UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

DEC 22 RECD
INDUSTRIAL

DEC 17 1997

Mr. Minor Hibbs, Director
Industrial and Hazardous Waste Division
Texas Natural Resource Conservation Commission
P.O. Box 13087
Austin, TX 78711-3087

Dear ~~Mr. Hibbs~~ Minor:

Please find enclosed an Addendum to the U.S. Environmental Protection Agency, Region 6, January 31, 1996, report entitled *Midlothian Cumulative Risk Assessment*. Region 6 prepared this addendum in response to information received from Chaparral Steel Company.

The original report concluded that the available site data (e.g. soil and water samples) show that cancer risk and potential noncancer health effects associated with emissions from three cement plants (Holnam, North Texas, and TXI) and Chaparral Steel Company, were below regulatory levels of concern. However, the report also noted that the theoretical models suggested the potential for noncancer health effects from antimony, and that most of the antimony originated from Chaparral Steel Company.

Chaparral Steel Company initiated additional sampling in response to the information presented in the *Midlothian Cumulative Risk Assessment*. The results of that sampling indicate that the general antimony emission rates used by Region 6 in the *Midlothian Cumulative Risk Assessment* are significantly greater than emission rates based on more site-specific data. The site-specific antimony emission rates result in lower estimates of potential noncancer health effects than our original report projected. For example, the January 1996, report estimated a hazard quotient of 6 based on the general emission

Recycled/Recyclable • Printed with Vegetable Oil Based Inks on 100% Recycled Paper (40% Postconsumer)

rates, whereas the site specific emission rates result in a hazard quotient of 0.039.

If you have any questions, please contact Mr. Bill Gallagher at (214) 665-6772.

Sincerely yours,

Stephen A. Gilrein, P.E.
Associate Director for RCRA
Multimedia Planning and
Permitting Division

Enclosure

cc: John Clegg, TNRCC
JoAnn Wiersema, TNRCC
Jim Shermbeck
Dennis Beach, Chaparral Steel Company
Jon Brown, Chaparral Steel Company
Honorable Mayor of Midlothian, TX
Honorable Mayor of DeSoto, TX
Honorable Mayor of Cedar Hill, TX
Honorable Mayor of Duncanville, TX
Honorable Mayor of Glenn Heights, TX

TOPIC:

Addendum to Midlothian Cumulative Risk Assessment, Midlothian, TX

BACKGROUND INFORMATION:

- Region 6 released the *Midlothian Cumulative Risk Assessment Report* in January 1996 in support of TNRCC's permitting efforts and to address concerns about cumulative risk raised by the environmental groups working in opposition to the TXI permit.

- The risk assessment is a multi-source, multi-pathway risk assessment that estimates risks to adult and child residents, subsistence farmers, and subsistence fisherman from the three cement plants (TXI, North Texas Cement, and Holnam) and a steel mill (Chaparral Steel Company) in Midlothian area.

- The conclusions of the original January 1996 report are as follows:

1. Available site data show that there are no cancer risk or the potential for non-cancer health effects above regulatory levels of concern even though conservative, theoretical models estimate exposures equal to or slightly above threshold levels for potential non-cancer health effects.

2. Theoretical exposures equal to or slightly above threshold levels for potential non-cancer health effects result predominately from Chaparral Steel Company.

- The contaminants the theoretical models showed equal to or slightly above threshold levels were antimony, cadmium, and mercury. Antimony was only contaminant identified as being theoretically above the threshold levels. Actual site data (e.g. soil and water samples) confirmed that this was not currently the case.

- Because the report implicated Chaparral Steel Company (CSC) as the primary source of the antimony in the area, CSC initiated sampling activities of their emissions. CSC submitted data which shows that actual emissions of antimony from their facility are less than those estimated by EPA in the absence of other data.

- Region 6 committed to revising the *Cumulative Risk Assessment Report* in a subsequent meeting between the DRA and senior managers at Chaparral Steel Company. This addendum was prepared in fulfillment of that commitment.

CURRENT STATUS:

- The addendum is ready for official release to the public.

TECHNICAL CONCERNS:

- None.

COMMUNITY CONCERNS:

- Members of the local environmental groups will be displeased with the conclusions of this

addendum since it may negatively impact their opposition to the TXI permit.

- The local government generally opposes all EPA involvement in the community as stating that additional studies are overly burdensome and unnecessary.

FUTURE/PROPOSED ACTIONS:

- Issue report to TNRCC for use in their permitting decision as we committed in the senior management meeting.

CONTACT/TELEPHONE NUMBER:

Bill Gallagher, (214) 665-6775

ADDENDUM
MIDLOTHIAN CUMULATIVE RISK ASSESSMENT

Center for Combustion Science and Engineering
Multimedia Planning and Permitting Division
U.S. Environmental Protection Agency
Region 6
Dallas, TX 75202

October 31, 1997

In January 1996, the United States Environmental Protection Agency (USEPA) published the Midlothian Cumulative Risk Assessment (Midlothian Risk Assessment) that examined possible health risks associated with emissions from Chaparral Steel, North Texas Cement, Texas Industries, and Holnam Texas, L. P. The conclusion of the Midlothian Risk Assessment was that the available site data showed that potential health risk were below levels of regulatory concern. However, the report also stated that theoretical models indicated that there was a potential for noncancer health effects; primarily from antimony emissions associated with Chaparral Steel Company. Based on new data and revised calculations in this Addendum to the Midlothian Risk Assessment, the first conclusion originally stated in the report should be revised to read:

> Neither available site data or conservative theoretical models show that there are cancer risks or the potential for non-cancer health effects above regulatory levels of concern.

The second original conclusion that theoretical potential health impacts above regulatory levels of concern are due to Chaparral Steel is no longer correct based on the change in the first conclusion. This change is warranted based on new data submitted by Chaparral Steel that predicts much lower emission rates for antimony than those originally estimated by EPA Region 6. As a part of the Midlothian Risk Assessment, the USEPA made theoretical calculations that indicated that antimony in electric arc furnace (EAF) dust from Chaparral Steel may be associated with noncancer health risk. This caused USEPA to look further at antimony concentrations in water and soil in the Midlothian area. As a result of further study, the USEPA concluded that actual soil and water concentrations were much lower than the concentrations predicted by the theoretical model.

In response to concerns identified by EPA in the Midlothian Risk Assessment, Chaparral Steel sampled and analyzed its emissions of antimony from the baghouses and determined antimony concentrations in EAF dust. In the Midlothian Risk Assessment, without the benefit of this site-specific data, the USEPA assumed a value for the concentration of antimony and calculated antimony emissions. Based on the new antimony data, USEPA has concluded that the antimony emission rate assumed in the Midlothian Risk Assessment for Chaparral Steel was too high. For this reason, the theoretical calculations concerning antimony are revised in this addendum.

When the theoretical risk calculations for antimony are revised based on actual antimony emissions and concentrations of antimony in EAF dust, the theoretical exposures from Chaparral Steel do not pose a potential impact to human health. This conclusion is consistent with that reached by USEPA with respect to the actual measured concentrations of antimony in soil and water.

INTRODUCTION

The Midlothian Risk Assessment evaluates theoretical risks posed by releases of constituents from the Chaparral Steel, North Texas Cement, Texas Industries, and Holnam Texas, L. P. In the absence of specific information regarding concentrations of constituents in emissions from these facilities, the USEPA made assumptions in keeping with emissions profiles from similar facilities. The source of some of this information was a document entitled *Detailed Summary of Information Collection Request Responses For Electric Arc Furnace (EAF) NESHAP* (RTI, 1993). This document is referred to as the ICR in the Midlothian Risk Assessment.

Out of 77 steel facilities surveyed in the ICR, only one reported an antimony concentration in EAF dust. The antimony concentration in EAF dust from the single reporting steel facility was 0.52% or 5200 milligrams per kilogram (mg/kg) (or parts per million, ppm). Because antimony emissions and antimony concentrations in EAF dust from Chaparral Steel were not known prior to the publication of the Midlothian Risk Assessment, the antimony concentration from Chaparral Steel emissions was assumed to be the same as that found in EAF dust from the single facility reporting antimony emissions in the ICR (5200 ppm).

In addition, in its August 1988 report entitled "Best Demonstrated Available Technology (BDAT) Background Document for K061," USEPA found that the concentration range for antimony in EAF dust (K061) was 5.03 ppm to 294 ppm. These concentrations are also well below the 5200 ppm concentration assumed in the Midlothian Risk Assessment. EPA Region 6 chose the more conservative value of 5200 ppm because it felt that such conservatism was warranted given the overall lack of data about the processes used by Chaparral Steel.

In the Midlothian Risk Assessment, the USEPA acknowledged the uncertainty associated with estimation of emissions, indicating that: "The availability and quality of chemical-specific emission rates presented one of the largest sources of uncertainty associated with this screening level assessment." In the case of antimony, uncertainty regarding emission rates resulted in calculated theoretical noncancer risks that are considerably above what would be calculated using actual concentrations of antimony in air, water, and soil. This disparity was illustrated in Section 5 of the Midlothian Risk Assessment.[1]

---

[1] For example, noncancer risks posed by ingestion of predicted concentrations of antimony in drinking water were 3. This value is slightly above the value of 1, indicating there may be a concern for potential noncancer effects. However, water samples collected from the Midlothian water supply by the Texas Natural Resource Conservation Commission (TNRCC) did not detect antimony at a concentration of 0.002 mg/L. If it is conservatively assumed that antimony is present at half the detection limit (0.001 mg/L), the calculated risk is 0.05, well below the risk calculated using the antimony concentrations predicted in the Midlothian Risk Assessment.

To lessen the uncertainty regarding antimony emissions and risks calculated using the ICR data, information regarding antimony emissions from Chaparral Steel baghouses and antimony concentrations in EAF dusts is used to re-calculate risks associated with theoretical human exposures to antimony in air, water, and soil. These data are discussed in detail below.

OBJECTIVES

The objective of this addendum is to respond to information regarding antimony emissions from Chaparral Steel baghouses and antimony concentrations in EAF dusts submitted by Chaparral Steel after the Midlothian Cumulative Risk Assessment was finalized. This information slightly changes the conclusions of the report. The overall conclusion of the report—that cancer risks and the potential for noncancer health effects are below regulatory levels of concern—remain unchanged. The changes presented do not affect the EPA's decision about whether or not it should effect some regulatory action above and beyond that undertaken by Texas in the State permitting process.

EVALUATION OF NEW DATA CONCERNING CONCENTRATIONS OF ANTIMONY IN FACILITY EMISSIONS

The best available information was used to estimate antimony emissions. These emission estimates have been used in recalculating risks. Fugitive emissions were calculated using total particulate fugitive emissions presented in the 1995 emissions inventory estimates for the "A" and "B" furnaces, together with the 95% upper confidence limit (95% UCL) of the arithmetic mean antimony concentration for Chaparral EAF dust. EAF dust antimony data used to calculated the 95% UCL are presented in Tables 1 and 2. Additional EAF data not used in these calculations are presented in Table 3[2]. The data from Tables 1 and 2 were subjected to quality assurance-quality control procedures. The 95% UCL antimony concentration calculated from these data was 84.0 ppm. This value was calculated in accordance

---

[2] EAF dust antimony data presented in Table 1 are from six EAF dust samples obtained by Chaparral on January 28 through February 8, 1996. The laboratory reports for these analyses are attached to this addendum (Attachment B).

Data presented in Table 2 are the results of antimony analyses of three EAF dust samples obtained during the source emissions survey conducted by METCO Environmental in January and February 1996. During this survey, one sample of EAF dust was obtained from each of the "A," "B," and "C" baghouses. The laboratory reports for these analyses are attached to this addendum (Attachment C).

Table 3 presents the results of analyses performed in February 1996 of EAF dust digestate samples that had been retained as part of Chaparral's ongoing dust analysis program. At the request of Chaparral, Maxim Technologies, Inc. analyzed archived digestate samples for antimony. Since the request came after initial sample preparation, routine quality assurance/quality control (QA/QC) analyses could not be performed. These data do, however, provide an indication of the general range of antimony concentration found in Chaparral's EAF dust, and are consistent with data used for the 95% UCL calculations.

with USEPA guidance presented in Supplemental Guidance to RAGS: Calculating the Concentration Term (USEPA, 1992).

Stack antimony emissions for Baghouses B and C used in these revised risk calculations were measured by METCO Environmental (METCO) during stack sampling conducted as part of a source emissions survey in January-February 1996. Baghouse A antimony emissions were calculated using data also obtained by METCO for inlet flow rates for Baghouse A, Baghouse B stack flow rates, and actual measured Baghouse B antimony emissions. Stack emission rates for antimony are presented in Table 4.

The fugitive, stack, and total (i.e., fugitive + stack) antimony emissions values (in g/sec) obtained in the manner described above are lower than those used by Region 6 in their January 1996 Midlothian Risk Assessment report. A comparison of these emissions values is presented in Table 4.

A more detailed description of the basis for antimony emissions used in this revised risk assessment are presented below in Attachment A.

REVISED RISK CALCULATIONS FOR ANTIMONY EXPOSURE

Due to the disparity in the measured antimony emissions and antimony concentrations in EAF dust versus the concentration assumed in the Midlothian Risk Assessment, the risks posed by antimony exposure have been revised. With the exception of Chaparral Steel's antimony emissions, all exposure and risk assessment assumptions from the Midlothian Risk Assessment are used in the revised risk calculations. The revised risk assessment calculations resulting from the use of more certain estimates of antimony emissions and EAF concentrations from Chaparral Steel are presented in Table 5.

As presented in Table 5, the hazard indices re-calculated using the Chaparral Steel antimony data are below one. This indicates that the hypothetical adult resident, child resident, farmer, and fisherman in the SCS and Joe Pool Lake watersheds are not predicted to experience any adverse health effects as a result of exposure to modeled concentrations of antimony in air, water, and soil resulting from emissions from Chaparral Steel, North Texas Cement Company, Texas Industries, and Holnam Texas, L. P.

According to the revised calculations presented in this addendum, the conclusions presented in Section 5 of the Midlothian Risk Assessment are revised to state that:

> Neither available site data or conservative theoretical models show that there are cancer risks or the potential for non-cancer health effects above regulatory levels of concern.

REFERENCE

USEPA (United States Environmental Protection Agency) 1992. Supplemental Guidance to RAGS: Calculating the Concentration Term. Office of Solid Waste and Emergency Response. PB92-963373. May 1992.

Table 1
Antimony Concentrations in Chaparral EAF Dust
Sampled on January 28 - February 8, 1996

Sample No.	Antimony (mg/kg)
01A	64.6
02A	68.0
03A	50.5
04A	54.0
05A	50.7
06A	81.9

Table 2
Antimony Concentrations in Chaparral EAF Dust
Sampled by METCO in February, 1996

Sample	Antimony (mg/kg)
Baghouse A	89.2
Baghouse B	55.7
Baghouse C	107.0

Table 3
Antimony Concentrations in Chaparral Steel EAF Dust Obtained from Archived Digestate Samples

Sample No.	Antimony (mg/kg)
01A	59.1
02A	43.2
03A	<20
04A	44.2
05A	39.7
06A	29.9
07A	44.2
08A	34.6
09A	32.7
10A	33.3
11A	<20
12A	33.4
13A	69.8
14A	<20
15A	<20
16A	<20
17A	<20
18A	<20
19A	<20
20A	<20
21A	<20
22A	35.1
23A	33.5
24A	28.8
25A	30.9
26A	29.2
27A	30.5
28A	43.6
29A	47.5
30A	26.6
31A	43.8
32A	51.7

Table 4
Antimony Emissions for Chaparral Steel Company

Emissions Source	Best Available Value (g/s)	Midlothian Risk Assessment Estimate (g/s)
Fugitives	0.000061	0.0098
Baghouse A	0.00021	0.0032
Baghouse B	0.00038	0.0081
Baghouse C	0.00038	0.0086
Total	**0.0010**	**0.030**

Table 5
Revised Risk Assessment Calculations for Antimony Exposures

Receptor	*Hazard Index for Receptor Points A1, B1, and C1: A1	B1	C1
Adult Resident	0.02 (3)	0.02 (3)	0.02 (3)
Child Resident	0.039 (6)	0.039 (6)	0.039 (6)
Farmer	0.02 (3)	0.02 (3)	0.026 (4)
Fisherman, SCS Lake Watershed	0.02 (3)	0.02 (3)	0.02 (3)
Fisherman, Joe Pool Lake Watershed	0.02 (3)	0.02 (3)	0.02 (3)

* For comparison, the hazard index calculated in the January 31, 1996 USEPA risk assessment is shown in parenthesis

Attachment A
Antimony Emissions Calculations for Chaparral Steel Company

1) Total Antimony (Sb) emissions = total fugitive emissions + baghouse (BH) "A" emissions + BH "B" emissions + BH "C" emissions

2) <u>Fugitive Sb Emissions</u>

= furnace "A" fugitives + furnace "B" fugitives

= furnace "A" total particulates x EAF Sb conc. + furnace "B" total particulates x EAF Sb conc.

= 12.5 tpy[1] x %0.0084%* + 12.5 tpy[1] x 0.0084%

= 0.0021 tons/yr Sb

= **0.000061 gm/s**

*NOTE: Upper 95% UCL Sb concentration for Chaparral EAF dust = 84.0 ppm

3) <u>BH "A" Sb Emissions[2]</u>

= BH "B" emissions x BH "A" Inlet flow/BH "B" stack flow

= 0.003 lbs/hr x 395,289 ACFM/679,559 ACFM

= 0.0017 lbs/hr

= **0.00021 gm/s**

4) <u>BH "B" Sb Emissions[2]</u>

= 0.003 lbs/hr

= **0.00038 gm/s**

5) <u>BH "C" Sb Emissions[2]</u>

= 0.003 lbs/hr

= **0.00038 gm/s**

6) <u>Total Sb Emissions</u>

= 0.000061 + 0.00021 + 0.00038 + 0.00038 gm/s

= **0.001 gm/s**

References

1. Revised Chaparral Steel Emissions Inventory for 1995.

2. METCO Environmental. Source Emissions Survey of Chaparral Steel Company, Midlothian,

Texas, Volume 1. January and February, 1996.

Attachment B
Laboratory Report for Table 1 EAF Dust Analyses

Attachment C
Laboratory Report for METCO Baghouse Dust Samples (Table 2)

Attachment B
Laboratory Report for Table 1 LAF analyses

draft

MAXIM TECHNOLOGIES INC

2575 Lone Star Drive P.O. Box 224227 * Dallas, Texas 75222 * 214-631-2700

Client Jerry Balbo
Chaparral Steel
300 Ward Road
Midlothian, TX 76065

Client No. 1544301
Report No. D6-02-047
Report Date 02/21/96 15:21

Project EAF Dust

Phone: 214-299-5212 Fax: 214-775-2182

Date Sampled 01/28/96 02/08/96

Sampled By Client

Sample Type Solid

Transported by Bob Garrett

P.O. # CT-145-96

Date Received 02/09/96

SPECIAL REPORT FOR ANTIMONY ONLY - REPORT FOR OTHER EAF DUST METALS RESULTS WILL FOLLOW WHEN COMPLETED.

Lab No.	Sample Identification
D6-02-047-01	RC 301625
D6-02-047-02	RC 301769
D6-02-047-03	RC 301646
D6-02-047-04	RC 301727
D6-02-047-05	RC 301762
D6-02-047-06	RC 301673

Our letters and reports are for the exclusive use of the client to whom they are addressed and shall not be reproduced except in full without the approval of the testing laboratory. The use of our name must receive our prior written approval.

MAXIM

Reviewed By

William J Case, Supervisor

MAXIM

Order # D6-02-047
02/21/96 15:21
Client: Chaparral Steel

TEST RESULTS BY SAMPLE

Sample: 01A RC 301625 Collected: 01/28/96 Category: S

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
Antimony	SW846-6010A	64.6	mg/kg	10	02/15/96	TAM
Cadmium Oxide	SW846-7130	0.0608	%	0.01	02/20/96	TAM
Calcium Oxide	SW846-7140	7.09	%	0.01	02/19/96	TAM
Digestion of Dust	SW846-3050A	02/14/96	Date Com			CVM
Iron Oxide	SW846-7380	40.0	%	0.01	02/20/96	TAM
Lead Oxide	SW846-7420	2.35	%	0.01	02/20/96	TAM
Loss on Ignition	EPA 160.4	3.8	%	0.01	02/17/96	HOU
Magnesium Oxide	SW846-7460	3.12	%	0.01	02/19/96	TAM
Zinc Oxide	SW846-7950	22.9	%	0.01	02/20/96	TAM

Sample: 02A RC 301769 Collected: 02/01/96 Category: S

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
Antimony	SW846-6010A	68.0	mg/kg	10	02/15/96	TAM
Cadmium Oxide	SW846-7130	0.0683	%	0.01	02/20/96	TAM
Calcium Oxide	SW846-7140	5.67	%	0.01	02/19/96	TAM
Digestion of Dust	SW846-3050A	02/14/96	Date Com			CVM
Iron Oxide	SW846-7380	34.8	%	0.01	02/20/96	TAM
Lead Oxide	SW846-7420	3.21	%	0.01	02/20/96	TAM
Loss on Ignition	EPA 160.4	3.2	%	0.01	02/17/96	HOU
Magnesium Oxide	SW846-7460	2.89	%	0.01	02/19/96	TAM
Zinc Oxide	SW846-7950	29.4	%	0.01	02/20/96	TAM

Sample: 03A RC 301646 Collected: 02/03/96 Category: S

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
Antimony	SW846-6010A	50.5	mg/kg	10	02/15/96	TAM
Cadmium Oxide	SW846-7130	0.0625	%	0.01	02/20/96	TAM
Calcium Oxide	SW846-7140	4.94	%	0.01	02/19/96	TAM
Digestion of Dust	SW846-3050A	02/14/96	Date Com			CVM
Iron Oxide	SW846-7380	31.9	%	0.01	02/20/96	TAM
Lead Oxide	SW846-7420	2.44	%	0.01	02/20/96	TAM
Loss on Ignition	EPA 160.4	3.8	%	0.01	02/17/96	HOU
Magnesium Oxide	SW846-7460	2.71	%	0.01	02/19/96	TAM
Zinc Oxide	SW846-7950	32.4	%	0.01	02/20/96	TAM

MAXIM

Order # D6-02-047
02/21/96 15:21
Client: Chaparral Steel

TEST RESULTS BY SAMPLE

Sample: 04A RC 301727 Collected: 02/04/96 Category: S

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
Antimony	SW846-6010A	54.0	mg/kg	10	02/15/96	TAM
Cadmium Oxide	SW846-7130	0.0682	%	0.01	02/20/96	TAM
Calcium Oxide	SW846-7140	4.10	%	0.01	02/19/96	TAM
Digestion of Dust	SW846-3050A	02/14/96	Date Com			CVM
Iron Oxide	SW846-7380	34.7	%	0.01	02/20/96	TAM
Lead Oxide	SW846-7420	2.65	%	0.01	02/20/96	TAM
Loss on Ignition	EPA 160.4	3.4	%	0.01	02/17/96	HOU
Magnesium Oxide	SW846-7460	2.05	%	0.01	02/19/96	TAM
Zinc Oxide	SW846-7950	32.4	%	0.01	02/20/96	TAM

Sample: 05A RC 301762 Collected: 02/06/96 Category: S

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
Antimony	SW846-6010A	50.7	mg/kg	10	02/15/96	TAM
Cadmium Oxide	SW846-7130	0.0612	%	0.01	02/20/96	TAM
Calcium Oxide	SW846-7140	3.67	%	0.01	02/19/96	TAM
Digestion of Dust	SW846-3050A	02/14/96	Date Com			CVM
Iron Oxide	SW846-7380	27.9	%	0.01	02/20/96	TAM
Lead Oxide	SW846-7420	2.24	%	0.01	02/20/96	TAM
Loss on Ignition	EPA 160.4	3.5	%	0.01	02/17/96	HOU
Magnesium Oxide	SW846-7460	2.23	%	0.01	02/19/96	TAM
Zinc Oxide	SW846-7950	38.7	%	0.01	02/20/96	TAM

Sample: 06A RC 301673 Collected: 02/08/96 Category: S

Test Name	Method	Result	Units	Detection Limit	Date Started	Analyst
Antimony	SW846-6010A	81.9	mg/kg	10	02/15/96	TAM
Cadmium Oxide	SW846-7130	0.0732	%	0.01	02/20/96	TAM
Calcium Oxide	SW846-7140	4.14	%	0.01	02/19/96	TAM
Digestion of Dust	SW846-3050A	02/14/96	Date Com			CVM
Iron Oxide	SW846-7380	34.1	%	0.01	02/20/96	TAM
Lead Oxide	SW846-7420	2.77	%	0.01	02/20/96	TAM
Loss on Ignition	EPA 160.4	3.5	%	0.01	02/17/96	HOU
Magnesium Oxide	SW846-7460	2.24	%	0.01	02/19/96	TAM
Zinc Oxide	SW846-7950	31.1	%	0.01	02/20/96	TAM

QUALITY ASSURANCE / QUALITY CONTROL TOTAL METALS

Report No. D602047

ANALYSIS	PARAMETER	RESULTS
Cal blank 1	Antimony	<0.1
Cal blank 2	Antimony	<0.1
Prep blank	Antimony	<0.1

ANALYSIS	PARAMETERS	RESULTS %
ICC	Antimony	100

ANALYSIS	PARAMETER	RESULTS %
ICV	Antimony	93
ICS 1	Antimony	89
CCV	Antimony	103
ICS 2	Antimony	102

ANALYSIS	PARAMETER	RESULTS %
LCS	Antimony	102
	Antimony	105

ICV = Initial Calibration Verification + or - 10%
ICS =Interference Check Standard ICP ONLY + or - 20%
LCS =Laboratory Control Standard + or - 20% and + or - 30% Silver and Antimony
ICC = Initial Calibration Check ICP ONLY + or - 5%
Blank = < Detection Limit RPD = Relative Percent Difference <20%

METCO ENVIRONMENTAL
P.O. Box 598
Addison, TX 75001
(214) 931-7127

SOURCE EMISSIONS SURVEY OF CHAPARRAL STEEL COMPANY MIDLOTHIAN, TEXAS VOLUME II

JANUARY AND FEBRUARY 1996

FILE NUMBER 96-15

Job # 96-155

Client Chaparral Steel

Location Midlothian, TX

UNIT Baghouse Dust

DATE 2-16-96

Sample	Sb mg/Kg	As mg/Kg	Cd mg/Kg	Cr mg/Kg	Cu mg/Kg	Fe mg/Kg	Pb mg/Kg	Mn mg/Kg	Hg mg/Kg	Mo mg/Kg	Ni mg/Kg	Zn mg/Kg
A Baghouse Dust	89.2	146	734	795	1,720	154,000	22,500	20,300	13.9	< 27.9	299	163,000
B Baghouse Dust	55.7	106	556	861	1530	133,000	18,200	19,500	15.4	48	287	128,000
C Baghouse Dust	107	134	735	1,710	2,700	213,000	26,100	24,800	1.4	33.5	172	228,000

MKEC ENVIRONMENTAL

Ross Analytical Services, I
16433 Foltz Industrial Parkway • Strongsville, Ohi 136
(216) 572-3200 • Fax (216) 572-7620 • 1-800-325-7737

CERTIFICATE OF ANALYSIS

Client:

Metco Environmental
16115 Dooley Road
Dallas, TX 75244

Attn: Hanoch Toren

Work Order #: 96-02-036
Client Code: METCO
Report Date: 02/15/96
Work ID: Multi-metals Trains
Date Received: 02/08/96

SAMPLE IDENTIFICATION

Lab Number	Sample Description	Lab Number	Sample Description
01	Composite B Baghouse Run 1	02	Composite B Baghouse Run 2
03	Composite B Baghouse Run 3	04	Composite B Baghouse Blank
05	Composite C Baghouse Run 1	06	Composite C Baghouse Run 2
07	Composite C Baghouse Run 3	08	Composite C Baghouse Blank
09	Audit Filter	10	A Baghouse Dust
11	B Baghouse Dust	12	C Baghouse Dust

Data are reported on an as-received basis unless stated otherwise. Estimated Quantitation Limits (EQL's) are listed for most analytes. EQL's are the lowest concentrations that can be reliably measured under routine laboratory conditions. Unless otherwise noted, method blanks had no targets found above their EQL's and results were not corrected for blanks.

Certificate approved by
Peggy J. Schuler

Ross Analytical Services, Inc.
16433 Foltz Industrial Parkway • Strongsville, Ohio 44136
(216) 572-3200 • Fax (216) 572-7620 • 1-800-325-7737

CERTIFICATE OF ANALYSIS

Client:

Metco Environmental
16115 Dooley Road
Dallas, TX 75244

Attn: Hanoch Toren

Work Order #: 96-02-037
Client Code: METCO
Report Date: 02/15/96
Work ID: Multi-metals Trains
Date Received: 02/08/96

SAMPLE IDENTIFICATION

Lab Number	Sample Description	Lab Number	Sample Description
01	KMnO4 B Baghouse Run 1	02	HCl B Baghouse Run 1
03	KMnO4 B Baghouse Run 2	04	HCl B Baghouse Run 2
05	KMnO4 B Baghouse Run 3	06	HCl B Baghouse Run 3
07	KMnO4 B Baghouse Blank	08	HCl B Baghouse Blank
09	KMnO4 C Baghouse Run 1	10	HCl C Baghouse Run 1
11	KMnO4 C Baghouse Run 2	12	HCl C Baghouse Run 2
13	KMnO4 C Baghouse Run 3	14	HCl C Baghouse Run 3
15	KMnO4 C Baghouse Blank	16	HCl C Baghouse Blank

Data are reported on an as-received basis unless stated otherwise. Estimated Quantitation Limits (EQL's) are listed for most analytes. EQL's are the lowest concentrations that can be reliably measured under routine laboratory conditions. Unless otherwise noted, method blanks had no targets found above their EQL's and results were not corrected for blanks.

Certificate approved by
Peggy J. Sehuler

REPORT COMMENTS

Due to a limitation in the number of characters allowed for sample names in the WARD data package software, the samples are identified on the forms as follows:

Client ID	ID on Forms
Composite B Baghouse Run 1	BBAGR1
Composite B Baghouse Run 2	BBAGR2
Composite B Baghouse Run 3	BBAGR3
Composite B Baghouse Blank	BBAGBLK
Composite C Baghouse Run 1	CBAGR1
Composite C Baghouse Run 2	CBAGR2
Composite C Baghouse Run 3	CBAGR3
Composite C Baghouse Blank	CBAGBLK
Audit Filter	AUDIT
A Baghouse Dust	ABAGDUST
B Baghouse Dust	BBAGDUST
C Baghouse Dust	CBAGDUST
KMnO4 B Baghouse Run 1	KBBAGR1
HCl B Baghouse Run 1	HBBAGR1
KMnO4 B Baghouse Run 2	KBBAGR2
HCl B Baghouse Run 2	HBBAGR2
KMnO4 B Baghouse Run 3	KBBAGR3
HCl B Baghouse Run 3	HBBAGR3
KMnO4 B Baghouse Blank	KBBAGBLK
HCl B Baghouse Blank	HBBAGBLK
KMnO4 C Baghouse Run 1	KCBAGR1
HCl C Baghouse Run 1	HCBAGR1
KMnO4 C Baghouse Run 2	KCBAGR2
HCl C Baghouse Run 2	HCBAGR2
KMnO4 C Baghouse Run 3	KCBAGR3
HCl C Baghouse Run 3	HCBAGR3
KMnO4 C Baghouse Blank	KCBAGBLK
HCl C Baghouse Blank	HCBAGBLK

The acetone front wash beaker for C Baghouse Run 2 was received broken, and the residue was unrecoverable. Sample number 96-02-036-06, the composite for that run, includes all of the other fractions without an acetone front wash.

Note that the recovery for mercury in the multimetals LCS associated with the front halves (digested in the microwave) was outside of QC control limits. No reprep of the samples is possible.

TEST METHODOLOGIES

Mercury was determined in aqueous samples and leachates by cold vapor atomic absorption after acid/permanganate digestion as in EPA Methods 245.1 and 7470A. A single analysis was performed unless otherwise noted.

"Multi-metals train" samples were prepared for analysis according to "Methodology for the Determination of Metals Emissions in Exhaust Gases from Hazardous Waste Incineration and Similar Combustion Processes", 40 CFR 266, Appendix IX, Section 3.1. Prepared samples were analyzed by Inductively Coupled Plasma Emission Spectroscopy (ICP) as in EPA Method 6010A, unless otherwise noted.

Metals were determined in solid and non-aqueous liquid samples by digestion with nitric acid, hydrogen peroxide, and hydrochloric acid as in EPA Method 3050A, followed by Inductively Coupled Plasma Emission Spectroscopy as in EPA Method 6010A, unless noted otherwise.

Mercury was determined in solid and non-aqueous liquid samples by cold vapor atomic absorption after acid/permanganate digestion as in EPA Methods 245.5 and 7471A. A single analysis was performed unless otherwise noted.

Mercury was determined in aqueous samples and leachates by cold vapor atomic absorption after acid/permanganate digestion as in EPA Methods 245.1 and 7470A. A single analysis was performed unless otherwise noted.

Work Order # 96-02-036 Ross Analytical Services, Inc Reported: 02/15/96

Sample volume

Lab No.	Sample Description	Result	Units	EQL
01D	HNO3 FW B Baghouse Run 1	110	Total mL	5
01E	Imps. BH B Baghouse Run 1	463	Total mL	5
02D	HNO3 FW B Baghouse Run 2	113	Total mL	5
02E	Imps. BH B Baghouse Run 2	455	Total mL	5
03D	HNO3 FW B Baghouse Run 3	105	Total mL	5
03E	Imps. BH B Baghouse Run 3	445	Total mL	5
04D	HNO3 FW B Baghouse Blank	110	Total mL	5
04E	Imps. BH B Baghouse Blank	295	Total mL	5
05D	HNO3 FW C Baghouse Run 1	108	Total mL	5
05E	Imps. BH C Baghouse Run 1	445	Total mL	5
06D	HNO3 FW C Baghouse Run 2	88	Total mL	5
06E	Imps. BH C Baghouse Run 2	445	Total mL	5
07D	HNO3 FW C Baghouse Run 3	107	Total mL	5
07E	Imps. BH C Baghouse Run 3	480	Total mL	5
08D	HNO3 FW C Baghouse Blk	95	Total mL	5
08E	Imps. BH C Baghouse Blank	390	Total mL	5

Work Order # 96-02-037 Ross Analytical Services, Inc Reported: 02/15/96

Sample volume

Lab No.	Sample Description	Result	Units	EQL
01A	KMnO4 B Baghouse Run 1	187	total mL	5
02A	HCl B Baghouse Run 1	415	Total mL	5
03A	KMnO4 B Baghouse Run 2	390	Total mL	5
04A	HCl B Baghouse Run 2	225	Total mL	5
05A	KMnO4 B Baghouse Run 3	387	Total mL	5
06A	HCl B Baghouse Run 3	218	Total mL	5
07A	KMnO4 B Baghouse Blank	385	Total mL	5
08A	HCl B Baghouse Blank	220	Total mL	5
09A	KMnO4 C Baghouse Run 1	385	Total mL	5
10A	HCl C Baghouse Run 1	225	Total mL	5
11A	KMnO4 C Baghouse Run 2	390	Total mL	5
12A	HCl C Baghouse Run 2	240	Total mL	5
13A	KMnO4 C Baghouse Run 3	400	Total mL	5
14A	HCl C Baghouse Run 3	200	Total mL	5
15A	KMnO4 C Baghouse Blank	380	Total mL	5
16A	HCl C Baghouse Blank	222	Total mL	5

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

ab Name: ROSS_ANALYTICAL_SERVICES_ Contract: METCO_____

'ab Code: ROSS__ Case No.: _____ SAS No.: _____ SDG No.:BAGHOU

OW No.: ILM03

EPA Sample No.	Lab Sample ID
ABAGDUST	02-036-10A
ABAGDUSTD	02-036-10A-D
ABAGDUSTSD	02-036-10A-SD
ABAGDUSTS	02-036-10A-S
AUDIT	02-036-09A
BBAGBLK	02-036-04A
BBAGDUST	02-036-11A
BBAGR1	02-036-01A
BBAGR2	02-036-02A
BBAGR2D	02-036-02A-D
BBAGR2SD	02-036-02A-SD
BBAGR2S	02-036-02A-S
BBAGR3	02-036-03A
CBAGBLK	02-036-08A
CBAGDUST	02-036-12A
CBAGR1	02-036-05A
CBAGR2	02-036-06A
CBAGR2D	02-036-06A-D
CBAGR2SD	02-036-06A-SD
CBAGR2S	02-036-06A-S

'ere ICP interelement corrections applied ? Yes/No YES

'ere ICP background corrections applied ? Yes/No YES
If yes - were raw data generated before application of background corrections ? Yes/No NO_

'omments:

certify that this data package is in compliance with the terms and 'onditions of the contract, both technically and for completeness, for 'ther than the conditions detailed above. Release of the data contained n this hardcopy data package and in the computer-readable data submitted 'n floppy diskette has been authorized by the Laboratory Manager or the lanager's designee, as verified by the following signature.

'ignature: Peggy J. Schuler Name: Peggy J. Schuler

'ate: 2/15/96 Title: Quality Control Chemist

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

ABAGDUST

Lab Name: ROSS_ANALYTICAL_SERVICES_ Contract: METCO_____
Lab Code: ROSS__ Case No.: _____ SAS No.: _____ SDG No.: BAGHOU
Matrix (soil/water): SOIL_ Lab Sample ID: 02-036-10A
Level (low/med): LOW__ Date Received: 02/08/96
% Solids: 100.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	89.2	B	N	P
7440-38-2	Arsenic	146	B	N	P
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-69-9	Bismuth				NR
7440-43-9	Cadmium	734			P
7440-70-2	Calcium				NR
7440-47-3	Chromium	795			P
7440-48-4	Cobalt				NR
7440-50-8	Copper	1720			P
7439-89-6	Iron	154000			P
7439-92-1	Lead	22500			P
7439-93-2	Lithium				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese	20300			P
7439-97-6	Mercury	13.9			CV
7439-98-7	Molybdenu	27.9	U		P
7440-02-0	Nickel	299			P
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-31-5	Tin				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc	163000			P

Color Before: _____ Clarity Before: _____ Texture: _____
Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

FORM I - IN ILM02.1

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

CBAGDUST

ab Name: ROSS_ANALYTICAL_SERVICES_ Contract: METCO_____
ab Code: ROSS__ Case No.: _____ SAS No.: _____ SDG No.: BAGHOU
atrix (soil/water): SOIL_ Lab Sample ID: 02-036-12A
evel (low/med): LOW__ Date Received: 02/08/96
Solids: 100.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	107	B	N	P
7440-38-2	Arsenic	134	B	N	P
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-69-9	Bismuth				NR
7440-43-9	Cadmium	735			P
7440-70-2	Calcium				NR
7440-47-3	Chromium	1710			P
7440-48-4	Cobalt				NR
7440-50-8	Copper	2700			P
7439-89-6	Iron	213000			P
7439-92-1	Lead	26100			P
7439-93-2	Lithium				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese	24800			P
7439-97-6	Mercury	1.4			CV
7439-98-7	Molybdenu	33.5	B		P
7440-02-0	Nickel	172			P
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-31-5	Tin				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc	228000			P

Color Before: _____ Clarity Before: _____ Texture: _____
Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

FORM I - IN ILM02.1

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

ab Name: ROSS_ANALYTICAL_SERVICES_ Contract: METCO_____

ab Code: ROSS__ Case No.: _____ SAS No.: _____ SDG No.: BAGHOU

nitial Calibration Source: PLASMA CHEM_

ontinuing Calibration Source: PLASMA CHEM_

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum									NR
Antimony	5000.0	5342.31	106.8	10000.0	10376.39	103.8	10205.13	102.1	P
Arsenic	5000.0	4965.36	99.3	10000.0	9686.68	96.9	10158.67	101.6	P
Barium									NR
Beryllium									NR
Bismuth									NR
Cadmium	500.0	520.22	104.0	1000.0	1011.54	101.2	995.47	99.5	P
Calcium									NR
Chromium	1000.0	1037.39	103.7	2000.0	2029.89	101.5	1992.91	99.6	P
Cobalt									NR
Copper	1000.0	1030.90	103.1	2000.0	2012.97	100.6	1965.08	98.3	P
Iron	10000.0	10586.94	105.9	20000.0	21065.06	105.3	20531.04	102.7	P
Lead	5000.0	5177.05	103.5	10000.0	10051.36	100.5	9870.73	98.7	P
Lithium									NR
Magnesium									NR
Manganese	500.0	512.81	102.6	1000.0	1005.27	100.5	981.08	98.1	P
Mercury	2.0	2.06	103.0	5.0	5.37	107.4	5.53	110.6	CV
Molybdenu	1000.0	1049.38	104.9	2000.0	2091.87	104.6	2044.09	102.2	P
Nickel	1000.0	1052.30	105.2	2000.0	2040.16	102.0	1990.92	99.5	P
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Tin									NR
Vanadium									NR
Zinc	1000.0	985.02	98.5	2000.0	1965.43	98.3	2050.28	102.5	P

1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

FORM II (PART 1) - IN ILM02.1

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

ab Name: ROSS_ANALYTICAL_SERVICES_ Contract: METCO_____

ab Code: ROSS__ Case No.: _____ SAS No.: _____ SDG No.: BAGHOU

nitial Calibration Source: PLASMA CHEM_

ontinuing Calibration Source: PLASMA CHEM_

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum									NR
Antimony				10000.0	10237.21	102.4			P
Arsenic				10000.0	9963.17	99.6	9512.26	95.1	P
Barium									NR
Beryllium									NR
Bismuth									NR
Cadmium				1000.0	994.67	99.5			P
Calcium									NR
Chromium				2000.0	2009.29	100.5			P
Cobalt									NR
Copper				2000.0	1979.97	99.0			P
Iron				20000.0	20714.26	103.6			P
Lead				10000.0	9889.37	98.9			P
Lithium									NR
Magnesium									NR
Manganese				1000.0	984.00	98.4			P
Mercury	2.0	2.10	105.0	5.0	5.17	103.4	5.31	106.2	CV
Molybdenu				2000.0	2053.87	102.7			P
Nickel				2000.0	1998.19	99.9			P
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Tin									NR
Vanadium									NR
Zinc				2000.0	1991.80	99.6	1938.85	96.9	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

FORM II (PART 1) - IN ILM02.1

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ROSS_ANALYTICAL_SERVICES_ Contract: METCO_____

Lab Code: ROSS__ Case No.: _____ SAS No.: _____ SDG No.: BAGHOU

Initial Calibration Source: PLASMA CHEM_

Continuing Calibration Source: PLASMA CHEM_

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum									NR
Antimony	5000.0	5115.10	102.3	10000.0	10242.89	102.4	10479.21	104.8	P
Arsenic				10000.0	9564.61	95.6	9981.65	99.8	P
Barium									NR
Beryllium									NR
Bismuth									NR
Cadmium	500.0	497.34	99.5	1000.0	993.79	99.4	1015.55	101.6	P
Calcium									NR
Chromium	1000.0	1003.50	100.4	2000.0	1997.87	99.9	2070.25	103.5	P
Cobalt									NR
Copper	1000.0	995.92	99.6	2000.0	1949.55	97.5	2142.56	107.1	P
Iron	10000.0	10170.54	101.7	20000.0	20455.53	102.3	20876.16	104.4	P
Lead	5000.0	4996.56	99.9	10000.0	9994.66	99.9	10219.45	102.2	P
Lithium									NR
Magnesium									NR
Manganese	500.0	496.25	99.2	1000.0	988.61	98.9	1015.74	101.6	P
Mercury				5.0	5.42	108.4	5.10	102.0	CV
Molybdenu	1000.0	1011.01	101.1	2000.0	2025.69	101.3	2056.53	102.8	P
Nickel	1000.0	1010.43	101.0	2000.0	2006.63	100.3	2070.80	103.5	P
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Tin									NR
Vanadium									NR
Zinc				2000.0	1944.52	97.2	1995.39	99.8	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

ab Name: ROSS_ANALYTICAL_SERVICES_ Contract: METCO_____

ab Code: ROSS__ Case No.: _____ SAS No.: _____ SDG No.: BAGHOU

nitial Calibration Source: PLASMA CHEM_

ontinuing Calibration Source: PLASMA CHEM_

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum									NR
Antimony				10000.0	10230.05	102.3	9784.14	97.8	P
Arsenic	5000.0	5108.13	102.2	10000.0	10138.76	101.4	10171.42	101.7	P
Barium									NR
Beryllium									NR
Bismuth									NR
Cadmium				1000.0	1003.44	100.3	964.56	96.5	P
Calcium									NR
Chromium				2000.0	2034.91	101.7	1963.83	98.2	P
Cobalt									NR
Copper				2000.0	1988.26	99.4	1940.48	97.0	P
Iron				20000.0	20502.72	102.5	19755.65	98.8	P
Lead				10000.0	10005.96	100.1	9679.01	96.8	P
Lithium									NR
Magnesium									NR
Manganese				1000.0	992.21	99.2	954.91	95.5	P
Mercury				5.0	5.12	102.4	5.27	105.4	CV
Molybdenu				2000.0	2013.21	100.7	1925.84	96.3	P
Nickel				2000.0	2023.12	101.2	1956.85	97.8	P
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Tin									NR
Vanadium									NR
Zinc	1000.0	1028.51	102.9	2000.0	2035.07	101.8	2155.58	107.8	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

FORM II (PART 1) - IN ILM02.1

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ROSS_ANALYTICAL_SERVICES_ Contract: METCO_____

Lab Code: ROSS__ Case No.: _____ SAS No.: _____ SDG No.: BAGHOU

Initial Calibration Source: PLASMA CHEM_

Continuing Calibration Source: PLASMA CHEM_

Concentration Units: ug/L

Analyte	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(1)	Found	%R(1)	M
Aluminum									NR
Antimony				10000.0	9830.63	98.3	10184.53	101.8	P
Arsenic				10000.0	10200.69	102.0			P
Barium									NR
Beryllium									NR
Bismuth									NR
Cadmium				1000.0	961.29	96.1	1010.55	101.1	P
Calcium									NR
Chromium				2000.0	1967.42	98.4	2049.06	102.5	P
Cobalt									NR
Copper				2000.0	1861.00	93.0	1939.81	97.0	P
Iron				20000.0	19845.67	99.2	20954.10	104.8	P
Lead				10000.0	9756.94	97.6	10023.70	100.2	P
Lithium									NR
Magnesium									NR
Manganese				1000.0	956.55	95.7	991.93	99.2	P
Mercury	2.0	2.08	104.0	5.0	4.50	90.0	4.84	96.8	CV
Molybdenu				2000.0	1934.65	96.7	2005.87	100.3	P
Nickel				2000.0	1957.11	97.9	2031.60	101.6	P
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Tin									NR
Vanadium									NR
Zinc				2000.0	2106.11	105.3			P

1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

FORM II (PART 1) - IN ILM02.1

U.S. EPA - CLP

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ROSS_ANALYTICAL_SERVICES_ Contract: METCO_____

Lab Code: ROSS__ Case No.: _____ SAS No.: _____ SDG No.: BAGHOU

AA CRDL Standard Source: _____

ICP CRDL Standard Source: SOLUTIONS PL

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
	True	Found	%R	True	Initial Found	%R	Final Found	%R
Aluminum								
Antimony				200.0	213.32	106.7		
Arsenic								
Barium								
Beryllium								
Bismuth								
Cadmium				10.0	12.23	122.3		
Calcium								
Chromium				20.0	20.15	100.8		
Cobalt								
Copper				40.0	40.46	101.2		
Iron				200.0	264.35	132.2		
Lead				100.0	90.30	90.3		
Lithium								
Magnesium								
Manganese				10.0	13.98	139.8		
Mercury								
Molybdenu				20.0	14.39	72.0		
Nickel				40.0	41.91	104.8		
Potassium								
Selenium								
Silver								
Sodium								
Thallium								
Tin								
Vanadium								
Zinc								

FORM II (PART 2) - IN ILM02.1

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ROSS_ANALYTICAL_SERVICES_ Contract: METCO_____

Lab Code: ROSS__ Case No.: _____ SAS No.: _____ SDG No.: BAGHOU

AA CRDL Standard Source: _____

ICP CRDL Standard Source: SOLUTIONS PL

Concentration Units: ug/L

Analyte	CRDL Standard for AA True	Found	%R	CRDL Standard for ICP True	Initial Found	%R	Final Found	%R
Aluminum								
Antimony				200.0	181.97	91.0		
Arsenic				400.0	393.44	98.4		
Barium								
Beryllium								
Bismuth								
Cadmium				10.0	10.61	106.1		
Calcium								
Chromium				20.0	20.33	101.6		
Cobalt								
Copper				40.0	52.43	131.1		
Iron				200.0	225.62	112.8		
Lead				100.0	114.84	114.8		
Lithium								
Magnesium								
Manganese				10.0	10.79	107.9		
Mercury								
Molybdenu				20.0	22.02	110.1		
Nickel				40.0	44.68	111.7		
Potassium								
Selenium								
Silver								
Sodium								
Thallium								
Tin								
Vanadium								
Zinc				40.0	54.03	135.1		

U.S. EPA - CLP

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ROSS_ANALYTICAL_SERVICES_ Contract: METCO_____

Lab Code: ROSS__ Case No.: _____ SAS No.: _____ SDG No.: BAGHOU

AA CRDL Standard Source: _____

ICP CRDL Standard Source: SOLUTIONS PL

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
	True	Found	%R	True	Initial Found	%R	Final Found	%R
Aluminum								
Antimony								
Arsenic				400.0	408.41	102.1		
Barium								
Beryllium								
Bismuth								
Cadmium								
Calcium								
Chromium								
Cobalt								
Copper								
Iron								
Lead								
Lithium								
Magnesium								
Manganese								
Mercury								
Molybdenu								
Nickel								
Potassium								
Selenium								
Silver								
Sodium								
Thallium								
Tin								
Vanadium								
Zinc				40.0	42.89	107.2		

3
BLANKS

ıb Name: ROSS_ANALYTICAL_SERVICES_ Contract: METCO_____

ıb Code: ROSS__ Case No.: _____ SAS No.: _____ SDG No.: BAGHOU

·eparation Blank Matrix (soil/water): SOIL_

·eparation Blank Concentration Units (ug/L or mg/kg): MG/KG

nalyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
luminum											NR
ntimony	8.5	U	8.5	U	8.5	U	8.5	U	0.850	U	P
rsenic	18.8	U	39.9	B	18.8	U	18.8	U	1.880	U	P
arium											NR
eryllium											NR
ismuth											NR
admium	0.6	U	0.6	U	0.6	U	0.6	U	0.060	U	P
alcium											NR
hromium	-3.1	B	-4.3	B	2.6	U	2.6	U	0.260	U	P
obalt											NR
opper	14.0	U	14.0	U	14.0	U	14.0	U	1.400	U	P
ron	71.7	U	71.7	U	71.7	U	71.7	U	7.170	U	P
ead	-9.2	B	-10.5	B	8.0	U	8.0	U	0.800	U	P
ithium											NR
agnesium											NR
anganese	0.8	U	0.8	U	0.8	U	0.8	U	0.080	U	P
ercury	0.04	U	0.04	U	0.04	U			0.015	U	CV
olybdenu	5.8	U	5.8	U	5.8	U	5.8	U	-0.921	B	P
ickel	2.8	U	2.8	U	2.8	U	2.8	U	0.280	U	P
otassium											NR
elenium											NR
ilver											NR
odium											NR
hallium											NR
in											NR
anadium											NR
inc	2.2	U	3.5	B	2.2	U	2.2	U	0.220	U	P

GMM
2/15/96

FORM III - IN ILM02.1

3
BLANKS

.b Name: ROSS_ANALYTICAL_SERVICES_ Contract: METCO_____

.b Code: ROSS__ Case No.: _____ SAS No.: _____ SDG No.: BAGHOU

·eparation Blank Matrix (soil/water): WATER

·eparation Blank Concentration Units (ug/L or mg/kg): UG/L_

.nalyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
.luminum											NR
.ntimony	11.5	B	8.5	U	14.4	B	10.3	B	8.500	U	P
.rsenic			18.8	U	18.8	U	-24.6	B	18.800	U	P
;arium											NR
;eryllium											NR
;ismuth											NR
:admium	0.8	B	1.1	B	0.9	B	1.0	B	0.600	U	P
:alcium											NR
:hromium	2.6	U	2.6	U	2.6	U	4.9	B	2.600	U	P
:obalt											NR
:opper	14.0	U	14.0	U	14.0	U	14.0	U	14.000	U	P
:ron	71.7	U	75.8	B	71.7	U	71.7	U	71.700	U	P
;ead	18.0	B	12.2	B	8.0	U	8.0	U	8.000	U	P
;ithium											NR
;agnesium											NR
;anganese	-1.0	B	0.8	U	0.8	U	0.8	U	0.800	U	P
;ercury	0.04	U	0.07	U	0.07	B	0.07	U	0.130	B	CV
;olybdenu	5.8	U	5.8	U	5.8	U	5.8	U	5.800	U	P
;ickel	2.8	U	5.5	B	7.2	B	2.8	U	2.800	U	P
·otassium											NR
;elenium											NR
;ilver											NR
;odium											NR
:hallium											NR
:in											NR
;anadium											NR
;inc			2.2	U	2.2	U	2.2	U	4.460	B	P

Com 2/15/96

U.S. EPA - CLP

3
BLANKS

Lab Name: ROSS_ANALYTICAL_SERVICES_ Contract: METCO_____

Lab Code: ROSS__ Case No.: _____ SAS No.: _____ SDG No.: BAGHOU

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L_

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											NR
Antimony			9.9	B	14.0	B	11.5	B	34.200	B	P
Arsenic	18.8	U	28.2	B	18.8	U	28.6	B	29.110	B	P
Barium											NR
Beryllium											NR
Bismuth											NR
Cadmium			1.2	B	1.6	B	0.6	U	0.750	B	P
Calcium											NR
Chromium			-2.8	B	-3.5	B	3.2	B	2.600	U	P
Cobalt											NR
Copper			14.0	U	14.0	U	14.0	U	14.000	U	P
Iron			71.7	U	71.7	U	92.6	B	71.700	U	P
Lead			13.5	B	15.0	B	9.2	B	15.030	B	P
Lithium											NR
Magnesium											NR
Manganese			0.8	U	0.8	U	0.8	U	0.800	U	P
Mercury			0.07	U	0.07	U	0.07	U	0.152	B	CV
Molybdenu			5.8	U	5.8	U	5.8	U	5.870	B	P
Nickel			4.1	B	2.8	U	3.8	B	5.090	B	P
Potassium											NR
Selenium											NR
Silver											NR
Sodium											NR
Thallium											NR
Tin											NR
Vanadium											NR
Zinc	2.2	U	2.2	U	2.6	B	4.3	B	2.530	B	P

CM 2/14/96

FORM III - IN ILM02.1

U.S. EPA - CLP

4

ICP INTERFERENCE CHECK SAMPLE

b Name: ROSS_ANALYTICAL_SERVICES_ Contract: METCO_____

b Code: ROSS__ Case No.: _____ SAS No: _____ SDG No.: BAGHOU

p ID Number: TJA 36_____ ICS Source: CPI_____

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	%R	Final Found Sol. A	Final Found Sol. AB	%R
Aluminum	500000	500000	493094	495089.8	99.0	466533	473708.2	94.7
Antimony		1000		1080.4	108.0		1005.0	100.5
Arsenic		1000		1067.2	106.7		1193.1	119.3
Barium								
Beryllium								
Bismuth								
Cadmium		1000		916.5	91.6		883.7	88.4
Calcium	500000	500000	486237	478063.0	95.6	468600	459935.0	92.0
Chromium		500		441.3	88.3		430.6	86.1
Cobalt								
Copper		500		480.1	96.0		447.4	89.5
Iron	200000	200000	181054	177549.3	88.8	174242	172159.0	86.1
Lead		1000		897.6	89.8		867.3	86.7
Lithium								
Magnesium	500000	500000	486757	489750.2	98.0	464458	469789.6	94.0
Manganese		500		484.3	96.9		468.3	93.7
Mercury								
Molybdenu		1000		903.8	90.4		857.6	85.8
Nickel		1000		850.4	85.0		826.3	82.6
Potassium								
Selenium								
Silver								
Sodium								
Thallium								
Tin								
Vanadium								
Zinc		1000		909.3	90.9		890.1	89.0

FORM IV - IN ILM02.1

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

ab Name: ROSS_ANALYTICAL_SERVICES_ Contract:METCO_____ ABAGDUSTS

ab Code: ROSS__ Case No.: _____ SAS No.: _____ SDG No.: BAGHOU
atrix: __SOIL_____ Level (low/med): _LOW____
Solids for Sample: 100.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony	80-120	234.3204	B	89.1827	B	194.17	74.7	N	P
Arsenic	80-120	372.5728	B	146.4423	B	194.17	116.5		P
Barium									NR
Beryllium									NR
Bismuth									NR
Cadmium	80-120	954.3204		734.0385		194.17	113.4		P
Calcium									NR
Chromium		1012.5728		795.1442		194.17	112.0		P
Cobalt									NR
Copper		1853.6893		1724.4231		194.17	66.6		P
Iron		159021.5048		153704.9038		3883.50	136.9		P
Lead		22572.3301		22548.3654		194.17	12.3		P
Lithium									NR
Magnesium									NR
Manganese		20183.7864		20344.2788		194.17	-82.7		P
Mercury		15.1538		13.8824		0.77	165.1		CV
Molybdenu	80-120	181.6019		27.8846	U	194.17	93.5		P
Nickel	80-120	487.0388		299.0865		194.17	96.8		P
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Tin									NR
Vanadium									NR
Zinc		163908.1068		163409.6154		194.17	256.7		P

omments:

FORM V (Part 1) - IN ILM02.1

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

ABAGDUSTSD

Lab Name: ROSS_ANALYTICAL_SERVICES_ Contract: METCO_____

Lab Code: ROSS__ Case No.: _____ SAS No.: _____ SDG No.: BAGHOU
Matrix: __SOIL_____ Level (low/med): _LOW_____
Solids for Sample: 100.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony	80-120	272.0588	B	89.1827	B	196.08	93.3		P
Arsenic	80-120	410.5392	B	146.4423	B	196.08	134.7	N	P
Barium									NR
Beryllium									NR
Bismuth									NR
Cadmium	80-120	926.7647		734.0385		196.08	98.3		P
Calcium									NR
Chromium		963.6275		795.1442		196.08	85.9		P
Cobalt									NR
Copper		1772.3039		1724.4231		196.08	24.4		P
Iron		147620.5392		153704.9038		3921.57	-155.2		P
Lead		21915.0980		22548.3654		196.08	-323.0		P
Lithium									NR
Magnesium									NR
Manganese		19310.0000		20344.2788		196.08	-527.5		P
Mercury		15.2941		13.8824		0.78	181.0		CV
Molybdenu	80-120	194.6569		27.8846	U	196.08	99.3		P
Nickel	80-120	462.3529		299.0865		196.08	83.3		P
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Tin									NR
Vanadium									NR
Zinc		156362.4020		163409.6154		196.08	-3594.1		P

Comments:

FORM V (Part 1) - IN ILM02.1

U.S. EPA - CLP

5B
POST DIGEST SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

ABAGDUSTA

Lab Name: ROSS_ANALYTICAL_SERVICES_ Contract: METCO_____

Lab Code: ROSS__ Case No.: _____ SAS No.: _____ SDG No.: BAGHOU

Matrix: ____SOIL_____ Level (low/med): LOW_____

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Added (SA)	%R	Q	M
Aluminum									NR
Antimony		84461.50		927.50	B	100,000	83.5		P
Arsenic		194191.50		1523.00	B	200,000	96.3		P
Barium									NR
Beryllium									NR
Bismuth						GMM			NR
Cadmium						2/15/96			NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper									NR
Iron									NR
Lead									NR
Lithium									NR
Magnesium									NR
Manganese									NR
Mercury									NR
Molybdenu									NR
Nickel									NR
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Tin									NR
Vanadium									NR
Zinc									NR

Comments:

2.1

U.S. EPA - CLP

5B
POST DIGEST SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

ABAGDUSTAD

Lab Name: ROSS_ANALYTICAL_SERVICES_ Contract: METCO_____

Lab Code: ROSS__ Case No.: _____ SAS No.: _____ SDG No.: BAGHOU

Matrix: ____SOIL_____ Level (low/med): LOW_____

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample /Result (SSR)	C	Sample Result (SR)	C	Added (SA)	%R	Q	M
Aluminum									NR
Antimony		100965.50		927.50	B	100.000	100.0		P
Arsenic		193341.50		1523.00	B	200.000	95.9		P
Barium									NR
Beryllium									NR
Bismuth						600			NR
Cadmium						2/15/96			NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper									NR
Iron									NR
Lead									NR
Lithium									NR
Magnesium									NR
Manganese									NR
Mercury									NR
Molybdenu									NR
Nickel									NR
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Tin									NR
Vanadium									NR
Zinc									NR

Comments:

2.1

U.S. EPA - CLP

6
DUPLICATES

EPA SAMPLE NO.

ABAGDUSTD

Lab Name: ROSS_ANALYTICAL_SERVICES_ Contract: METCO_____

Lab Code: ROSS__ Case No.: _____ SAS No.: _____ SDG No.: BAGHOU

Matrix (soil/water): SOIL_ Level (low/med): _LOW__

% Solids for Sample: 100.0 % Solids for Duplicate: _100.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum								NR
Antimony		89.1827	B	102.0098	B	13.4		P
Arsenic		146.4423	B	171.5686	B	15.8		P
Barium								NR
Beryllium								NR
Bismuth								NR
Cadmium		734.0385		715.2451		2.6		P
Calcium								NR
Chromium		795.1442		887.3529		11.0		P
Cobalt								NR
Copper		1724.4231		1621.8137		6.1		P
Iron		153704.9038		183479.9020		17.7		P
Lead		22548.3654		21557.1078		4.5		P
Lithium								NR
Magnesium								NR
Manganese		20344.2788		21173.6765		4.0		P
Mercury		13.8824		14.0769		1.4		CV
Molybdenu		27.8846	U	28.4314	U			P
Nickel		299.0865		316.4216		5.6		P
Potassium								NR
Selenium								NR
Silver								NR
Sodium								NR
Thallium								NR
Tin								NR
Vanadium								NR
Zinc		163409.6154		156582.8431		4.3		P

FORM VI - IN ILM02.1

6
SPIKE DUPLICATES

EPA SAMPLE NO.

ABAGDUSTSD

Lab Name: ROSS_ANALYTICAL_SERVICES_ Contract: METCO_____

Lab Code: ROSS__ Case No.: _____ SAS No.: _____ SDG No.: BAGHOU

Matrix (soil/water): SOIL_ Level (low/med): _LOW__

% Solids for Sample: 100.0 % Solids for Duplicate: _100.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum								NR
Antimony		234.3204	B	272.0588	B	14.9		P
Arsenic		372.5728	B	410.5392	B	9.7		P
Barium								NR
Beryllium								NR
Bismuth								NR
Cadmium		954.3204		926.7647		2.9		P
Calcium								NR
Chromium		1012.5728		963.6275		5.0		P
Cobalt								NR
Copper		1853.6893		1772.3039		4.5		P
Iron		159021.5048		147620.5392		7.4		P
Lead		22572.3301		21915.0980		3.0		P
Lithium								NR
Magnesium								NR
Manganese		20183.7864		19310.0000		4.4		P
Mercury		15.1538		15.2941		0.9		CV
Molybdenu		181.6019		194.6569		6.9		P
Nickel		487.0388		462.3529		5.2		P
Potassium								NR
Selenium								NR
Silver								NR
Sodium								NR
Thallium								NR
Tin								NR
Vanadium								NR
Zinc		163908.1068		156362.4020		4.7		P

U.S. EPA - CLP

POST SPIKE 6 DUPLICATES

EPA SAMPLE NO.

ABAGDUSTAD

Lab Name: ROSS_ANALYTICAL_SERVICES_ Contract: METCO_____

Lab Code: ROSS__ Case No.: _____ SAS No.: _____ SDG No.: BAGHOU

Matrix (soil/water): SOIL_ Level (low/med): _LOW__

% Solids for Sample: 100.0 % Solids for Duplicate: _100.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum								NR
Antimony		84.4615		100.9655		17.8		P
Arsenic		194.1915		193.3415		0.4		P
Barium								NR
Beryllium								NR
Bismuth								NR
Cadmium								NR
Calcium								NR
Chromium								NR
Cobalt								NR
Copper								NR
Iron								NR
Lead								NR
Lithium								NR
Magnesium								NR
Manganese								NR
Mercury								NR
Molybdenu								NR
Nickel								NR
Potassium								NR
Selenium								NR
Silver								NR
Sodium								NR
Thallium								NR
Tin								NR
Vanadium								NR
Zinc								NR

FORM VI - IN ILM02.1

7

LABORATORY CONTROL SAMPLE

ab Name: ROSS_ANALYTICAL_SERVICES_ Contract: METCO_____

ab Code: ROSS__ Case No.: _____ SAS No.: _____ SDG No.: BAGHOU

olid LCS Source: ERA_____

queous LCS Source: SOLUTIONS PL

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum									
Antimony	1000.0	966.06	96.6	116.0	96.2		23.2	316.0	82.9
Arsenic	1000.0	1040.47	104.0	95.3	100.7		46.7	146.0	105.7
Barium									
Beryllium									
Bismuth									
Cadmium	1000.0	1031.09	103.1	106.0	106.2		62.5	148.0	100.2
Calcium									
Chromium	1000.0	1050.11	105.0	82.3	81.4		48.6	114.0	98.9
Cobalt									
Copper	1000.0	950.34	95.0	94.9	102.6		57.9	134.0	108.1
Iron	20000.0	21267.69	106.3	6490.0	4371.1		4350.0	8700.0	67.4
Lead	1000.0	1043.37	104.3	91.7	86.3		49.5	128.0	94.1
Lithium									
Magnesium									
Manganese	1000.0	1049.84	105.0	138.0	129.2		95.2	186.0	93.6
Mercury	2.0	1.82	91.0	10.0	11.0		5.2	15.6	110.0
Molybdenu	1000.0	1013.21	101.3	94.4	97.4		53.8	149.0	103.2
Nickel	1000.0	1021.52	102.2	99.5	101.2		58.7	142.0	101.7
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Tin									
Vanadium									
Zinc	1000.0	1028.30	102.8	98.6	100.2		56.2	150.0	101.6

FORM VII - IN

ILM02.1

7

LABORATORY CONTROL SAMPLE

ab Name: ROSS_ANALYTICAL_SERVICES_ Contract: METCO_____

ab Code: ROSS__ Case No.: _____ SAS No.: _____ SDG No.: BAGHOU

olid LCS Source: _____

queous LCS Source: SOLUTIONS PL

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum									
Antimony	1000.0	1120.01	112.0						
Arsenic	1000.0	1020.24	102.0						
Barium									
Beryllium									
Bismuth									
Cadmium	1000.0	1040.94	104.1						
Calcium									
Chromium	1000.0	1066.57	106.7						
Cobalt									
Copper	1000.0	996.16	99.6						
Iron	20000.0	21568.57	107.8						
Lead	1000.0	1049.75	105.0						
Lithium									
Magnesium									
Manganese	1000.0	1060.31	106.0						
Mercury	2.0	1.37	68.5						
Molybdenu	1000.0	1033.77	103.4						
Nickel	1000.0	1038.61	103.9						
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Tin									
Vanadium									
Zinc	1000.0	1015.91	101.6						

FORM VII - IN

ILM02.1

10
Instrument Detection Limits (Quarterly)

Lab Name: ROSS ANALYTICAL SERVICES Contract: METCO
Lab Code: ROSS Case No.: SAS No.: SDG No.: BAGHOU
ICP ID Number: TJA_36 Date: 01/03/96
Flame AA ID Number :
Furnace AA ID Number :

Analyte	Wave-length (nm)	Back-ground	EQL ~~CRDL~~ (ug/L) Com 2/15/96	MDL ~~IDL~~ (ug/L) Com 2/15/96	M
Aluminum	308.22		100	27.2	P
Antimony	206.84		100	8.5	P
Arsenic	193.70		200	18.8	P
Barium			2		NR
Beryllium			1		NR
Bismuth			10		NR
Cadmium	226.50		5	0.6	P
Calcium	315.89		200	148.0	P
Chromium	267.72		10	2.6	P
Cobalt			5		NR
Copper	324.75		20	14.0	P
Iron	259.94		100	71.7	P
Lead	220.35		50	8.0	P
Lithium			100		NR
Magnesium	279.08		100	23.0	P
Manganese	257.61		5	0.8	P
Mercury			0.2		NR
Molybdenu	202.00		10	5.8	P
Nickel	231.60		20	2.8	P
Potassium			200		NR
Selenium			5		NR
Silver			5		NR
Sodium			500		NR
Thallium			5		NR
Tin			10		NR
Vanadium			10		NR
Zinc	213.86		20	2.2	P

Comments:

U.S. EPA - CLP

10
Instrument Detection Limits (Quarterly)

Lab Name: ROSS_ANALYTICAL_SERVICES_ Contract: METCO_____
Lab Code: ROSS__ Case No.: _____ SAS No.: _____ SDG No.: BAGHOU
ICP ID Number: _____ Date: 12/16/95
Flame AA ID Number : LEEMAN_PS200
Furnace AA ID Number : _____

Analyte	Wave-length (nm)	Back-ground	EQL ~~CRDL~~ (ug/L)	MDL ~~IDL~~ (ug/L)	M
			Gm 2/15/96	Gm 2/15/96	
Aluminum			100		NR
Antimony			100		NR
Arsenic			200		NR
Barium			2		NR
Beryllium			1		NR
Bismuth			10		NR
Cadmium			5		NR
Calcium			200		NR
Chromium			10		NR
Cobalt			5		NR
Copper			20		NR
Iron			100		NR
Lead			50		NR
Lithium			100		NR
Magnesium			100		NR
Manganese			5		NR
Mercury	253.70		0.2	0.04 ~~0.0~~	CV
Molybdenu			10	Gm	NR
Nickel			20	2/15/96	NR
Potassium			200		NR
Selenium			5		NR
Silver			5		NR
Sodium			500		NR
Thallium			5		NR
Tin			10		NR
Vanadium			10		NR
Zinc			20		NR

Comments:

FORM X - IN .ILM02.1

Ross Analytical Service Inc.
16433 Foltz Industrial Parkway • Strongsville, Ohio 44136
(216) 572-3200 • Fax (216) 572-7620 • 1-800-325-7737

CERTIFICATE OF ANALYSIS

Client:

Metco Environmental
16115 Dooley Road
Dallas, TX 75244

Attn: Hanoch Toren

Work Order #: 96-02-151
Client Code: METCO
Report Date: 03/04/96
Work ID: Dust for reanalysis
Date Received: 02/08/96

Purchase Order: Chapparal Steel/96-15

SAMPLE IDENTIFICATION

Lab Number	Sample Description	Lab Number	Sample Description
01	B Baghouse Dust		

Data are reported on an as-received basis unless stated otherwise. Estimated Quantitation Limits (EQL's) are listed for most analytes. EQL's are the lowest concentrations that can be reliably measured under routine laboratory conditions. Unless otherwise noted, method blanks had no targets found above their EQL's and results were not corrected for blanks.

Certificate approved by
Carol L. Turner

Work Order # 96-02-151 Ross Analytical Services, Inc Reported: 03/04/96

REPORT COMMENTS

Target hits were found for arsenic and antimony but these results were below the reported EQL and reported as <EQL on the results page. The results for these metals are summarized below and flagged with a "B":

Metal	Lab No.	Result (mg/Kg)	EQL (mg/Kg)
Antimony	01	55.7 B	500
Arsenic	01	108 B	500

A duplicate of this sample was analyzed. Results are summarized below:

Metal	Result (mg/Kg)
Antimony	60.0 B
Arsenic	93.3 B
Cadmium	544
Chromium	882
Copper	1510
Iron	134,000
Lead	17,900
Manganese	19,000
Molybdenum	35.7 B
Nickel	285
Zinc	126,000

Laboratory Control Sample

Metal	% Recovery
Antimony	131
Arsenic	111
Cadmium	110
Chromium	108
Copper	120
Iron	79
Manganese	99
Molybdenum	116
Nickel	109
Zinc	107

TEST METHODOLOGIES

Metals were determined in solid and non-aqueous liquid samples by digestion with nitric acid, hydrogen peroxide, and hydrochloric acid as in EPA Method 3050A, followed by Inductively Coupled Plasma Emission Spectroscopy as in EPA Method 6010A, unless noted otherwise.

Mercury was determined in solid and non-aqueous liquid samples by cold vapor atomic absorption after acid/permanganate digestion as in EPA Methods 245.5 and 7471A. A single analysis was performed unless otherwise noted.

Work Order # 96-02-151 Ross Analytical Services, Inc Reported: 03/04/96

Sample Description: B Baghouse Dust **Lab No.:** 01

Analyte Description	Result	Units	EQL
Antimony by ICP	<EQL	mg/Kg	500
Arsenic by ICP	<EQL	mg/Kg	500
Cadmium by ICP	556	mg/Kg	25
Chromium by ICP	861	mg/Kg	50
Copper by ICP	1530	mg/Kg	100
Iron by ICP	133,000	mg/Kg	1000
Lead by ICP	18,200	mg/Kg	250
Manganese by ICP	19,500	mg/Kg	25
Molybdenum by ICP	48	mg/Kg	50
Nickel by ICP	287	mg/Kg	100
Zinc by ICP	128,000	mg/Kg	100