore, can be land disposed without further treatment. A copy of all applicable treatment standards and specified treatment methods is maintained at the treatment, storage and disposal facility named above. "I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D and all applicable prohibitions set forth in 40 CFR 268.32 or RCRA section 3004(d)/. I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting false certification, including the possibility of a fine and imprisonment." /6NYCRR 376.4 /6NYCRR 376.4

. WASTE IS NOT CURRENTLY SUBJECT TO PART 268/RESTRICTIONS
This waste is a newly identified waste that is not currently subject to any 40 CFR Part 268 restrictions. or 6NYCRR 376.4 restrictions.

...ereby certify that all information submitted in this and all associated documents is complete and accurate, to the best of my knowledge and information.

[signature] Russ Streeter HSE Manager — 3/29/97

ATTACHMENT F

TRAINING CERTIFICATES

Niagara County Community College
Division of Community Education

Certificate of Completion

This is to certify that:

DARRIN COSTANTINI

has successfully completed the course entitled

HAZARD WASTE WORKER 40 HR 29 CFR 1910.120

APRIL 27, 1990

Date

Vice President of Community Education
Niagara County Community College

Director of Corporate Training
Niagara County Community College

CERTIFICATE OF TRAINING

This is to certify that

DARRIN COSTANTINI

has successfully completed the requirements of

29 CFR 1910.120 HAZARDOUS WASTE OPERATIONS AND EMERGENCY RESPONSE, SECTION (e)(8) REFRESHER TRAINING.

Sponsored by

Blasland, Bouck & Lee, Inc.
Engineers and Scientists

Instructor

JANUARY 18, 1994

Date of Completion

CERTIFICATE OF TRAINING

This is to certify that

DARRIN J. COSTANTINI

has successfully completed the requirements of

8-HOUR SUPERVISORY/REFRESHER TRAINING IN COMPLIANCE WITH 29 CFR 1910.120 HAZARDOUS WASTE OPERATIONS AND EMERGENCY RESPONSE, SECTIONS (e)(4) AND (e)(8)

Sponsored by

Blasland, Bouck & Lee

Engineers and Geoscientists

Instructor

NOVEMBER 9, 1992

Date of Completion

Certificate of Completion

This is to Certify that Sue Coia-Ahlman has Completed

The basic Forty-Hour Training Course in Health and Safety

for Hazardous Waste Operrations.

2 September 1988
DATE

ERT
An ENSR Company

Kevin Powers
CORPORATE HEALTH AND SAFETY MANAGER

CERTIFICATE OF TRAINING

This is to certify that

SUSAN COIA-AHLMAN

has successfully completed the requirements of

8-HOUR SUPERVISORY/REFRESHER TRAINING IN COMPLIANCE WITH 29 CFR 1910.120 HAZARDOUS WASTE OPERATIONS AND EMERGENCY RESPONSE, SECTIONS (e)(4) AND (e)(8)

Sponsored by

Blasland, Bouck & Lee
Engineers and Geoscientists

M.S. Ellis certified

Instructor

JUNE 22, 1992

Date of Completion

CERTIFICATE OF TRAINING

This is to certify that

SUE COIA-AHLMAN

has successfully completed the requirements of

29 CFR 1910.120 HAZARDOUS WASTE OPERATIONS AND EMERGENCY RESPONSE, SECTIONS (e)(8) REFRESHER TRAINING

Sponsored by

Blasland, Bouck & Lee, Inc.
Engineers and Scientists

Instructor

MARCH 1, 1994
Date of Completion

TRAINING CERTIFICATE

THIS CERTIFIES THAT THE UNDERSIGNED

Robert Bellinger

NAME

HAS COMPLETED A TRAINING PROGRAM IN

40-Hour Hazardous Waste Site Worker Training Course 29CFR 1910.120

DATE OF TRAINING: **March 8 - March 12, 1993**

PLACE OF TRAINING: **Occupational Safety & Environmental Associates, Inc.**

COMPANY NAME

TRAINER'S SIGNATURE: E J. Co

OCCUPATIONAL SAFETY & ENVIRONMENTAL ASSOC., INC.

ORCHARD PARK, NEW YORK 14127

Safety, Environmental & Risk Management Consultants

BUFFALO SYRACUSE CHICAGO

Certificate of Completion

this is to certify that

ROBERT BELLINGER

has successfully completed the

Chemical Waste Management, Inc.

Course in

OSHA 1910.120 ANNUAL 8 HOUR REFRESHER TRAINING

on this 3rd day of SEPTEMBER, 1993

Instructor / Title: Health & Safety Manager

General Manager

Certificate of Completion

this is to certify that

DARREN SUMMERSON

has successfully completed the

Chemical Waste Management, Inc.

Course in

OSHA 1910.120 40 HOUR HAZARDOUS WASTE OPERATIONS TRAINING

on this **14th** day of **JANUARY, 1994**

Health & Safety Manager
Instructor / Title

General Manager

Certificate of Completion

this is to certify that

W SCHIMSCHACK

has successfully completed the

Chemical Waste Management, Inc.

Course in

OSHA 1910.120 ANNUAL 8 HOUR REFRESHER TRAINING

on this **11th** day of **FEBRUARY, 1994**

Instructor / Title: **Health & Safety Manager**

General Manager

Certificate of Completion

this is to certify that

WILLIAM SCHIMSCHACK

has successfully completed the

Chemical Waste Management, Inc.

Course in

OSHA 1910.120 HAZARDOUS WASTE OPERATIONS TRAINING (grandfathered)

on this 1st day of JANUARY, 1989

Instructor / Title **/Health & Safety Manager**

General Manager

ATTACHMENT G

MEDICAL CERTIFICATES

MEMORANDUM

To: Darrin Costantini **Date:** 6/4/93

From: M. B. Evans MBE/jmh **File No:**

Re: New Medical Surveillance Wallet Cards **cc:** C. Ruffing
K. Taft

Enclosed is your new medical surveillance wallet card. Please note that, due to a change in our medical program, 12 months has been added to your expiration date. You reported spending between 0 to 15 days in the field; therefore, you will now only have to have an exam every two years.

Please discard of your old card immediately.

Thanks.

MBE/jmh
Enclosure

BLASLAND, BOUCK & LEE
CERTIFICATE OF CLEARANCE
presented to
Darrin J. Costantini

in recognition of having completed
☒ MEDICAL SURVEILLANCE
☒ RESPIRATOR CLEARANCE
in compliance with
29 CFR 1910.120 & 1910.134

11/16/94
Expiration

Manager, Health & Safety

EMR
Medical Management Solutions Through Information Technology

March 10, 1994

Ms. Karen Taft
Blasland, Bouck & Lee
30 Corporate Woods
Suite 160
Rochester, NY 14623-1477

Type of Exam: Baseline Hazwaste BBL BBL.8
Exam: 02/16/94.82175 Employee: Sue Ahlman - 073-52-8969

The individual identified above has completed a medical surveillance examination. Review of the data from this examination resulted in the following conclusions:

MEDICAL AND SAFETY RESTRICTIONS / RECOMMENDATIONS

- None

CLEARANCE FOR WORK WITH HAZARDOUS MATERIALS

- In compliance with 29 CFR 1910.120 (f), medical clearance is issued for individual to work with hazardous materials.

USE OF RESPIRATORY EQUIPMENT

- In compliance with 29 CFR 1910.134, medical clearance is issued for unrestricted use of respiratory protective equipment. This regulation stipulates:
  - » Contact lenses shall not be worn when using respiratory protective equipment.
  - » Facial hair shall not be interposed between the face and the sealing surface of the respirator.

EXPOSURE TO TEMPERATURE EXTREMES

- Exposures to temperature extremes are acceptable providing that reasonable precautions are taken.

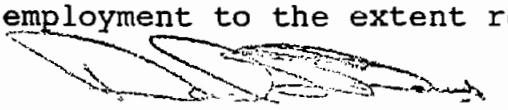
PUBLIC LAW 100-690

- Not a requirement of this examination.

DEPARTMENT OF TRANSPORTATION CERTIFICATION

- Not requested

The employee has been informed of the results of this medical examination and also advised of any specific health implications of employment to the extent required by existing law.



David L. Barnes, M.D., FACS, FACPM
V.P. Medical Affairs/Medical Director

CATEGORY D
DOT / OSHA
IN SERVICE

(APPENDIX G)

CHEMICAL WASTE MANAGEMENT, INC.

MEDICAL EVALUATION AUTHORIZATION

Robert Bellinger	092628514	Truck Driver
NAME	SS NUMBER	JOB TITLE

Date and Time of Appointment: 2/18/94 9am

Examination Type (circle one): A B C (D) E

Reason for Examination: ___ Pre-placement _X_ In-Service ___ Return to Duty
___ Termination ___ Special Examination/Consultation

	Attached	In Medical Provider Guide	Not Required
Job Description:	___	X	___
Exposure Data:	___	X	___
PPE Required:	___	X	___

[signature]	056 ~~057~~ / 393	2/18/94
SITE DESIGNATE	SITE CODE	DATE

==========

SCOPE OF EXAMINATION

CHECK THE MEDICAL TESTS PERFORMED:

✓ Medical History	✓ Occupational History	✓ Physical Examination
✓ Audiogram	___ Drug Screen	✓ Complete Blood Count
✓ Urinalysis	✓ Pulmonary function Test	✓ PCB Blood Sample
✓ Chest X-ray, PA only	___ EKG (for those 40 years and over)	
✓ Chemistry Screen	___ Stress EKG (for those 40 years and over)	

[signature]	2/18/94
PHYSICIAN SIGNATURE	DATE

0 CWM

(APPENDIX I)

CHEMICAL WASTE MANAGEMENT,INC.

CERTIFICATION TO WORK

Robert Bellinger
EMPLOYEE NAME

092628514
SS NUMBER

398/057 054
SITE CODE

A	NA	
X	___	Respiratory Certification: This Individual was examined per OSHA Standards (29 CFR 1910.134) and found ~~[X]~~ qualified/ [ ] not qualified to use a respirator. [ ] Certification withheld pending: _____
X	___	Hazardous Waste Site/Emergency Response Certification: This individual was examined as per OSHA Standards (29 CFR 1910.120) for medical conditions that would place him/her at an increased risk of material impairment of health from hazardous waste site work. Based on this examination, I certify this individual:
		~~[X]~~ Has no medical contraindications to dull participation in hazardous waste site work, when conducted under the conditions of adequate training and a health and safety plan.
		[ ] Has medical limitation(s) that restrict full participation in hazardous waste site work.
		[ ] Certification withheld pending: _____
___	X	Asbestos Certification: In my opinion, [ ] there is some/[ ] there is no, medical condition(s) that place the individual at increase risk from exposure to asbestos, tremolite, anthophylite, or actinolite.

I have personally evaluated the described job duties and the results of the required ancillary studies and I have determined that this individual ~~[X]~~ is medically qualified/ [ ] is not medically qualified for the job described.

Work Function Limitations: _____

Physician Name: Arthur C Vogt MD

Address: HEALTHWORKS
300 TWO MILE CREEK
TOWN OF TONAWANDA, NY 14150

Telephone Number: (716)874-7474

PHYSICIAN'S SIGNATURE

2/23/94
DATE

CATEGORY D
DOT / OSHA
IN SERVICE

(APPENDIX G)

CHEMICAL WASTE MANAGEMENT, INC.

MEDICAL EVALUATION AUTHORIZATION

William Schimschack	078-42-8401	Truck Driver
NAME	SS NUMBER	JOB TITLE

Date and Time of Appointment: 1/28/94 2pm

Examination Type (circle one): A B C (D) E

Reason for Examination: ___ Pre-placement _X_ In-Service ___ Return to Duty
___ Termination ___ Special Examination/Consultation

	Attached	In Medical Provider Guide	Not Required
Job Description:	___	X	___
Exposure Data:	___	X	___
PPE Required:	___	X	___

[signature]	057 / 393	1/28/94
SITE DESIGNATE	SITE CODE	DATE

==========

SCOPE OF EXAMINATION

CHECK THE MEDICAL TESTS PERFORMED:

✓ Medical History	✓ Occupational History	✓ Physical Examination
✓ Audiogram	✓ Drug Screen	✓ Complete Blood Count
✓ Urinalysis	✓ Pulmonary function Test	✓ PCB Blood Sample
___ Chest X-ray, PA only	___ EKG (for those 40 years and over)	✓ RESPIRATOR FIT TEST MSA COMFO 2 LARGE HALF FACE MASK
✓ Chemistry Screen	___ Stress EKG (for those 40 years and over)	

[signature]	1/28/94
PHYSICIAN SIGNATURE	DATE

CWM

(APPENDIX I)

CHEMICAL WASTE MANAGEMENT,INC.

CERTIFICATION TO WORK

William Schimschack
EMPLOYEE NAME

078-42-8401
SS.NUMBER

393/057
SITE CODE

Large 1/2 Face Comfo MSA Mask

A	NA	
___	___	Respirator Certification: This individual was examined per OSHA Standards (29 CFR 1910.134) and found [✓] qualified/ [ ] not qualified to use a respirator. [ ] Certification withheld pending: _____
___	___	Hazardous Waste Site/Emergency Response Certification: This individual was examined as per OSHA Standards (29 CFR 1910.120) for medical conditions that would place him/her at an increased risk of material impairment of health from hazardous waste site work. Based on this examination, I certify this individual:
		[✓] Has no medical contraindications to dull participation in hazardous waste site work, when conducted under the conditions of adequate training and a health and safety plan.
		[ ] Has medical limitation(s) that restrict full participation in hazardous waste site work.
		[ ] Certification withheld pending: _____
___	___	Asbestos Certification: In my opinion, [ ] there is some/[ ] there is no, medical condition(s) that place the individual at increase risk from exposure to asbestos, tremolite, anthophylite, or actinolite.

I have personally evaluated the described job duties and the results of the required ancillary studies and I have determined that this individual [✓] is medically qualified/ [ ] is not medically qualified for the job described.

Work Function Limitations: _____

Physician Name: Arthur C Vogt MD

Address: HEALTHWORKS
300 TWO MILE CREEK
TOWN OF TONAWANDA, NY 14150

Telephone Number: (716) 874-7474

[signature]
PHYSICIAN'S SIGNATURE

1/28/94
DATE

CATEGORY D
DOT / NIDA
PRE-PLACEMENT

(APPENDIX G)

CHEMICAL WASTE MANAGEMENT, INC.

MEDICAL EVALUATION AUTHORIZATION

Darren Summerson		Field Technician
NAME	SS NUMBER	JOB TITLE

Date and Time of Appointment: 12/10/93 12:15 pm

Examination Type (circle one): A B C (D) E

Reason for Examination: X Pre-placement ___ In-Service ___ Return to Duty
___ Termination ___ Special Examination/Consultation

	Attached	In Medical Provider Guide	Not Required
Job Description:	___	X	___
Exposure Data:	___	X	___
PPE Required:	___	X	___

Patricia Ann Carey	323.058	12/9/93
SITE DESIGNATE	SITE CODE	DATE

SCOPE OF EXAMINATION

CHECK THE MEDICAL TESTS PERFORMED:

✓ Medical History	✓ Occupational History	✓ Physical Examination
✓ Audiogram	✓ Drug Screen	✓ Complete Blood Count
✓ Urinalysis	✓ Pulmonary function Test	✓ PCB Blood Sample
✓ Chest X-ray, PA only	___ EKG (for those 40 years and over)	✓ RESPIRATOR FIT TEST MSA SILICONE COMFO II MEDIUM HALF MASK
✓ Chemistry Screen	___ Stress EKG (for those 40 years and over)	

John B Lyon, MD	12-10-93
PHYSICIAN SIGNATURE	DATE

COPY TO CWM

(APPENDIX I)

CHEMICAL WASTE MANAGEMENT,INC.

CERTIFICATION TO WORK

Darren Summerson — EMPLOYEE NAME

061-60-8631 — SS NUMBER

SITE CODE

A	NA	
___	___	Respirator Certification: This individual was examined per OSHA Standards (29 CFR 1910.134) and found [✓] qualified/ [ ] not qualified to use a respirator. [ ] Certification withheld pending: _____
___	___	Hazardous Waste Site/Emergency Response Certification: This individual was examined as per OSHA Standards (29 CFR 1910.120) for medical conditions that would place him/her at an increased risk of material impairment of health from hazardous waste site work. Based on this examination, I certify this individual:

[✓] Has no medical contraindications to dull participation in hazardous waste site work, when conducted under the conditions of adequate training and a health and safety plan.

[ ] Has medical limitation(s) that restrict full participation in hazardous waste site work.

[ ] Certification withheld pending: _____

___ ___ Asbestos Certification: In my opinion, [ ] there is some/[✓] there is no, medical condition(s) that place the individual at increase risk from exposure to asbestos, tremolite, anthophylite, or actinolite.

I have personally evaluated the described job duties and the results of the required ancillary studies and I have determined that this individual [✓] is medically qualified/ [ ] is not medically qualified for the job described.

Work Function Limitations: _____

Physician Name: John B Grippi MD

Address: 300 Two Mile Creek Rd
Tonawanda, NY 14150

Telephone Number: 716-874-7474

John B Grippi MD — PHYSICIAN'S SIGNATURE

12/17/93 — DATE

PHYSICAL EXAMINATION OF DRIVERS

Name: DARREN J. SUMMERSON

Address: 1721 HYDE PARK BLVD. NIAGARA FALLS, NY 14305

Social Security No.: 061 60 8631 Date of Birth: 1-18-60 Age: 33

☐ New Certification ☐ Recertification WT-201 HT-65 1/2

HEALTH HISTORY

Yes	No		Yes	No		Yes	No	
☐	☒	Head or spinal injuries.	☐	☒	Syphilis.	☐	☒	Kidney disease.
☐	☒	Seizures, fits, convulsions, or fainting.	☐	☒	Gonorrhea.	☐	☒	Muscular disease.
☐	☒	Extensive confinement by illness or injury.	☐	☒	Diabetes.	☐	☒	Suffering from any other disease.
☐	☒	Cardiovascular disease.	☐	☒	Gastrointestinal ulcer.	☐	☒	Permonent defect from illness, disease or injury.
☐	☒	Tuberculosis.	☐	☒	Nervous stomach.	☐	☒	Psychiatric disorder.
			☐	☒	Rheumatic fever.	☐	☒	Any other nervous disorder.
			☐	☒	Asthma.			

If answer to any of the above is yes, explain: _____

PHYSICAL EXAMINATION

GENERAL APPEARANCE AND DEVELOPMENT: Good: _____ Fair: ✓ Poor: _____

VISION: For distance: Right 20/ 20 Left 20/ 20 Both 20/ 20 ☒ Without corrective lenses ☐ With corrective lenses if worn

Evidence of disease or injury: Right: none Left: none

Color Test: Normal Horizontal field of vision: Right 120 ° Left 120 °

HEARING: Right ear normal Left ear normal Disease or injury none

AUDIOMETRIC TEST (complete only if audiometer is used to test hearing) decibel loss at 500 Hz R- 5 L- 0

at 1,000 Hz R- 0 L- 0 at 2,000 Hz R- 0 L- -5

THROAT normal

THORAX: Heart normal If organic disease is present, is it fully compensated? _____

Blood pressure: Systolic 130 Diastolic 80

Pulse: Before exercise 80 Immediately after exercise 100 Lungs normal

ABDOMEN: Scars none Abnormal masses none Tenderness none

Hernia: Yes _____ (No) If so, where? _____ Is truss worn? no

GASTROINTESTINAL: Ulceration or other disease: Yes _____ (No)

GENITO-URINARY: Scars no Urethral discharge no

REFLEXES: Romberg normal Pupillary normal Light R normal L normal

Accommodation Right normal Left _____

Knee Jerks: Right (Normal) Increased _____ Absent _____

Left: (Normal) Increased _____ Absent _____

Remarks: Neurological exam normal

EXTREMITIES: Upper normal Lower normal Spine ns

LABORATORY AND OTHER SPECIAL FINDINGS: Urine: Spec. Gr. 1.025 Alb. Neg Sugar Neg

Other laboratory data (serology, etc) _____

Radiological data _____ Electrocardiograph _____

CONTROLLED SUBSTANCES TESTING:

☑ Controlled substances test performed—

☑ In accordance with subpart H ☐ Not in accordance with subpart H

☐ Controlled substances test NOT performed

GENERAL COMMENTS Physical exam satisfactory

12/10/93 (Date of examination)

300 TWO MILE CREEK RD. TONAWANDA, NY 14150 (Address of examining health care professional)

John B Grigsmo (Name of examining health care professional) (Print)

MD (Title)

140797-1 (License or Certification No.)

New York (State)

☐ **CHECK HERE IF NOT QUALIFIED**

John B Grigsmo (Signature of examining health care professional)

NOTE: This section to be completed only when visual test is conducted by a licensed optometrist or ophthalmologist.

(Date of examination) (Address of examiner) (Name of examiner) (Print)

(Signature of examiner)

MEDICAL EXAMINER'S CERTIFICATE

I certify that I have examined DARREN SUMMERSON in accordance with the Federal Motor Carrier Safety Regulations (Driver's name) (Print)

(49 CFR 391.41-391.49) and with knowledge of his/her duties, I find him/her qualified under the regulations.

☐ Qualified only when wearing corrective lenses. ☐ Medically unqualified unless accompanied by a waiver

☐ Qualified only when wearing a hearing aid. ☐ Medically unqualified unless driving within an exempt intracity zone

A completed examination form for this person is on file in my office at 300 TWO MILE CREEK RD. TONAWANDA, NY 14150 (Address)

12/10/93 (Date of examination)

John B Grigsmo (Name of examining health care professional) (Print)

John B Grigsmo (Signature of examining health care professional)

MD (Title)

140797-1 (License or Certification No.)

New York (State)

1721 HYDE PARK BLVD. (Address of driver)

NIAGARA FALLS, NY 14305

Darren J Summerson (Signature of driver)

ATTACHMENT H

RAM-1 AIR MONITORING RESULTS

TAM CERAMICS
REMOVAL OF BARIUM WASTE
FINAL REPORT

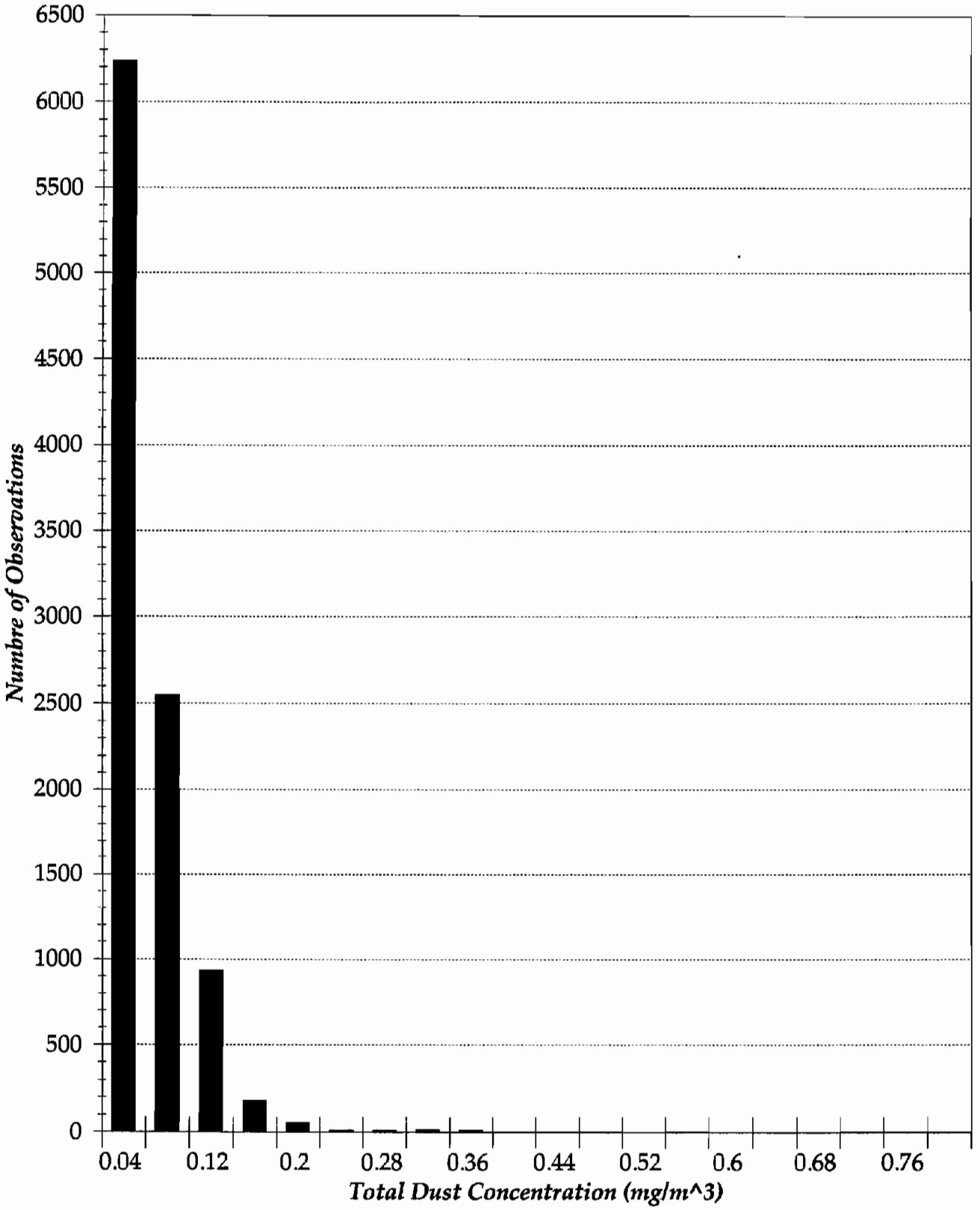
RAM-1 AIR MONITORING RESULTS
FOR MARCH 23, 1994

START TIME:	9:00 AM
END TIME:	11:47 AM
INTERVAL:	10 MIN.
TOTAL # OF SAMPLES:	10,021

OVERALL MINIMUM:	0.051	mg/m^3
OVERALL MAXIMUM:	0.802	mg/m^3
OVERALL AVERAGE:	0.084	mg/m^3

TIME	*PERIOD MIN.*	*PERIOD MAX.*	*PERIOD AVG.*
09:00 AM	0.101	0.204	0.138
09:10 AM	0.072	0.802	0.132
09:20 AM	0.070	0.177	0.103
09:30 AM	0.078	0.400	0.117
09:40 AM	0.058	0.393	0.110
09:50 AM	0.056	0.221	0.082
10:00 AM	0.053	0.206	0.075
10:10 AM	0.051	0.108	0.058
10:20 AM	0.055	0.142	0.069
10:30 AM	0.053	0.109	0.064
10:40 AM	0.056	0.184	0.073
10:50 AM	0.053	0.098	0.059
11:00 AM	0.051	0.076	0.059
11:10 AM	0.055	0.122	0.067
11:20 AM	0.058	0.099	0.071
11:30 AM	0.060	0.105	0.074
11:40 AM	0.065	0.226	0.080

DISTRIBUTION OF RAM-1 MONITORING DATA
for March 23, 1994



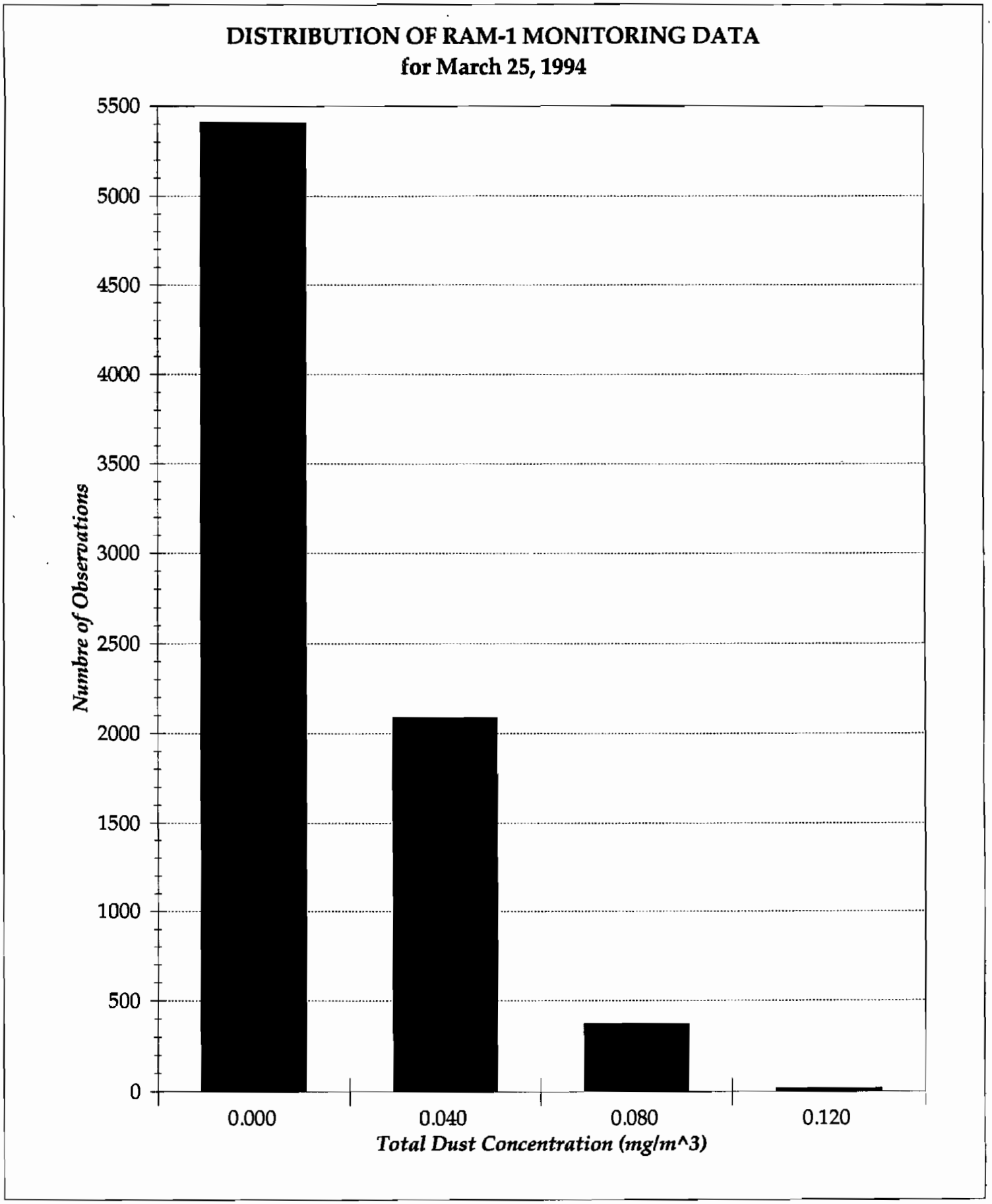
TAM CERAMICS
REMOVAL OF BARIUM WASTE
FINAL REPORT

RAM-1 AIR MONITORING RESULTS
FOR MARCH 23, 1994

START TIME:	12:15 PM
END TIME:	2:30 PM
INTERVAL:	10 MIN.
TOTAL # OF SAMPLES:	7,888

OVERALL MINIMUM:	0.010	mg/m^3
OVERALL MAXIMUM:	0.154	mg/m^3
OVERALL AVERAGE:	0.034	mg/m^3

TIME	*PERIOD MIN.*	*PERIOD MAX.*	*PERIOD AVG.*
12:15 PM	0.010	0.058	0.018
12:25 PM	0.010	0.023	0.014
12:35 PM	0.012	0.026	0.015
12:45 PM	0.012	0.027	0.015
12:55 PM	0.012	0.154	0.035
01:05 PM	0.018	0.071	0.030
01:15 PM	0.027	0.089	0.045
01:25 PM	0.013	0.114	0.053
01:35 PM	0.014	0.119	0.050
01:45 PM	0.015	0.098	0.040
01:55 PM	0.013	0.132	0.036
02:05 PM	0.016	0.085	0.038
02:15 PM	0.017	0.117	0.051
02:25 PM	0.018	0.144	0.052


DISTRIBUTION OF RAM-1 MONITORING DATA
for March 25, 1994
5500
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Numbre of Observations
0.000
0.040
0.080
0.120
Total Dust Concentration (mg/m^3)