A.3.1

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State of Ohio Environmental Protection Agency
Northeast District Office
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burg, Ohio 44087-1969
425-9171
(216) 487-0769

G.3.1

RECEIVED
JAN 24 1995
OFFICE OF RCRA
WASTE MANAGEMENT DIVISION
EPA, REGION V

George V. Voinovich
Governor

January 17, 1995

RE: AMERICAN STEEL
MAHONING COUNTY
OHD 017 497 587

RECEIVED
WMD RECORD CENTER
FEB 21 1995

CERTIFIED MAIL

Ms. Bernadette M. Wellman
American Steel Foundries, Inc.
10 South Riverside Plaza
10th Floor
Chicago IL 60606

Dear Ms. Wellman:

On January 11, 1995, the Ohio EPA received a Ground Water Quality Assessment Plan submitted on behalf of American Steel Foundries.

Thank you for your submittal. The material is pending review.

The Division of Drinking and Ground Water has been requested to review your report and the ground water data submitted. Their comments will be forwarded to you upon completion.

Ohio EPA is also in receipt of your *Progress Report # 11*. Ohio EPA has reviewed the contents, and agrees in substance with the materials and statements presented.

Please note that Ohio EPA Division of Hazardous Waste Management should be listed in the "cc:" lists of your correspondence. Copies forwarded to the erroneous title of "Division of Solid and Hazardous Waste" are currently being misrouted. Please make the necessary correction. Thank you.

If you have any questions, please feel free to contact either Mr. Harry Courtright or me at (216) 963-1200.

Sincerely,

John B. Palmer
Environmental Specialist
Division of Hazardous Waste Management

JBP.cl

pc: Harry Courtright, DHWM, NEDO
Laurie Stevenson, DHWM, CO
David Stroh, DHWM, CO
Mark Navarre, Legal, CO
Lori Massey, AGO
James Payne, AGO
Gordon Garcia, USEPA Region V
Eric Adams, DDAGW, NEDO
Terry Bradway, ASF

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A.3.1

File

George V. Voinovich
Governor

November 23, 1994

RE: AMERICAN STEEL
MAHONING COUNTY
OHD 017 497 587

CERTIFIED MAIL

Ms. Bernadette M. Wellman
American Steel Foundries, Inc.
10 South Riverside Plaza
10th Floor
Chicago IL 60606

Dear Ms. Wellman:

On July 25, 1994, the Ohio EPA received American Steel Foundries' response to the Ohio EPA's July 15, 1994, letter to Terry Bradway, American Steel Foundries, Inc. from John Palmer. American Steel Foundries is responding to the Ohio EPA's July 12, 1994, review of the Supplementary Annual Report for the 1993 Ground Water Monitoring Information. The Ohio EPA sent American Steel Foundries four comments regarding the review of the 1993 Supplementary Annual Report.

American Steel Foundries has responded to the four comments in Ohio EPA's July 15, 1994, letter.

Comment 1

No response was required.

Comment 2

American Steel Foundries has not adequately responded. Supplementary Annual Reports for ground water monitoring information are used to report ground water monitoring activities during a calendar year. If you have not yet received monitoring results for all four quarters of the calendar year, please include the results you have received in order to meet the March First submittal date. Send additional results as they are received.

In order to meet the requirements of OAC Rule 3745-65-94(A)(2)(c) for reporting the results of ground water surface elevations under OAC Rule 3745-65-93(F), Ohio EPA requires that owner/operators submit a map for each sampling event indicating the position of the hazardous waste management unit in relation to the monitoring wells. Monitoring well ground water surface elevation contours and ground water flow direction shall be indicated on the maps.

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If you have any further questions, please feel free to contact either Mr. Harry Courtright at (216) 963-1119 or me at (216) 963-1232.

Sincerely,

John B. Palmer
Environmental Specialist
Division of Hazardous Waste Management

JBP.cl

pc: Harry Courtright, DHWM, NEDO
Laurie Stevenson, DHWM, CO
David Stroh, DHWM, CO
Mark Navarre, Legal, CO
Lori Massey, AGO
James Payne, AGO
Gordon Garcia, USEPA Region V
Eric Adams, DHWM, NEDO
Terry Bradway, ASF

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NOV 28 1994
OFFICE OF RCRA
WASTE MANAGEMENT DIVISION
EPA, REGION V

A.3.1

George V. Voinovich
Governor

November 23, 1994

RE: AMERICAN STEEL
MAHONING COUNTY
OHD 017 497 587

File

CERTIFIED MAIL

Ms. Bernadette M. Wellman
American Steel Foundries, Inc.
10 South Riverside Plaza
10th Floor
Chicago IL 60606

Dear Ms. Wellman:

On July 25, 1994, the Ohio EPA, NEDO received American Steel Foundries' response to the Ohio EPA's June 28, 1994, letter to Terry Bradway, American Steel Foundries, Inc. from John Palmer. American Steel Foundries is responding to the Ohio EPA's June 20, 1994, review of the December 1993 ground water quality analytical results. The Ohio EPA sent American Steel Foundries four comments regarding the review of the December 1993 analytical results.

American Steel Foundries has responded to the four comments in Ohio EPA's June 28, 1994, letter.

Comment 1

American Steel Foundries has adequately responded. American Steel Foundries shall revise the Ground Water Sampling and Analysis Plan (GWSAP) to reflect the changes in the practical quantitation limits (PQLs).

Comment 2

American Steel Foundries has adequately responded. American Steel Foundries shall revise the Ground Water Sampling and Analysis Plan to reflect the change in tin's PQL.

Comment 3

American Steel Foundries has adequately responded.

Comment 4

Best professional practice and procedure dictates that a potentiometric map must be constructed for each sampling event in order to verify the up and down gradient relationships of monitor wells. American Steel Foundries shall submit a potentiometric map of each ground water sampling event with the appropriate analytical results.

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George V. Voinovich
Governor

August 15, 1994

RE: AMERICAN STEEL
MAHONING COUNTY
SMITH TOWNSHIP
OHD 017 497 587

CERTIFIED MAIL

Mr. Terry Bradway
American Steel Foundries, Inc.
1001 East Broadway
Alliance OH 44601-0060

Dear Mr. Bradway:

On August 12, 1994, the Ohio EPA received documentation submitted on behalf of your facility containing a report dated July 21, 1994 and titled *Results of June, 1994 Groundwater Sampling- Third Quarter*.

Thank you for your submittal. The material is pending review.

The Division of Drinking and Ground Water has been requested to review your report and the ground water data submitted. Their comments will be forwarded to you upon completion.

If you have any questions, please feel free to contact either Mr. Harry Courtright at (216) 863 1119 or me at (216) 963 1232.

Sincerely,

John B. Palmer
Environmental Specialist
Division of Hazardous Waste Management

JBP.cl

pc: Harry Courtright, DHWM, NEDO
Laurie Stevenson, DHWM, CO
David Stroh, DHWM, CO
Ed Kitchen, DHWM, CO
Mark Navarre, Legal, CO
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RECEIVED
AUG 02 1994

George V. Voinovich
Governor

OFFICE OF RCRA
Waste Management Division
U.S. EPA, REGION V

July 28, 1994

RE: AMERICAN STEEL
MAHONING COUNTY
SMITH TOWNSHIP
OHD 017 497 587

CERTIFIED MAIL

Mr. Terry Bradway
American Steel Foundries, Inc.
1001 East Broadway
Alliance OH 44601-0060

Dear Mr. Bradway:

On July 25, 1994, the Ohio EPA received documentation submitted on behalf of your facility containing a report dated July 22, 1994 and titled *Groundwater Sampling Report Response to Comments*, and a related document dated July 18, 1994 and titled *Revised Analytical Reports for First Quarter Groundwater Sampling Event*. These document were submitted as a response to a letter to American Steel Foundries from Ohio EPA dated June 28, 1994.

Thank you for your submission. The material is pending review.

The Division of Drinking and Ground Water has been requested to review your report and the ground water data submitted. Their comments will be forwarded to you upon completion.

If you have any questions, please feel free to contact either Mr. Harry Courtright or me at (216) 963 1200.

Sincerely,

John B. Palmer
Environmental Specialist
Division of Hazardous Waste Management

JP.cl

pc: Harry Courtright, DHWM, NEDO
Laurie Stevenson, DHWM, CO
David Stroh, DHWM, CO
Ed Kitchen, DHWM, CO
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RECEIVED
AUG 8 1994
OFFICE OF RCRA
WASTE MANAGEMENT DIVISION
EPA, REGION V

George V. Voinovich
Governor

July 22, 1994

RE: AMERICAN STEEL
MAHONING COUNTY
SMITH TOWNSHIP
OHD 017 497 587

CERTIFIED MAIL

Mr. Terry Bradway
American Steel Foundries, Inc.
1001 East Broadway
Alliance OH 44601-0060

Dear Mr. Bradway:

On May 18, 1994, the Ohio EPA received the ground water quality analytical results for the March 1994 sampling event at American Steel Foundries Sebring facility landfill.

American Steel Foundries collected the second quarter of background ground water quality samples from eleven wells at the facility on March 15 and 16, 1994. The following wells were sampled: MW-1A(up), MW-20, MW-14(up), MW-21, MW-19(up), MW-21P, MW-22, MW-4A, MW-22P, MW-13, and MW-23.

In addition, a field blank was also sampled and analyzed. Well 19P (upgradient) was not sampled due to insufficient well recovery.
After review of the ground water quality analytical results, the Ohio EPA has the following comments.

COMMENTS

1. Well 19P (upgradient) was not sampled due to insufficient well recovery. The approved Ground Water Sampling and Analysis Plan states that all wells will be sampled quarterly for one year. In order to fulfil this requirement, well 19P must be sampled three more times on a quarterly basis. The June sampling event will be considered the second quarter for well 19P.

2. The first quarter analytical results indicated that several of the volatile organic compounds were not analyzed at the Practical Quantitation Limit as approved in the Ground Water Sampling and Analysis Plan. The Ohio EPA considered those results to be unacceptable and requested American Steel Foundries in a June 27, 1994, letter to resample for the target analytes not analyzed at the approved Practical Quantitation Limit. Due to the timing of the correspondences (sampling took place three months prior to the request from Ohio EPA), these detection limits were not achieved during the second quarterly sampling event either. American Steel Foundries must correct this problem for future sampling events.

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Barb

George V. Voinovich
Governor

July 15, 1994

RE: AMERICAN STEEL
MAHONING COUNTY
SMITH TOWNSHIP
OHD 017 497 587

CERTIFIED MAIL

Mr. Terry Bradway
American Steel Foundries, Inc.
1001 East Broadway
Alliance OH 44601-0060

Dear Mr. Bradway:

On February 28, 1994, the Ohio EPA received the Supplementary Annual Report for the 1993 Ground Water Monitoring Information of American Steel Foundries Sebring facility landfill. The landfill is monitored by 12 monitoring wells: MW-1A (up), MW-20, MW-14 (up), MW-21, MW-19 (up), MW-21P, MW-19P (up), MW-22, MW-4A, MW-22P, MW-13, MW-23.

In August, 1993, the Ohio EPA determined that the proposed 12 well monitoring system, listed above, would not adequately monitor the downgradient ground water quality in the bedrock in the northwestern portion of the landfill. The ground water monitoring system therefore does not meet the requirements of Ohio Administrative Code Rule 3745-65-91 (A)(2). American Steel Foundries shall install an additional bedrock monitoring well south of MW-13 and directly downgradient of the landfill.

COMMENTS

1. The annual report was submitted in a timely manner as required by Ohio Administrative Code Rule 3745-65-75.

2. The annual report does not contain the information required by Ohio Administrative Code Rule 3745-65-75 (F).

   Ohio Administrative Code Rule 3745-65-94 (A)(2)(C):
   The annual report does not contain the results of the evaluation of ground water surface elevations. Ohio Administrative Code Rule 3745-65-93 (F) requires facilities operating under a detection monitoring program to determine whether Ohio Administrative Code Rule 3745-65-91 (A) is satisfied and a description of the response to that evaluation. This information shall be included in Section 3, Part S-5.

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George V. Voinovich
Governor

June 28, 1994

RE: AMERICAN STEEL
MAHONING COUNTY
SMITH TOWNSHIP
OHD 017 497 587

CERTIFIED MAIL

Mr. Terry Bradway
American Steel Foundries, Inc.
1001 East Broadway
Alliance OH 44601-0060

Dear Mr. Bradway:

On March 2, 1994, the Ohio EPA received documentation submitted on behalf of your facility containing a report dated February 23, 1994 and titled *Groundwater Sampling Report*.

In 1993, American Steel Foundries and the U.S. EPA entered into a consent decree requiring American Steel Foundries to design, install and maintain a groundwater monitoring system capable of yielding groundwater samples for analysis in accordance with Ohio Administrative Code 3745-65-91 and American Steel Foundries' approved Groundwater Quality Assessment Plan. In addition, American Steel Foundries was required to submit to the Ohio EPA written reports containing the results of all analyses conducted pursuant to the Ground Water Quality Assessment Plan in accordance with the reporting requirements in OAC 3745-65-93 and 94.

ASF collected the first quarter of background ground water quality samples from the following twelve wells at the facility on December 14 through 17, 1993:

MW-1A	MW-20
MW-4A	MW-21
MW-13	MW-21P
MW-14	MW-22
MW-19	MW-22P
MW-19P	MW-23

The correct wells were sampled and the samples were analyzed for the parameters listed in the approved Ground Water Quality Assessment Plan. As proposed in the Ground Water Quality Assessment Plan and Ground Water Sampling and Analysis Plan,

American Steel Foundries has proposed target analyses for the next three quarterly sampling events.

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Failure to list specific deficiencies in this communication does not relieve you from the responsibility of complying with all applicable laws and regulations. Please be advised that present or past instances of non-compliance can continue as subjects of pending or future enforcement actions.

If you have any questions, please feel free to contact either Mr. Harry Courtright (216) 963 1119 or me at (216) 963 1232.

Sincerely,

John B. Palmer
Environmental Specialist
Division of Hazardous Waste Management

JP.ke

pc: Harry Courtright, DHWM, NEDO
Laurie Stevenson, DHWM, CO
David Stroh, DHWM, CO
Mark Navarre, Legal, CO
Lori Massey, AGO
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RECEIVED
MAY 26 1994
OFFICE OF RCRA
WASTE MANAGEMENT DIVISION
EPA, REGION V

George V. Voinovich
Governor

May 23, 1994

RE: AMERICAN STEEL
MAHONING COUNTY
SMITH TOWNSHIP
OHD 017 497 587

CERTIFIED MAIL

Mr. Terry Bradway
American Steel Foundries, Inc.
1001 East Broadway
Alliance OH 44601-0060

Dear Mr. Bradway:

On May 18, 1994, the Ohio EPA received documentation submitted on behalf of your facility containing a report dated May 9, 1994 and titled *Groundwater Sampling Report*.

Thank you for your submission. The material is pending review.

The Division of Drinking and Ground Water has been requested to review your report and the ground water data submitted. Their comments will be forwarded to you upon completion.

If you have any questions, please feel free to contact either Mr. Harry Courtright or me at (216) 963 1200.

Sincerely,

John B. Palmer
Environmental Specialist
Division of Hazardous Waste Management

JBP/cll

pc: Harry Courtright, DHWM, NEDO
Laurie Stevenson, DHWM, CO
David Stroh, DHWM, CO
Mark Navarre, Legal, CO
Lori Massey, AGO
Chief, RCRA Enforcement Branch, USEPA Region V
Barbara Mazur, USEPA Region V

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George V. Voinovich
Governor

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MAY 26 1994
OFFICE OF RCRA
WASTE MANAGEMENT DIVISION
EPA, REGION V

May 23, 1994

RE: AMERICAN STEEL
MAHONING COUNTY
SMITH TOWNSHIP
OHD 017 497 587

CERTIFIED MAIL

Mr. Terry Bradway
American Steel Foundries, Inc.
1001 East Broadway
Alliance OH 44601-0060

Dear Mr. Bradway:

On May 18, 1994, the Ohio EPA received documentation submitted on behalf of your facility containing a report dated May 9, 1994 and titled *Groundwater Sampling Report*.

Thank you for your submission. The material is pending review.

The Division of Drinking and Ground Water has been requested to review your report and the ground water data submitted. Their comments will be forwarded to you upon completion.

If you have any questions, please feel free to contact either Mr. Harry Courtright or me at (216) 963 1200.

Sincerely,

John B. Palmer
Environmental Specialist
Division of Hazardous Waste Management

JBP/cll

pc: Harry Courtright, DHWM, NEDO
Laurie Stevenson, DHWM, CO
David Stroh, DHWM, CO
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Chief, RCRA Enforcement Branch, USEPA Region V
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RECEIVED
MAY 0 8 1994
OFFICE OF RCRA
WASTE MANAGEMENT DIVISION
EPA REGION V

George V. Voinovich
Governor

April 29, 1994

RE: AMERICAN STEEL
MAHONING COUNTY
SMITH TOWNSHIP
OHD 017 497 587

CERTIFIED MAIL

Mr. Terry Bradway
American Steel Foundries, Inc.
1001 East Broadway
Alliance OH 44601-0060

Dear Mr. Bradway:

On April 7, 1994 the Ohio EPA, NEDO received American Steel Foundries's response to the Ohio EPA's March 11, 1994 letter. The March 1994 letter contained comments on the Ohio EPA's preliminary review of the February 23, 1994 Groundwater Sampling Report. American Steel Foundries has adequately responded to all five comments.

COMMENT 1. No response required.

COMMENT 2. American Steel Foundries agrees with the Ohio EPA.

COMMENT 3. American Steel Foundries has adequately responded.

COMMENT 4. American Steel Foundries has adequately responded. The approved GWQAP and GWSAP does not require that four replicate samples of the indicator parameters be collected per monitoring well per sampling event.

COMMENT 5. American Steel Foundries has submitted a current site map to the Ohio EPA.

If you have any questions, please feel free to contact either Mr. Harry Courtright or me at (216) 963 1200.

Sincerely,

John B. Palmer
Environmental Specialist
Division of Hazardous Waste Management

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George V. Voinovich
Governor

March 11, 1994

RE: AMERICAN STEEL
MAHONING COUNTY
SMITH TOWNSHIP
OHD 017 497 587

CERTIFIED MAIL

Mr. Terry Bradway
American Steel Foundries, Inc.
1001 East Broadway
Alliance OH 44601-0060

Dear Mr. Bradway:

On March 2, 1994, the Ohio EPA received documentation submitted on behalf of your facility containing a report dated February 23, 1994 and titled *Groundwater Sampling Report*.

Ohio EPA has finished a preliminary review of this material, and has the following comments:

Comments

1) The proposed target analytes for the second, third and fourth quarter monitoring events have been approved. Specifically, the target analytes as listed in Table 3-1, (Revised) Table 3-3 and Table 3-5 of the RMT report dated February 15, 1994 are approved.

Ohio EPA reserves the right to require American Steel Foundries to revise the approved list, or to begin testing for target analytes now dropped from the list, if future data indicate the need for such a revision.

2) On page two of American Steel Foundries' letter dated February 23, 1994, you proposed to include the target analytes beryllium, cyanide, thallium and vanadium in the upcoming monitoring events. Based on my March 9, 1994 telephone conversation with you, we have concluded that American Steel Foundries actually wishes to *exclude* these analytes from the target analyte list. This clarification is duly noted, and the *exclusion* of these four analytes is approved.

3) Based on the documents submitted, American Steel Foundries appears to be analyzing the ground water samples for pH and specific conductivity in the laboratory. This is an acceptable practice only if the data are intended to *supplement* field testing for these parameters.

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George V. Voinovich
Governor

March 8, 1994

RE: AMERICAN STEEL
MAHONING COUNTY
SMITH TOWNSHIP
OHD 017 497 587

CERTIFIED MAIL

Mr. Terry Bradway
American Steel Foundries, Inc.
1001 East Broadway
Alliance OH 44601-0060

Dear Mr. Bradway:

On March 2, 1994, the Ohio EPA received documentation submitted on behalf of your facility containing a report dated February 23, 1994 and titled *Groundwater Sampling Report*.

Thank you for your submission. The material is pending review.

The Division of Drinking and Ground Water has been requested to review your report and the ground water data submitted. Their comments will be forwarded to you upon completion.

If you have any questions, please feel free to contact either Mr. Harry Courtright or me at (216) 963 1200.

Sincerely,

John B. Palmer
Environmental Specialist
Division of Hazardous Waste Management

JP.wk

cc: Harry Courtright, DHWM, NEDO
Laurie Stevenson, DHWM, CO
David Stroh, DHWM, CO
Mark Navarre, Legal, CO
Lori Massey, AGO
Chief, RCRA Enforcement Branch, USEPA Region V
Barbara Mazur, USEPA Region V

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MAR 16 1994
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EPA, REGION V

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RECEIVED FEB 01 1994
WMD RCRA
RECORD CENTER

George V. Voinovich
Governor

October 13, 1993

RE: AMERICAN STEEL
MAHONING COUNTY
OHD 017 497 587

GROUNDWATER COMMENTS

CERTIFIED MAIL

Mr. Terry Bradway
American Steel Foundries, Inc.
1001 East Broadway
Alliance OH 44601-0060

Dear Mr. Bradway:

The Ohio Environmental Protection Agency has received and reviewed American Steel Foundries' response to the Ohio EPA's comments on the April, 1992 Ground Water Quality Assessment Plan and Ground Water Sampling and Analysis Plan. One deficiency had been identified in each of the documents.

American Steel Foundries has adequately addressed the deficiencies. The Ground Water Quality Assessment Plan meets the requirements of OAC Rule 3745-65-93 (A) (2). The Ground Water Sampling and Analysis Plan meets the requirements of OAC Rule 3745-65-92.

Failure to list specific deficiencies in this communication does not relieve you from the responsibility of complying with all applicable regulations. Please be advised that present or past instances of non-compliance can continue as subjects of pending or future enforcement actions.

If you have any questions, please feel free to contact either Mr. Harry Courtright or me at (216) 963 1200.

Sincerely,

John B. Palmer
Environmental Specialist
Division of Hazardous Waste Management

JP.wk

cc: Harry Courtright, DHWM, NEDO
Chris Khourey, DDAGW, NEDO
Laurie Stevenson, DHWM, CO
David Stroh, DHWM, CO
Chief, RCRA Enforcement Branch, USEPA Region V
Mark Navarre, Legal, CO
Lori Massey, AGO

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RECEIVED
JUL 13 1993
OFFICE OF RCRA
WASTE MANAGEMENT DIV
EPA, REGION V

George V. Voinovich
Governor

July 8, 1993

RE: AMERICAN STEEL FOUNDRIES
MAHONING COUNTY
OHD 017 497 587

CERTIFIED MAIL

GROUNDWATER COMMENTS

Mr. Terry Bradway
American Steel Foundries, Inc.
1001 East Broadway
Alliance OH 44601-0060

Dear Mr. Bradway:

The Ohio Environmental Protection Agency has received and reviewed the following documents submitted by your facility:

1. April, 1992 Ground Water Quality Assessment Plan, received April 13, 1992.

2. April, 1992 Ground Water Sampling and Analysis Plan, received April 13, 1992.

The comments follow:

April, 1992 Ground Water Quality Assessment Plan, received April 13, 1992.

1. The Ground Water Quality Assessment did not include details of how American Steel Foundries plans to determine the rate and extent of migration of hazardous waste and hazardous waste constituents that may be present in the ground water. In order to be in accordance with OAC Rule 3745-65-93 (A) (2), the Ground Water Quality Assessment Plan developed by American Steel Foundries must be capable of determining the rate and extent of migration of hazardous waste or hazardous waste constituents in the ground water.

April, 1992 Ground Water Sampling and Analysis Plan, received April 13, 1992.

1. After development of the ground water monitoring wells, American Steel Foundries has stated that they will "pour the purge water on the ground". This method of purge water disposal is not acceptable. Purge water must be containerized until American Steel Foundries receives analytical results characterizing its quality. After characterization, American Steel Foundries shall dispose of the purge waters in accordance with all applicable regulations.

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MEMORANDUM

DATE: November 30, 1989

SUBJECT: Sample Chain of Custody Record of American Steel Foundries

FROM: Joseph A. Cooley

TO: Rich Clarizio

I spoke with William Sargent (Ph# 353-9083) and he related that he maintains a log book that tracks when the samples are signed out of the lab and later returned. The log book also contains who received/delivered the samples. He will document this information for the samples in question and send you a copy as soon as possible.

I also questioned Mr. Sargent about the condition of the samples when he received them. He related that from the information on the Chain of Custody Record it would appear that there were two coolers. An airborne receipt would be more specific, but the receipt was not included in the file. The current procedure is to attach this receipt to the back of the Chain of Custody Record. He further related that any abnormalities regarding the condition of the samples would have been noted on the Chain of Custody Report.

Any future questions regarding the file can be addressed to Sylvia Griffin (PH# 353-9073). Questions regarding technical matters should be channeled through Curtis Ross (353-9064).

Joe

Joseph A. Cooley

P.S. Hope this helped.

Rich 11/29/89

FROM: Rich Clarizio
ORC

TO: Curtis Ross
ESD

SUBJECT: Review of ESD files relating to the analysis of sampling conducted at American Steel Foundries in Ohio.

Per our discussion yesterday I would appreciate your office collecting all information which it might have on U.S.EPA's analysis of samples taken from the American Steel Foundries Alliance, Ohio facility and the Seebring Landfill on August 6 and 7, 1989. The samples were for a RCRA inspection and were analyzed I believe only for metals content. I believe that the sample numbers were 86EF10D09-S15. The sampling analysis reports prepared by your office also have the following numbers associated with them: C28351 and EDO 3424. Please be sure to include information regarding the chain of custody for the samples. If you can assemble this information by Thursday morning I can have one of our law clerks review it Thursday afternoon. Your assistance in this matter is appreciated.

W/N, ISS
Y, ISS

LDF

OhioEPA

State of Ohio Environmental Protection Agency

P.O. Box 1049, 1800 WaterMark Dr.
Columbus, Ohio 43266-0149

Toward A Cleaner Environment
15 Year Anniversary 1972 - 1987

Richard F. Celeste
Governor

June 21, 1988

RECEIVED
OHIO EPA
JUN 21 1988
DIV. of SOLID & HAZ. WASTE MGT.

Mr. Jim Brossman, Chief
Ohio-Minnesota Technical Enforcement Section
Hazardous Waste Enforcement Branch 5HS-12
U.S. EPA - Region V
230 South Dearborn Street
Chicago, Illinois 60604

Dear Mr. Brossman:

Please find enclosed the final CME report documents for American Steel Foundries OHD017497587 and Egbert Corporation (formerly S.K. Wellman) OHD055829022. These documents are being submitted as partial fulfillment of the 1988 RCRA grant commitments for third quarter.

The CME document for American Steel Foundries was prepared by Rich Freitas of the Division of Ground Water, Northeast District Office with assistance from Kevin Bonzo of the Division of Solid and Hazardous Waste Management, Northeast District Office. The CME document for Egbert Corporation was prepared by Lindsay Taliaferro III of the Division of Ground Water, Central Office with assistance from Andrea Dakosi of the Division of Solid and Hazardous Waste Management, Northeast District Office.

Enclosed also is a revised page 35 to replace the corresponding page in the CME report document for United Musical Instruments OHD004260104.

Should you have questions, please contact me at (614) 644-2905.

Sincerely,

Timothy P. Krichbaum

Timothy P. Krichbaum
Solid and Hazardous Waste Unit
DIVISION OF GROUND WATER

TPK/gh
0005g/32-33

Enclosures:

1. American Steel Foundaries
2. Egbert Corporation
3. United Musical Instruments revision

cc: Joel Morbito, U.S. EPA - Region V
Craig Liska, U.S. EPA - Region V
Paul Flanigan, Chief, OEPA-DSHWM
Mike Savage, OEPA - DSHWM
Dave Sholtis, OEPA - DSWWM (w/enc. 1, 2 & 3)
Tom Crepeau, OEPA-DSHWM (w/enc. 1, 2 & 3)
Gary Martin, Chief, OEPA-DGW
Tom Allen, OEPA-DGW
Jan Delorenzo, OEPA-DGW
Lindsay Taliaferro III, OEPA-DGW (w/enc. 2)
Dave Wertz, OEPA-NEDO (w/enc. 1, 2 & 3)
Kevin Bonzo, OEPA-NEDO
Andrea Dakosi, OEPA-NEDO
Chris Khourey, OEPA-NEDO (w/enc. 1)
Rich Freitas, OEPA-NEDO

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 28 NOV 1986

SUBJECT: Review of Analytical Results

FROM: William H. Miner, Chief
for Hazardous Waste Enforcement Branch

TO: James H. Adams, Chief
Quality Asurance Office (5SQA)

QUALITY ASSURANCE BRANCH
RECEIVED
NOV 26 1986
ENVIRONMENT SERVICES DIVISION
US EPA CENTRAL REGIONAL LAB.
536 S. CLARK STREET
CHICAGO, ILLINOIS 60605

Wm. E. Miner

On August 6 and 7, 1986, waste samples were collected at an American Steel Foundries production facility and disposal site in northeastern Ohio (Data Set Number EDO 3424 - Samples 86EF10506 through 86EF10S14) These samples were analyzed for EP toxic metals, phenols, and fluorides by the Central Regional Laboratory (CRL). Some of the analyses were completed on a Priority I basis, while others were analyzed as non-priority samples. The initial analytical results presented some contradictory data and several of the samples were recently re-analyzed.

Because these analytical results are being used to support a civil enforcement action, it is requested that the analysis and results be reviewed by the Quality Assurance Office. The results of the review should be submitted within fifteen (15) days of the receipt of this request.

Please contact Catherine McCord at 886-1478 if there are any questions regarding this matter.

Jim: We welcome a full review of the data. We initially mixed up one of the duplicates and we found the problem, documented it and corrected the problem. Also we have found a problem with the EP Tox extraction procedure. We now know the solution to the problem & our data is not impacted (at the time that we ran these samples we knew there was a problem but we did not know what the problem was).

EPA FORM 1320-6 (REV. 3-76)

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION 5
230 SOUTH DEARBORN ST.
CHICAGO, ILLINOIS 60604

REPLY TO ATTENTION OF:

MEMORANDUM

TRANSMITTED BY
NOV 06 1986
U.S. EPA CENTRAL REGIONAL LAB

DATE: November 5, 1986

SUBJECT: EDO 3424 - EP TOX Results

FROM: Andrea Jirka
Inorganic Section Chief

TO: Files

CRL analyzed a group of samples from American Steel Foundry for EP TOX metals during August, 1986. Of these, four samples were analyzed on a priority 1 basis and the remaining 11 samples were analyzed on a priority 2 basis.

In October Joe Friedle of EDO contacted me and indicated that samples 86EF10S10 (priority 1) and 86EF10D09 (priority 2) were field duplicates. The results for these two samples were significantly different. We reviewed the case and determined that it was possible that a sample mix-up had occurred in the laboratory. In order to clarify this question, we reanalyed the entire group of samples that was run along with sample D09. The results indicated that an error may have occurred. Therefore, we are substituting the attached results for samples 86EF10S06, S07, D09, S13, and S14. The original results should be disregarded and/or discarded.

For information purposes, it is noted that the CRL rcently received the results of a blind round-robin study for EP TOX. Results of this study indicated a low bias for Pb. The round-robin sample was of a matrix that is unrelated to the American Steel Foundry samples. Moreover, CRl has reported acceptable results on previous studies where the samples more closely matched the subject samples. however, as a precaution, the data-user should be aware of the possibility that the reported EP TOX Pb results could be biased low.

Based upon the analytical results, samples EF10D09, EF10S10 and EF10S14 have cadmium (Cd) values in excess of 1 mg/L and lead (Pb) values in excess of 5 mg/L.

Attachment

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION 5
230 SOUTH DEARBORN ST.
CHICAGO, ILLINOIS 60604

REPLY TO ATTENTION OF:

MEMORANDUM

DATE: November 5, 1986

SUBJECT: EP TOX Results for EDO 3424
American Steel Foundries

FROM: Steve Parker
CRL Quality Control Coordinator

TO: Data Users

Samples EF10S06, EF10S07, EF10D09, EF10S13 and EF10S14 from American Steel Foundries (EDO 3424) were rerun to confirm the initial results. The samples were analyzed using the extraction procedure in SW-846, "Test Methods for Evaluating Solid Wastes," 2nd edition. The method performance for the 8 EP TOX metals in the blanks, spikes and duplicates was satisfactory. Based on the attached memo, the data user should be cautioned that the laboratory did experience a low bias for Pb on a sample of a different matrix.

Attachment

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: August 18, 1986

SUBJECT: Data for Priority I

FROM: William H. Sanders III, Director
Environmental Services Division

TO: A.R. Winklhofer, Chief
Eastern District Office

Attached is all the data for Priority I sample for Data Set Number

EDO 3424 American Steel Foundry.

If you have questions, please call Sylvia Griffin or Curtis Ross at the Central Regional Laboratory (353-8370).

William H. Sanders III

Attachment

A.3.4

WADSWORTH/ALERT Laboratories
Division of Enseco Incorporated

Corporate and Laboratory:
4101 Shuffel Drive, NW
North Canton, OH 44720
216-497-9396
FAX 216-497-0772

RECEIVED FEB 01 1994
WMD RCRA
RECORD CENTER

ANALYTICAL REPORT

Presented to:

BILL HEESTAND

AMERICAN STEEL FOUNDRIES

WADSWORTH/ALERT LABORATORIES

per Alesia M. Danford
Project Manager

Mark P. Nebiolo
Laboratory Manager

August 3, 1992

Laboratories:
Pittsburgh, PA
412-826-5477

Tampa, FL
813-621-0784

SAMPLE SUMMARY

The analytical results of the samples listed below are presented on the following pages.

WO #	LABORATORY ID	SAMPLE IDENTIFICATION
75372	A2G080037-001	9207081 GISHOLT COOLANT & SIMPLE GREEN 7-8-92 10:10
75373	A2G080037-002	9207082 USED RADIATOR FLUID-GARAGE 7-8-92 10:20
75374	A2G080037-003	9207083 USED RADIATOR FLUID-GARAGE 7-8-92 10:30

AMERICAN STEEL FOUNDRIES

9207081 GISHOLT COOLANT & SIMPLE GREEN 7-8-92 10:10

WO #: 75372121
LAB #: A2G080037-001
MATRIX: LIQUID

DATE RECEIVED: 7/08/92
TCLP EXTRACTION DATE: 7/10/92
DATE EXTRACTED: 7/15/92
DATE ANALYZED: 7/15/92
SPIKE ANALYZED: 7/15/92
FINAL pH: 5.0

VOLATILE ORGANICS

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311 (55 FR 26986)

COMPOUND	RESULT/ REPORT LIMIT (mg/l)	CF	BIAS CORR RESULT/ REPORT LIMIT (mg/l)	REGULATORY LIMIT	QC BATCH
Benzene	ND/0.01	1.0	ND/0.01	0.5	195027
Carbon tetrachloride	ND/0.01	0.97	ND/0.01	0.5	195027
Chlorobenzene	ND/0.01	1.0	ND/0.01	100	195027
Chloroform	ND/0.01	0.98	ND/0.01	6	195027
1,2-Dichloroethane	ND/0.01	1.0	ND/0.01	0.5	195027
1,1-Dichloroethene	ND/0.01	0.94	ND/0.01	0.7	195027
Methyl ethyl ketone	ND/0.10	0.77	ND/0.13	200	195027
Tetrachloroethene	ND/0.01	1.0	ND/0.01	0.7	195027

SURROGATE RECOVERY	%	SPIKE %	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	104	101	(70 - 121)
Toluene-d8	103	100	(81 - 117)
4-Bromofluorobenzene	101	100	(74 - 121)

NOTE:
CF (Bias Correction Factor)
ND None Detected

AMERICAN STEEL FOUNDRIES

9207081 GISHOLT COOLANT & SIMPLE GREEN 7-8-92 10:10

WO #: 75372121
LAB #: A2G080037-001
MATRIX: LIQUID

DATE RECEIVED: 7/08/92
TCLP EXTRACTION DATE: 7/10/92
DATE EXTRACTED: 7/15/92
DATE ANALYZED: 7/15/92
SPIKE ANALYZED: 7/15/92
FINAL pH: 5.0

- - - - - - - - - - - - - - - - - - VOLATILE ORGANICS -

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311 (55 FR 26986)

COMPOUND	RESULT/ REPORT LIMIT (mg/l)	CF	BIAS CORR RESULT/ REPORT LIMIT (mg/l)	REGULATORY LIMIT	QC BATCH
Trichloroethene	ND/0.01	1.0	ND/0.01	0.5	195027
Vinyl chloride	ND/0.02	1.0	ND/0.02	0.2	195027

SURROGATE RECOVERY	%	SPIKE %	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	104	101	(70 - 121)
Toluene-d8	103	100	(81 - 117)
4-Bromofluorobenzene	101	100	(74 - 121)

NOTE:
CF (Bias Correction Factor)
ND None Detected

AMERICAN STEEL FOUNDRIES

9207081 GISHOLT COOLANT & SIMPLE GREEN 7-8-92 10:10

WO #: 75372118
LAB #: A2G080037-001
MATRIX: LIQUID

DATE RECEIVED: 7/08/92
TCLP EXTRACTION DATE: 7/10/92
DATE EXTRACTED: 7/16/92
DATE ANALYZED: 7/20/92
SPIKE ANALYZED: 7/20/92
FINAL pH: 5.0

SEMIVOLATILE ORGANICS

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311 (55 FR 26986)

COMPOUND	RESULT/ REPORT LIMIT (mg/l)	CF	BIAS CORR RESULT/ REPORT LIMIT (mg/l)	REGULATORY LIMIT	QC BATCH
Cresols, Total	0.08/0.04	0.47	0.17/0.08	200	198005
1,4-Dichlorobenzene	ND/0.04	0.66	ND/0.06	7.5	198005
2,4-Dinitrotoluene	ND/0.04	1.0	ND/0.04	0.13	198005
Hexachlorobenzene	ND/0.04	0.49	ND/0.08	0.13	198005
Hexachlorobutadiene	ND/0.04	0.51	ND/0.08	0.5	198005
Hexachloroethane	ND/0.04	0.42	ND/0.10	3	198005
Nitrobenzene	ND/0.04	1.1	ND/0.04	2	198005
Pentachlorophenol	ND/0.2	1.0	ND/0.2	100	198005

SURROGATE RECOVERY	%	SPIKE %	ACCEPTABLE LIMITS
Nitrobenzene-d5	87	83	(35 - 114)
2-Fluorobiphenyl	83	80	(43 - 116)
Terphenyl-d14	48	41	(33 - 141)
2-Fluorophenol	82	42	(21 - 100)
Phenol-d5	91	83	(10 - 94)
2,4,6-Tribromophenol	96	108	(10 - 123)

NOTE:
CF (Bias Correction Factor)
ND None Detected

AMERICAN STEEL FOUNDRIES

9207081 GISHOLT COOLANT & SIMPLE GREEN 7-8-92 10:10

WO #: 75372118
LAB #: A2G080037-001
MATRIX: LIQUID

DATE RECEIVED: 7/08/92
TCLP EXTRACTION DATE: 7/10/92
DATE EXTRACTED: 7/16/92
DATE ANALYZED: 7/20/92
SPIKE ANALYZED: 7/20/92
FINAL pH: 5.0

- - - - - - - - - - - - - - - - - - SEMIVOLATILE ORGANICS -

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311 (55 FR 26986)

COMPOUND	RESULT/ REPORT LIMIT (mg/l)	CF	BIAS CORR RESULT/ REPORT LIMIT (mg/l)	REGULATORY LIMIT	QC BATCH
Pyridine	ND/0.04	0.91	ND/0.04	5	198005
2,4,5-Trichlorophenol	ND/0.04	0.58	ND/0.07	400	198005
2,4,6-Trichlorophenol	ND/0.04	0.84	ND/0.05	2	198005

SURROGATE RECOVERY	%	SPIKE %	ACCEPTABLE LIMITS
Nitrobenzene-d5	87	83	(35 - 114)
2-Fluorobiphenyl	83	80	(43 - 116)
Terphenyl-d14	48	41	(33 - 141)
2-Fluorophenol	82	42	(21 - 100)
Phenol-d5	91	83	(10 - 94)
2,4,6-Tribromophenol	96	108	(10 - 123)

NOTE:
CF (Bias Correction Factor)
ND None Detected

AMERICAN STEEL FOUNDRIES

9207081 GISHOLT COOLANT & SIMPLE GREEN 7-8-92 10:10

WO #: 75372
LAB #: A2G080037-001
MATRIX: LIQUID

DATE RECEIVED: 7/08/92
TCLP EXTRACTION DATE: 7/10/92

FINAL pH: 5.0

METALS

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311 (55 FR 26986)

ELEMENT Prep/Analysis	RESULT/ REPORT LIMIT (mg/L)	CF	BIAS CORR RESULT/ REPORT LIMIT (mg/L)	REGULATORY LIMIT	QC BATCH
Silver 7/10- 7/17/92	ND/0.1	0.86	ND/0.1	5	192018
Arsenic 7/10- 7/17/92	ND/0.5	1.0	ND/0.5	5	192018
Barium 7/10- 7/17/92	ND/0.1	0.94	ND/0.1	100	192018
Cadmium 7/10- 7/17/92	ND/0.1	0.87	ND/0.1	1	192018
Chromium 7/10- 7/17/92	ND/0.1	0.92	ND/0.1	5	192018
Lead 7/10- 7/17/92	ND/0.1	0.90	ND/0.1	5	192018
Selenium 7/10- 7/17/92	ND/0.3	1.3	ND/0.2	1	192018

NOTE:
CF (Bias Correction Factor)
ND None Detected

AMERICAN STEEL FOUNDRIES

9207081 GISHOLT COOLANT & SIMPLE GREEN 7-8-92 10:10

WO #: 75372
LAB #: A2G080037-001
MATRIX: LIQUID

DATE RECEIVED: 7/08/92
TCLP EXTRACTION DATE: 7/10/92

FINAL pH: 5.0

METALS

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311 (55 FR 26986)

ELEMENT Prep/Analysis	RESULT/ REPORT LIMIT (mg/L)	CF	BIAS CORR RESULT/ REPORT LIMIT (mg/L)	REGULATORY LIMIT	QC BATCH
Mercury 7/20- 7/22/92	ND/0.02	0.6	ND/0.03	0.2	202059

NOTE:
CF (Bias Correction Factor)
ND None Detected

AMERICAN STEEL FOUNDRIES

9207082 USED RADIATOR FLUID-GARAGE 7-8-92 10:20

WO #: 75373121
LAB #: A2G080037-002
MATRIX: LIQUID

DATE RECEIVED: 7/08/92
TCLP EXTRACTION DATE: 7/10/92
DATE EXTRACTED: 7/15/92
DATE ANALYZED: 7/15/92
SPIKE ANALYZED: 7/15/92
FINAL pH: 5.0

VOLATILE ORGANICS

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311 (55 FR 26986)

COMPOUND	RESULT/ REPORT LIMIT (mg/l)	CF	BIAS CORR RESULT/ REPORT LIMIT (mg/l)	REGULATORY LIMIT	QC BATCH
Benzene	ND/0.031	1.0	ND/0.031	0.5	195027
Carbon tetrachloride	ND/0.031	0.96	ND/0.032	0.5	195027
Chlorobenzene	ND/0.031	1.0	ND/0.031	100	195027
Chloroform	ND/0.031	1.0	ND/0.031	6	195027
1,2-Dichloroethane	0.120/0.031	1.0	0.120/0.031	0.5	195027
1,1-Dichloroethene	ND/0.031	1.1	ND/0.028	0.7	195027
Methyl ethyl ketone	ND/0.31	0.83	ND/0.37	200	195027
Tetrachloroethene	0.330/0.031	1.1	0.300/0.028	0.7	195027

SURROGATE RECOVERY	%	SPIKE %	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	108	103	(70 - 121)
Toluene-d8	99	101	(81 - 117)
4-Bromofluorobenzene	100	101	(74 - 121)

NOTE:
CF (Bias Correction Factor)
ND None Detected

AMERICAN STEEL FOUNDRIES

9207082 USED RADIATOR FLUID-GARAGE 7-8-92 10:20

WO #: 75373121
LAB #: A2G080037-002
MATRIX: LIQUID

DATE RECEIVED: 7/08/92
TCLP EXTRACTION DATE: 7/10/92
DATE EXTRACTED: 7/15/92
DATE ANALYZED: 7/15/92
SPIKE ANALYZED: 7/15/92
FINAL pH: 5.0

- - - - - - - - - - - - - - - - - - - VOLATILE ORGANICS -

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311 (55 FR 26986)

COMPOUND	RESULT/ REPORT LIMIT (mg/l)	CF	BIAS CORR RESULT/ REPORT LIMIT (mg/l)	REGULATORY LIMIT	QC BATCH
Trichloroethene	ND/0.031	1.0	ND/0.031	0.5	195027
Vinyl chloride	ND/0.06	0.97	ND/0.06	0.2	195027

SURROGATE RECOVERY	%	SPIKE %	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	108	103	(70 - 121)
Toluene-d8	99	101	(81 - 117)
4-Bromofluorobenzene	100	101	(74 - 121)

NOTE:
CF (Bias Correction Factor)
ND None Detected

AMERICAN STEEL FOUNDRIES

9207082 USED RADIATOR FLUID-GARAGE 7-8-92 10:20

WO #: 75373118
LAB #: A2G080037-002
MATRIX: LIQUID

DATE RECEIVED: 7/08/92
TCLP EXTRACTION DATE: 7/10/92
DATE EXTRACTED: 7/16/92
DATE ANALYZED: 7/20/92
SPIKE ANALYZED: 7/20/92
FINAL pH: 5.1

SEMIVOLATILE ORGANICS

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311 (55 FR 26986)

COMPOUND	RESULT/ REPORT LIMIT (mg/l)	CF	BIAS CORR RESULT/ REPORT LIMIT (mg/l)	REGULATORY LIMIT	QC BATCH
Cresols, Total	ND/0.04	0.82	ND/0.05	200	198005
1,4-Dichlorobenzene	ND/0.04	0.65	ND/0.06	7.5	198005
2,4-Dinitrotoluene	ND/0.04	1.2	ND/0.03	0.13	198005
Hexachlorobenzene	ND/0.04	0.72	ND/0.06	0.13	198005
Hexachlorobutadiene	ND/0.04	0.59	ND/0.07	0.5	198005
Hexachloroethane	ND/0.04	0.50	ND/0.08	3	198005
Nitrobenzene	ND/0.04	1.0	ND/0.04	2	198005
Pentachlorophenol	ND/0.2	0.84	ND/0.2	100	198005

SURROGATE RECOVERY	%	SPIKE %	ACCEPTABLE LIMITS
Nitrobenzene-d5	86	81	(35 - 114)
2-Fluorobiphenyl	93	79	(43 - 116)
Terphenyl-d14	114	102	(33 - 141)
2-Fluorophenol	78	76	(21 - 100)
Phenol-d5	86	82	(10 - 94)
2,4,6-Tribromophenol	89	84	(10 - 123)

NOTE:
CF (Bias Correction Factor)
ND None Detected

AMERICAN STEEL FOUNDRIES

9207082 USED RADIATOR FLUID-GARAGE 7-8-92 10:20

WO #: 75373118
LAB #: A2G080037-002
MATRIX: LIQUID

DATE RECEIVED: 7/08/92
TCLP EXTRACTION DATE: 7/10/92
DATE EXTRACTED: 7/16/92
DATE ANALYZED: 7/20/92
SPIKE ANALYZED: 7/20/92
FINAL pH: 5.1

SEMIVOLATILE ORGANICS

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311 (55 FR 26986)

COMPOUND	RESULT/ REPORT LIMIT (mg/l)	CF	BIAS CORR RESULT/ REPORT LIMIT (mg/l)	REGULATORY LIMIT	QC BATCH
Pyridine	ND/0.04	0.84	ND/0.05	5	198005
2,4,5-Trichlorophenol	ND/0.04	0.75	ND/0.05	400	198005
2,4,6-Trichlorophenol	ND/0.04	0.72	ND/0.06	2	198005

SURROGATE RECOVERY	%	SPIKE %	ACCEPTABLE LIMITS
Nitrobenzene-d5	86	81	(35 - 114)
2-Fluorobiphenyl	93	79	(43 - 116)
Terphenyl-d14	114	102	(33 - 141)
2-Fluorophenol	78	76	(21 - 100)
Phenol-d5	86	82	(10 - 94)
2,4,6-Tribromophenol	89	84	(10 - 123)

NOTE:
CF (Bias Correction Factor)
ND None Detected

AMERICAN STEEL FOUNDRIES

9207082 USED RADIATOR FLUID-GARAGE 7-8-92 10:20

WO #: 75373
LAB #: A2G080037-002
MATRIX: LIQUID

DATE RECEIVED: 7/08/92
TCLP EXTRACTION DATE: 7/10/92

FINAL pH: 5.1

METALS

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311 (55 FR 26986)

ELEMENT Prep/Analysis	RESULT/ REPORT LIMIT (mg/L)	CF	BIAS CORR RESULT/ REPORT LIMIT (mg/L)	REGULATORY LIMIT	QC BATCH
Silver 7/10- 7/17/92	ND/0.1	0.92	ND/0.1	5	192018
Arsenic 7/10- 7/17/92	ND/0.5	1.0	ND/0.5	5	192018
Barium 7/10- 7/17/92	ND/0.1	0.96	ND/0.1	100	192018
Cadmium 7/10- 7/17/92	ND/0.1	0.90	ND/0.1	1	192018
Chromium 7/10- 7/17/92	ND/0.1	0.94	ND/0.1	5	192018
Lead 7/10- 7/17/92	ND/0.1	0.88	ND/0.1	5	192018
Selenium 7/10- 7/17/92	ND/0.3	1.1	ND/0.3	1	192018

NOTE:
CF (Bias Correction Factor)
ND None Detected

AMERICAN STEEL FOUNDRIES

9207082 USED RADIATOR FLUID-GARAGE 7-8-92 10:20

WO #: 75373
LAB #: A2G080037-002
MATRIX: LIQUID

DATE RECEIVED: 7/08/92
TCLP EXTRACTION DATE: 7/10/92

FINAL pH: 5.1

METALS

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311 (55 FR 26986)

ELEMENT Prep/Analysis	RESULT/ REPORT LIMIT (mg/L)	CF	BIAS CORR RESULT/ REPORT LIMIT (mg/L)	REGULATORY LIMIT	QC BATCH
Mercury 7/20- 7/22/92	ND/0.02	0.6	ND/0.03	0.2	202059

NOTE:

CF Mercury Correction Factor Determined on sample: A2F230021-006 (Bias Correction Factor)

ND None Detected

AMERICAN STEEL FOUNDRIES

9207083 USED RADIATOR FLUID-GARAGE 7-8-92 10:30

WO #: 75374121
LAB #: A2G080037-003
MATRIX: LIQUID

DATE RECEIVED: 7/08/92
TCLP EXTRACTION DATE: 7/10/92
DATE EXTRACTED: 7/15/92
DATE ANALYZED: 7/15/92
SPIKE ANALYZED: 7/15/92
FINAL pH: 5.0

VOLATILE ORGANICS

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311 (55 FR 26986)

COMPOUND	RESULT/ REPORT LIMIT (mg/l)	CF	BIAS CORR RESULT/ REPORT LIMIT (mg/l)	REGULATORY LIMIT	QC BATCH
Benzene	ND/0.01	0.99	ND/0.01	0.5	195027
Carbon tetrachloride	ND/0.01	0.97	ND/0.01	0.5	195027
Chlorobenzene	ND/0.01	1.0	ND/0.01	100	195027
Chloroform	ND/0.01	0.97	ND/0.01	6	195027
1,2-Dichloroethane	ND/0.01	0.99	ND/0.01	0.5	195027
1,1-Dichloroethene	ND/0.01	0.96	ND/0.01	0.7	195027
Methyl ethyl ketone	ND/0.10	0.74	ND/0.14	200	195027
Tetrachloroethene	ND/0.01	1.0	ND/0.01	0.7	195027

SURROGATE RECOVERY	%	SPIKE %	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	107	103	(70 - 121)
Toluene-d8	100	101	(81 - 117)
4-Bromofluorobenzene	101	100	(74 - 121)

NOTE:
CF (Bias Correction Factor)
ND None Detected

AMERICAN STEEL FOUNDRIES

9207083 USED RADIATOR FLUID-GARAGE 7-8-92 10:30

WO #: 75374121
LAB #: A2G080037-003
MATRIX: LIQUID

DATE RECEIVED: 7/08/92
TCLP EXTRACTION DATE: 7/10/92
DATE EXTRACTED: 7/15/92
DATE ANALYZED: 7/15/92
SPIKE ANALYZED: 7/15/92
FINAL pH: 5.0

- - - - - - - - - - - - - - - - - - - VOLATILE ORGANICS -

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311 (55 FR 26986)

COMPOUND	RESULT/ REPORT LIMIT (mg/l)	CF	BIAS CORR RESULT/ REPORT LIMIT (mg/l)	REGULATORY LIMIT	QC BATCH
Trichloroethene	ND/0.01	1.0	ND/0.01	0.5	195027
Vinyl chloride	ND/0.02	0.97	ND/0.02	0.2	195027

SURROGATE RECOVERY	%	SPIKE %	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	107	103	(70 - 121)
Toluene-d8	100	101	(81 - 117)
4-Bromofluorobenzene	101	100	(74 - 121)

NOTE:
CF (Bias Correction Factor)
ND None Detected

AMERICAN STEEL FOUNDRIES

9207083 USED RADIATOR FLUID-GARAGE 7-8-92 10:30

WO #: 75374118
LAB #: A2G080037-003
MATRIX: LIQUID

DATE RECEIVED: 7/08/92
TCLP EXTRACTION DATE: 7/10/92
DATE EXTRACTED: 7/16/92
DATE ANALYZED: 7/20/92
SPIKE ANALYZED: 7/20/92
FINAL pH: 5.0

SEMIVOLATILE ORGANICS

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311 (55 FR 26986)

COMPOUND	RESULT/ REPORT LIMIT (mg/l)	CF	BIAS CORR RESULT/ REPORT LIMIT (mg/l)	REGULATORY LIMIT	QC BATCH
Cresols, Total	ND/0.04	0.63	ND/0.06	200	198005
1,4-Dichlorobenzene	ND/0.04	0.76	ND/0.05	7.5	198005
2,4-Dinitrotoluene	ND/0.04	1.2	ND/0.03	0.13	198005
Hexachlorobenzene	ND/0.04	0.84	ND/0.05	0.13	198005
Hexachlorobutadiene	ND/0.04	0.62	ND/0.06	0.5	198005
Hexachloroethane	ND/0.04	0.55	ND/0.07	3	198005
Nitrobenzene	ND/0.04	0.92	ND/0.04	2	198005
Pentachlorophenol	ND/0.2	0.73	ND/0.3	100	198005

SURROGATE RECOVERY	%	SPIKE %	ACCEPTABLE LIMITS
Nitrobenzene-d5	86	93	(35 - 114)
2-Fluorobiphenyl	80	86	(43 - 116)
Terphenyl-d14	153*	127	(33 - 141)
2-Fluorophenol	64	69	(21 - 100)
Phenol-d5	63	74	(10 - 94)
2,4,6-Tribromophenol	43	79	(10 - 123)

NOTE:
CF (Bias Correction Factor)
ND None Detected
* Surrogates out of control

AMERICAN STEEL FOUNDRIES

9207083 USED RADIATOR FLUID-GARAGE 7-8-92 10:30

WO #: 75374118
LAB #: A2G080037-003
MATRIX: LIQUID

DATE RECEIVED: 7/08/92
TCLP EXTRACTION DATE: 7/10/92
DATE EXTRACTED: 7/16/92
DATE ANALYZED: 7/20/92
SPIKE ANALYZED: 7/20/92
FINAL pH: 5.0

SEMIVOLATILE ORGANICS

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311 (55 FR 26986)

COMPOUND	RESULT/ REPORT LIMIT (mg/l)	CF	BIAS CORR RESULT/ REPORT LIMIT (mg/l)	REGULATORY LIMIT	QC BATCH
Pyridine	ND/0.04	0.50	ND/0.08	5	198005
2,4,5-Trichlorophenol	ND/0.04	0.52	ND/0.08	400	198005
2,4,6-Trichlorophenol	ND/0.04	0.74	ND/0.05	2	198005

SURROGATE RECOVERY	%	SPIKE %	ACCEPTABLE LIMITS
Nitrobenzene-d5	86	93	(35 - 114)
2-Fluorobiphenyl	80	86	(43 - 116)
Terphenyl-d14	153*	127	(33 - 141)
2-Fluorophenol	64	69	(21 - 100)
Phenol-d5	63	74	(10 - 94)
2,4,6-Tribromophenol	43	79	(10 - 123)

NOTE:
CF (Bias Correction Factor)
ND None Detected
* Surrogates out of control

AMERICAN STEEL FOUNDRIES

9207083 USED RADIATOR FLUID-GARAGE 7-8-92 10:30

WO #: 75374
LAB #: A2G080037-003
MATRIX: LIQUID

DATE RECEIVED: 7/08/92
TCLP EXTRACTION DATE: 7/10/92

FINAL pH: 5.0

METALS

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311 (55 FR 26986)

ELEMENT Prep/Analysis	RESULT/ REPORT LIMIT (mg/L)	CF	BIAS CORR RESULT/ REPORT LIMIT (mg/L)	REGULATORY LIMIT	QC BATCH
Silver 7/10- 7/17/92	ND/0.1	0.89	ND/0.1	5	192018
Arsenic 7/10- 7/17/92	ND/0.5	1.0	ND/0.5	5	192018
Barium 7/10- 7/17/92	ND/0.1	0.96	ND/0.1	100	192018
Cadmium 7/10- 7/17/92	ND/0.1	0.88	ND/0.1	1	192018
Chromium 7/10- 7/17/92	ND/0.1	0.90	ND/0.1	5	192018
Lead 7/10- 7/17/92	ND/0.1	0.87	ND/0.1	5	192018
Selenium 7/10- 7/17/92	ND/0.3	1.2	ND/0.2	1	192018

NOTE:
CF (Bias Correction Factor)
ND None Detected

AMERICAN STEEL FOUNDRIES

9207083 USED RADIATOR FLUID-GARAGE 7-8-92 10:30

WO #: 75374
LAB #: A2G080037-003
MATRIX: LIQUID

DATE RECEIVED: 7/08/92
TCLP EXTRACTION DATE: 7/10/92

FINAL pH: 5.0

- METALS -

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311 (55 FR 26986)

ELEMENT Prep/Analysis	RESULT/ REPORT LIMIT (mg/L)	CF	BIAS CORR RESULT/ REPORT LIMIT (mg/L)	REGULATORY LIMIT	QC BATCH
Mercury 7/20- 7/22/92	ND/0.02	0.6	ND/0.03	0.2	202059

NOTE:

Mercury Correction Factor Determined on sample: A2G080037-001

CF (Bias Correction Factor)

ND None Detected

QUALITY CONTROL SECTION

QUALITY CONTROL NARRATIVE

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan. All data have been found to be compliant with laboratory protocol.

CHECK SAMPLE REPORT

QC BATCH: 195027
LAB #: A2G130000-027 C
MATRIX: LIQUID

PREPARATION DATE: 7/13/92
DATE ANALYZED: 7/13/92
TCLP EXTRACTION DATE: 7/10/92

- - - - - - - - - - - - - - - - - - Volatile Organics, GC/MS - - - - - - - - - - - - - - - - -

COMPOUND	SPIKE PERCENT RECOVERY	Q/C LIMITS
Benzene	114	(50-150)
Carbon tetrachloride	111	(50-150)
Chlorobenzene	101	(50-150)
Chloroform	121	(50-150)
1,2-Dichloroethane	120	(50-150)
1,1-Dichloroethene	110	(50-150)
Methyl ethyl ketone	123	(35-150)
Tetrachloroethene	106	(50-150)
Trichloroethene	99	(50-150)
Vinyl chloride	143	(50-150)

CHECK SAMPLE REPORT

QC BATCH: 198005
LAB #: A2G160000-005 C
MATRIX: LIQUID

PREPARATION DATE: 7/16/92
DATE ANALYZED: 7/22/92
TCLP EXTRACTION DATE: 7/10/92

- - - - - - - - - - - - - - - - - Base/Neutrals and Acids - - - - - - - - - - - - - - - - -

COMPOUND	SPIKE PERCENT RECOVERY	Q/C LIMITS
Cresols, Total	59	(30-120)
1,4-Dichlorobenzene	51	(30-120)
2,4-Dinitrotoluene	56	(30-120)
Hexachlorobenzene	64	(30-120)
Hexachlorobutadiene	38	(30-120)
Hexachloroethane	42	(30-120)
Nitrobenzene	84	(30-120)
Pentachlorophenol	76	(30-120)
Pyridine	74	(30-120)
2,4,5-Trichlorophenol	49	(30-120)
2,4,6-Trichlorophenol	58	(30-120)

CHECK SAMPLE REPORT

LAB #: A2G080037

*** TCLP *** TCLP EXTRACTION DATE: 7/10/92

- METALS -

COMPOUND	SPIKE PERCENT RECOVERY	Q/C LIMITS	PREPARATION - ANALYSIS DATE
	BATCH:192018 MATRIX:	LIQUID	
Silver	91	(50-150)	7/10- 7/17/92
Arsenic	99	(50-150)	7/10- 7/17/92
Barium	98	(50-150)	7/10- 7/17/92
Cadmium	89	(50-150)	7/10- 7/17/92
Chromium	94	(50-150)	7/10- 7/17/92
Lead	92	(50-150)	7/10- 7/17/92
Selenium	111	(50-150)	7/10- 7/17/92
	BATCH:202059 MATRIX:	LIQUID	
Mercury	64	(50-150)	7/20- 7/22/92

INTRA-LAB BLANK REPORT

LAB #: A2G130000-027

MATRIX: LIQUID

TCLP EXTRACTION DATE: 7/10/92

- - - - - - - - - - - - - - - - VOLATILE ORGANICS, GC/MS - - - - - - - - - - - - - - - - -

PARAMETER	RESULT (mg/l)	REPORTING LIMIT	EXTRACTION-ANALYSIS DATE	QC BATCH
Benzene	ND	0.005	7/13/92	195027
Methyl ethyl ketone	ND	0.05	7/13/92	195027
Carbon tetrachloride	ND	0.005	7/13/92	195027
Chlorobenzene	ND	0.005	7/13/92	195027
Chloroform	ND	0.005	7/13/92	195027
1,2-Dichloroethane	ND	0.005	7/13/92	195027
1,1-Dichloroethene	ND	0.005	7/13/92	195027
Tetrachloroethene	ND	0.005	7/13/92	195027
Trichloroethene	ND	0.005	7/13/92	195027
Vinyl chloride	ND	0.01	7/13/92	195027

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
1,2-Dichloroethane-d4	113	(76 - 114)
Toluene-d8	102	(88 - 110)
Bromofluorobenzene	109	(86 - 115)

NOTE:
ND (NONE DETECTED)

INTRA-LAB BLANK REPORT

LAB #: A2G160000-005

MATRIX: LIQUID

TCLP EXTRACTION DATE: 7/10/92

- - - - - - - - - - - - - - - - BASE/NEUTRALS AND ACIDS - - - - - - - - - - - - - - - -

PARAMETER	RESULT (mg/L)	REPORTING LIMIT	EXTRACTION-ANALYSIS DATE	QC BATCH
1,4-Dichlorobenzene	ND	0.04	7/16- 7/20/92	198005
2,4-Dinitrotoluene	ND	0.04	7/16- 7/20/92	198005
Hexachlorobenzene	ND	0.04	7/16- 7/20/92	198005
Hexachlorobutadiene	ND	0.04	7/16- 7/20/92	198005
Hexachloroethane	ND	0.04	7/16- 7/20/92	198005
Nitrobenzene	ND	0.04	7/16- 7/20/92	198005
Pentachlorophenol	ND	0.2	7/16- 7/20/92	198005
Pyridine	ND	0.04	7/16- 7/20/92	198005
2,4,5-Trichlorophenol	ND	0.04	7/16- 7/20/92	198005
2,4,6-Trichlorophenol	ND	0.04	7/16- 7/20/92	198005
Cresols, Total	ND	0.04	7/16- 7/20/92	198005

SURROGATE RECOVERY	%	ACCEPTABLE LIMITS
Nitrobenzene-d5	76	(35 - 114)
2-Fluorobiphenyl	73	(43 - 116)
Terphenyl-d14	148*	(33 - 141)
2-Fluorophenol	73	(21 - 100)
Phenol-d5	79	(10 - 94)
2,4,6-Tribromophenol	79	(10 - 123)

NOTE:
ND (NONE DETECTED)

INTRA-LAB BLANK REPORT

LAB #: A2G080037

*** TCLP ***

TCLP EXTRACTION DATE: 7/10/92

METALS

PARAMETER	RESULT	REPORTING LIMIT	UNIT	METHOD	PREPARATION - ANALYSIS DATE
		BATCH:192018	MATRIX:LIQUID		
Silver	ND	0.1	mg/L	SW846 6010	7/10- 7/17/92
Arsenic	ND	0.5	mg/L	SW846 6010	7/10- 7/17/92
Barium	ND	0.1	mg/L	SW846 6010	7/10- 7/17/92
Cadmium	ND	0.1	mg/L	SW846 6010	7/10- 7/17/92
Chromium	ND	0.1	mg/L	SW846 6010	7/10- 7/17/92
Lead	ND	0.1	mg/L	SW846 6010	7/10- 7/17/92
Selenium	ND	0.3	mg/L	SW846 6010	7/10- 7/17/92
		BATCH:202059	MATRIX:LIQUID		
Mercury	ND	0.02	mg/L	SW846 7470	7/20- 7/22/92

NOTE:

ND (NONE DETECTED)

CLIENT CODE _____

QUOTE / SAR NUMBER _____

Chain-of Custody Record

WADSWORTH/ALERT LABORATORIES

4101 SHUFFEL DRIVE N.W. / NORTH CANTON, OHIO 44720

(216) 497-9396

№ 18369

PROJ. NO.

PROJECT NAME/LOCATION: American Steel Foundries

SAMPLERS: (Signature) W.D. Heestand (W.D. Heestand)

STA. NO.	DATE	TIME	COMP.	GRAB.	STATION LOCATION	NO. OF CONTAINERS	TCLP - HERB. PEST.						REMARKS
1220731	7/8/92	10:10	x		Gitsholt Coolant & Simple Green	2	x						TCLP minus Herbicide Pests
1220732	7/8/92	10:20	x		Used Radiator Fluid - Garage	2	x						
1220733	7/8/92	10:30	x		Used Radiator Fluid - Garage	2	x						

NOTE:

Invoice to PO# A-13600

Release #/.

WDH

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
W.D. Heestand	7/8/92 11:02	Roy A. Malmin			
Roy A. Malmin	7/8/92 12:10				

Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks
		S.L. Goodin	7.8.92 12:00	

Distribution Original Accompanies Shipment. Copy returned with Report.

recharge
records

1991

PENGAD-Bayonne, N. J.
DEPOSITION
EXHIBIT
B ID
M.N. 1/24/90

5-29-87 - 1521 LBS, 7 BBLS
6-1-87 2508 LBS, 12 BBLS
6-2-87 3041 LBS, 13 BBLS
6-3-87 2147 LBS, 10 BBLS
6-4-87 2526 LBS 12 BBLS
6-5-87 2709 LBS 12 BBLS
6-8-87 2590 LBS 12 BBLS
6-9-87 3544 LBS 16 BBLS
6-10-87 2645 LBS 12 BBLS
6-11-87 2591 LBS 12 BBLS
6-12-87 2741 LBS 12 BBLS
6-15-87 3659 LBS 14 BBLS
6-16-87 3100 LBS 14 BBLS
6-17-87 2470 LBS 11 BBLS
6-18-87 2733 LBS 12 BBLS
6-19-87 2865 LBS 14 BBLS
6-22-87 3050 LBS 12 BBLS
6-23-87 3063 LBS [illegible]
THIS PAGE 49539 29[illegible]

6-24-87	2901 LBS	12 BBls
6-25-87	2658 LBS	12 BBls
6-26-87	2901 LBS	14 BBls
6-29-87	2413 LBS	12 BBls
6-30-87	2939 LBS	12 BBls
7-1-87	2317 LBS	10 BBls
7-2-87	3401 LBS	14 BBls
7-3-87	3028 LBS	12 BBls
7-6-87	3687 LBS	14 BBls
7-7-87	3360 LBS	12 BBls
7-8-87	3760 LBS	14 BBls
7-9-87	1725 LBS	6 BBls
	(LOST HEATS LAST NITE	
7-10-87	3960 LBS	16 BBls
7-11-87	4160 LBS	16 BBls

THIS PAGE 43210 176 BBls

TOTALS TWO PAGES 92711

7-13-87	3625 LBS	14 BBls
7-14-87	3760 LBS	14 BBls
7-15-87	3605 LBS	14 BBls
7-16-87	3070 LBS	12 BBls
7-17-87	3460 LBS	12 BBls
7-20-87	3340 LBS	12 BBls
7-21-87	3520 LBS	12 BBls
7-22-87	3460 LBS	12 BBls
7-23-87	3120 LBS	12 Bls
7-24-87	3420 LBS	15 Bls
7-27-87	3290 LBS	12 BBls
7-28-87	4120 LBS	14 BBls
7-29-87	3470 LBS	14 BBls
7-30-87	3400 LBS	12 BBls
7-31-87	3140 LBS	12 BBls
8-19-87	5100 LBS	16 BBLS
8-20-87	5120 LBS	16 BBLS
8-21-87	5600 LBS	16 BBLS
8-24-87	5670 LBS	21 BBls

83 BBLS - 8-20-87

8-25-87	6160 LBS	22 BBls
8-26-87	5780 LBS	20 BBls
8-27-87		20 BBls
8-28-87		21 Bels
8-29-87 (SAT MORN)		20 BBls
9-1-87		21 BBls
9-2-87	— 7 BBls - BROKE CHAIN WENT BACK LATER AND TOOK 25 BBls ADDITIONAL → 32 BBls	
9-3-87		24 BBls
9-4-87		30 BBls
9-8-87		22 BBls
9-9-87	(ONLY 6 HEATS L.NITE)	17 BBls
9-10-87		24 BBls
9-11-87		27 BBls
9-14-87		24 BBls
9-15-87		27 BBls
9-16-87		27 BBls
9-17-87		30 BBls
9-18-87		24 BBls

9-21-87		18 BBls
9-22-87		24 BBls
9-23-87		29 BBls
9-24-87		27 BBls
9-25-87		30 BBls
9-28-87		27 BBls
9-29-87		24 BBls
9-30-87		21 BBls
10-1-87		29 BBls
10-2-87		24 BBls
10-5-87		26 BBls
10-6-87	756 SINCE 8-24-87 - (INCLUDES 8-24-87)	24 BBls
10-7-87		21 BBls
10-8-87	1439 BBls THRU 10-8-87	26 BBls
10-9-87		22 BBls
10-12-87		21 BBls
10-13-87		26 BBls
10-14-87		24 BBls
10-15-87		25 BBls
10-16-87		23 BBls

10-19-87	27 BBls
10-20-87	19 BBls
10-21-87	25 BBls
10-22-87	24 BBls
10-23-87	26 BBls
10-26-87	25 BBls
10-27-87	20 BBls

1746 BBls
THRU 10-27-87

+ 6 DIRT AND LIMESTONE
BARRELS ON 10-27-87

10-28-87	27 BBls
10-29-87	24 BBls
10-30-87	25 BBls
11-2-87	22 BBls
11-3-87	25 BBls
11-4-87	27 BBls
11-5-87	27 BBls
11-6-87	23 BB

11-9-87	26 BBls
11-10-87	27 BBls
11-11-87	24 BBls
11-12-87	32 BBls
11-13-87	23 BBls
11-16-87	23 BBLS
11-17-87	20 BBLS
11-18-87	26 BBls
11-19-87	30 BBls
11-20-87 FIRST SNOWFALL (HAD NO MORE TIME TO SPEND ON THE EAF DUST)	8 BBls
11-21-87 - SAT	53 BBls

2238 BBls
TOTAL THRU 11-21-87
PLUS 6 DIRT & STONE

11-24-87	23 BBls
11-25-87	16 BBls
11-30-87	6 BBLS
12-1-87	23 BBLS
12-2-87	18 BBls
12-3-87	20 BBls
12-4-87	18 BBls

12-7-87		38 BBls
12-8-87	7 - AM 8 PM	15 BBls
12-9-87		20 BBls
12-10-87		29 BBls
12-11-87		24 BBls
12-12-87 - SAT. M.T. COLLECTOR		50 BBls

THERE ARE ~~144~~ 145 BBls ACCUMULATED DUST TO BE VACUUMED BACK THRU THE COLLECTOR SYSTEM 12-12-87. (PLUS 6 LIMESTONE & DUST AT NEYBRECHTS)

2538 TOTAL BARRELS OF DUST FOR THE PERIOD 5-29-87 THRU 12-12-87

recharge
records

PEKCAD-Bayonne, N. J.
DEPOSITION
EXHIBIT
F ID
M. N 9-15-89

5-29-87 - 1521 LBS, 7 BBLS
6-1-87 2508 LBS, 12 BBLS
6-2-87 3041 LBS, 13 BBLS
6-3-87 2147 LBS, 10 BBLS
6-4-87 2526 LBS 12 BBLS
6-5-87 3709 LBS 12 BBLS
6-8-87 2590 LBS 12 BBLS
6-9-87 3544 LBS 16 BBLS
6-10-87 2645 LBS 12 BBLS
6-11-87 2591 LBS 12 BBLS
6-12-87 2741 LBS 12 BBLS
6-15-87 3659 LBS 14 BBLS
6-16-87 3100 LBS 14 BBLS
6-17-87 2470 LBS 11 BBLS
6-18-87 2733 LBS 12 BBLS
6-19-87 2865 LBS 14 BBLS
6-22-87 3052 LBS 12 BBLS
6-23-87 3063 LBS 12
THIS PAGE 49539 219

6-24-87	2901 LBS	12 BBls
6-25-87	2658 LBS	12 BBls
6-26-87	2901 LBS	14 BBls
6-29-87	2413 LBS	12 BBls
6-30-87	2939 LBS	12 BBls
7-1-87	2317 LBS	10 BBls
7-2-87	3401 LBS	14 BBls
7-3-87	3028 LBS	12 BBls
7-6-87	3687 LBS	14 BBls
7-7-87	3360 LBS	12 BBls
7-8-87	3760 LBS	14 BBls
7-9-87	1725 LBS	6 BBls
	(LOST HEATS LAST NITE	
7-10-87	3960 LBS	16 BBls
7-11-87	4160 LBS	16 BBls

THIS PAGE 43210 176 BBls

TOTALS TWO PAGES 92711

7-13-87	3625 LBS	14 BBls
7-14-87	3760 LBS	14 BBls
7-15-87	3605 LBS	14 BBls
7-16-87	3070 LBS	12 BBls
7-17-87	3460 LBS	12 BBls
7-20-87	3340 LBS	12 BBls
7-21-87	3520 LBS	12 BBls
7-22-87	3460 LBS	12 BBls
7-23-87	3120 LBS	12 Bls
7-24-87	3420 LBS	15 Bls
7-27-87	3290 LBS	12 BBls
7-28-87	4120 LBS	14 BBls
7-29-87	3470 LBS	14 BBls
7-30-87	3400 LBS	12 BBls
7-31-87	3140 LBS	12 BBls
8-19-87	5100 LBS	16 BBLS
8-20-87	5120 LBS	16 BBLS
8-21-87	5600 LBS	16 BBLS
8-24-87	5670 LBS	21 BBls

83 BBLS - 8-20-87

8-25-87	6160 LBS	22 BBls
8-26-87	5780 LBS	20 BBls
8-27-87		20 BBls
8-28-87		21 BBls
8-29-87 (SAT MORN)		20 BBls
9-1-87		21 BBls
9-2-87	— 7 BBls - BROKE CHAIN WENT BACK LATER AND TOOK 25 BBls ADDITIONAL → 32 BBls	
9-3-87		24 BBls
9-4-87		30 BBls
9-8-87		22 BBls
9-9-87	(ONLY 6 HEATS L.NITE)	17 BBls
9-10-87		24 BBls
9-11-87		27 BBls
9-14-87		24 BBls
9-15-87		27 BBls
9-16-87		27 BBls
9-17-87		30 BBls
9-18-87		24 BBls

9-21-87		18 BBls
9-22-87		24 BBls
9-23-87		29 BBls
9-24-87		27 BBls
9-25-87		30 BBls
9-28-87		27 BBls
9-29-87		24 BBls
9-30-87		21 BBls
10-1-87		29 BBls
10-2-87		24 BBls
10-5-87		26 BBls
10-6-87	756 SINCE 8-24-87 - (INCLUDES 8-24-87)	24 BBls
10-7-87		21 BBls
10-8-87	1439 BBls THRU 10-8-87	26 BBls
10-9-87		22 BBls
10-12-87		21 BBls
10-13-87		26 BBls
10-14-87		24 BBls
10-15-87		25 BBls
10-16-87		23 BBls

10-19-87	27 BBls
10-20-87	19 BBls
10-21-87	25 BBls
10-22-87	24 BBls
10-23-87	26 BBls
10-26-87	25 BBls
10-27-87	20 BBls

1746 BBls
THRU 10-27-87

+ 6 DIRT AND LIMESTONE
BARRELS ON 10-27-87

10-28-87	27 BBls
10-29-87	24 BBls
10-30-87	25 BBls
11-2-87	22 BBls
11-3-87	25 BBls
11-4-87	27 BBls
11-5-87	27 BBls
11-6-87	23 BB

11-9-87	26 BBls
11-10-87	27 BBls
11-11-87	24 BBls
11-12-87	32 BBls
11-13-87	23 BBls
11-16-87	23 BBls
11-17-87	20 BBls
11-18-87	26 BBls
11-19-87	30 BBls
11-20-87 FIRST SNOWFALL (HAD NO MORE TIME TO SPEND ON THE EAF DUST)	8 BBls
11-21-87 - SAT	53 BBls

2238 BBls
TOTAL THRU 11-21-87
PLUS 6 DIRT & STONE

11-24-87	23 BBls
11-25-87	16 BBls
11-30-87	6 BBls
12-1-87	23 BBls
12-2-87	18 BBls
12-3-87	20 BBls
12-4-87	18 BBls

12-7-87		38 BBls
12-8-87	7 - AM 8 PM	15 BBls
12-9-87		20 BBls
12-10-87		29 BBls
12-11-87		24 BBls
12-12-87 - SAT. M.T. COLLECTOR		50 BBls

THERE ARE ~~144~~ 145 BBls ACCUMULATED DUST TO BE VACUUMED BACK THRU THE COLLECTOR SYSTEM 12-12-87. (PLUS 6 LIMESTONE + DUST AT NEYBRECHTS)

2538 TOTAL BARRELS OF DUST FOR THE PERIOD 5-29-87 THRU 12-12-87

WORKING COPY 2

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 8-18-86

SUBJECT: Precision and Accuracy of Analyses for Data Set EDO 3424
Site: AMERICAN STEEL FOUNDRY

FROM: Steve Parker,
CRL QC Coordinator

TO: Data User: _____

The Region V Central Regional Laboratory has completed its analyses of 4 (number) ~~WATER~~ SOIL (matrix type) samples for the parameters listed on the attached sheet. The discrete values reported on the result forms should be considered to be of the precision and accuracy levels listed.

PRECISION is a measure of reproducibility or the closeness with which individual measurements of the same property, under similar conditions agree with each other. It is expressed as the relative percent difference (RPD) or the absolute concentration difference (R') between duplicate analyses. The limit acceptable at the time of analysis is stated. QC data within these limits indicate that the analysis was in control for that set of data.

ACCURACY is a measure of the closeness of an individual measurement to the expected value. It can be expressed as percent recovery of a known spike or standard concentration, or as percent bias which is the deviation from the true value. The limits applicable at the time of analysis are stated. A 95% confidence interval means that 95% of the time, percent recovery will fall between those limts.

Attachment

TRANSMITTED BY
Griffin
AUG 18 1986
U.S. EPA CENTRAL
REGIONAL LAB

PRECISION AND ACCURACY STATEMENT

Data Set: EDO 3424

Matrix: WATER

Site Name: AMERICAN STEEL FOUNDRY

	PRECISION			ACCURACY		
Parameter	RPD (R')	Limit	Method of Quality Control	% Recovery % Bias	Limit	Method of Quality Control
Se	0.0001 mg/L	± 0.002 mg/L	DUPLICATE SAMPLE	94%	90-110%	SPIKED SAMPLE
As	0.0005 mg/L	≤ 0.002 mg/L	DUPLICATE CONTROL	99-102%	"	CONTROL STD
As	—	—	—	100%	"	SPIKED SAMPLE

COMMENT:

QC FLAGS:

Regarack- C28359

Jun 15 Aug PM 8/15/86 4+

8/29/86 REST OF SAMPLES.

8/18/86

ENVIRONMENTAL PROTECTION AGENCY
FOR THE TEAM: METALS

DIVISION/BRANCH EDO/ESD SAMPLING DATE 8-6-86 LAB ARRIVAL DATE 8/8/86 DUE DATE 8/15/86 *PRIORITY #1

DU NUMBER D-307 DATASET NUMBER 3424 STUDY American Steel Foundry PRIORITY / * CONTRACTOR N

CRL LOG NUMBER 86EF10	SAMPLE DESCRIPTION	EP TOX EXTRACT ICP METALS MG/L MET19364	EP TOX EXTRACT SE MG/L MET19109	EP TOX EXTRACT AS MG/L MET1989	EP TOX EXTRACT Pb MG/L	EP TOX EXTRACT Cr MG/L
S01	5-90240	X	X	X	X	X
S02	5-90241	X	X	X	X	X
S03	5-90242	X	X	X	X	X
S04	5-90243	X	X	X	X	X
S05	5-90244	X	X	X	X	X
S06	5-90245	X	X	X	X	X
S07	5-90229	X	X	X	X	X
* S08	5-90246	X	X <0.002	X <0.002	X	X
D09	5-90247	X	X	X	X	X
* S10	5-90248	X	X 0.040	X < 0.002	X	X
* S11	5-90249	X	X 0.007	X < 0.002	X	X
* S12	5-90127	X	X <0.002	X < 0.002	X	X
S13	5-90226	X	X	X	X	X
S14	5-90250	X	X	X	X	X
R15	5-90227	X	X	X	X	X
			PM 8-14-86	JAR 8/15/86	X	X
					X	X
					X	X
					X	X

* PLEASE NOTE: SAMPLES WITH A * BY THE NUMBER ARE PRIORITY #1

Jun
15 mg/L

wheel # 1
from D/S 3424

---

* FLAMELESS * CSC VERSION 1.00 *

NAME OF ANALYST ---: HNR
DATE OF ANALYSIS --: 08-15-1986
PARAMETER NAME ----: AS
DATA SET # --------: ~~S424~~ 3371

SAMPLE NO.	CONC.	R VALUE	SLOPE	
R	-.2040811	.9998612	.00294	% dev = 0.4 100%
AQC T.V. 23.5	23.60947	.9995799	.00338	
SO2X50	123.7006	.9927206	3.540001E-03	
SO2X50X5 (conc.2)	27.44866	.9987374	3.410002E-03	6850
AQC T.V. 23.5	24.09881	.9996449	3.440003E-03	% dev = 2.5 102%

R

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	0	-5.999985E-04	-5.999985E-04	100 %
10	.028	.0288	8.000005E-04	2.777779 %
20	.058	.0582	2.000034E-04	.3436484 %
30	.088	8.760001E-02	-3.999919E-04	-.4566117 %

AQC

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	7.900001E-02	7.980002E-02	8.000136E-04	1.002523 %
10	.114	.1136	-3.999844E-04	-.3520989 %
20	.149	.1474	-1.599982E-03	-1.08547 %
30	.18	.1812	1.20002E-03	.6622628 %

SO2X50

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.439	.4379001	-1.099914E-03	-.2511793 %
10	.468	.4733001	5.300105E-03	1.119819 %
20	.516	.5087002	-7.299841E-03	-1.434999 %
30	.541	.5441001	3.100097E-03	.569766 %

SO 50X5

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.093	9.359998E-02	5.999729E-04	.6409969 %
10	.127	.1277	6.99997E-04	.5481573 %
20	.165	.1618	-3.199995E-03	-1.977747 %
30	.194	.1959	1.900017E-03	.9698913 %

ADS

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.083	8.289996E-02	-1.000315E-04	-.1206653 %
10	.118	.1173	-7.000119E-04	-.5967706 %
2	.15	.1517	1.700014E-03	1.120642 %
30	.187	.1861	-8.999705E-04	-.4835951 %

JVR
45 Angle

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* FLAMELESS * CSC VERSION 1.00 *

NAME OF ANALYST ---: HNR
DATE OF ANALYSIS --: 08-15-1986
PARAMETER NAME ----: AS
DATA SET # --------:

SAMPLE NO.	CONC.	R VALUE	SLOPE
S01 (conc. 1)	.3047109	.9999462	.00361

S01

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.001	1.100006E-03	1.00006E-04	9.091404 %
10	.037	3.720001E-02	2.000034E-04	.5376435 %
20	.074	.0733	-7.000044E-04	-.9549856 %
30	.109	.1094	3.999919E-04	.3656233 %

2256

Begin Element - AE

0.004
0.000 AE
0.000
0.028
0.058 R
0.086

0.079
0.114
0.149 A&C
0.180

0.001
0.037
0.074 S01 undil. WP283 Conc 1
0.105

0.439
0.468 S02 X50 WP283 Conc 2
0.515
0.541

0.099
0.127 S02 X50X5
0.165
0.194

0.089
0.118 A&C
0.150
0.157

Jm
15 Aug 86

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* FLAMELESS * CSC VERSION 1.00 *

NAME OF ANALYST ---: HNR
DATE OF ANALYSIS --: 08-15-1986
PARAMETER NAME ----: AS
DATA SET # --------: ~~3371~~ 3424

SAMPLE NO.	CONC.	R VALUE	SLOPE
R	-.1027382	.9997891	.00292
~~AQC~~	~~23.90534~~	~~.9948935~~	~~3.379999E-03~~
~~RCRA 50~~	~~32.95084~~	~~.9945106~~	~~3.049999E-03~~
DUPRCRA X50	31.06062	.9991749	3.299999E-03
S08	1.463414	.9998018	.00246
S10	.3061217	.9991681	.00196
S11	.7035185	.9993189	.00199
DUPS11	.2439024	.9996432	.00205
AQC T.V. 23.5	23.35404	.9997304	.00322

2nd sheet

Jun 15 Aug 86

% dev ~1.0 Bad cond.

Bad cond.

0.6 % dev

99%

R

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	0	-2.999954E-04	-2.999954E-04	100 %
10	.029	.0289	-9.999797E-05	-.3460137 %
20	.057	.0581	.0011	1.893287 %
30	.088	8.729999E-02	-7.000044E-04	-.8018379 %

AQC

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.082	8.080002E-02	-1.199983E-03	-1.485127 %
10	.11	.1146	4.600011E-03	4.013971 %
20	.154	.1484	-5.599991E-03	-3.773578 %
30	.18	.1822	2.199978E-03	1.207452 %

RCRA 50

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.104	.1005	-3.49997E-03	-3.482556 %
10	.125	.131	6.000027E-03	4.580173 %
20	.163	.1615	-1.499981E-03	-.9287805 %
30	.193	.192	-1.000002E-03	-.5208344 %

DUPRCRA

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.104	.1025	-1.499973E-03	-1.463388 %
10	.133	.1355	2.500013E-03	1.845028 %
20	.169	.1685	-4.999936E-04	-.2967321 %
30	.202	.2013	-5.000085E-04	-.2481432 %

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.004	3.599999E-03	-4.000017E-04	-11.11116 %
10	.028	.0282	1.999997E-04	.7092186 %
20	.052	.0528	7.999987E-04	1.515149 %
30	.078	7.740001E-02	-5.999953E-04	-.7751876 %

JVM 15 Aug 91

S10

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.001	5.999985E-04	-4.000016E-04	-66.6671 %
10	.019	.0202	1.199998E-03	5.940585 %
20	.041	.0398	-1.200005E-03	-3.015089 %
30	.059	5.939999E-02	3.999919E-04	.6733871 %

S11

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.002	1.400002E-03	-5.999985E-04	-42.85699 %
10	.021	.0213	2.999995E-04	1.408448 %
20	.04	.0412	1.199998E-03	2.912617 %
30	.062	.0611	-9.000041E-04	-1.473002 %

DUPS11

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.001	.0005	-5.000001E-04	-100 %
10	.02	.021	1.000002E-03	4.761915 %
20	.042	4.150001E-02	-4.999936E-04	-1.204804 %
30	.062	6.200001E-02	7.450581E-09	1.201706E-05 %

ADC

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.076	7.520001E-02	-7.999838E-04	-1.063808 %
10	.106	.1074	1.400016E-03	1.303553 %
20	.14	.1396	-3.999919E-04	-.2865271 %
30	.172	.1718	-1.999885E-04	-.1164077 %

RCRA X50
RCRAX50dup] S03

* FLAMELESS * CSC VERSION 1.00 *

NAME OF ANALYST ---: HNR
DATE OF ANALYSIS --: 08-15-1986
PARAMETER NAME ----: AS
DATA SET # --------: 3371

wheel #3
Jim
ASMyll

SAMPLE NO.	CONC.	R VALUE	SLOPE
R	.4942978	.9993789	.00263
S11 SPK	20.7798	.9979435	.00218
RCRAX50 repeat	22.38804	.9987993	3.350001E-03
ABC T.V. 23.5	23.33333	.9990778	.00285

note S12 goes here

% Recovery 208.0/20 = 104%

.85% dev.

ave RCRA X50
31.6
22.4
54.0 ÷ 2
= 27
reported

R

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.002	1.300003E-03	-6.999971E-04	-53.84581 %
10	.026	.0276	1.599997E-03	5.797092 %
20	.055	5.389999E-02	-1.100008E-03	-2.04083 %
30	.08	8.019999E-02	1.999885E-04	.2493623 %

S11 SPK

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.047	4.529998E-02	-1.700025E-03	-3.752817 %
10	.065	6.709998E-02	2.099976E-03	3.129623 %
20	.088	8.689999E-02	8.999854E-04	1.012357 %
30	.112	.1107	-1.300022E-03	-1.174365 %

RCRAX50

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.077	7.499998E-02	-2.000026E-03	-2.666703 %
10	.106	.1085	2.49999E-03	2.304139 %
20	.141	.142	9.999871E-04	.7042164 %
30	.177	.1755	-1.499996E-03	-.8546983 %

ABC

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	6.800001E-02	6.649999E-02	-1.500018E-03	-2.255667 %
10	.093	9.499998E-02	1.999982E-03	2.105244 %
20	.123	.1235	4.999861E-04	.4048471 %
[illegible]	.153	.152	-1.000002E-03	-.6578961 %

Jm 15 Aug 86

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* FLAMELESS * CSC VERSION 1.00 *

NAME OF ANALYST ---: HNR
DATE OF ANALYSIS --: 08-15-1986
PARAMETER NAME ----: AS
DATA SET # --------: p/s 3324

SAMPLE NO.	CONC.	R VALUE	SLOPE
S12	5.235522E-02	.9998081	.00151

S12

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	0	9.999848E-05	9.999848E-05	100 %
10	.019	.0192	2.000015E-04	1.041675 %
20	.039	3.830001E-02	-6.99997E-04	-1.827668 %
30	.057	5.740001E-02	4.000068E-04	.6968758 %

JVM
15 Aug 11

Begin Element - AS

2nd wheel cent. From D/S 3371

0.001
0.000 AZ
-0.000
0.029
0.057 R
0.088
0.082
0.110
0.154 AOC Badcard.
0.180
0.104
0.125

RCRA X50 Badcard.

0.163
0.193
0.104
0.133 DUP RCRA X50
0.169
0.202
0.004
0.028 S08
0.052
0.078
0.001
0.019
0.041 S10
0.059
0.002
0.021
0.040 S11
0.062
0.001
0.020 dup S11
0.042
0.062
0.076
0.106
0.140 AOC

Jm
95 Bright

Wheel # 3

↓

0.172
0.002
0.026 R
0.055
0.080
0.000
0.019 S12
0.039
0.057
0.047
0.065 S11 Spke
0.088
0.112
0.077
0.106
0.141 RCRA x50
0.177
~~0.067~~
0.068
0.093 ARC
0.123
0.153

Jm
15 Aug 91

* FLAMELESS * CSC VERSION 1.00 *

NAME OF ANALYST ---: P.M.
DATE OF ANALYSIS --: 08-14-1986
PARAMETER NAME ----: Se in ug/l — PERCRA 3371
DATA SET # --------: RCRA PE, EDO 3424

	SAMPLE NO.	CONC. ug/l	R VALUE	SLOPE	
	STD	-.4166649	.9990095	.01008	
	NBS	9.418598	.9995421	.01032	-3.1%
3371	RCRA S03	15.62679	.9998012	7.019999E-03	
"	RCRA D S03	15.07712	.9969444	7.780001E-03	
	~~BTRCM~~ S08	.8427001	.9994325	.0089	
3424	S10 interference	31.9203	.9815919	2.759999E-03	
	S11	6.618356	.9994636	.00414	
	S12	8.894694E-02	.9995435	7.869998E-03	
	QC	9.254739	.9990139	7.380001E-03	-4.6
3424	S11SP	25.43714	.9979011	3.660002E-03	94% Rec.
3371	S01	-.4330732	.9995559	7.620001E-03	
3424	S11 D	6.498604	.9998196	.00357	
	EXT B	-.5683884	.9999272	5.630001E-03	
	D BLANK	-.6032912	.9997228	.00547	
3371	S02 1:10	135.9348	.9964787	6.419991E-03	
3424	S10 1/10	4.03362	.9957481	5.949999E-03	
	NBS	10.51546	.9990027	.00485	+8.2
3371	S02 1/100	11.88679	.9957549	5.300001E-03	1188 ppb
	~~SE~~ NBS	9.683552	.999635	4.739999E-03	0%

STD

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-.001	-4.199982E-03	-3.199982E-03	76.19037 %
10	.089	9.660002E-02	7.600025E-03	7.867518 %
20	.203	.1974	-5.599961E-03	-2.836859 %
30	.297	.2982001	1.20005E-03	.4024313 %

NBS

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.101	9.719994E-02	-3.800057E-03	-3.909526 %
10	.195	.2004	5.399972E-03	2.694597 %
20	.303	.3036	5.999506E-04	.1976122 %
30	.409	.4068	-2.200037E-03	-.5408155 %

RCRA

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.111	.1097	-1.299992E-03	-1.185043 %
10	.179	.1799	8.999954E-04	.5003609 %

20	.245	.2501	2.099961E-03	.8396466 %
30	.322	.3203	-1.700014E-03	-.5307568 %

RCRA D

Jim 15 May 88

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.121	.1173	-3.700011E-03	-3.154315 %
10	.195	.1951	1.000017E-04	5.125664E-02 %
20	.262	.2729	1.089999E-02	3.994134 %
30	.358	.3507	-7.29999E-03	-2.081548 %

STRON

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.006	7.500031E-03	1.500031E-03	20.00032 %
10	.101	9.650003E-02	-4.499972E-03	-4.663182 %
20	.181	.1855	4.500047E-03	2.425901 %
30	.276	.2745	-1.499981E-03	-.546441 %

S10

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	9.399999E-02	8.810001E-02	-5.899988E-03	-6.696922 %
10	.11	.1157	.0057	4.926534 %
20	.137	.1433	6.300003E-03	4.396373 %
30	.177	.1709	-6.100014E-03	-3.569347 %

S11

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.029	.0274	-1.600005E-03	-5.839435 %
10	.067	.0688	1.800001E-03	2.61628 %
20	.109	.1102	1.200005E-03	1.088934 %
30	.153	.1516	-1.399994E-03	-.9234788 %

S12

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.003	7.000122E-04	-2.299988E-03	-328.5639 %
10	.075	7.939999E-02	4.399985E-03	5.541544 %
20	.16	.1581	-1.900032E-03	-1.201792 %
30	.237	.2368	-2.000481E-04	-8.447978E-02 %

QC

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.072	6.829999E-02	-3.700011E-03	-5.417293 %
10	.136	.1421	6.099999E-03	4.292751 %
20	.217	.2159	-1.099989E-03	-.50949 %
30	.291	.2897	-1.299977E-03	-.4487322 %

S11SP

0	.096	9.309998E-02	-2.900027E-03	-3.11496 %
10	.126	.1297	3.699988E-03	2.852728 %
20	.165	.1663	1.299992E-03	.7817151 %
30	.205	.2029	-2.099976E-03	-1.034981 %

JVM
15 Aug 84

S01

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-.001	-3.300019E-03	-2.300019E-03	69.69714 %
10	.071	7.289999E-02	1.899988E-03	2.606293 %
20	.146	.1491	3.100008E-03	2.079147 %
30	.228	.2253	-2.699986E-03	-1.198396 %

S11 D

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.024	2.320001E-02	-7.999875E-04	-3.44822 %
10	.058	5.890001E-02	9.000115E-04	1.528033 %
20	9.399999E-02	9.460001E-02	6.000102E-04	.6342602 %
30	.131	.1303	-6.999821E-04	-.537208 %

EXT B

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-.004	-3.200028E-03	7.999728E-04	-24.99894 %
10	.054	5.309998E-02	-9.00019E-04	-1.694952 %
20	.11	.1094	-6.000102E-04	-.5484555 %
30	.165	.1657	6.99997E-04	.4224484 %

D BLANK

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-.002	-3.300003E-03	-1.300003E-03	39.39399 %
10	.049	.0514	.0024	4.66926 %
20	.107	.1061	-9.000003E-04	-.8482566 %
30	.161	.1608	-1.999885E-04	-.1243709 %

S02

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.879	.8727001	-6.299913E-03	-.7218875 %
10	.927	.9369	9.900034E-03	1.05668 %
20	1.002	1.0011	-9.000301E-04	-8.990412E-02 %
30	1.068	1.0653	-2.70021E-03	-.2534695 %

S10 1/10

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.021	2.400003E-02	3.00003E-03	12.50011 %
10	.083	8.350001E-02	5.000159E-04	.5988213 %
20	.153	.143	-9.999991E-03	-6.993 %
30	.196	.2025	6.500006E-03	3.20988 %

NBS

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.05	.051	9.999983E-04	1.960781 %
10	.099	.0995	5.00001E-04	.5025136 %
[illegible]	.152	.148	-3.999993E-03	-2.702698 %
30	.194	.1965	2.499998E-03	1.272263 %

JW
15 Aug 81

SO2 1/100

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.067	6.299997E-02	-4.000031E-03	-6.349258 %
10	.114	.116	1.999982E-03	1.724122 %
20	.161	.169	8.000001E-03	4.733729 %
30	.228	.222	-5.999998E-03	-2.702701 %

QC

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.047	4.590003E-02	-1.099974E-03	-2.396456 %
10	.091	9.330001E-02	2.300017E-03	2.465184 %
20	.142	.1407	-1.299992E-03	-.923946 %
30	.188	.1881	9.998679E-05	.0531562 %

BEGIN DATA FILE: FRI1.DF

JVM
15 Aug 86

Begin Element - SE
0.000
0.000 AE
-0.001
0.088 std
0.202
0.257
0.101
0.195
0.308 NBS
0.408
0.118
0.127
0.010
0.094
0.095 screen
0.006
0.130
-0.002
0.555

0.111
0.179 RCRA
0.248 SO3
0.322
0.121
0.195 SO3D
0.262
0.358
0.005
0.101 SO8
0.181
0.278
0.094
0.110
0.187 S10
0.177
0.028
0.057 S11
0.109
0.158
0.005
0.075
0.160 S12
0.287
0.072
0.186
0.217 Q.C.
0.291
-0.006 Blank
0.095
0.129
0.165 S11sp
0.205
-0.001
0.071
0.145 SO1
0.229
0.024
0.058
0.094

S11D

Jm
15 Aug 91

0.131
-0.004
0.054 Ex B
0.110
0.155
-0.002
0.049
0.107 Dig B
0.161
0.979
0.927
1.002 SO2 1:10
1.058
0.021
0.083
0.153 S10 1:10
0.196
0.050
0.099
0.152 Q.C NBS
0.194

0.067
0.114
0.151 SO2 1:100
0.228
0.047
0.091
0.142 NBS
0.188
-0.005 Blank cup
-0.004
0.043 Foco Blank
0.091
0.152
-0.005
0.054 PW1
0.107
0.159
-0.001
0.051
0.106 PW 2
0.155
-0.003 Bahrant
0.048 R05
0.098
0.156
-0.001
0.055
0.109 S35
0.155
-0.002
0.049
0.111 S36
0.172
-0.003
0.058
0.121 S37
0.174
0.050

Restrack C28354

an oe 9/4/86 8/21/86 AS

ENVIRONMENTAL PROTECTION AGENCY
FOR THE TEAM: PESTICIDES & PCB'S

8/29/86 REST OF SAMPLES

DIVISION/BRANCH EPD/ESD SAMPLING DATE 8-6-86 LAB ARRIVAL DATE 8/8/86 DUE DATE 8/15/86 * PRIORITY #1

DU NUMBER D-307 DATASET NUMBER 3424 STUDY American Steel Foundry PRIORITY 1 * CONTRACTOR N

CRL LOG NUMBER 86EF10	SAMPLE DESCRIPTION	MATRIX Soil TEST Fluoride UNITS mg/kg PES235826	MATRIX TEST UNITS PES235826	MATRIX TEST UNITS PES235826	MATRIX TEST UNITS PES235826	MATRIX TEST UNITS PES235826	CRLTR
S01	Soil	X 0.04 *					5-902
S02		X 0.07 *					5-902
S03		X ~~0.12~~ 0.1 *					5-9024
S04		X ~~0.13~~ 0.1 *					5-902
S05		X ~~0.21~~ 0.2 *					5-9024
S06		X ~~0.10~~ 0.1 *					5-9024
S07		X ~~0.17~~ 0.2 *					5-9022
* S08		X 0.2					5-9024
D09		X ~~7.94~~ 2.0 *					5-9024
* S10		X 1.5					5-9024
* S11		X 1.0					5-9024
* S12		X 0.28					5-9012
S13		X ~~0.22~~ 0.6 *					5-9022
S14		X 2.0 AS					5-9025
R15		X					5-9022
		P Parish 8/15/86					

NOTE: Rest of the sample analysis report will be submitted later on as soon as samples are done - Parish

R.A. Pano 8-15-86

X SAMPLES DONE LATER IN THE DAY.

R.A. Pano

TRANSMITTED BY
SEP 08 1986
U.S. EPA CENTRAL REGIONAL LAB

COMPUTATION SHEET

OFFICE

FILE NO.

SUBJECT ED03424

COMPUTATION F (mg/kg) Sediment Calculation.

COMPUTED BY [illegible] CHECKED BY DATE 8/15/86 PAGE 1 OF 1 PAGES

(1) Sample #	(2) % solids	(3) Final vol. of sample distillate	(4) wet wt. (GMS)	(5) Dry wt. (GMS/L)	(6) Sed conc. (mg/L)	(7) F sed conc (mg/kg)	(8)	(9)	(10)
508	25	100	3.61	9.025	2.1	0.23			
510	100	115	2.78	24.19 ~~11.18~~	36	1.49			
511	41	115	3.12	11.12	11	0.99			
512	28	115	2.95	7.18	2.0	0.28			
514	95	115	2.65	21.89	44	2.01			
510DUP	100	125	2.96	23.68	40	1.69			

COMPUTATION SHEET

OFFICE									FILE NO.
SUBJECT	ED03424								
COMPUTATION	F (mg/L)								
COMPUTED BY Barlay		CHECKED BY			DATE 8/15/88			PAGE 1 OF 1 PAGES	

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	~~mg/L~~	mg/L							
Cal std - 0.4									
" " 4.0									
1.0 (Read)		0.96							
CS-LO		0.42	Limit = 0.4 ± 0.1						
CS-Hi		0.92	" = ~~1.0~~ 1.0 ± 0.1						
BLK		0.05	≤ 0.1						
DIST BLK		0.08	≤ 0.1						
" STD	(TV=1.0)	0.92	% rec = 92 (Lim = 94 ± 16%)						
S08		2.1							
115 S10		46.6							
115 S11		13.2							
115 S12		2.0							
S14		56.3							
125 S10DUP		over cal range							
S14SPK	(+1.0)	over cal range							
~~CS-LO~~									
~~CS-Hi~~									
S10 (1:20 Dil)		1.76 x 20 ≈ 36							
S11 (1:10 Dil)		1.13 x 10 ≈ 11							
S14 (1:40 Dil)		1.06 x 40 ≈ 44							
S14SPK (1:40 Dil)		0.99 Invalid spike							
S10DUP (1:20 Dil)		1.98 x 20 ≈ 40							
CS-LO		0.39							
CS-Hi		0.92							

COMPUTATION SHEET

OFFICE									FILE NO.
SUBJECT	F (mg/kg)								
COMPUTATION	EDO 3424								
COMPUTED BY R.A. Pans	CHECKED BY			DATE 8-15-86			PAGE	OF	PAGES

(1)	(2) % SOLIDS	(3) FINAL VOL. OF SAMPLE DISTILLATE	(4) WET WT (GM)	(5) DRY WT (GM/L)	(6) SED. CONC. (mg/L)	(7) F SED. CONC (mg/kg)	(8)	(9)	(10)
CS-1					0.37				
CS-2					0.98				
BL					0.10				
EFI0S01	~~20~~ 98	115	2.00	17.0	0.65	0.04			
S02	98	120	2.69	21.9	1.60	0.07			
S03	98	110	2.34	20.8	2.40	0.12			
S04	99	120	2.09	20.7	2.59	0.13			
S05	96	100	3.96	23.7	4.96	0.21	(1:1 dil - 2.48x2 = 4.96)		
S06	~~96~~ 100	110	3.37	30.6	3.12	0.10			
S07	97	100	2.31	22.4	3.89	0.17			
D09	100	105	2.12	20.2	40.2	1.99	(1:20 dil - 2.01 x 20 = ~~9.99~~ 40.2)		
S13	27	100	5.10	13.8	3.06	0.22			
CS1					0.40				
CS2					1.02				
D09					46.1				
S05					5.14				
DIST STD					0.98				
DUP S06	100	110	3.37	30.6	3.20	0.10			

KOV-279

COMPUTATION SHEET

OFFICE

FILE NO.

SUBJECT F concentration SEDIMENTS

COMPUTATION D/S 3424

COMPUTED BY R.A. Pavo

CHECKED BY

DATE 8/15/86

PAGE OF PAGES

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	mes distillate	mg/L							
CS1		0.37							
CS2		0.98							
S01	115	0.65							
S02	120	1.60							
S03	110	2.40							
BL		0.10							
S04	120	2.59							
S05	100	4.96							
S06	110	3.12							
S07	100	3.89							
D04	105	40.2							
S13	100	3.06							
DUP S06	110	3.20							
CS1	~~a~~	0.40							
CS2		1.02							
D04	105	2.01	x20 = 40.2	(1:20 dil)					
S05	100	2.48	x2 = 4.96	(1:1 dil)					
DIST STD		0.98							

COMPUTATION SHEET

OFFICE									FILE NO.
SUBJECT	DS # EDO 3424								
COMPUTATION	F								
COMPUTED BY Pankaj		CHECKED BY			DATE 8/11/86			PAGE OF PAGES	

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
		wet. wt. of solid taken in gms							
BLK									
Dist Std									
S08		3.61							
S10		2.78							
S11		3.12							
S12		2.95							
S01		2.00							
S02		2.69							
S03		2.34							
S04		2.09							
S10 DUP		2.96							
S05		3.96							
S07		2.31							
D09		2.12							
S13		5.10							
S14		2.65							
S14 SPK		2.55							
S06		3.37							

ED03424 % solids

DATA SET	SAMPLE I. D.	TARE WEIGHT GRAMS	SX+TARE WEIGHT GRAMS	DRIED WEIGHT GRAMS	PERCENT SOLIDS	
ED03424	BLANK	64.74	64.74000	64.74	0	
	EF10S01	74.21	102	101.53	98.30874	
	EF10S02	75.44	91.77	91.48	98.22412	
	EF10S03	72.86	101	100.32	97.63395	
	EF10S04	68.4	78.83	78.71	98.84947	
	EF10S05	68.73	108.59	107.06	96.16156	
	EF10S06	69.33	90.65	90.6	99.76547	
	EF10S07	69	86.06	85.53	96.89331	
	EF10S08	64.86	91.33	71.35	24.51832	
	S08 DUP	62.94	91.02	69.92	24.85754	
	EF10D09	64.52	79.33	79.28	99.66239	
	EF10S10	61.27	73.28	73.26	99.83347	
	EF10S11	72.13	97.06	82.3	40.79422	
	EF10S12	62.9	88.12	69.84	27.51784	
	EF10S13	73.7	97.43	80.19	27.34934	
	EF10S14	74.22	84.54	84.07	95.44573	
	S14 DUP	72.72	84.02	83.35	94.07079	Δ ≤ 10%

JVM
13 Aug 92

C28359 11/7/86

SP 11/12/86

ENVIRONMENTAL PROTECTION AGENCY
FOR THE TEAM METALS

DIVISION/BRANCH EDO SAMPLING DATE _____ LAB ARRIVAL DATE _____ DUE DATE _____

DU NUMBER D307 DATASET NUMBER EDO 3424 STUDY AMERICAN STEEL PRIORITY _____ CONTRACTOR _____

CHL LOG NUMBER	SAMPLE DESCRIPTION	EP TOX EXTRACT ICP METALS MG/L MET19364	EP TOX EXTRACT SE MG/L MET19109	EP TOX EXTRACT AS MG/L MET1989
EF10506			<0.002	<0.002
507			<0.002	5.5 ~~.006~~
509			0.012 ~~<0.002~~	~~0.002~~ <0.002
513			<0.002 ~~<0.002~~	~~0.002~~ <0.002
514			0.025	~~0.002~~ <0.002
			A Quick 11/6/86	11/5/86

SP 11/12/86

TRANSMITTED BY
Griffin
NOV 12 1986
U.S. EPA CENTRAL
REGIONAL LAB

SP 7 Nov 86

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* FLAMELESS * CSC VERSION 1.00 *

NAME OF ANALYST ---: AQ
TE OF ANALYSIS --: 11-06-1986
PARAMETER NAME ----: SE
DATA SET # --------: ED03371 ED03424

JKM
7Nov

S03 only ------ S06, S07, S09, S13 only.

SAMPLE NO.	CONC.	R VALUE	SLOPE	
B	-.499607	.9999958	.01281	limit ≤ 2
~~ASC~~	~~-54.67358~~	~~-.2466359~~ typing	~~-1.533533E-03~~	
AQC	8.936156	.9995042	9.870003E-03	9.7±10% 92%
ED0 3371 S03	5.859214	.9987038	.00483	
S03 EXT DUP	5.503882	.9968542	6.449999E-03	
~~EXT BLK~~	~~26.50456~~	~~.2114963~~ typing	~~.00103~~	
EXT BLK	-1.603649	.9957388	.00767	
DIG BLK	-1.524162	.9983718	8.069999E-03	
ED0 3371 S03 WHEEL DUP	8.187634	.9986978	.00469	
ED0 3424 S06	-.1252622	.9991209	9.579999E-03	
~~S07~~	~~-1.53711~~	~~.5045676~~ typing	~~.005686~~	
S07	-.4872919	.9988438	4.720001E-03	
AQC	8.712869	.9990604	.0101 9.7±10%	Rcd 90%
AQC	10.96339	.9999554	.01038 9.7±10%	(instrument shift.)
B	.2728852	.9995029	.01136	
S13	-.6394695	.9980331	9.069999E-03	
AQC	13.11544	.9996802	9.789997E-03 9.7±10%	= not AQC but no value in sample
B	-.8505551	.9959941	.01258 ≤ 2	

B

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-.006	-6.399964E-03	-3.999635E-04	6.249465 %
10	.121	.1217	7.000113E-04	.5751946 %
20	.25	.2498	-2.000034E-04	-8.006541E-02 %
30	.378	.3779	-1.000166E-04	-2.646642E-02 %

AQC

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.092	8.383334E-02	-8.166663E-03	-9.741547 %
10	.182	6.850001E-02	-.1135	-165.6934 %
30	0	3.783335E-02	3.783335E-02	100 %
0	0	8.383334E-02	8.383334E-02	99.99999 %

AQC

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.092	8.819989E-02	-3.800109E-03	-4.308519 %
10	.182	.1868999	4.899934E-03	2.621688 %
20	.284	.2856	1.599938E-03	.5602024 %
30	.387	.3843	-2.700031E-03	-.7025842 %

EDO 3371

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.031	.0283	-2.699997E-03	-9.540626 %
10	.072	.0766	4.600004E-03	6.005226 %
20	.126	.1249	-1.100004E-03	-.8807076 %
0	.174	.1732	-7.999987E-04	-.461893 %

JVM
7/8/84

S03 EXT DUP

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.036	3.550003E-02	-4.999675E-04	-1.408358 %
10	.104	.1	-3.999978E-03	-3.999977 %
20	.155	.1645	9.500012E-03	5.775083 %
30	.234	.229	-4.999995E-03	-2.183404 %

EXT BLK

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-8.999999E-03	2.730001E-02	.0363	132.967 %
10	.052	.0376	-.0144	-38.29786 %
20	.128	4.730001E-02	-.0801	-167.2234 %
30	0	5.820001E-02	5.820001E-02	99.99999 %

EXT BLK

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-8.999999E-03	-1.229999E-02	-3.299988E-03	26.8292 %
10	.066	6.440002E-02	-1.599982E-03	-2.484444 %
20	.128	.1411	1.310001E-02	9.284204 %
30	.226	.2178	-8.199975E-03	-3.76491 %

DIG BLK

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-.017	-1.229999E-02	4.700014E-03	-38.21153 %
10	.077	.0684	-8.599997E-03	-12.57309 %
20	.146	.1491	3.099993E-03	2.079137 %
30	.229	.2298	7.999689E-04	.3481153 %

EDO 3371 S03 WH

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.038	.0384	3.999956E-04	1.041655 %
10	.088	8.529998E-02	-2.700016E-03	-3.165318 %
20	.128	.1322	4.199967E-03	3.17698 %
	.181	.1791	-1.900017E-03	-1.06087 %

EDO 3424

* FLAMELESS * CSC VERSION 1.00 *

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-.001	-1.200012E-03	-2.000121E-04	16.66751 %
	.098	9.459999E-02	-3.400013E-03	-3.594095 %
20	.183	.1904	7.399977E-03	3.886543 %
30	.29	.2862	-3.800035E-03	-1.327755 %

JVM
Fwd

SD7

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-.001	-8.740005E-03	-7.740005E-03	88.55835 %
10	.045	.04812	3.119994E-03	6.483778 %
20	.088	.10498	1.697999E-02	16.1745 %
30	.1742	.16184	-1.236001E-02	-7.637177 %

SD7

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-.001	-2.300018E-03	-1.300018E-03	56.52208 %
10	.045	.0449	-1.000091E-04	-.2227376 %
20	.088	.0921	4.100002E-03	4.451686 %
30	.142	.1393	-2.700001E-03	-1.938263 %

ADC

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.088	.088	0	0 %
10	.193	.189	-3.999978E-03	-2.11639 %
20	.282	.2900001	8.000046E-03	2.758636 %
30	.395	.3910001	-3.999949E-03	-1.023005 %

ADC

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.115	.1138	-1.200013E-03	-1.054493 %
10	.216	.2176	1.599953E-03	.7352725 %
20	.321	.3213999	3.999174E-04	.1244298 %
30	.426	.4251999	-8.00103E-04	-.188171 %

B

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-.001	3.099976E-03	4.099976E-03	132.2583 %
	.121	.1167	-4.300013E-03	-3.684673 %
20	.234	.2303	-3.700003E-03	-1.606602 %
30	.34	.3439	3.899992E-03	1.134048 %

S13

Jim
Frank

SPIKE	MEASURED	CALC.	ERROR	PER CENT
	-.005	-5.799988E-03	-7.99988E-04	13.79292 %
10	.089	8.490001E-02	-4.099988E-03	-4.829195 %
20	.165	.1756	.0106	6.036447 %
30	.272	.2663	-5.699992E-03	-2.14044 %

AOC

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.131	.1284001	-2.59991E-03	-2.024851 %
10	.224	.2263001	2.300054E-03	1.016374 %
20	.321	.3242	3.200024E-03	.9870524 %
30	.425	.4221	-2.900034E-03	-.6870491 %

B

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.001	-1.069998E-02	-1.169998E-02	109.3458 %
10	.105	.1151	1.010001E-02	8.774984 %
20	.226	.2409	1.489998E-02	6.185133 %
30	.38	.3667	-1.330003E-02	-3.626952 %

Jim
Frost

EDO 3371 503 out
EDO 3424 506, 507, D
513 out

AQ
~~H-8~~ 11-05-8

```
Begin Element - SE
  -0.611
   0.000 AZ
  -0.001

Begin Element - SE
  -0.035
   0.000 AZ
  -0.006
   0.121   Blk
   0.250
   0.378
   0.092
   0.182   AQC
   0.284
   0.387
   0.031
   0.072   EDO 3371
   0.126       503 #1
   0.174
   0.036
   0.104       503 #2 Extraction Dup.
   0.155
   0.234
  -0.009
   0.052   Ext
   0.128   Blk
   0.226   X Corr. Coeff.
  -0.017
   0.077
   0.146   Dig Blk
   0.229
   0.038
   0.088   EDO 3371
   0.128       503 wheel Dup.
   0.181
  -0.001
   0.098   EDO 3424
   0.183       506
   0.290
   0.066
  -0.024   Air
  -0.001   EDO 3424
   0.045
   0.088   507
   0.142
   0.032   Dog
   0.047   Corr. Coeff.
   0.070
   0.082   X
   0.088
   0.193
   0.282   AQC
   0.395
   0.090
   0.128
   0.139   Dog Dig. Dup.
   0.177   X
```

repeat

8.7 , TV = 9.7 ± 10 %

-0.009
0.086

S13 Corr. Coeff X

0.182
0.326

0.016
0.043
0.056
0.099

S14 X Corr.

0.029
0.044
0.077
0.095

S14 repeat corr. X

0.115
0.216
0.321
0.426

AQC ← 10.9 , TV=9.7±10%

-0.001
0.121
0.234
0.340

BLK X

0.091
0.117
0.198
0.193

D09 X

0.053
0.067
0.068
0.119

D09 Dig Dup. X

-0.005
0.099
0.165
0.272

S13 — TV = [illegible]

0.034
0.045
0.068
0.117

S14 X corr

0.131
0.224
0.321
0.425

AQC 13.1 TV=9.7±10%

0.001
0.105
0.226
0.380

BLK

0.037
0.088
0.119
0.149

D09 (1:3) X Corr.

0.030
0.084
0.131
0.181

D09 (1:3) Corr. X

0.032
0.093
0.139
0.159

S14 (1:3) X Corr.

0.323
0.323
0.525
0.198

S06 SPK (1:5) TV=20 X Corr.

0.112

Jim Frank

JKM
Trough

0.112
0.249 A Q C
0.316
0.417
-0.004

B/K

0.112
0.241
0.358
-0.013 Air.
0.221

Jun 7 Nov 8

* FLAMELESS * CSC VERSION 1.00 *

NAME OF ANALYST ---: HNR
DATE OF ANALYSIS --: 11-05-1986
PARAMETER NAME ----: AS
DATA SET # ---------: 3560, EDO 3424
SF

SAMPLE NO.	COND.	R VALUE	SLOPE	
R	-1.065323	.9985263	.02801	<2
ADC TV.23.5	23.82825	.9982961	2.795001E-02	1.4% dev.
S01	-1.007801	.9979702	.03334	
S02	-.8603634	.9989772	.03545	
S03	-.682788	.9992954	.03515	
S04	-.1503759	.9999870	.03325	
ADC	22.1488	.9992256	3.239001E-02	5.7% dev.
R	.4787434	.9998052	.02799	<2
S05	1.117946	.9973894	3.416999E-02	
S06	.1612939	.9993394	.0341	
ADC	21.68166	.9998634	3.223001E-02	7.7% dev.
R	.1687079	.9993372	.0326	<2
S07	.5484994	.9999074	.03227	
S08	.3601359	.9998645	.03221	
ADC	23.66491	.999401	2.865001E-02	0.7% dev.
R	-.5401082	.9994016	.02481	<2
S09	-.1324052	.9995232	.02719	
R10	-.1728748	.9995022	.03008	
ADC	25.06338	.9958004	2.682001E-02	6.6% dev.
R TAVE D/S #	-.0625897	.9998786	.02077	<2
S26 (S06)	-3.166667	.9779893	.018	
S27 (S07	5.517999	.9992628	.02722	
S28 (D09	.8661731	.9967264	.02436	
ADC	22.73818	.999533	.02834	3.4% dev.
S29 (S13)	.2298861	.9999372	.02349	
S30 (S14)	.1668634	.9997629	.02517	
ADC	22.7323	.9990308	2.529001E-02	3.4% dev.
R	-.4802261	.9999077	.0177	<2
R	-.599571	.9991283	.03269	<2
ADC	25.00159	.9997419	3.162999E-02	-6.4% dev.
S26	-3.198936	.971151	.02629	
ADC	22.92517	.9969942	.03087	2.6% dev.
ADC	22.5938	.9991006	3.331001E-02	3.9% dev.
R	.1797845	.9995931	.02948	
S34 DUP OF D09	.6693165	.9985304	.03526	
S35 BLANK	-.6261836	.9979711	.03162	
S36 Ext. BLANK	-9.118541E-02	.9998929	.0329	
ADC	23.43144	.9992996	.03194	0.4% dev.

all QC within ±10% dev.

D/S SF 3560

D/S COD 3424

labeled by beaker

R

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-.015	-.0303999	-.0153999	50.65774 %
10	.237	.2497001	1.270008E-02	5.086134 %

AQC

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.684	.6659998	-1.800025E-02	-2.702741 %
[illegible]	.928	.9454999	1.749992E-02	1.850865 %
[illegible]	1.206	1.225	1.900005E-02	1.551025 %
30	1.523	1.5045	-1.849985E-02	-1.229634 %

Jim Frank

S01

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-.025	-.0336001	-8.600099E-03	25.59546 %
10	.27	.2997999	2.979991E-02	9.939933 %
20	.667	.6332	-3.380007E-02	-5.337977 %
30	.954	.9665999	1.259995E-02	1.303533 %

S02

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-.013	-3.049988E-02	-1.749988E-02	57.37688 %
10	.294	.3240001	3.000009E-02	9.259285 %
20	.686	.6785001	-7.499933E-03	-1.10537 %
30	1.038	1.033	-4.999995E-03	-.4840267 %

S03

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-.011	-.024	-.013	54.16667 %
10	.303	.3275001	2.450004E-02	7.480928 %
20	.689	.6790001	-9.999931E-03	-1.472744 %
30	1.032	1.0305	-1.499891E-03	-.1455499 %

S04

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-.007	-.005	.002	-40.00001 %
10	.33	.3275	-2.499998E-03	-.763358 %
20	.661	.66	-9.999871E-04	-.1515132 %
30	.991	.9925	1.500011E-03	.1511346 %

AQC

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.715	.7173999	2.399922E-03	.3345305 %
[illegible]	1.056	1.0413	-1.469994E-02	-1.411691 %
[illegible]	1.343	1.3652	2.220011E-02	1.626143 %
30	1.699	1.6891	-9.899736E-03	-.5860952 %

R

SPIKE	MEASURED	CALC.	ERROR	PER CENT

0	.019	1.340063E-02	-5.599975E-03	-41.79078 %
10	.283	.2933	1.029998E-02	3.511757 %
20	.577	.5732	-3.800094E-03	-.6629614 %
30	.854	.8530999	-9.000897E-04	-.1055081 %

Jun 7 NWP

S05

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.044	.0382002	-5.799804E-03	-15.18266 %
10	.35	.3799001	2.990011E-02	7.870518 %
20	.764	.7216	-.0424	-5.875832 %
30	1.045	1.0633	1.829994E-02	1.721051 %

S06

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.015	5.500122E-03	-9.499878E-03	-172.7212 %
10	.325	.3465001	2.150011E-02	6.204937 %
20	.702	.6875001	-.0144999	-2.103077 %
30	1.026	1.0285	2.500057E-03	.243078 %

AQC

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.698	.6988	8.000136E-04	.1144839 %
10	1.027	1.0211	-5.899787E-03	-.5777873 %
20	1.334	1.3434	9.400249E-03	.6997355 %
30	1.67	1.6657	-4.299522E-03	-.2581209 %

R

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.016	5.499878E-03	-1.050012E-02	-190.9156 %
10	.325	.3314999	6.499887E-03	1.960751 %
20	.639	.6575	1.849991E-02	2.813675 %
30	.998	.9834999	-1.450008E-02	-1.474335 %

S07

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.018	1.770007E-02	-2.999269E-04	-1.694495 %
10	.336	.3404001	4.400045E-03	1.29261 %
20	.671	.6631	-.0079	-1.191374 %
30	.982	.9857999	3.799975E-03	.3854712 %

S08

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.018	1.159998E-02	-6.400024E-03	-55.17274 %
10	.326	.3337	7.699967E-03	2.307452 %
20	.652	.6558	3.799915E-03	.5794321 %
30	.983	.9778999	-5.100012E-03	-.521527 %

ADC

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.689	.6779998	-1.100028E-02	-1.62246 %
10	.946	.9644998	1.849965E-02	1.918077 %
20	1.253	1.251	-4.000068E-03	-.3197496 %
30	1.541	1.5375	-3.500104E-03	-.2276491 %

Jun 7 Nov

R

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-.003	-1.340009E-02	-1.040009E-02	77.61208 %
10	.221	.2346999	1.269993E-02	5.411136 %
20	.477	.4828	5.799949E-03	1.201315 %
30	.739	.7309	-8.100093E-03	-1.108236 %

S09

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.004	-3.600098E-03	-7.600098E-03	211.1081 %
10	.253	.2682999	1.529995E-02	5.702553 %
20	.546	.5402	-7.800043E-03	-1.443918 %
30	.812	.8121	9.995699E-05	1.230846E-02 %

R10

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.001	-5.200073E-03	-6.200074E-03	119.2305 %
10	.28	.2955999	1.559994E-02	5.277382 %
20	.609	.5964	-1.260006E-02	-2.112687 %
30	.894	.8972	3.199995E-03	.3566646 %

ADC

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.656	.6722	1.619995E-02	2.409989 %
10	.981	.9404	-.0406	-4.317312 %
20	1.176	1.2086	3.260005E-02	2.697339 %
30	1.485	1.4768	-8.199811E-03	-.5552417 %

R

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-.003	-1.299988E-03	1.700012E-03	-130.7714 %
10	.206	.2064	3.99977E-04	.1937873 %
20	.42	.4140999	-5.900055E-03	-1.42479 %
[illegible]	.618	.6218	3.799975E-03	.611125 %

S26

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-.01	-.057	-.047	82.45614 %
[illegible]	[illegible]	[illegible]	6.400001E-02	52.03253 %

20	.25	.303	1.300001E-02	4.290433 %
30	.513	.483	-.03	-6.21118 %

S27

Jun 7 Mark

SPIKE	MEASURED	CALC.	ERROR	PER CENT
	.142	.1502	8.199945E-03	5.459353 %
10	.426	.4224	-3.600031E-03	-.8522801 %
20	.712	.6946	-1.740003E-02	-2.505043 %
30	.954	.9668	1.279998E-02	1.323953 %

S28

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.045	2.109998E-02	-2.390003E-02	-113.2704 %
10	.23	.2647	3.469996E-02	13.10917 %
20	.506	.5083	2.299965E-03	.4524818 %
30	.765	.7518999	-1.310009E-02	-1.742265 %

ADC

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.635	.6443999	9.399891E-03	1.458705 %
10	.944	.9277998	-1.620019E-02	-1.746086 %
20	1.207	1.2112	4.199744E-03	.3467424 %
30	1.492	1.4946	2.599836E-03	.1739486 %

S29

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.004	5.400025E-03	1.400024E-03	25.92626 %
10	.24	.2403	3.000051E-04	.1248461 %
20	.48	.4752	-4.800022E-03	-1.010106 %
30	.707	.7100999	3.099659E-03	.4365385 %

S30

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	8.999999E-03	4.199951E-03	-4.800049E-03	-114.2882 %
10	.253	.2558999	2.899945E-03	1.133234 %
20	.499	.5075999	8.599876E-03	1.694224 %
30	.766	.7592999	-6.700099E-03	-.8824048 %

ADC

SPIKE	MEASURED	CALC.	ERROR	PER CENT
	.565	.5749	9.899914E-03	1.722024 %
10	.848	.8278001	-2.019996E-02	-2.440197 %
20	1.07	1.0807	1.070011E-02	.9901088 %
30	1.334	1.3336	-3.99828E-04	-.0299811 %

R

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-8.000001E-03	-8.500001E-03	-5.000001E-04	5.882354 %
10	.17	.1685	-1.500011E-03	-.8902139 %
20	.341	.3455	4.499972E-03	1.302452 %
30	.525	.5224999	-2.500057E-03	-.4784799 %

Jim Frank

R

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-.004	-1.959998E-02	-1.559998E-02	79.59181 %
10	.282	.3073	2.530003E-02	8.233005 %
20	.638	.6342001	-3.799975E-03	-.5991761 %
30	.967	.9611001	-5.899966E-03	-.6138763 %

AGC

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.792	.7908001	-1.199961E-03	-.1517401 %
10	1.112	1.1071	-4.899979E-03	-.4425959 %
20	1.41	1.4234	1.339996E-02	.9414051 %
30	1.747	1.7397	-7.300139E-03	-.4196208 %

SEE

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-.018	-8.410004E-02	-6.610004E-02	78.59693 %
10	.123	.1788	5.579999E-02	31.20805 %
20	.355	.4417	8.670002E-02	19.62871 %
30	.781	.7046	-7.640005E-02	-10.84304 %

AGC

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.698	.7076997	9.699702E-03	1.370596 %
10	1.05	1.0164	-3.360033E-02	-3.305819 %
20	1.287	1.3251	3.809965E-02	2.875229 %
30	1.648	1.6338	-1.420045E-02	-.8691671 %

AGC

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.762	.7525998	-9.400189E-03	-1.249029 %
10	1.084	1.0857	1.699925E-03	.1565741 %
20	1.394	1.4188	2.480006E-02	1.74796 %
30	1.769	1.7519	-1.709986E-02	-.9760749 %

R

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.01	5.300049E-03	-4.699951E-03	-88.67751 %
10	.287	.3001001	1.310009E-02	4.36524 %
20	.607	.5949001	-1.209986E-02	-2.033932 %
30	.886	.8897001	3.700137E-03	.4158859 %

Jim Park

534

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.047	.0236001	-.0233999	-99.15171 %
1	.346	.3762001	3.020007E-02	8.027661 %
20	.719	.7288	9.800017E-03	1.344679 %
30	1.098	1.0814	-1.660013E-02	-1.53506 %

535

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.002	-1.979993E-02	-2.179993E-02	110.101 %
10	.276	.2964001	2.040008E-02	6.882615 %
20	.588	.6126001	2.460009E-02	4.015685 %
30	.952	.9288002	-2.319986E-02	-2.497831 %

536

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.002	-.003	-.005	166.6667 %
10	.317	.326	9.000033E-03	2.760746 %
20	.658	.655	-2.999962E-03	-.4580094 %
30	.985	.984	-9.999871E-04	-.1016247 %

ADC

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.734	.7484001	1.440013E-02	1.924121 %
10	1.065	1.0678	-1.719987E-02	-1.610776 %
20	1.396	1.3872	-8.799911E-03	-.6343649 %
30	1.695	1.7066	1.160014E-02	.679722 %

0.012
0.000 AZ
-0.015
0.237
0.509 R
0.828

0.684
0.928
1.206 ARC
1.523

-0.025
0.270
0.667 S01
0.954

-0.013
0.294
0.686 S02
1.038

-0.011
0.303
0.689 S03
1.032

D/S SF3560

-0.007
0.330
0.661 S04
0.991

0.715
1.056
1.343 ARC
1.699

0.019
0.283
0.577 R
0.854

0.044
0.350 S05
0.764
1.045

0.015
0.325 S06
0.702
1.026

0.698
1.027 ~~S07~~
1.334 ARC
1.670

0.016
0.325
0.639 R
0.998

0.018
0.336
0.671 S07
0.982

0.018 S08
0.326
0.652
0.983

0.689
0.946 ARC
1.255
1.541

-0.003
0.222
0.477 R
0.739

0.004
0.253
0.548 S09
0.812

0.001
0.280
0.609 R10
0.894

0.656
0.981
1.176 ARC
1.485

labeled by healey number

D/S EDO 3424

True date not number
S06

-0.003
0.206
0.420 R
0.618

-0.010
0.059
0.290 S26
0.513

S07

0.142
0.426
0.712 S27
0.954

D09

0.045
0.230
0.506 S28
0.765

0.635
0.944
1.207 ARC
1.492

S13

0.004
0.240
0.480 S29
0.707

S14

0.009
0.253
0.499 S30
0.766

0.565
0.848
1.070 ARC
1.334

Graphite tube broke, no sample injection

-0.008
0.170
0.341 R
0.525

Jim Frank

-0.003
0.040
-0.020
-0.006
0.000 AZ
-0.004
0.282 R
0.638
0.967

0.792
1.112 ARC
1.410
1.747

02 ER
S31 02 ER
S01 02 ER

Interference must be diluted

-0.018
0.123
S26 0.355
0.781
02 ER
S32 02 ER
S01 (dup) (S06 spk) (D/S 3371) CDO
S33 2.260

To dilute

0.698
1.050
1.287 ARC
1.648

0.762
1.084
1.394 ARC
1.769

0.010
0.287
0.607 R
0.886

0.047
0.346
0.719 S34
1.098

D09 dup

0.002
0.276 S35
0.588
0.952

Blank

0.002
0.317
0.658 S36
0.985

Extract Blank

0.734
1.085
1.396 ARC
1.695

Jun 7 Mark

---

* I MELESS * CSC VERSION 1.00 *

NAME OF ANALYST ---: AQ
DATE OF ANALYSIS --: 11-06-1986
PARAMETER NAME ----: SE
DATA SET # --------: CDO 3424 + MASON County

SAMPLE NO.	CONC.	R VALUE	SLOPE	
BLK	.5034306	.9999842	.01311	≤2
AQC	10.31916	.9979242	9.399998E-03	9.7 ± 10% Rcd 10 t
D09	12.45901	.9996236	6.100002E-03	
S14 1:10	2.557251	.9984302	.01048	Tv = 2.5 x 10:25
S06 SPK (Tv=10)	7.662692	.9987699	.01091	Rcd 77% no control
S24	.2153547	.9997739	.01068	
~~S25~~	~~9.723761~~	~~.948535~~ typing	~~.00724~~	
S25	.7164487	.9996876	9.909999E-03	
R05	1.137296	.9993267	.00976	
S26	.512591	.9992424	.01112	
S27	.1353959	.9977516	.01034	
~~S34~~	~~.0442494~~	~~.9536047~~ typing	~~110.0922~~	
S34	1.008172	.999401	.01101	
BLK	.5604732	.9951404	.01017	
AQC	10.14549	.9998801	.01031	Tv = 9.7 ± 10% 104%
AQC	9.442384	.9994204	.01076	Tv: 9.7 ± 10% 97%

BLK

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.006	6.599976E-03	5.999757E-04	9.090574 %
10	.139	.1377	-1.300022E-03	-.9440974 %
20	.268	.2688	7.99954E-04	.297602 %
30	.4	.3999	-1.000166E-04	-.0250104 %

AQC

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.099	9.700006E-02	-1.999937E-03	-2.061789 %
10	.183	.1910001	8.000046E-03	4.188505 %
20	.295	.285	-9.999961E-03	-3.508758 %
30	.375	.379	4.000008E-03	1.055411 %

D09 DIG DUP

SPI	MEASURED	CALC.	ERROR	PER CENT
0	.075	7.599997E-02	9.999648E-04	1.315744 %
10	.137	.137	0	0 %
20	.201	.198	-2.999991E-03	-1.515147 %
30	.257	.259	2.000034E-03	.7722138 %

S14 1:10

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.034	2.679999E-02	-7.200014E-03	-26.86574 %
10	.122	.1316	9.599991E-03	7.294827 %
20	.234	.2364	2.399996E-03	1.015227 %
30	.346	.3412	-4.800022E-03	-1.406806 %

Jun 7 Mark

S06 SPK

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.077	8.359998E-02	6.599978E-03	7.894713 %
10	.202	.1927	-9.300008E-03	-4.826159 %
20	.303	.3018	-1.199991E-03	-.3976112 %
30	.407	.4109	3.900021E-03	.9491411 %

S24

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.001	2.299988E-03	1.299988E-03	56.52151 %
10	.109	.1091	9.997189E-05	9.163329E-02 %
20	.22	.2159	-4.10004E-03	-1.899046 %
30	.32	.3226999	2.699942E-03	.8366725 %

S25

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.1	7.040003E-02	-2.959998E-02	-42.04541 %
10	.103	.1428	3.980002E-02	27.87116 %
20	.206	.2152	9.200007E-03	4.275096 %
30	.307	.2876	-.0194	-6.74548 %

S25

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.01	7.100006E-03	-2.899994E-03	-40.84495 %
10	.103	.1062	3.200002E-03	3.013185 %
20	.203	.2053	2.299994E-03	1.120309 %
30	.307	.3044	-2.600014E-03	-.854144 %

R05

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.015	1.110001E-02	-3.899993E-03	-35.13506 %
10	.105	.1087	3.700011E-03	3.403873 %
20	.202	.2063	4.299999E-03	2.084342 %
30	.308	.3039	-4.099995E-03	-1.349126 %

S26

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.007	5.700012E-03	-1.2999988E-03	-22.80676 %

10	.119	.1169	-2.099984E-03	-1.796393 %
20	.22	.2281	8.100018E-03	3.551082 %
30	.344	.3393	-4.699976E-03	-1.385197 %

JCM
7Nov

S27

SP1	MEASURED	CALC.	ERROR	PER CENT
0	.006	1.399994E-03	-4.600006E-03	-328.5733 %
10	.104	.1048	7.999838E-04	.7633433 %
20	.196	.2082	1.219998E-02	5.859743 %
30	.32	.3116	-8.400023E-03	-2.695772 %

S34

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	0	4.871515	4.871515	100 %
.007	10	5.64216	-4.35784	-77.23708 %
.125	20	18.63304	-1.366957	-7.336197 %
.236	30	30.85328	.8532791	2.765603 %

S34

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.007	1.109998E-02	4.099975E-03	36.9368 %
10	.125	.1212	-3.800005E-03	-3.135318 %
20	.236	.2313	-4.699976E-03	-2.031982 %
30	.337	.3414	4.400015E-03	1.288815 %

BLK

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-.004	5.700012E-03	9.700012E-03	170.1753 %
10	.126	.1074	-.0186	-17.31843 %
20	.201	.2091	8.099988E-03	3.873739 %
30	.31	.3108	8.000136E-04	.2574046 %

AQC

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.103	.1046	1.599975E-03	1.529613 %
10	.209	.2077	-1.300022E-03	-.6259134 %
20	.313	.3108	-2.200008E-03	-.7078531 %
30	.412	.4139	1.899988E-03	.4590451 %

AQC

SP E	MEASURED	CALC.	ERROR	PER CENT
0	.102	.1016	-3.999621E-04	-.3936633 %
10	.212	.2092	-2.799973E-03	-1.338419 %
20	.31	.3168	6.799996E-03	2.146464 %
30	.428	.4244	-3.600031E-03	-.8482638 %

JVM
7Nov

Begin Element - BE

-0.047	
0.000	AZ
0.006	
0.199	Blk
0.221	
0.400	
0.099	
0.206	AQC
0.300	too high
0.397	
0.298	
0.099	
0.188	AQC
0.395	repeat same four cups above!
0.879	
0.075	
0.187	CD03424
0.201	D09 Dig. Dup.
0.257	
0.034	
0.122	S14 (1:10)
0.284	
0.348	
0.086	
0.241	S06 spk (1:10)
0.338	X Corr. Coeff.
0.357	
0.077	
0.202	S06 spk (1:10)
0.303	
0.407	dil Dup.
0.001	
0.109	
0.220	S24
0.320	
0.010	
0.103	
0.206	S25
0.307	
0.015	
0.105	
0.302	R05
0.302	
0.007	
0.119	S26
0.320	
0.344	

repeat cup! energy!

CD03424 S14, D09 (digestion Duplicate)

+ Mason County S24, 25, R05, S26, S27, S34 only

AQ
11-6-86

JLM
7Nov

0.006
0.104
0.196

S27

0.220
0.007
0.125
0.296

S3Y

0.337
-0.004
0.126
0.201
0.310

B 11C

0.103
0.209
0.313
0.412

A Q C

A Q C

0.102
0.212
0.310
0.428

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 8-18-86

SUBJECT: Precision and Accuracy of Analyses for Data Set EDO 3424
Site: AMERICAN STEEL FOUNDRY

FROM: Steve Parker,
CRL QC Coordinator

TO: Data User: _____

The Region V Central Regional Laboratory has completed its analyses of 5 (number) ~~WATER~~ SOIL (matrix type) samples for the parameters listed on the attached sheet. The discrete values reported on the result forms should be considered to be of the precision and accuracy levels listed.

PRECISION is a measure of reproducibility or the closeness with which individual measurements of the same property, under similar conditions agree with each other. It is expressed as the relative percent difference (RPD) or the absolute concentration difference (R') between duplicate analyses. The limit acceptable at the time of analysis is stated. QC data within these limits indicate that the analysis was in control for that set of data.

ACCURACY is a measure of the closeness of an individual measurement to the expected value. It can be expressed as percent recovery of a known spike or standard concentration, or as percent bias which is the deviation from the true value. The limits applicable at the time of analysis are stated. A 95% confidence interval means that 95% of the time, percent recovery will fall between those limts.

Attachment

TRANSMITTED BY
Griffin
AUG 18 1986

U.S. EPA CENTRAL
REGIONAL LAB

PRECISION AND ACCURACY STATEMENT

Data Set: EDO 3424

Matrix: WATER

Site Name: AMERICAN STEEL FOUNDRY

	PRECISION			ACCURACY		
Parameter	RPD / R	Limit	Method of Quality Control	% Recovery / % Bias	Limit	Method of Quality Control
F	10% 4 mg/L	≤ 10% ≤ 4 mg/L	DUPLICATE SAMPLE	92%	90-110%	CONTROL STD

COMMENT:

QC FLAGS:

Restrack C28359

all be Pesticides-PB 8/15/86 AJ

ENVIRONMENTAL PROTECTION AGENCY
FOR THE TEAM: PESTICIDES & PCB'S

8/29/86 REST OF SAMPLES

DIVISION/BRANCH EDO/ESD SAMPLING DATE 8-6-86 LAB ARRIVAL DATE 8/8/86 DUE DATE 8/15/86 * PRIORITY #1 8/18/86

DU NUMBER D-307 DATASET NUMBER 3424 STUDY American Steel Foundry PRIORITY / * CONTRACTOR N

CRL LOG NUMBER 86EF10	SAMPLE DESCRIPTION	MATRIX Soil TEST Flouride UNITS mg/kg PES235826	MATRIX TEST UNITS PES235826	MATRIX TEST UNITS PES235826	MATRIX TEST UNITS PES235826	MATRIX TEST UNITS PES235826	CRL TAG
S01	Soil	X					5-90240
S02		X					5-90241
S03		X					5-90242
S04		X					5-9024-
S05		X					5-90244
S06		X					590245
S07		X					5-90224
* S08		X	0.2				5-90246
D09		X					5-90247
* S10		X	1.5				5-90248
* S11		X	1.0				5-90249
* S12		X	0.28				5-90127
S13		X					5-90226
D14		X	2.0				5-90250
R15		X					5-90227
		P. Punch 8/15/86					

NOTE: Rest of the sample analysis report will be submitted later on as soon as samples are done - Pulaj

CRL NOTED: SAMPLES WITH A * BY THE NUMBER ARE PRIORITY #1

COMPUTATION SHEET

OFFICE

FILE NO.

SUBJECT ED03424

COMPUTATION F (mg/kg) Sediment Calculation.

COMPUTED BY [illegible] CHECKED BY DATE 8/15/86 PAGE 1 OF 1 PAGES

(1) Sample #	(2) % solids	(3) Final vol. of sample distillate	(4) wet wt. (GMS)	(5) Dry wt. (GMS/L)	(6) Sed Conc. (MG/L)	(7) F sed conc (MG/KG)	(8)	(9)	(10)
S08	25	100	3.61	9.025	2.1	0.23			
S10	100	115	2.78	24.17 ~~[illegible]~~	36	1.49			
S11	41	115	3.12	11.12	11	0.99			
S12	28	115	2.95	7.18	2.0	0.28			
S14	95	115	2.65	21.89	44	2.01			
S10Dup	100	125	2.96	23.68	40	1.69			

COMPUTATION SHEET

OFFICE

FILE NO.

SUBJECT: EDO342Y

COMPUTATION: F (mg/L)

COMPUTED BY: Barlay

CHECKED BY:

DATE: 8/15/88

PAGE 1 OF 1 PAGES

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	~~mg/L~~	mg/L							
Cal std - 0.4									
" " 4.0									
1.0 (Read)		0.96							
CS-LO		0.42	Limit = 0.4 ± 0.1						
CS-Hi		0.92	" = ~~1.0~~ 1.0 ± 0.1						
BLK		0.05	≤ 0.1						
DIST BLK		0.08	≤ 0.1						
" STD (TV=1.0)		0.92	% rec = 92 (Limit = 94 ± 16%)						
SO8		2.1							
115 S10		46.6							
115 S11		13.2							
115 S12		2.0							
S14		56.3							
125 S10DUP		over cal range							
S14SPK (+1.0)		over cal range							
~~CS-LO~~									
~~CS-Hi~~									
S10 (1:20 DIL)		1.76 x 20 ≈ 36							
S14 (1:10 DIL)		1.13 x 10 ≈ 11							
S14 (1:40 DIL)		1.06 x 40 ≈ 44							
S14SPK (1:40 DIL)		0.99	Invalid spike						
S10DUP (1:20 DIL)		1.98 x 20 ≈ 40							
CS-LO		0.39							
CS-Hi		0.92							

GPO 802-755

DATA SET	SAMPLE I. D.	TARE WEIGHT GRAMS	SX+TARE WEIGHT GRAMS	DRIED WEIGHT GRAMS	PERCENT SOLIDS
ED03424	BLANK	64.74	64.74000	64.74	0
	EF10S01	74.21	102	101.53	98.30674
	EF10S02	75.44	91.77	91.48	98.22412
	EF10S03	72.26	101	100.32	97.63395
	EF10S04	68.4	78.83	78.71	98.84947
	EF10S05	68.73	108.59	107.06	96.16156
	EF10S06	69.33	90.65	90.6	99.76547
	EF10S07	69	86.06	85.53	96.89331
	EF10S08	64.86	91.33	71.35	24.51832
	S08 DUP	62.94	91.02	69.92	24.85754
	EF10D09	64.52	79.33	79.28	99.66239
	EF10S10	61.27	73.28	73.26	99.83347
	EF10S11	72.13	97.06	82.3	40.79422
	EF10S12	62.9	88.12	69.84	27.51784
	EF10S13	73.7	97.43	80.19	27.34934
	EF10S14	74.22	84.54	84.07	95.44573
	S14 DUP	72.72	84.02	83.35	94.07079

JVM
13Aug86

* REGRESSION ANALYSIS * CSC VERSION 2.00 *

NAME OF ANALYST ---: RAP
PARAMETER NAME ----: CN
DATE OF ANALYSIS --: 08-15-1986

DATA SET NUMBER ---: 3395/3423/3424
DU NUMBER ---------: B304/D307

MANUAL DISTILLATION

DEGREE OF FIT : 1

EQUATION : CONCENTRATION = +1.21042E+00
+2.05542E+00 * SIGNAL

COEFFICIENT OF DETERMINATION : .9989336

T-A-B-L-E O-F S-T-A-N-D-A-R-D-S

STANDARD	SIGNAL	CONCENTRATION	CALCULATED
1	+0.000	+0.000	+1.210
2	+10.500	+25.000	+22.792
3	+23.000	+50.000	+48.485
4	+50.000	+100.000	+103.981
5	+96.000	+200.000	+198.530

T-A-B-L-E O-F S-A-M-P-L-E-S

SAMPLE I.D.	SIGNAL	CONCENTRATION
BL	+0.000	+1.210 - LIMIT (±8)
AQC [TV=100]	+53.500	+111.175 - LIMIT (100±15)
DIST AQC [TV=100]	+49.500	+102.953 - LIMIT (100±15)
DIST BL	+0.000	+1.210
86CL12S01	+9.500	+20.736
DUP S01	+8.500	+18.681 - Δ (≤15)
SPK S01 (+100)	+52.500	+109.119 - % REC = 88 (100±20)
86CH03S02	+3.000	+7.376
86EF10S08	+0.500	+2.238
S10	+3.000	+7.376
S11	+1.000	+3.265
S12	+1.000	+3.265
DUP S11	+2.000	+5.321
S01	+2.000	+5.321
S02	+1.000	+3.265
S03	+0.500	+2.238
S04	+6.500	+14.570
S05	+0.500	+2.238
S06	+1.000	+3.265
S07	+4.500	+10.459
D09	+3.500	+8.404
S13	+1.000	+3.265
S14	+3.500	+8.404
[illegible]	+56.000	+116.313 *
[illegible]	+0.000	+1.210
DIST BL	+0.000	+1.210

Several samples + the QC were repeated to confirm the results. AJ

* AQC WAS OUT OF CONTROL BECAUSE THE PYRIDINE REAGENT WAS DEPLEATED. THE AQC'S PLUS THE LAST FOUR SAMPLES WERE RERUN AND THE REPORT IS ATTACH

* REGRESSION ANALYSIS * CSC VERSION 2.00 *

NAME OF ANALYST ---: RAP
PARAMETER NAME ----: CN
DATE OF ANALYSIS --: 08-14-1986

DATA SET NUMBER ---: 3395/3424
DU NUMBER ---------: B304/B307
MANUAL DIST.

DEGREE OF FIT : 1

EQUATION : CONCENTRATION = +1.21196E+00
+2.19607E+00 * SIGNAL

COEFFICIENT OF DETERMINATION : .9992136

T-A-B-L-E O-F S-T-A-N-D-A-R-D-S

STANDARD	SIGNAL	CONCENTRATION	CALCULATED
1	+0.000	+0.000	+1.211
2	+10.000	+25.000	+23.172
3	+21.500	+50.000	+48.427
4	+46.500	+100.000	+103.329
5	+90.000	+200.000	+198.858

T-A-B-L-E O-F S-A-M-P-L-E-S

SAMPLE I.D.	SIGNAL	CONCENTRATION
AQC	*+49.500	+109.917
AQC	+50.000	+111.015
DIST.AQC	+46.000	+102.231
S01	+9.000	+20.976

*THESE SAMPLES WERE RERUN WITH A NEW PYRIDINE REAGENT AND AGREE WITH THE FIRST RUN.

* SEDCAL * CSC VERSION 1.00 *

NAME OF ANALYST ----: RAP
DATE OF ANALYSIS ---: 08-15-1986

SEDIMENT CALCULATION FOR CYANIDE

SAMPLE NO.	% SOLID	WET WT(GMS)	DRY WT(GM/L)	SED CONC(UG/L)	SED CONC(MG/KG)
B6EF10S08	25.00	2.68	2.68	<8.00	2.985
S10	100.00	2.26	9.04	<8.00	0.885
S11	41.00	2.19	3.59	<8.00	2.227
S12	28.00	2.29	2.56	<8.00	3.119
DUP 11	41.00	2.09	3.43	<8.00	2.334
S01	98.00	2.51	9.84	<8.00	0.813
S02	98.00	2.62	10.27	<8.00	0.779
S03	98.00	2.08	8.15	<8.00	0.981
S04	99.00	2.04	8.08	15.00	1.857
S05	96.00	2.74	10.52	<8.00	0.760
S06	100.00	2.04	8.16	<8.00	0.980
S07	97.00	2.05	7.95	10.00	1.257
D09	100.00	2.03	8.12	8.00	0.985
S13	27.00	2.50	2.70	<8.00	2.963
S14	95.00	2.06	7.83	8.00	1.022

COMPUTATION SHEET

OFFICE				FILE NO.
SUBJECT	EDO 7424			
COMPUTATION	CN			
COMPUTED BY	CHECKED BY	DATE 2-13-86	PAGE 1 OF 1 PAGES	

(1)	(2) Wet wt.	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
S08	2.68								
S10	2.26								
S11	2.19								
S12	2.0927								
DUP S11	2.09								
S01	2.51								
S02	2.62								
S03	2.08								
S04	2.04								
S05	2.74								
S06	2.04								
S07	2.05								
S13	2.50								
S14	2.06								
D09	2.03								

8/29/86

Activity # C28359

ENVIRONMENTAL PROTECTION AGENCY
FOR THE TEAM MINERALS-NUTRIENTS

8/29/86 remainder

DIVISION/BRANCH ESD/EDO SAMPLING DATE 8/6/86 LAB ARRIVAL DATE 8/8/86 DUE DATE 8/15/86* priority 1

DU NUMBER D307 DATASET NUMBER 3424 STUDY American Steel Foundries PRIORITY 1* CONTRACTOR N

CRL LOG NUMBER	SAMPLE DESCRIPTION	EP TOX EXTRACT MERCURY MG/L MIN19309	FISH HG MG/KG (WET) MIN528168
86EF10501	5-90240	<0.0001	
86EF10502	5-90241	<0.0001	
86EF10503	5-90242	<0.0001	
86EF10504	5-90243	<0.0001	
86EF10505	5-90244	<0.0001	
86EF10506	5-90245	<0.0001	
86EF10507	5-90229	<0.0001	
*86EF10508	5-90246	<0.0001 **	
86EF10509	5-90247	(PP) <0.0005	
*86EF10510	5-90248	0.0004 **	
*86EF10511	5-90249	0.0004 **	
*86EF10512	5-90127	<0.0001 **	
86EF10513	5-90226	<0.0001	
86EF10514	5-90250	0.0014	
86EF10R15	5-90227	No sample Empty Jar	
		P. Panicle 8/14/86	
		P. Panicle 8/29/86	

* priority 1

CRL V 2: 3/85

TRANSMITTED BY
SEP 08 1986
U.S. EPA CENTRAL REGIONAL LAB

** These samples were screened using CRL automated Hg method. They are well below action limit 0.2 mg/L Hg

Note: Rest of the sample analysis results will be submitted later on as soon as analysis is done

Remaining samples done on 8/29/86

* REGRESSION ANALYSIS * CSC VERSION 2.00 *

NAME OF ANALYST ---: PP
PARAMETER NAME ----: HG
DATE OF ANALYSIS --: 08-29-1986

DATA SET NUMBER ---:
DU NUMBER ---------:

DEGREE OF FIT : 1

EQUATION : CONCENTRATION = +3.66893E-02
+3.50295E-02 * SIGNAL

COEFFICIENT OF DETERMINATION : .9983404

T-A-B-L-E O-F S-T-A-N-D-A-R-D-S

STANDARD	SIGNAL	CONCENTRATION	CALCULATED
1	-1.000	+0.000	+0.001
2	+12.500	+0.500	+0.474
3	+28.000	+1.000	+1.017
4	+43.000	+1.500	+1.542
5	+55.000	+2.000	+1.963

T-A-B-L-E O-F S-A-M-P-L-E-S

SAMPLE I.D.	SIGNAL	CONCENTRATION ug/L	
BLK	-1.000	+0.001	Limit ≤ 0.1
CS1	+40.000	+1.437	" = 1.5±0.2
CS2	+42.000	+1.507	" = 1.5±0.2
86EF10S01	-1.000	+0.001	
S02	-2.000	-0.034	
S03	-2.000	-0.034	
S04	-2.000	-0.034	
S05	-2.000	-0.034	
S06	-2.000	-0.034	
S07	-2.000	-0.034	
(PP) ~~S08~~ D09	+12.000	+0.457	
BLK	-2.000	-0.034	
S13	-2.000	-0.034	
S14	+39.000	+1.402	
CS1	+39.000	+1.402	
CS2	+42.500	+1.525	
86EF10D09DUP	+15.000	+0.562	Δ ≤ 0.1
86RA01S44	+0.000	+0.036	
S46	-1.000	+0.001	
S47	-1.000	+0.001	
S48	-1.000	+0.001	
D48	-1.000	+0.001	
R53	-1.000	+0.001	
EF10S01SPK (H.O)	+28.000 % rec = 101	+1.017	Limit = 100 ± 15%
CS1	+40.500	+1.455	
CS2	+41.000	+1.472	
EF10S14DUP	+40.000	+1.437	Δ ≤ 0.1
S44DUP	+0.000	+0.036	Δ ≤ 0.1

EDO 3424

SF 3453

* REGRESSION ANALYSIS * CSC VERSION 2.00 *

NAME OF ANALYST ---: FF
PARAMETER NAME ----: HG
DATE OF ANALYSIS --: 06-13-1986

DATA SET NUMBER ---: E003424 / RCRA 3371 / WSB 3398 /
DU NUMBER ---------:
SF 3407 / SF 3413

DEGREE OF FIT : 1

EQUATION : CONCENTRATION = -4.52654E-02
+5.09866E-02 * SIGNAL

COEFFICIENT OF DETERMINATION : .9993744

T-A-B-L-E 0-F S-T-A-N-D-A-R-D-S

STANDARD	SIGNAL	CONCENTRATION	CALCULATED
1	+0.500	+0.000	-0.020
2	+11.000	+0.500	+0.515
3	+21.000	+1.000	+1.025
4	+30.000	+1.500	+1.484
5	+40.000	+2.000	+1.994

T-A-B-L-E 0-F S-A-M-P-L-E-S

SAMPLE I.D.	SIGNAL	CONCENTRATION	
BL1	+0.500	-0.020	Δ ≤ 0.1
CS1	+30.000	+1.484	Limit 1.5 ± 0.2
CS2	+30.000	+1.484	" 1.5 ± 0.2
EPBL1	+0.500	-0.020	
S08 86EF10508	+1.000	+0.005	
S10 "	+9.000	+0.413	E003424 (Priority I)
S11 "	+9.100	+0.417	
S12 "	+2.000	+0.055	
RCRA01	-11.000	+0.515	
"	+11.000	+0.515	DS # RCRA 3371
"	+9.000	+0.413	
"	+11.000	+0.515	
CS1	+31.000	+1.535	
CS2	+29.000	+1.433	
S10 DUP extraction	+10.000	+0.464	Δ ≤ 0.1
S10SPK (+1.0)	+32.000 % rec = 112	+1.586	Limits 100 ± 15%
86PG01S20	+0.000	-0.046	
S21	+0.000	-0.046	
S22	+0.000	-0.046	WSB 3398
S23	+1.000	+0.005	
S24	+0.500	-0.020	
S25	+3.000	+0.107	
S26	+0.000	-0.046	
S27	+0.000	-0.046	
86SB4101S01	+0.000	-0.046	
S02	+0.000	-0.046	SF 3407
S03	+0.000	-0.046	
S04	+0.000	-0.046	
D04	+0.000	-0.046	
86PG01S20DUP	+0.000	-0.046	Δ ≤ 0.1
86SS01S01	+0.000	-0.046	
S02	+0.000	-0.046	
S03	+0.000	-0.046	SF 3413
S04	+0.000	-0.046	
S05	+0.000	-0.046	
D01	+0.000	-0.046	
R01	+0.000	-0.046	
S501S01DUP	+0.000	-0.046	
S501S01SPK(+1.0)	+23.000 % 116	+1.127	Limits 100 ± 15% little high on spike
CS1	+30.000	+1.484	
CS2	+30.000	+1.484	

9/4/86

Activity # C28359

ENVIRONMENTAL PROTECTION AGENCY
FOR THE TEAM: MINERALS-NUTRIENTS

8/29/86 reminder

DIVISION/BRANCH ESD/EDO SAMPLING DATE 8/6/86 LAB ARRIVAL DATE 8/8/86 DUE DATE 8/15/86* priority 1

DU NUMBER D307 DATASET NUMBER 3424 STUDY American Steel Foundry PRIORITY 1* CONTRACTOR N

CRL LOG NUMBER	SAMPLE DESCRIPTION	EP TOX EXTRACT MERCURY MG/L MIN19309	FISH HG MG/KG (WET) MIN520168
86EF10501	5-90240	X	
86EF10502	5-90241	X	
86EF10503	5-90242	X	
86EF10504	5-90243	X	
86EF10505	5-90244	X	
86EF10506	5-90245	X	
86EF10507	5-90229	X	
*86EF10508	5-90246	X	
86EF10509	5-90247	X	
*86EF10510	5-90248	X	
*86EF10511	5-90249	X	
*86EF10512	5-90127	X	
86EF10513	5-90226	X	
86EF10514	5-90250	X	
86EF10R15	5-90227	X	

*priority 1

CRL V.2: 3/85

Run No. 548

Prep. by MS Date 10/31/86 Anal. by Date

Beak No.	Data Set	Sample	Notes	Beaker No	Data Set	Sample	Notes
1	CD03567	CL01S01		26	CD03424	EF10S06	As-Se Dig
2		R01		27		S07	
3	CD03571	CM01S01		28		D09	
4		R01		29		S13	
5	3971	OI16S01	#1	30		S14	
6			#2	31	CD03971	~~CD~~ OI16S01	#1
7	Blank			32	CD03371	OI16S01	#2
8	CD03567	CL01S01	Dup	33		S06	Spike 10ml of .5ppm As Se
9	CD03567	CL01S01	Spk	34		D09	Dup
10	CD03424	EF10S06		35	Blank		
11		S07		36		Ex Blank	
12		D09		37			
13		S13		38			
14		S14		39			
15		Ex Blank		40			
16	CD03424	EF10S07	Dup	41			
17	CD03424	EF10S07	Spk	42			
18		Blank		43			
19		EF10S06	(1/10) 5ml	44			
20		D09	(1/10) 5ml	45			
21		S14	(1/10) 5ml	46			
22				47			
23				48			
24				49			
25				50			

NUMBER OF BLANK(S) TO BE [illegible]

Jun Smith

DL1:[001,054]RN548A.BRN 04-NOV-86 08:51:[illegible]7 PAGE 1

DATA SET : BLANK standard bottle BLNK

ELEMENT	DET LIM	BLANK00	BLANK01
AG ug/l	6.00	0.88	-1.26
AL	80.00	7.74	2.61
B	80.00	4.96	4.47
BA	6.00	2.36	1.14
BE	1.000	0.882	0.705
CD	10.000	-0.529	-0.587
CO	6.000	0.465	-0.071
CR	8.000	0.347	0.079
CU	6.000	1.080	0.878
FE	80.00	-8.90	-9.16
LI	10.00	1.66	2.65
MN	5.000	-0.297	-0.544
MO	15.00	-1.46	2.58
NI	15.00	4.56	2.49
PB	70.00	14.30	3.83
SN	40.00	-14.40	7.37
SR	10.000	-0.999	-0.668
TI	25.00	-6.31	-6.21
V	5.00	1.06	-1.10
Y	5.000	0.778	0.286
ZN	40.000	5.090	0.449
CA	0.500	0.013	0.020
CA mg/l	0.500	-0.086	-0.087
K	2.00	-0.04	-1.43
MG	0.100	0.002	0.004
NA	1.000	-0.123	-0.136
AL	20.000	-0.119	-0.117
FE	20.000	-0.386	-0.431
ZN	20.00	-1.16	-1.20

MS 11/4/86

11/5/86

Jim Stupp

DATA SET : METALS1

ELEMENT	DET LIM	BLANK07	BLANK18
AG (ug/l)	6.000	0.510	0.512
AL	80.0	43.1	29.9
B	80.0	104.0 *	37.1
BA	6.000	36.200 *	0.842
BE	1.000	-0.109	0.366
CD	10.000	0.382	-0.569
CO	6.000	0.679	-0.786
CR	8.00	1.02	2.05
CU	6.0	9.9 *	11.1 *
FE	80.0	20.9	14.1
LI	10.00	-2.50	2.25
MN	5.00	-0.34	1.78
MO	15.00	1.98	3.04
NI	15.0	12.6	11.8
PB	70.0	40.6	-14.1
SN	40.00	-17.80	-8.39
SR	10.00	-1.92	-1.58
TI	25.00	-6.75	-4.17
V	5.000	0.418	-0.197
Y	5.000	0.245	0.163
ZN	40.0	82.0 *	78.9 *
CA (mg/l)	0.500	0.275	0.097
CA	0.500	0.131	-0.013
K	2.00	-1.29	-1.39
MG	0.100	0.019	0.019
NA	1.000	0.488	0.145
AL	20.000	-0.134	-0.100
FE	20.000	-0.538	-0.378
ZN	20.00	-1.50	-1.21

Contamination is not pertinent to RCRA limits for EP Toxicity

MS 11/6

Contamination in digestion see standard BLNK data.

11/5/86

Jim Frank

DL1:[001,054]RN548A.BRN 04-NOV-86 08:54:28 PAGE 1

DATA SET : METALS1 SAMPLE ID : AQC.086

ELEMENT	TRUE	MEASURED	% DEV
ug/l			
AL	4760.00	4690.00	-1.43
B	1050.000	1040.000	-0.689
BA	1510.00	1540.00	1.97
BE	728.000	724.000	-0.525
CD	425.00	415.00	-2.51
CO	972.00	999.00	2.85
CR	1570.00	1510.00	-3.71
CU	1160.000	1170.000	0.932
FE	3820.00	3870.00	1.50
LI	808.000	805.000	-0.369
MN	1330.00	1360.00	2.30
MO	811.000	818.000	0.967
NI	1180.000	1180.000	0.286
PB	2970.00	2850.00	-4.08
SN	2430.00	2190.00	-9.79 *
SR	902.00	919.00	1.91
TI	1200.000	1190.000	-0.876
V	744.000	740.000	-0.535
Y	784.00	802.00	2.31
ZN	2800.00	2750.00	-1.74
CA	12.4	14.4	15.9
CA	13.20	13.90	5.50
mg/l			
K	96.00	98.30	2.36
MG	5.21	5.11	-1.99
NA	18.500	18.400	-0.830
AL	4.81	4.59	-4.52
FE	5.2	3.7	-27.2
ZN	2.7	1.3	-50.0 *

MS 11/4/86

All values ± 2σ except Sn and hi Zn

high Zn uses different QC for evaluation

11/5/86

JVM 5 ppb

DATA SET : METALS1 SAMPLE ID : AQC.086

ELEMENT		TRUE	MEASURED	% DEV
AL	ug/l	4760.000	4770.000	0.172
B		1050.00	1070.00	2.10
BA		1510.00	1570.00	4.27
BE		728.00	749.00	2.85
CD		425.00	431.00	1.37
CO		972.00	1050.00	7.64
CR		1570.000	1580.000	0.600
CU		1160.00	1190.00	2.91
FE		3820.00	4040.00	5.86 ✓
LI		808.00	824.00	2.02
MN		1330.00	1410.00	5.72
MO		811.00	856.00	5.56
NI		1180.00	1220.00	3.50
PB		2970.00	3010.00	1.06
SN		2430.00	2240.00	-7.92
SR		902.00	948.00	5.11
TI		1200.00	1230.00	2.46
V		744.00	763.00	2.52
Y		784.00	825.00	5.21
ZN		2800.00	2860.00	1.94 ✓
CA	mg/l	12.4	14.9	19.7
CA		13.20	14.50	9.96
K		96.00	101.00	4.67
MG		5.21	5.31	1.90
NA		18.50	18.80	1.69
AL		4.81	4.73	-1.77
~~FE~~		~~5.2~~	~~4.0~~	~~-21.5~~
~~ZN~~		~~2.7~~	~~1.6~~	~~-39.6~~

MS 11/4/86 all values ± 10% or ± 3σ

11/15/86

Jim Smith

DATA SET : METALS1

ELEMENT		HIGHAQC
AG	<	6.00
AL		105000.
B	<	80.0
BA		16.2
BE	<	1.00
CD	<	10.0
CO	<	6.00
CR		17.0
CU		9.43
FE		106000.
LI		19.1
MN		25.0
MO		22.1
NI	<	15.0
PB	<	70.0
SN	<	40.0
SR		33.3
TI	<	25.0
V	<	5.00
Y	<	5.00
ZN		99600.
CA		103.
CA		108.
K	<	2.00
MG		11.1
NA	<	1.00
AL		105.
FE		110.
ZN		106.

µg/l

mg/l

Use channel ± 10%

MS 4/11/86

high Zn ok here!

L1:EOG

543RN548A.BRN 04-NOV-86 08:57:05 PAGE 3

DATA SET : METALS1 SAMPLE ID : AQC.086

ELEMENT	TRUE	MEASURED	% DEV
AL ug/l	4760.000	4800.000	0.813
B	1050.000	1060.000	0.950
BA	1510.00	1550.00	3.03
BE	728.000	733.000	0.655
CD	425.000	428.000	0.730
CO	972.00	1010.00	3.47
CR	1570.00	1540.00	-1.82
CU	1160.00	1190.00	2.53
FE	3820.00	3910.00	2.41
LI	808.00	822.00	1.69
MN	1330.00	1380.00	3.42
MO	811.00	826.00	1.91
NI	1180.000	1190.000	0.602
PB	2970.00	2850.00	-4.18
SN	2430.00	2250.00	-7.47
SR	902.00	928.00	2.90
TI	1200.000	1210.000	0.421
V	744.000	749.000	0.626
Y	784.00	811.00	3.35
ZN	2800.000	2780.000	-0.666
CA mg/l	12.4	14.5	17.1 *
CA	13.20	14.20	7.86
K	96.00	99.40	3.52
MG	5.210	5.170	-0.766
NA	18.50	18.90	1.97
AL	4.81	4.71	-2.05
~~FE~~	~~5.2~~	~~3.9~~	~~-24.5~~
~~ZN~~	~~2.7~~	~~1.6~~	~~-40.8~~

MS 11/4 [illegible]

All values ± 10% or ± 2σ except lo Ca

Jim Sworth

DL1:[001,054]RN548A.BRN 04-NOV-86 08:59:11 PAGE 1

DATA SET : CD03424 SAMPLE ID : EF10S07

ELEMENT	Det limit	SAMPLE	DUPLICATE	AVERAGE	R P D
AG ug/l	6.0	0.	-1.	-0.	-296.
AL		1410.00	1450.00	1430.00	2.77
B		2490.00	2520.00	2510.00	1.21
BA		188.00	192.00	190.00	1.96
BE		0.408	0.405	0.406	0.768
CD	10.0	1.4	2.6	2.0	59.1
CO	6.0	3.4	2.5	2.9	31.7
CR	8.0	8.9	12.7	10.8	35.3
CU		20.200	20.200	20.200	0.013
FE		149.00	137.00	143.00	8.42
LI		115.00	116.00	115.00	1.03
MN		1070.00	1090.00	1080.00	2.02
MO		32.10	29.80	31.00	7.54
NI		39.60	41.90	40.80	5.58
PB	70.0	50.5	28.4	39.5	56.0
SN	40.0	5.	-19.	-7.	-344.
SR		3600.00	3670.00	3630.00	2.02
TI	25.0	-4.2	-3.7	-3.9	-13.3
V	5.0	0.	0.	0.	111.
Y	5.0	2.0	1.4	1.7	33.3
ZN		156.00	164.00	160.00	4.93
CA mg/l		103.000	103.000	103.000	0.000
CA		112.00	115.00	113.00	2.44
K		8.35	8.48	8.41	1.56
MG		27.40	28.00	27.70	1.99
NA		184.00	188.00	186.00	2.08
AL		1.36	1.38	1.37	1.68
FE		-0.04	-0.03	-0.04	-9.52
ZN		-1.37	-1.39	-1.38	-1.12

TLS 11/4/86 All values ± 10% or ± detection limit

11/5/86

Jm
5 Nov 86

DATA SET : CD03567 SAMPLE ID : CL01S01

ELEMENT	Detection	SAMPLE	DUPLICATE	AVERAGE	R P D
AG ug/l	6.0	-1.8	-1.5	-1.6	-18.2
AL		169.00	186.00	177.00	9.80
B		1350.00	1400.00	1380.00	4.08
BA	6.0	33.4	38.7	36.1	14.8
BE	1.0	0.3	0.1	0.2	88.2
CD	10.0	-1.7	-2.3	-2.0	-30.7
CO		-3.2	-4.5	-3.9	-33.3
CR		6770.00	6900.00	6830.00	1.95
CU		555.00	568.00	561.00	2.21
FE		733.00	714.00	724.00	2.74
LI	10.0	6.6	4.9	5.8	28.7
MN		20.800	21.000	20.900	0.630
MO	15.0	3.	-1.	1.	364.
NI		9600.00	9870.00	9740.00	2.79
PB	70.0	52.2	59.8	56.0	13.5
SN	40.0	9.7	6.1	7.9	45.2
SR		126.00	130.00	128.00	2.88
TI	25.0	-3.7	-4.5	-4.1	-20.2
V	5.0	2.	1.	2.	106.
Y	5.0	-0.2	-0.3	-0.3	-46.1
ZN		8550.00	8880.00	8720.00	3.86
CA mg/l		39.60	40.30	39.40	4.13
CA		34.00	34.60	34.30	1.47
K	2.0	1.0	0.4	0.7	82.3
MG		10.20	10.50	10.30	2.76
NA		417.00	423.00	418.00	2.39
AL	20	0.0	0.0	0.0	46.4
FE	20	0.5	0.4	0.4	19.7
ZN		[illegible]	7.43	7.30	3.73

MMS 11/4/86

All values ± 10% or ± Detection Limit

11/5/86

JVM SMith

DL1:[001,054]RN548A.BRN 04-NOV-86 09:15:02 PAGE 1

DATA SET : CD06424 SAMPLE ID : EF10S07

ELEMENT	SAMPLE	SPIKE	SPIKE ADDED	% RECOVERY
AG ug/l	0.	56.	50.	111.
AL	1410.0	2200.0	800.0	98.8
B	2490.0	3220.0	800.0	90.5
BA	188.	399.	200.	105.
BE	0.	11.	10.	100.
CD	1.	27.	25.	104.
CO	3.	106.	100.	103.
CR	9.	110.	100.	101.
CU	20.	74.	50.	107.
FE	149.	991.	800.	105.
LI	115.	175.	54.	111.
MN	1070.	1150.	50.	158:Δ
MO	32.	139.	100.	107.
NI	40.	194.	150.	103.
PB	51.	888.	800.	105.
SN	5.1	361.0	400.0	88.9
SR	3600.	4710.	1000.	112.
TI	-4.	98.	100.	102.
V	0.1	49.3	50.0	98.4
Y	2.	53.	50.	103.
ZN	156.	585.	400.	107.
CA	103.000	103.000	50.000	0.000
CA mg/l	112.	165.	50.	106.
K	8.	30.	20.	109.
MG	27.4	51.5	25.0	96.3
NA	184.	239.	50.	110.
~~AL~~	~~1.36~~	~~2.26~~	~~22.60~~	~~3.99~~
~~FE~~	~~0.~~	~~1.~~	~~1.~~	~~121.~~
~~ZN~~	~~-1.370~~	~~-0.651~~	~~100.000~~	~~0.722~~

Δ Sample more than 2X spike value invalid spike

All other values ± 15%

MLS 11/4/86

11/4/86

JVM 5/11/86

DL1:[001,054]RN548A.BRN 04-NOV-86 09:24:59 PAGE 1

DATA SET : CD03567 SAMPLE ID : CL01S01

ELEMENT	SAMPLE	SPIKE	SPIKE ADDED	% RECOVERY
AG ug/mL	-2.	52.	50.	107.
AL	169.0	935.0	800.0	95.8
B	1350.0	2140.0	800.0	99.0
BA	33.4	228.0	200.0	97.5
BE	0.3	9.3	10.0	90.8
CD	-1.7	20.5	25.0	88.6
CO	-3.2	96.7	100.0	99.9
CR	6770.	6900.	100.	133. Δ
CU	555.	614.	50.	117. Δ
FE	733.0	1520.0	800.0	97.7
LI	7.	61.	54.	101.
MN	21.	71.	50.	100.
MO	3.	110.	100.	107.
NI	9600.	9890.	150.	193. Δ
PB	52.2	829.0	800.0	97.0
SN	9.7	363.0	400.0	88.3
SR	126.	1150.	1000.	103.
TI	-3.7	92.9	100.0	96.6
V	2.4	46.5	50.0	88.2
Y	-0.2	49.6	50.0	99.6
ZN	8550.	9100.	400.	138. Δ
CA mg/l	39.	103.	50.	129.
CA	34.0	82.5	50.0	96.8
K	1.0	20.8	20.0	99.3
MG	10.2	34.1	25.0	95.8
NA	413.	470.	50.	115. Δ

Δ Sample greater than 2X spike value, invalid spike

All results ± 15% of true.

11/5/86

Jm
5 Mark

DL1:[001,054]RUN548.BRN 04-NOV-86 10:03:55 PAGE 1

DATA SET : METALS1

MS 11/4/86
Value ± Det Lim

ELEMENT	DET LIM	BLANK07	BLANK18
AG	6.00	-1.20	-1.06

DL1:[001,054]RUN548.BRN 04-NOV-86 10:47:12 PAGE 1

DATA SET : C003424 SAMPLE ID : EF10S07

ELEMENT	Det lim SAMPLE	DUPLICATE	AVERAGE	R P D
AG	-1.4	-0.8	[illegible]	-47.8

[illegible] Values
± Detection
limit

DL1:[001,054]RUN548.BRN 04-NOV-86 10:07:39 PAGE 2

DATA SET : C003567 SAMPLE ID : CL01S01

ELEMENT	[illegible] SAMPLE	DUPLICATE	[illegible]	R P D
AG	0.	-1.		

DL1:[001,054]RUN548.BRN 04-NOV-86 10:05:49 PAGE 4

DATA SET : METALS1 SAMPLE ID : AG.AQC.

ELEMENT	TRUE	MEASURED	% DEV
AG	49.70	51.00	2.52

Jvm 7 Nov

DL1:[001,054]RUN548.BRN 04-NOV-86 10:05:34 PAGE 3

DATA SET : METALS1 SAMPLE ID : AG.AQC.

ELEMENT	TRUE	MEASURED	% DEV
AG ug/l	49.70	53.80	8.24

MS 11/4/86 all values ± 10%

DL1:[001,054]RUN548.BRN 04-NOV-86 10:05:19 PAGE 2

DATA SET : METALS1 SAMPLE ID : AG.AQC.

ELEMENT	TRUE	MEASURED	% DEV
AG ug/l	49.70	53.30	7.16

JVM 5Nov86

DL1:[001,054]RUN548.BRN 04-NOV-86 10:26:59 PAGE 1

DATA SET : CD03567 SAMPLE ID : CL01S01

ELEMENT	SAMPLE	SPIKE	SPIKE ADDED	% RECOVERY
AG Ag	-0.	51.	50.	103.

DL1:[001,054]RUN548.BRN 04-NOV-86 10:11:15 PAGE 1

DATA SET : CD03424 SAMPLE ID : EF10S07

ELEMENT	SAMPLE	SPIKE	SPIKE ADDED	% RECOVERY
AG Ag	-1.	53.	50.	109.

MS 11/4/86 Values ± 15%

RECNN= 42

cd - ok
Pb (L-BIAS)

SET PAPER AT TOP OF FORM AND
PRESS "RETURN" TO START THE REPORT!

11/5/86

NUMBER OF SAMPLE(s) TO BE REPORTED : 27
RECNN= 42

JVM
5 Nov 86

DL1:[001,054]RN548A.BRN 04-NOV-86 11/5/86 09:02:25 PAGE 1

DATA SET : ED03424 American Steel Foundries C28359 D307

ELEMENT	EF10S06 1/10 dilution	EF10S07	EF10D09 1/10 dilution	EF10S13
AL ug/l	< 800	1410.	< 800.	453.
B	< 800	2490.	2260.	827.
BA	114.	188.	950.	836.
BE	< 1.00	< 1.00	< 10.	< 1.00
CD	< 10.0	< 10.0	4320. ~~0~~ JVM	< 10.0
CO	277. ~~00~~ JVM	< 6.00	< 60.	< 6.00
CR	80.0 ~~0~~ JVM	8.92	< 80.	< 8.00
CU	112. ~~0~~ JVM	20.2	309. ~~0~~ JVM	17.0
FE		149.	1020.	2630.
LI	< 10.0	115. ~~0~~ JVM	267. ~~0~~ JVM	40.5
MN	21900.	1070.	112000.	600.
MO	< 150	32.1	154. ~~0~~ JVM	< 15.0
NI	4230. ~~0~~ JVM	39.6	272. ~~0~~ JVM	43.8
PB	< 70.0	< 70.0	14100. ~~0~~ JVM	< 70.0
SN	< 40.0	< 40.0	< 40.0	< 40.0
SR	228.	3600.	813.	1200.
TI	< 25.0	< 25.0	< 25.0	< 25.0
V	< 5.00	< 5.00	< 5.00	< 5.00
ZN	1180.	156.		326.
AS	26.3	112. ~~0~~ JVM	653. ~~0~~ JVM	47.5
P	< 2.00	8.35	249. ~~00~~ JVM	2.88
MG	3.5	27.4	218. ~~0~~ JVM	12.2
SE	< 10	184. ~~0~~ JVM	484. ~~0~~ JVM	23.4
H	560. ~~0~~ JVM		1160. ~~0~~ JVM	

PHS 11/4/86

11/5/86

Jim Smith

DATA SET : ED03424

American Steel Foundries

ELEMENT		EF10S14 1/10 dilution		EXBLANK
AL mg/l	<	80 0.	<	80.0
B		1990.	<	80.0
BA		715.		14.8
BE	<	10	<	1.00
CD		3130.	<	10.0
CO	<	60.	<	6.00
CR	<	80.	<	8.00
CU		567.		13.3
FE		819.	<	80.0
LI		280.	<	10.0
MN		125000.		6.59
MO	<	150.	<	15.0
NI		294.	<	15.0
PB		11300.	<	70.0
SN	<	40 0.	<	40.0
SR		850.	<	10.0
TI	<	25 0.	<	25.0
V	<	5 0.0	<	5.00
Y	<	5 0.0	<	5.00
ZN				139.
CA mg/l		674.	<	0.500
K		164.	<	2.00
MG		223.	<	0.100
NA		358.	<	1.00
AL				
FE				
ZN		1150.		

MS 11/4/86

American Steel Founders ~~Foundrite~~ D387 C28359 11/5/86

DATA SET : CD03424

ELEMENT	EF10S06	EF10S07	EF10D09
AG ug/l	< 6.00	< 6.00	8.09

Jim Stuart

DATA SET : CD03424

ELEMENT	EF10S13	EF10S14
AG ug/l	< 6.0	12.5

DATA SET : CD03424

ELEMENT	EXBLANK
AG ug/l	< 6.00

JMS 11/4/86

Reg Accl- C28359

Jim 15 Aug PM

8/15/86 8/28/86

8/24/86 Rest of samples.

8/18/86

ENVIRONMENTAL PROTECTION AGENCY
FOR THE TEAM METALS

DIVISION/BRANCH EDC/ESD SAMPLING DATE 8-6-86 LAB ARRIVAL DATE 8/8/86 DUE DATE 8/15/86 *PRIORITY #1

DU NUMBER D-307 DATASET NUMBER 3424 STUDY American Steel Found PRIORITY / * CONTRACTOR N

CHL LOG NUMBER 86EF10	SAMPLE DESCRIPTION	EP TOX EXTRACT ICP METALS MG/L MET19364	EP TOX EXTRACT SE MG/L MET19109	EP TOX EXTRACT AS MG/L MET1989	EP TOX EXTRACT Pb MG/L	EP TOX EXTRACT Cr MG/L
S01	5-90240	X	<0.02	<0.002	X	X
S02	5-90241	X	<0.02	<0.002	X	X
S03	5-90242	X	<0.02	<0.002	X	X
S04	5-90243	X	<0.02	<0.002	X	X
S05	5-90244	X	<0.02	<0.002	X	X
S06	5-90245	X	<0.02	<0.002	X	X
S07	5-90229	X	<0.02	0.004	X	X
* S08	5-90246	X	<.002	<.002	X	X
D09	5-90247	X	<0.02	<0.002	X	X
* S10	5-90248	X	0.040	< 0.002	X	X
* S11	5-90249	X	0.007	< 0.002	X	X
* S12	5-90127	X	<0.002	< 0.002	X	X
S13	5-90226	X	<0.02.	<0.002	X	X
S14	5-90250	X	<0.02	<0.002	X	X
R15	5-90227	X	<0.002	<0.002	X	X
			PM 8-14-86	JCR 8/15/86	X	X
			PM 8-27-86	PM 8-28-86	X	X
			MS 8-28-86	MS 8-28-86	X	X

Jim Priority 2 28 Aug 86 8/9/86

TRANSMITTED BY
SEP 08 1986
U.S. EPA CENTRAL REGIONAL LAB

*CHECKED SAMPLES WITH A * BY THE NUMBER ARE PRIORITY #1

Jm
28 Aug 86

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* FLAMELESS * CSC VERSION 1.00 *

NAME OF ANALYST ---: MS
DATE OF ANALYSIS --: 08-28-1986
PARAMETER NAME ----: AS
DATA SET # --------: 3424

SAMPLE NO.	CONC.	R VALUE	SLOPE
BLANK	-.352866	.9994937	3.004001E-02
AQC	23.59209	.9973074	2.872998E-02 0%
~~AQC~~	~~5.428585~~	~~.9516341~~	~~.045697~~ error
S07	3.650796	.9987157	.01386
~~AQC~~	~~-1.701412E+38~~	~~1.701412E+38~~	0 entry error
AQC	22.96998	.9990457	2.899001E-02 -2.2
S09	-.3411505	.9995441	.01407
S13	-.5729481	.9985159	.01693
S14	.515464	.9981558	.01455
BLANK	-5.033557E-02	.999855	.0298
AQC	22.19978	.9998639	3.123003E-02 -5.5

BLANK

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-.001	-.0106001	-9.600098E-03	90.56612 %
10	.272	.2898	1.779994E-02	6.142149 %
20	.597	.5902	-6.799996E-03	-1.152151 %
30	.892	.8906001	-1.399934E-03	-.15719 %

AQC

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.652	.6778003	2.580029E-02	3.806473 %
10	1.001	.9651001	-3.589994E-02	-3.719815 %
20	1.258	1.2524	-5.600095E-03	-.4471491 %
30	1.524	1.5397	1.569974E-02	1.019663 %

AQC

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.0681	.2480701	.1799701	72.54808 %
0	.933	.7050401	-.2279599	-32.33291 %
20	1.246	1.16201	-8.398998E-02	-7.227991 %
30	1.487	1.61898	.1319799	8.152043 %

S07

SPIKE	MEASURED	CALC.	ERROR	PER CENT

10	.167	.1892	2.200037E-03	1.16281 %
20	.316	.3278	1.180002E-02	3.599762 %
30	.475	.4664001	-8.599967E-03	-1.843904 %

JVM
28 Aug 81

AQC

SPIKE	MEASURED	CALC.	ERROR	PER CENT
.681	0	0	0	1.701412E+38 %
0	0	0	0	1.701412E+38 %
0	0	0	0	1.701412E+38 %
0	0	0	0	1.701412E+38 %

AQC

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.681	.6658999	-1.510012E-02	-2.267626 %
10	.933	.9557999	2.279991E-02	2.385427 %
20	1.246	1.2457	-3.000498E-04	-2.408684E-02 %
30	1.543	1.5356	-7.399917E-03	-.4818909 %

S09

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	0	-4.799988E-03	-4.799988E-03	100 %
10	.131	.1359	4.900009E-03	3.605599 %
20	.272	.2766	4.599989E-03	1.663047 %
30	.422	.4173	-4.700005E-03	-1.126289 %

S13

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	0	-9.700012E-03	-9.700012E-03	100 %
10	.151	.1596	8.600011E-03	5.388479 %
20	.317	.3289001	1.190004E-02	3.618132 %
30	.509	.4982001	-1.079995E-02	-2.167793 %

S14

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.018	.0075	-.0105	-140 %
10	.137	.153	1.599999E-02	10.45751 %
20	.299	.2985	-5.000234E-04	-.167512 %
30	.449	.444	-5.000025E-03	-1.126132 %

BLANK

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-.003	-.0015	.0015	-100 %
10	.294	.2965	2.499998E-03	.8431695 %
20	.604	.5945	-9.499967E-03	-1.597976 %
30	.887	.8925	5.499959E-03	.616242 %

AGC

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.694	.6932998	-7.002354E-04	-.1010004 %
10	1	1.0056	5.599976E-03	.5568791 %
20	1.327	1.3179	-9.099722E-03	-.6904712 %
30	1.626	1.630201	4.200578E-03	.2576724 %

Jim
[illegible]

BEGIN DATA FILE: AS828.DF

Jim Bright

Begin Element - AS
0.100
0.000 AZ
-0.100
-0.116
0.000 AZ
0.005
BEGIN DATA FILE: AS828.DF

Begin Element - AS
0.002
0.000 AZ
0.004
0.145
0.299
0.418
0.567
0.599
0.708
0.798
0.516
0.542
0.739
0.790
0.393
0.556
0.523
0.752
0.460
-0.001
0.000 AZ
0.001
0.006
0.000 AZ
-0.001
0.272
0.597
0.892
0.652
1.001
1.258
1.524
0.681
0.933
1.246
1.487

Bad Tube or alignment of tube

Blank Steps

AQC

AQC

bad injection ignore

1.543 repeat of last exp
0.056
0.187 507
0.316
0.475
0.000
0.131 509
0.272
0.422

JVM
8 Aug 91

1.543 repeat of last exp
0.056
0.187 507
0.316
0.475
0.000
0.131 509
0.272
0.422
0.000
0.151
0.317 513
0.509

0.018
0.137 514
0.299
0.449
-0.003
0.294 5
0.604
0.887
0.694
1.000
1.327 AQC
1.626
0.001
0.166 ext
0.355 B
0.567
-0.002
0.177 Dig
0.386 B
0.579
0.002
0.174 501
0.334 Dup
0.493
0.157
0.313 501
0.478 Spike
0.636
0.008
0.174
0.323 501
0.478
0.004
0.256 502
0.500
0.738
0.002
0.167 505
0.351
0.512
0.692
1.016
1.348 AQC last
1.689 QC out
rerun

JVM
28 Aug 86

```
--  ------------------------------------------------------------
* FLAMELESS * CSC VERSION  1.00 *
------------------------------------------------------------
NAME OF ANALYST ---: MS
DATE OF ANALYSIS --: 08-28-1986
PARAMETER NAME ----: AS
DATA SET # --------: 3424
------------------------------------------------------------
SAMPLE NO.     CONC.            R VALUE          SLOPE

AQC            22.55858         .9996984         3.200999E-02  -4.0
EXTRACTION BLANK
  RL5          4.658695E-03     .9998867         .02146
DIGESTION BLANK
               -9.918625E-02    .9998807         .02218
S01 DUP        .234154          .9987736         .01751
S01 SPIKE      10.24783         .9990448         .01614  100% Rec.
S01            .6718803         .9994886         .01533
S02            .1841388         .999845          2.048122E-02
S02            .1855433         .9998455         .02048
S05            .0493401         .999567          .01824
AQC            23.27614         .9993512         3.204999E-02  -1.2
------------------------------------------------------------

AQC

SPIKE          MEASURED         CALC.            ERROR            PER CENT

 0             .72              .7221001         2.100051E-03     .2908254 %
 10            1.038            1.0422           4.199982E-03     .4029919 %
 20            1.377            1.3623           -1.470006E-02    -1.079062 %
 30            1.674            1.6824           8.399844E-03     .4992775 %

EXTRACTION BLAN

SPIKE          MEASURED         CALC.            ERROR            PER CENT

 0             .004             9.997559E-05     -3.900025E-03    -3900.977 %
 10            .21              .2147            4.699961E-03     2.189083 %
 20            .427             .4293            2.299965E-03     .5357476 %
 30            .647             .6439            -3.100097E-03    -.4814564 %

DIGESTION BLANK

SPIKE          MEASURED         CALC.            ERROR            PER CENT

 0             .002             -2.199951E-03    -4.199951E-03    190.9111 %
 10            .214             .2196001         5.60005E-03      2.550113 %
 20            .44              .4414001         1.400054E-03     .3171847 %
 30            .666             .6632001         -2.799928E-03    -.4221846 %

S01 DUP

SPIKE          MEASURED         CALC.            ERROR            PER CENT
```

0	.013	4.100037E-03	-8.899964E-03	-217.0703 %
10	.163	.1792	1.620002E-02	9.040189 %
20	.36	.3543	-5.700022E-03	-1.608812 %
30	.531	.5294	-1.600027E-03	-.3022341 %

Jun 28 Aug 91

S[illegible] SPIKE

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.158	.1654	7.399962E-03	4.47398 %
10	.34	.3268	-1.320005E-02	-4.039182 %
20	.484	.4882	4.199952E-03	.8602934 %
30	.648	.6496	1.599908E-03	.2462913 %

S01

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.013	1.029993E-02	-2.700074E-03	-26.2145 %
10	.156	.1635999	7.599935E-03	4.645439 %
20	.324	.3169	-7.100046E-03	-2.240469 %
30	.468	.4702	2.199978E-03	.4678813 %

S02

SPIKE	MEASURED	CALC.	ERROR	PER CENT
.002	.002	3.81235E-03	1.812349E-03	47.53891 %
10	.214	.2085836	-5.416408E-03	-2.596757 %
20	.408	.4133958	5.39583E-03	1.305245 %
30	.62	.618208	-1.792014E-03	-.2898723 %

S02

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.002	3.799927E-03	1.799927E-03	47.3674 %
10	.214	.2086	-5.400032E-03	-2.588702 %
20	.408	.4134	5.400002E-03	1.306241 %
30	.62	.6182	-1.800001E-03	-.291168 %

S03

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.002	8.999634E-04	-1.100037E-03	-122.2313 %
10	.177	.1833	6.299988E-03	3.436982 %
20	.375	.3657	-9.299994E-03	-2.543066 %
30	.544	.5481	4.099965E-03	.7480323 %

S[illegible]

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.733	.746	1.300001E-02	1.742629 %
10	1.088	1.0665	-2.150023E-02	-2.015962 %
20	1.383	1.387	3.99971E-03	.2883714 %
30	1.703	1.7075	4.499674E-03	.2635242 %

JKM
27 Aug 86

0.002 Blank2
0.720
1.038
1.377 QC1
1.674

0.004
0.210 Ex Blank
0.427
0.647

0.002
0.214 Dig Blank
0.440
0.666

0.013
0.163 S01 DUP
0.360
0.531

0.158
0.340 S01 Spike

0.484
0.648

0.013
0.156 S01
0.324
0.468

0.002
0.214
0.408 S02
0.620

0.002
0.177
0.375 S05
0.544

0.733
1.088 AQC
1.383
1.703

IKE

PM
28 Aug 86

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* LAMELESS * CSC VERSION 1.00 *

NAME OF ANALYST ---: P.M./M.S.
DATE OF ANALYSIS --: 08-28-1986
PARAMETER NAME ----: AS
DATA SET # --------: PRI 2 No Dilution

SAMPLE NO.	CONC.	R VALUE	SLOPE
STD	-.2419355	.9998699	.0124
QC23.5	20.74444	.996763	.01303 -11.9
QC 23.5	23.05397	.9997228	.01241 -2.1%
S01	.3145736	.9938029	6.039999E-03
S02	-1.567165	.9942153	8.040001E-03
S03 OK	-.6292512	.9976426	.00588
S04 OK	-.4489202	.9992292	.00646
S05	-.5405405	.992568	5.550001E-03
S06 OK	-.6907915	.9991138	6.080001E-03
QC	23.25302	.9995311	.01328 -1%

STD

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-.002	-.003	-9.999999E-04	33.33333 %
10	.118	.121	3.000014E-03	2.47935 %
20	.248	.245	-2.999976E-03	-1.22448 %
30	.368	.369	1.000017E-03	.2710073 %

QC23.5

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.262	.2703	8.300036E-03	3.070675 %
10	.419	.4006	-1.839998E-02	-4.593107 %
20	.519	.5309	1.190001E-02	2.241478 %
30	.663	.6612	-1.800001E-03	-.2722324 %

QC 23.5

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.283	.2860999	3.099859E-03	1.083489 %
10	.413	.4101999	-2.800107E-03	-.6826202 %
20	.538	.5343	-3.700078E-03	-.6925095 %
30	.655	.6584	3.399968E-03	.5163986 %

S01

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.002	1.900024E-03	-9.997573E-05	-5.261813 %
10	.056	6.230002E-02	6.300014E-03	10.11238 %

20	.135	.1227	-.0123	-10.02445 %
30	.177	.1831	6.099984E-03	3.331504 %

S02

JVM 28 Aug 81

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-.004	-1.260001E-02	-8.600006E-03	68.25398 %
10	.061	.0678	.0068	10.0295 %
20	.136	.1482	.0122	8.232117 %
30	.239	.2286	-1.039998E-02	-4.549424 %

S03

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.001	-3.699997E-03	-4.699997E-03	127.0271 %
10	.05	5.510001E-02	5.100005E-03	9.255906 %
20	.11	.1139	3.900007E-03	3.424062 %
30	.177	.1727	-4.299999E-03	-2.489866 %

S04

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	0	-2.900025E-03	-2.900025E-03	100 %
10	.057	6.169998E-02	4.699976E-03	7.617467 %
20	.127	.1263	-7.000268E-04	-.5542572 %
30	.192	.1909	-1.100034E-03	-.5762356 %

S05

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-.002	-.003	-9.999999E-04	33.33333 %
10	.045	5.250001E-02	7.500004E-03	14.28572 %
20	.12	.108	-1.199999E-02	-11.1111 %
30	.158	.1635	5.499989E-03	3.363908 %

S06

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-.002	-4.200013E-03	-2.200012E-03	52.38109 %
10	.052	.0566	4.599996E-03	8.127202 %
20	.12	.1174	-2.599992E-03	-2.214644 %
30	.178	.1782	2.000034E-04	.1122353 %

QC

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.311	.3088001	-2.199948E-03	-.7124183 %
10	.442	.4416	-4.000068E-04	-9.058124E-02 %
20	.567	.5744	7.399977E-03	1.288297 %
30	.712	.7072	-4.800082E-03	-.6787446 %

EDO 3424
American Steel Foundry

JVM
28 Aug 84

BEGIN DATA FILE: AS.DF

Begin Element - AS
-0.001
0.000 AZ
-0.002
0.118
0.248 std.
0.368
0.262
0.419
0.519 Q.C.
0.663
-0.005
-0.004 air
-0.004
0.283
0.413
0.539 Q.C.
0.555
0.002
0.056
0.135 S01
0.177
-0.004
0.061
0.136 S02
0.339
0.001
0.050
0.110 S03
0.177
0.000

0.057
0.127 S04
0.193
-0.002
0.045
0.130 S05
0.153
-0.002
0.052
0.130 S06
0.178
0.311
0.442 Q.C.
0.567
0.712

JVM 28 Aug 86

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* FLAMELESS * CSC VERSION 1.00 *

N' 'E OF ANALYST ---: MS &PM
DA.E OF ANALYSIS --: 08-27-1986
PARAMETER NAME ----: SE
DATA SET # --------: 3424

SAMPLE NO.	CONC.	R VALUE	SLOPE
BLANK	-4.587435E-02	.9998232	.0109
NBS	8.517517	.9991149	.00742 -12.4%
NBS	9.406337	.9997601	7.579998E-03
S01	-2.009237	.9001029	.00433 -3.1%
NBS	8.869351	.9999496	.00796
S01 1/10	.1970474	.9992872	.01015
S02 1/10	-.1338427	.9995506	.01046
S03 1/10	.2343757	.9997986	8.959999E-03
S04 1/10	-.1336283	.9996679	8.979999E-03
S05 1/10	-.6465986	.9994002	8.969998E-03
S06 1/10	-.3896143	.9998688	9.240001E-03
NBS	8.877149	.9976992	.00757 -8.5%
S07 1/10	8.313685E-02	.9999746	8.419999E-03
S09 1/10	2.185592	.9999598	8.189999E-03
S13 1/10	-.140303	.9999318	.00784
S14 1/10	2.783507	.9988957	.00873
EXTRACTION BLANK			
R15	-.2684564	.9996849	7.450001E-03
DIGESTION BLANK			
	-.49046	.9995325	7.339999E-03
S01 DUP 1/10	-.4557593	.9995477	7.459999E-03
NBS	8.910088	.9995324	7.339998E-03 -8.2%
S01 SPIKE 1/10	1.921399	.9837451	.00687 digestion spike inappropriately low 10µg/L
S01 SP ND	6.557386	.9998389	9.149998E-03
NBS	7.274876	.998303	8.440001E-03 Q.C out. -25%

BLANK

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-.002	-5.000305E-04	1.49997E-03	-299.9756 %
10	.109	.1085	-5.000085E-04	-.4608374 %
20	.221	.2175	-.0035	-1.609195 %
30	.324	.3265	2.500028E-03	.7657051 %

NBS

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.061	6.319998E-02	2.199981E-03	3.480984 %
1	.138	.1374	-6.000102E-04	-.4366887 %
2.	.217	.2116	-5.400002E-03	-2.551986 %
30	.282	.2858	3.799975E-03	1.329593 %

NBS

SPIKE	MEASURED	CALC.	ERROR	PER CENT

0	.071	7.130001E-02	3.000125E-04	.4207749 %
10	.146	.1471	1.100004E-03	.7477931 %
20	.226	.2229	-3.100023E-03	-1.390769 %
30	.297	.2987	1.699984E-03	.5691276 %

JVM 28 Aug 81

S01

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	0	-8.699996E-03	-8.699996E-03	100 %
10	.041	3.460001E-02	-6.399997E-03	-18.4971 %
20	.039	.0779	.0389	49.93582 %
30	.145	.1212	-.0238	-19.63697 %

NBS

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.071	7.060003E-02	-3.999695E-04	-.5665288 %
10	.149	.1502	1.20002E-03	.7989482 %
20	.231	.2298	-1.199991E-03	-.5221891 %
30	.309	.3094	4.000366E-04	.1292943 %

S01 1/10

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	0	2.000031E-03	2.000031E-03	100 %
10	.103	.1035	5.000085E-04	.4831 %
20	.212	.205	-7.000014E-03	-3.414642 %
30	.302	.3065	4.499972E-03	1.46818 %

S02 1/10

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-.005	-1.399994E-03	3.600006E-03	-257.1444 %
10	.109	.1032	-5.800009E-03	-5.620164 %
20	.207	.2078	7.999689E-04	.3849706 %
30	.311	.3124	1.399964E-03	.448132 %

S03 1/10

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	0	2.100006E-03	2.100006E-03	100 %
10	9.399999E-02	.0917	-2.299994E-03	-2.508173 %
20	.183	.1813	-1.699999E-03	-.9376718 %
30	.269	.2709	1.900017E-03	.7013721 %

S04 1/10

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.001	-1.199982E-03	-2.199982E-03	183.3346 %
10	.087	8.860001E-02	1.600012E-03	1.805883 %
20	.175	.1784	3.400013E-03	1.905837 %
30	.271	.2682	-2.800018E-03	-1.044004 %

S05

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-.004	-5.799988E-03	-1.799988E-03	31.03433 %
10	7.900001E-02	.0839	4.899994E-03	5.840279 %
[illegible]0	.178	.1736	-4.40003E-03	-2.53458 %
[illegible]0	.262	.2633	1.299948E-03	.4937136 %

Jm 28 Aug 81

S06 1/10

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-.004	-3.600037E-03	3.999635E-04	-11.10998 %
10	.088	8.879998E-02	7.999763E-04	.9008744 %
20	.184	.1812	-2.800003E-03	-1.545255 %
30	.272	.2736	1.599997E-03	.5847943 %

NBS

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.069	6.720001E-02	-1.799986E-03	-2.67855 %
10	.136	.1429	6.899998E-03	4.82855 %
20	.227	.2186	-8.399993E-03	-3.842632 %
30	.291	.2943	3.299981E-03	1.121299 %

S07 1/10

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	0	7.000122E-04	7.000122E-04	100 %
10	.086	.0849	-1.100004E-03	-1.295646 %
20	.169	.1691	9.998679E-05	.0591288 %
30	.253	.2533	2.999902E-04	.1184328 %

S09 1/10

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.018	1.789999E-02	-1.000054E-04	-.5586896 %
10	.099	9.979998E-02	7.999763E-04	.8015796 %
20	.183	.1817	-1.300037E-03	-.7154855 %
30	.263	.2636	5.999506E-04	.2275989 %

S13 1/10

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-.002	-1.099976E-03	9.000245E-04	-81.82224 %
10	7.900001E-02	7.730002E-02	-1.699984E-03	-2.199203 %
[illegible]	.155	.1557	7.000119E-04	.4495901 %
[illegible]	.234	.2341	1.000017E-04	4.271751E-02 %

S14 1/10

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.023	2.430002E-02	2.300019E-03	9.465089 %

20	.193	.1989	5.900026E-03	2.966327 %
30	.288	.2862	-1.799971E-03	-.6289206 %

EXTRACTION BLAN

SPIKE	MEASURED	CALC.	ERROR	PER CENT
[illegible]	-.004	-.002	.002	-100 %
10	.076	7.250001E-02	-3.499992E-03	-4.827575 %
20	.146	.147	1.000017E-03	.6802836 %
30	.221	.2215	5.000234E-04	.2257442 %

DIGESTION BLANK

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-.002	-3.599976E-03	-1.599975E-03	44.44406 %
10	.066	6.980001E-02	3.800012E-03	5.444143 %
20	.146	.1432	-2.799988E-03	-1.955299 %
30	.216	.2166	5.999953E-04	.2770061 %

S01 DUP 1/10

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	-.001	-3.399964E-03	-2.399963E-03	70.58791 %
10	.067	7.120003E-02	4.200027E-03	5.898911 %
20	.147	.1458	-1.199991E-03	-.8230387 %
30	.221	.2204	-5.999953E-04	-.2722302 %

NBS

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.063	6.540003E-02	2.400026E-03	3.669763 %
10	.143	.1388	-4.199997E-03	-3.025934 %
20	.211	.2122	1.199991E-03	.5654998 %
30	.285	.2856	5.999804E-04	.2100772 %

S01 SPIKE 1/10

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.004	1.320001E-02	9.200012E-03	69.697 %
10	.085	8.190001E-02	-3.099986E-03	-3.785085 %
20	.172	.1506	-2.139999E-02	-14.20982 %
30	.204	.2193	1.530001E-02	6.976747 %

S01 SP ND

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.06	6.000006E-02	6.332994E-08	1.055498E-04 %
10	.153	.1515001	-1.499951E-03	-.9900663 %
20	.24	.243	3.000021E-03	1.234577 %
30	.336	.3345	-1.500011E-03	-.4484337 %

NBS

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.056	6.139997E-02	5.399961E-03	8.79473 %
10	.151	.1458	-5.200014E-03	-3.566539 %
20	.236	.2302	-5.800009E-03	-2.519552 %
30	.309	.3146	5.600006E-03	1.78004 %

Jun
28 Aug 81

JVM
[illegible]

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* FLAMELESS * CSC VERSION 1.00 *

NAME OF ANALYST ---: P.M. M.S.
DATE OF ANALYSIS --: 08-27-1986
PARAMETER NAME ----: SE
DATA SET # --------: PRI2

SAMPLE NO.	CONC.	R VALUE	SLOPE	
NBS	8.819864	.9985906	8.050003E-03	-9.3%
S01 SP 1/10	1.146995	.9999281	8.979999E-03	TV10

NBS

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.066	7.099994E-02	4.999936E-03	7.042169 %
10	.157	.1515	-5.500049E-03	-3.630396 %
20	.236	.232	-4.000008E-03	-1.724142 %
30	.308	.3125	4.500032E-03	1.44001 %

S01 SP 1/10

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	8.999999E-03	1.030002E-02	1.300018E-03	12.62151 %
10	.102	.1001	-1.899988E-03	-1.898089 %
20	.19	.1899	-9.998679E-05	-5.265234E-02 %
30	.279	.2797	6.999672E-04	.2502564 %

Jun
28 Aug 96

3333333

Begin Element - SE
0.003
0.000 AZ
-0.002
0.109
0.221 Std.
0.324
0.061
0.138
0.217 NBS
0.282
0.071
0.146
0.226 NBS
0.297
0.000
0.041
0.039 S01
0.145
-0.004
0.025
0.064 S02
0.122
-0.007
0.036
0.043 S03
0.121
0.000
0.049
0.045 S04
0.160
-0.010
0.006
0.028
0.072
0.155
0.260 NBS
0.301
0.069
0.165
-0.012
0.071
0.149
0.231 NBS
0.309
0.003 Blank
0.000
0.103
0.212 S01 1:10
0.302
-0.005
0.109 S02 1:10

-0.013
0.071
0.149
0.231 NBS
0.309
0.003 Blank
0.000
0.103 S01
0.212 1:10
0.302
-0.005
0.109 S02
0.207 1:10
0.311
-0.000
0.094 S03
0.183 1:10
0.269
0.001

0.087 S04
0.175 1:10
0.271
-0.004
0.079 S05
0.178 1:10
0.262
-0.004
0.088 S06
0.184 1:10
0.272
0.069 NBS
0.136 AGC
0.227
0.291
~~-0.013 Blank~~
-0.000
0.086 S07
0.169 1:10
0.253
0.018
0.099 S08
0.183 1:10
0.263
-0.002
0.079 S09
0.155 1:10
0.234
0.022
0.118 S14
0.193 1:10
0.288
-0.004
0.076 Blk
0.146
0.221
-0.002
0.066 Dig
0.146 B.
0.216
-0.001
0.067 S01 Dup.
0.147

JVM
28 Aug 91

0.271
-0.004
0.079 S05
0.178
0.262 1:10
-0.004
0.088 S06
0.184 1:10
0.272
0.069 NBS
0.136
0.227 ΔQC
0.291
-0.013 Cup
-0.000
0.086
0.169 S07
0.253 1:10
0.018
0.099 S08
0.183
0.263 1:10
-0.002
0.079 S13
0.155
0.234 1:10
0.022
0.118
0.193 S14 1:10
0.288
-0.004
0.076 Blk
0.146 B
0.221
-0.002
0.066 Dig
0.146 B.
0.216
-0.001
0.067 S01 Dup.
0.147
0.221
0.063
0.143
0.211 NBS
0.285

Jim
28 Aug 86

Jim
Waugh

0.004
0.085 P
0.172 1:10
0.204
0.060
0.153 P
0.240 ND
0.336
0.056
0.151 NBS
0.236
0.309
0.059
0.141 NBS
0.237
0.313
0.006
0.094
0.179
0.289
-0.002

0.066
0.157 NBS
0.236
0.308
0.009
0.102 SOI
0.190 1:10
0.279
-0.001 Blank
up

Jun
28 Aug 86

* EGRESSION ANALYSIS * CSC VERSION 2.00 *

NAME OF ANALYST ---: MS
PARAMETER NAME ----: SE
DATE OF ANALYSIS --: 08-27-1986

DATA SET NUMBER ---: 3424
DU NUMBER ---------: D307

DEGREE OF FIT : 1

EQUATION : CONCENTRATION = +5.11589E-02
+9.17107E+01 * SIGNAL

COEFFICIENT OF DETERMINATION : .999648

T-A-B-L-E O-F S-T-A-N-D-A-R-D-S

STANDARD	SIGNAL	CONCENTRATION	CALCULATED
1	-0.002	+0.000	-0.133
2	+0.109	+10.000	+10.047
3	+0.221	+20.000	+20.319
4	+0.324	+30.000	+29.765

T-A-B-L-E O-F S-A-M-P-L-E-S

SAMPLE I.D.	SIGNAL	CONCENTRATION
-.013	-0.013	-1.142
BLANK	-0.013	-1.142

Jun 27 Aug 86

Run No. 541

Prep. by MS Date 8/25/86 Anal. by Date

Beaker No.	Data Set	Sample	Notes	Beaker No	Data Set	Sample	Notes
1	ED03424	EF10 S01		26	ED03424	S01	As-Se Dig
2		S02		27		S02	
3		S03		28		S03	
4		S04		29		S04	
5		S05		30		S05	
6		S06		31		S06	
7		S07		32		S07	
8		S09		33		S09	
9		S13		34		S13	
10		S14		35		S14	
11		EX BLANK		36		EX BLANK	
12		AQC		37		AQC	
13		BLANK		38		BLANK	
14		S01	DUP	39		S01	DUP
15		S01	SPIKE	40		S01	SPIKE
16		S09	1/10	41			
17		S14	1/10	42			
18		AQC	1/10	43			
19				44			
20				45			
21				46			
22				47			
23				48			
24				49			
25				50			

JVM
27 Aug 86

DL1:[001,054]RUN541.BRN 26-AUG-86 15:25:55 PAGE 1

DATA SET : METALS1

ELEMENT		DET LIM	BLANK11	BLANK13
AG	µg/L	6.000	0.508	0.098
AL		80.0	22.6	22.6
B		80.0	92.1*	57.9
BA		6.0	87.4*	34.5*
BE		1.000	0.138	0.188
CD		10.000	1.470	0.557
CO		6.00	-0.30	-2.50
CR		8.00	0.72	-1.93
CU		6.000	0.982	0.702
FE		80.0	27.5	23.6
LI		10.00	-0.87	-2.31
MN		5.000	3.930	0.765
MO		15.00	-2.85	-2.47
NI		15.00	7.12	3.56
PB		70.0	-1.6	14.2
SN		40.0	-7.2	17.3
SR		10.000	0.554	0.107
TI		25.00	4.67	3.01
V		5.00	-0.78	-1.79
Y		5.000	0.349	0.105
ZN		40.0	20.4	13.3
CA	mg/L	0.500	0.327	0.157
CA		0.500	0.310	0.130
K		2.000	-0.181	-0.347
MG		0.100	0.019	0.015
NA		1.000	0.283	0.237

NOT SIGNIFICANT

9/4/86

Repeat of same blank about 1 hr apart

MS 8/26/86

Ba + B contamination

problems with Ba not corrected because all samples are well below RCRA action level of 100 mg/L for EP Tox JVM 27 Aug 86

JVM
27 Aug 86

MS 8/26/86

All values ± 2σ
except hi Ca

DL1:[001,054]RUN541.BRN 26-AUG-86 14:13:55 PAGE 2

DATA SET : METALS1 SAMPLE ID : AQC.086

ELEMENT		TRUE	MEASURED	% DEV
AL	µg/L	4760.00	4820.00	1.34
B		1050.00	1070.00	2.73
BA		1510.00	1530.00	1.22
BE		728.00	738.00	1.36
CD		425.00	433.00	1.73
CO		972.00	995.00	2.43
CR		1570.00	1610.00	2.78
CU		1160.000	1170.000	0.963
FE		3820.00	3870.00	1.50
LI		808.000	815.000	0.917
MN		1330.000	1340.000	0.429
MO		811.00	821.00	1.26
NI		1180.000	1190.000	0.787
PB		2970.00	3080.00	3.36
SN		2430.00	2330.00	-3.93
SR		902.00	890.00	-1.35
TI		1200.00	1210.00	1.16
V		744.000	750.000	0.805
Y		784.000	787.000	0.338
ZN		2800.000	2800.000	0.035
CA	mg/L	12.4	14.3	15.2
CA		13.20	14.30 *	7.89
K		96.00	98.20	2.21
MG		5.210	5.190	-0.364
		18.500	18.600	0.496

JVM
27 Aug 86

MS 8/26/86

All values ± 10% or ± 2σ

DL1:L001,0543RUN541.BRN 26-AUG-86 14:15:06 PAGE 3

DATA SET : METALS1 SAMPLE ID : ADC.086

ELEMENT		TRUE	MEASURED	% DEV
AL	µg/L	4760.00	4690.00	-1.41
B		1050.000	1040.000	-0.180
BA		1510.000	1500.000	-0.570
BE		728.00	714.00	-1.91
CD		425.00	411.00	-3.62
CO		972.00	958.00	-1.43
CR		1570.00	1540.00	-2.07
CU		1160.00	1140.00	-1.70
FE		3820.00	3750.00	-1.76
LI		808.000	801.000	-0.849
MN		1330.00	1290.00	-3.00
MO		811.00	798.00	-1.55
NI		1180.00	1120.00	-4.72
PB		2970.00	2910.00	-2.22
SN		2430.00	2270.00	-6.50
SR		902.00	869.00	-3.62
TI		1200.00	1170.00	-2.11
V		744.00	725.00	-2.53
Y		784.00	766.00	-2.30
ZN		2800.00	2710.00	-3.44
CA	mg/L	12.4	13.8	11.5
CA		13.20	13.70	3.48
K		96.000	96.400	0.313
MG		5.21	5.00	-4.07
[illegible]		18.500	18.600	0.408

JVM
27 Aug 86

MS 8/26/86

All values
±10% or 2σ

DL1:[001,054]RUN541.BRN 26-AUG-86 14:16:18 PAGE 4

DATA SET : METALS1 SAMPLE ID : AQC.086

ELEMENT		TRUE	MEASURED	% DEV
AL	µg/L	4760.000	4770.000	0.252
B		1050.00	1060.00	1.33
BA		1510.000	1510.000	0.035
BE		728.000	726.000	-0.304
CD		425.000	422.000	-0.731
CU		972.000	978.000	0.598
CR		1570.000	1570.000	0.054
CU		1160.000	1150.000	-0.252
FE		3820.000	3800.000	-0.378
LI		808.000	811.000	0.361
MN		1330.00	1320.00	-1.17
MO		811.000	804.000	-0.771
NI		1180.00	1170.00	-1.29
PB		2970.00	2930.00	-1.53
SN		2430.00	2340.00	-3.47
SR		902.00	881.00	-2.31
TI		1200.000	1200.000	-0.095
V		744.00	736.00	-1.17
Y		784.000	778.000	-0.865
ZN		2800.00	2760.00	-1.62
CA	mg/L	12.4	14.2	14.1
CA		13.20	13.90	5.52
K		96.000	96.300	0.233
MG		5.21	5.11	-2.01
NA		18.500	18.500	-0.058

JVM
27 Aug 86

MS 8/26/86 Ag ± 10%

DL1:L001.054JRUN541.BRN 26-AUG-86 14:18:41 PAGE 6

DATA SET : METALS1 SAMPLE ID : WP37810

ELEMENT		TRUE	MEASURED	% DEV
AG	µg/L	48.00	49.80	3.70

Jun
27 Aug 86

MS 8/26/86 Ag ±10%

DL1:[001,054]RUN541.BRN 26-AUG-86 14:21:05 PAGE 8

DATA SET : METALS1 SAMPLE ID : WP37810

ELEMENT		TRUE	MEASURED	% DEV
AG	µg/L	48.00	49.80	3.85

MS 8/26/86 Ag ±10%

[001,054]RUN541.BRN 26-AUG-86 14:19:53 PAGE 7

DATA SET : METALS1 SAMPLE ID : WP37810

ELEMENT		TRUE	MEASURED	% DEV
AG	µg/L	48.00	50.20	4.57

JM
27 Aug 86

SET PAPER TO TOP OF FORM AND
PR 'S *RETURN TO CONTINUE!

MS 8/26/86

all values ±10% or ± detection limit except Ba

DL1:E001,0543RUN541.BRN 26-AUG-86 14:26:39 PAGE 1

DATA SET : EU03424 SAMPLE ID : EP10S01

ELEMENT		Det limit	SAMPLE	DUPLICATE	AVERAGE	R P D
AG	µg/L	6.0	0.6	0.8	0.7	27.1
AL			135.00	148.00	141.00	8.92
B		80.0	289.0	382.0	336.0	27.9
BA		6.0	46.9	58.2	52.6	21.5*
BE		1.0	0.1	0.1	0.1	49.7
CD		10.0	1.5	3.3	2.4	76.6
CO		6.0	1.6	2.0	1.8	20.2
CR		8.0	1.	4.	2.	134.
CU		6.0	5.7	4.8	5.2	17.6
FE			121.00	111.00	116.00	8.97
LI			20.80	20.20	20.50	2.46
MN			126.000	127.000	127.000	0.471
MO		15.0	1.	7.	4.	146.
NI			23.90	22.10	23.00	7.70
PB		70.0	11.	41.	26.	117.
SN		40.0	-16.4	-11.5	-13.9	-35.3
SR			317.000	317.000	317.000	0.067
TI			5.38	4.98	5.18	7.62
V		5.0	1.0	0.4	0.7	88.0
Y		5.0	0.3	0.7	0.5	62.1
ZN			52.70	49.20	50.90	6.93
CA	mg/L		10.000	10.100	10.100	0.410
CA			9.880	9.960	9.920	0.837
K			1.280	1.270	1.270	0.969
MG			2.680	2.680	2.680	0.062
NA			23.900	24.100	24.000	0.983

Jvm
27 Aug 86

SET PAPER TO TOP OF FORM AND
PR 3 "RETURN TO CONTINUE!

AMS 8/26/86

DL1:[001,054]RUN541.BRN 26-AUG-86 14:35:49 PAGE 1

DATA SET : ED03424 SAMPLE ID : EF10S01

ELEMENT		SAMPLE	SPIKE	SPIKE ADDED	% RECOVERY
AG	µg/L	0.6	47.7	50.0	94.1
AL		135.0	853.0	800.0	89.7
B		289.	1290.	800.	125. *
BA		46.9	231.0	200.0	92.3
BE		0.1	9.2	10.0	91.4
CD		1.5	22.8	25.0	85.4
CO		1.6	93.8	100.0	92.1
CR		0.7	96.4	100.0	95.7
CU		5.7	49.9	50.0	88.5
FE		121.0	873.0	800.0	93.9
LI		20.8	73.2	54.0	97.1
MN		126.0	174.0	50.0	95.5
MO		1.	104.	100.	103.
NI		23.9	152.0	150.0	85.2
PB		10.8	795.0	800.0	98.0
SN		-16.4	342.0	400.0	87.6
SR		317.0	1260.0	1000.0	94.4
TI		5.4	97.3	100.0	92.0
V		1.0	43.5	50.0	85.0
Y		0.3	47.1	50.0	93.5
ZN		53.	517.	400.	116. *
CA	mg/L	10.	82.	50.	145.
CA		9.9	56.3	50.0	92.8
K		1.3	19.5	20.0	91.2
MG		2.7	26.0	25.0	93.2
NA		23.9	70.8	50.0	93.8

All values except Zn and B are ± 15%

Jun 27 Aug 86

DATA SET : METALS1

ELEMENT			HIGHAUC
AG	µg/L	<	6.00
AL			99400.
B		<	80.0
BA		<	6.00
BE		<	1.00
CD		<	10.0
CO		<	6.00
CR			8.48
CU		<	6.00
FE			97400.
LI			13.2
MN			15.9
MO		<	15.0
NI		<	15.0
PB		<	70.0
SN		<	40.0
SR			27.5
TI		<	25.0
V		<	5.00
Y		<	5.00
ZN			92500.
CA	mg/L		103.
CA			102.
K		<	2.00
MG			10.3
NA		<	1.00

MS 8/26/86

9/4/86

JM 27 Aug 86

DATA SET : ED03424

ELEMENT			EXBLANK
AG	ug/l	<	6.00
AL		<	80.0
B			114.
BA		<	6.00
BE		<	1.00
CD		<	10.0
CO		<	6.00
CR		<	8.00
CU		<	6.00
FE		<	80.0
LI		<	10.0
MN			11.8
MO		<	15.0
NI			66.4
PB		<	70.0
SN		<	40.0
SR		<	10.0
TI		<	25.0
V		<	5.00
Y		<	5.00
ZN			47.4
CA		<	0.500
CA	mg/l	<	0.500
K		<	2.00
MG		<	0.100
NA		<	1.00

MS 8/27/86

9/4/86

Activity # C28359

ENVIRONMENTAL PROTECTION AGENCY
FOR THE TEAM: MINERALS-NUTRIENTS

11/7/86

8/29/86 remainder

DIVISION/BRANCH ESD/EDO SAMPLING DATE 8/6/86 LAB ARRIVAL DATE 8/8/86 DUE DATE 8/15/86* priority 1

DU NUMBER D307 DATASET NUMBER 3424 STUDY American Steel Foundry PRIORITY 1* CONTRACTOR N

CRL LOG NUMBER	SAMPLE DESCRIPTION	EP TOX EXTRACT MERCURY MG/L MIN19309	FISH HG MG/KG (WET) MIN520168
86EF10501	5-90240	X <0.0001	
86EF10502	5-90241	X <0.0001	
86EF10503	5-90242	X <0.0001	
86EF10504	5-90243	X <0.0001	
86EF10505	5-90244	X <0.0001	
86EF10506	5-90245	X <0.0001	
86EF10507	5-90229	X <0.0001	
*86EF10508	5-90246	X <0.0001	
86EF10D09	5-90247	X 0.0005	
*86EF10510	5-90248	X 0.0004	
*86EF10511	5-90249	X 0.0004	
*86EF10512	5-90127	X <0.0001	
86EF10513	5-90226	X <0.0001	
86EF10514	5-90250	X 0.0036	
86EF10R15	5-90227	X no sample Empty Jar	
		P. P. 11/6/86	

*priority 1

CRL V.2: 3/85

OK - PP
11/6/86

TRANSMITTED BY
NOV 07 1986
U.S. EPA CENTRAL
REGIONAL LAB

NOTE: These samples were screened using
(1) CRL automated Hg method. They are well below Reft Limit 0.2 mg/L Hg.

(2) Sample #s S06, S07, D09, S13, & S14 are Extracted 2nd time. Values reported are based on 2nd extraction

* REGRESSION ANALYSIS * CSI VERSION 2.00 *

NAME OF ANALYST ---: PM
PARAMETER NAME ----: MB
DATE OF ANALYSIS --: 11-04-1986

DATA SET NUMBER ---: WSB 3569, 3570, 3562 ED03424
DU NUMBER ---------: C215, D307

DEGREE OF FIT : 1

EQUATION : CONCENTRATION = -5.71966E-02
+6.53065E-02 * SIGNAL

COEFFICIENT OF DETERMINATION : .9991914

T-A-B-L-E 0-F S-T-A-N-D-A-R-D-S

STANDARD	SIGNAL	CONCENTRATION ug/l	CALCULATED
1	+0.500	+0.000	+0.026
2	+7.500	+0.500	+0.484
3	+15.000	+1.000	+0.973
4	+23.000	+1.500	+1.496
5	+31.000	+2.000	+2.018

T-A-B-L-E 0-F S-A-M-P-L-E-S

SAMPLE I.D.	SIGNAL	CONCENTRATION	
BLANK	+0.000	-0.002	limit 0 ± 0.1
CS1	+25.000	+1.626	limit 1.5 ± 0.2
CS2	+23.000	+1.496	limit 1.5 ± 0.2
EXT BLANK	+0.000	-0.002	
S.c	+0.000	-0.002	
S07	+1.000	+0.059	
D09	+7.000	+0.451	
S13	+0.000	-0.006	
S14	+53.000	+3.455	
PE1	+6.000	+0.386	
PE2	+5.500	+0.353	
DORDUP	+6.000	+0.386	limit Δ ≤ 0.15
S07 SPIKE	+17.000	+1.104	1.104 - .059 = 1.045 limit 1.0 ± 0.15
S14 1/5	+11.000	+0.712	3.56
CS1	+22.500	+1.463	limit 1.5 ± 0.2
CS2	+21.000	+1.365	limit 1.5 ± 0.2
S23	+1.500	+0.092	
S24	+0.500	+0.026	
S25	+2.500	+0.157	
S26	+1.000	+0.059	
S27	+1.500	+0.092	
S07	+1.000	+0.059	
S08 1/100	+16.500	+1.071	107.1
S09	+2.500	+0.157	
S10	+0.000	-0.006	
S11	+0.000	-0.006	
S12	+0.000	-0.006	
S08 DUP 1:100	+17.000	+1.104	110 limit Δ ≤ 0.15
S11 SP	+16.000	+1.169	1.169 - .006 1.175 limit 1.0 ± 0.15 just above limit
S13	+1.500	+0.092	
S19	+1.000	+0.059	
CS1	+23.000	+1.496	limit 1.5 ± 0.2
CS2	+23.000	+1.496	limit 1.5 ± 0.2
S14	+1.500	+0.092	
S15	+1.000	+0.059	
S16	+1.000	+0.059	
S17	+0.800	+0.046	
S18	+0.500	+0.026	
20	+0.500	+0.026	

ED03424

WSB 3570

WSB 3562

WSB 3569

reconfirm previous values

* REGRESSION ANALYSIS * CSC VERSION 2.00 *

NAME OF ANALYST ---: PP
PARAMETER NAME ----: HG
DATE OF ANALYSIS --: 08-29-1986

DATA SET NUMBER ---:
DU NUMBER ---------:

DEGREE OF FIT : 1

EQUATION : CONCENTRATION = +3.66893E-02
+3.50295E-02 * SIGNAL

COEFFICIENT OF DETERMINATION : .9983404

T-A-B-L-E D-F S-T-A-N-D-A-R-D-S

STANDARD	SIGNAL	CONCENTRATION	CALCULATED
1	-1.000	+0.000	+0.001
2	+12.500	+0.500	+0.474
3	+28.000	+1.000	+1.017
4	+43.000	+1.500	+1.542
5	+55.000	+2.000	+1.963

T-A-B-L-E D-F S-A-M-P-L-E-S

SAMPLE I.D.	SIGNAL	CONCENTRATION ug/L	
BLK	-1.000	+0.001	Lvt ≤ 0.1
CS1	+40.000	+1.437	" = 1.5±0.2
CS2	+42.000	+1.507	" = 1.5±0.2
86EF10S01	-1.000	+0.001	
S02	-2.000	-0.034	
S03	-2.000	-0.034	
S04	-2.000	-0.034	
S05	-2.000	-0.034	
S06	-2.000	-0.034	
S07	-2.000	-0.034	
(PP) ~~S08~~ D09	+12.000	+0.457	
BLK	-2.000	-0.034	
S13	-2.000	-0.034	
S14	+39.000	+1.402	
CS1	+39.000	+1.402	
CS2	+42.500	+1.525	
86EF10D09DUP	+15.000	+0.562	Δ ≤ 0.1
86RA01S44	+0.000	+0.036	
S46	-1.000	+0.001	
S47	-1.000	+0.001	
S48	-1.000	+0.001	
D48	-1.000	+0.001	
R53	-1.000	+0.001	
EF10S01SPK (H.O)	+28.000 % rec = 101	+1.017	% = 100 ± 15 %
CS1	+40.500	+1.455	
CS2	+41.000	+1.472	
EF10S14DUP	+40.000	+1.437	Δ ≤ 0.1
S44DUP	+0.000	+0.036	Δ ≤ 0.1

EDO 3424

SF 3453

1st extraction

DO NOT USE data for S06, S07, D09, S13 & S14 from this run. Use from 2nd extraction

[illegible] 11/6/86

NAME OF ANALYST ---: PP
PARAMETER NAME ----: HG
DATE OF ANALYSIS --: 08-13-1986

DATA SET NUMBER ---: E003424 / RCRA 3371 / WSB 3348 /
DU NUMBER ---------:
SF 3407 / SF 3413

DEGREE OF FIT : 1

EQUATION : CONCENTRATION = -4.52654E-02
+5.09886E-02 * SIGNAL

COEFFICIENT OF DETERMINATION : .9993744

T-A-B-L-E 0-F S-T-A-N-D-A-R-D-S

STANDARD	SIGNAL	CONCENTRATION	CALCULATED
1	+0.500	+0.000	-0.020
2	+11.000	+0.500	+0.515
3	+21.000	+1.000	+1.025
4	+30.000	+1.500	+1.484
5	+40.000	+2.000	+1.994

T-A-B-L-E 0-F S-A-M-P-L-E-S

SAMPLE I.D.	SIGNAL	CONCENTRATION	
BLK	+0.500	-0.020	Δ ≤ 0.1
CS1	+30.000	+1.484	Limit 1.5 ± 0.2
CS2	+30.000	+1.484	" 1.5 ± 0.2
EPBLK	+0.500	-0.020	
S08 86EF10S08	+1.000	+0.005	E003424 (Priority I)
S10 "	+9.000	+0.413	
S11 "	+9.000	+0.413	
S12 "	+2.000	+0.054	
RCRABC	+11.000	+0.515	DS # RCRA 3371
"	+11.000	+0.515	
"	+9.000	+0.413	
"	+11.000	+0.515	
CS1	+31.000	+1.535	
CS2	+29.000	+1.433	
S10 DUP Calculation	+10.000	+0.464	d ≤ 0.1
S10SPK (+1.0)	+32.000	+1.586	Limits 100 ± 15%
86PG01S20	+0.000	-0.046	WSB 3348
S21	+0.000	-0.046	
S22	+0.000	-0.046	
S23	+1.000	+0.005	
S24	+0.500	-0.020	
S25	+3.000	+0.107	
S26	+0.000	-0.046	
S27	+0.000	-0.046	
86SB4101S01	+0.000	-0.046	SF 3407
S02	+0.000	-0.046	
S03	+0.000	-0.046	
S04	+0.000	-0.046	
D04	+0.000	-0.046	
86FS01S20DUP	+0.000	-0.046	Δ ≤ 0.1
86SS01S01	+0.000	-0.046	SF 3413
S02	+0.000	-0.046	
S03	+0.000	-0.046	
S04	+0.000	-0.046	
S05	+0.000	-0.046	
D01	+0.000	-0.046	
R01	+0.000	-0.046	
S5D1S01DUP	+0.000	-0.046	
S5D1S01SPK	+23.000	+1.127	
CS1	+30.000	+1.484	
CS2	+30.000	+1.484	

11/7/86

Activity # C20359

ENVIRONMENTAL PROTECTION AGENCY
FOR THE TEAM MINERALS-NUTRIENTS

DIVISION/BRANCH ESD/EDO SAMPLING DATE 8/6/86 LAB ARRIVAL DATE 8/8/86 DUE DATE 8/15/86* 8/29/86 remainder

DU NUMBER D307 DATABLE NUMBER 3424 STUDY American Steel Foundry PRIORITY 1* CONTRACTOR N

all ok Pm - PP

all ok Pm PP 11/6/86

CRL LOG NUMBER	SAMPLE DESCRIPTION	EP TOX EXTRACT MERCURY MG/L MIN19309	~~FISH~~ Second Extraction HG mg/l ~~MG/KG (WET)~~ ~~MIN520100~~
86EF10501	5-90240	X K0.0001	
86EF10502	5-90241	X K0.0001	
86EF10503	5-90242	X K0.0001	
86EF10504	5-90243	X K0.0001	
86EF10505	5-90244	X K0.0001	
86EF10506	5-90245	X K0.0001	K0.0001
86EF10507	5-90229	X K0.0001	K0.0001
* 86EF10508	5-90246	X K0.0001 **	
86EF10D01	5-90247	X (PP) 0.0005	0.0005
* 86EF10510	5-90248	X 0.0004 **	
* 86EF10511	5-90249	X 0.0004 **	
* 86EF10512	5-90127	X K0.0001 **	
86EF10513	5-90226	X K0.0001	K0.0001
86EF10514	5-90250	X 0.0014	0.0036
86EF10R15	5-90227	X No sample Empty Jar	
			PM 11-5-86
		PPerrel 8/14/86	these samples were reextracted and rerun. PM
		PPerrel 8/29/86	

** These samples were screened using CRL automated Hg method. They are well below action limit 0.2 mg/L Hg

PP

Note: Rest of the sample analysis reports will be submitted later on as soon as analysis is done

PP

~~Rest~~ Remaining samples done on 8/29/86

PP

* or not

8/27/86

JVM 27 Aug 86

C 28359
D 307

DL1:L001.0543RUN541.BRN 26-AUG-86 14:25:17 PAGE 3

DATA SET : ED03424 American Steel Foundries

ELEMENT		EF10502	EF10501	EF10503	EF10504
AG	ug/l	< 6.00	< 6.00	< 6.00	< 6.00
AL		< 80.	135.	< 80.	874.
B		109.	289.	177.	4900.
BA		58.	47.	28.	150.
BE		< 1.00	< 1.00	< 1.00	< 1.00
CD		< 10.0	< 10.0	< 10.0	< 10.0
CO		22.3	< 6.0	< 6.0	58.9
CR		< 8.00	< 8.00	< 8.00	< 8.00
CU		< 6.0	< 6.0	< 6.0	11.6
FE		43300.	121.	2700.	< 80.0
LI		10.	21.	< 10.	192.
MN		5470.	126.	2660.	1130.
MO		< 15.0	< 15.0	< 15.0	76.6
NI		259.	24.	82.	277.
PB		< 70.0	< 70.0	< 70.0	< 70.0
SN		< 40.0	< 40.0	< 40.0	< 40.0
SR		480.	517.	552.	2360.
TI		< 25.0	< 25.0	< 25.0	< 25.0
V		< 5.00	< 5.00	< 5.00	< 5.00
Y		< 5.00	< 5.00	< 5.00	< 5.00
ZN		< 40.	53.	< 40.	145.
CA	mg/l	14.	10.	16.	
CA					87.8
K		< 2.00	< 2.00	< 2.00	2.68
MG		3.8	2.7	3.8	30.5
NA		3.6	23.9	4.0	39.3

MS 8/27/86

TRANSMITTED BY
Griffin
SEP 08 1986

U.S. EPA CENTRAL
REGIONAL LAB

8/27/86
JVM 27 Aug 86
9/4/86

C 28359
0307

DATA SET : ED03424 American Steel Foundries

ELEMENT		EF10S05	EF10S06	EF10S07	EF10S09
AG	ug/l	< 6.00	< 6.00	< 6.00	< 6.00
AL		< 80.0	< 80.0	905.	< 80.0
B		108.	102.	1950.	741.
BA		49.	37.	112.	255.
BE		< 1.00	< 1.00	< 1.00	< 1.00
CD		< 10.	< 10.	10.	1410.
CO		< 6.00	129.	< 6.00	< 6.00
CR		< 8.0	< 8.0	< 8.0	11.2
CU		6.5	< 6.0	11.6	25.2
FE		21500.	120000.	173.	172.
LI		< 10.0	14.7	79.0	76.1
MN		4100.	11300.	672.	
MO		< 15.0	< 15.0	21.0	< 15.0
NI		85.0	2020.	29.3	41.5
PB		< 70.	< 70.	< 70.	1260.
SN		< 40.0	< 40.0	< 40.0	< 40.0
SR		198.	174.	2320.	267.
TI		< 25.0	< 25.0	< 25.0	< 25.0
V		< 5.00	< 5.00	< 5.00	< 5.00
Y		< 5.00	< 5.00	< 5.00	< 5.00
ZN		< 40.	60.	66.	
CA	mg/l	26.	19.	72.	218.
K		< 2.	< 2.	7.	132.
MG		1.9	2.4	16.9	
NA		2.	3.	136.	

MS 8/27/86

8/27/86

 AJ

C28359 D307

DATA SET : E003424 American Steel Foundries

Jm 27Aug86

9/4/86

LEMENT		EF10S0Y 1:10 dilution	EF10S13	EF10S14	EF10S14 1:10 Dilution
AG	ug/l	<	< 6.00	< 6.00	
AL		<	88.5	< 80.0	
B			197.	1040.	
BA			68.	334.	
BE			< 1.00	< 1.00	
CD			< 10.	1260.	
CO		<	< 6.00	< 6.00	
CR		<	12.3	10.8	
CU			< 6.0	36.0	
FE			211.	212.	
LI			17.0	102.	
MN		22700.	250.		31800.
MO			< 15.0	30.1	
NI			< 15.0	48.8	
PB			84.	1260.	
SN			< 40.0	< 40.0	
SR			498.	401.	
TI			< 25.0	< 25.0	
V			< 5.00	< 5.00	
Y			< 5.00	< 5.00	
ZN		91900.	184.		107000.
CA	mg/l		21.	316.	
K			2.	163.	
MG		54.5	5.2		67.5
NA		241.	11.		288.

MS 8/27/86

* AMELESS * CSC VERSION 1.00 *

JVM
7-11-86

NAME OF ANALYST ---: HNR
DATE OF ANALYSIS --: 11-05-1986
PARAMETER NAME ----: AS
DATA SET # ---------: 3424, 3371, 3552

SAMPLE NO.	CONC.		R VALUE		SLOPE	
R	.2135232		.998476		.0281	
AQC T.V. 23.5	23.45963	0.2% dev	.9999643		3.035001E-02	
S26 X10 (S06)	-.7277866	83% rec	.9972395	<20	.02116	D/S 3424
S33 X10 (S06 pk sol)	7.585175		.9997534	<20	2.318999E-02	
S31 X100 (S03)	5.20608	52%	.9995827		.03421	D/S 3371
S32 X100 (S03)	6.63534	66%	.9999901		3.299001E-02	
AQC T.V. 23.5	22.75967	3.15% dev.	.9980018		3.225002E-02	
R	-.1796392		.9992319		.03173	
S26 1:1 dil = x2	20.76164	41.52	.9999428		3.243001E-02	
S27 1:3 dil = x4	19.53325	78.13	.9997453		.03278	D/S 3552
AQC T.V. 23.5	21.72988	7.5% dev.	.9998224		3.295002E-02	WS 19
S28	17.17682		.9997282		3.365001E-02	
S29 1:1 dil = x2	20.17384	40.35	.9994512		3.106001E-02	
AQC TV. 23.5	22.90834	2.5% dev.	.9987822		.03153	

Spk had 10 ml of 0.5 ppm soln.

ave S03 = 592

R

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.003	.006	.003	50 %
10	.277	.287	9.999991E-03	3.484317 %
20	.597	.568	-2.900005E-02	-5.105642 %
30	.833	.8489999	1.599991E-02	1.88456 %

AQC

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.71	.7119998	1.999795E-03	.2808702 %
10	1.02	1.0155	-4.500151E-03	-.4431464 %
20	1.316	1.319	2.999902E-03	.2274376 %
30	1.623	1.6225	-5.00083E-04	-3.082176E-02 %

S26 X10

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	0	-1.539996E-02	-1.539996E-02	100 %
10	.167	.1962	2.920003E-02	14.88279 %
20	.42	.4078	-1.219997E-02	-2.991655 %
30	.621	.6194	-1.600027E-03	-.2583189 %

S33 X10

SPIKE	MEASURED	CALC.	ERROR	PER CENT

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.17	.1759002	5.900145E-03	3.354258 %
10	.414	.4078001	-6.199926E-03	-1.520335 %
20	.645	.6397	-5.299986E-03	-.8285111 %
30	.866	.8715999	5.599916E-03	.642487 %

Jm
7 Mark

S3 X100

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.179	.1781	-9.000301E-04	-.5053511 %
10	.51	.5202	1.019996E-02	1.960778 %
20	.88	.8623	-1.770002E-02	-2.052652 %
30	1.196	1.2044	8.399963E-03	.6974397 %

S32 X100

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.219	.2188999	-1.000911E-04	-.0457246 %
10	.55	.5488	-1.20002E-03	-.2186626 %
20	.876	.8787	2.700031E-03	.3072756 %
30	1.21	1.2086	-1.399994E-03	-.115836 %

ADC

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.731	.7339998	2.999723E-03	.4086818 %
10	1.079	1.0565	-2.250004E-02	-2.129677 %
20	1.343	1.379	3.600001E-02	2.610588 %
30	1.718	1.7015	-1.649988E-02	-.9697252 %

R

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	8.999999E-03	-5.699951E-03	-1.469995E-02	257.8961 %
10	.289	.3116001	2.260006E-02	7.252905 %
20	.63	.6289001	-1.099944E-03	-.1748997 %
30	.953	.9462001	-6.799877E-03	-.718651 %

S26

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.67	.6733	3.300011E-03	.4901249 %
10	1	.9976001	-2.399922E-03	-.2405695 %
20	1.327	1.3219	-5.099893E-03	-.3858002 %
30	1.642	1.6462	4.20034E-03	.2551536 %

S2

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.644	.6403001	-3.699958E-03	-.5778476 %
10	.957	.9681	1.109999E-02	1.146575 %
20	1.307	1.2959	-1.110005E-02	-.8565517 %
30	1.62	1.6237	3.700018E-03	.2278757 %

ADC

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.723	.7159998	-7.000268E-03	-.9776914 %
1	1.034	1.0455	1.149976E-02	1.09993 %
20	1.377	1.375	-1.999974E-03	-.1454527 %
30	1.707	1.7045	-2.499819E-03	-.1466599 %

S28

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.587	.578	-9.000003E-03	-1.557094 %
10	.9	.9145001	1.450014E-02	1.585581 %
20	1.253	1.251	-1.999855E-03	-.1598605 %
30	1.591	1.5875	-3.499627E-03	-.2204489 %

S29

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.628	.6265999	-1.400173E-03	-.2234557 %
10	.926	.9371999	1.119995E-02	1.195044 %
20	1.266	1.2478	-1.819992E-02	-1.458561 %
30	1.55	1.5584	8.400202E-03	.5390273 %

ADC

SPIKE	MEASURED	CALC.	ERROR	PER CENT
0	.719	.7222998	3.299832E-03	.4568508 %
10	1.056	1.0376	-1.840019E-02	-1.773342 %
20	1.326	1.3529	2.689982E-02	1.988308 %
30	1.68	1.6682	-1.180017E-02	-.7073595 %

Jm
7 Nov

0.003
0.000 AZ
0.003
0.277
0.597 R
0.833

0.710
1.020
1.316 AOC
1.623

0.000
0.167 S26 X10
0.420
0.621

0.170
0.414 S33
0.645 X100
0.866

0.179
0.510 S31
0.880 X100
1.196

0.219
0.550 S32
0.876 X100
1.210

0.731
1.079 AOC
1.343
1.718

0.009 R
0.289
0.630
0.953

0.670
1.000
1:1 dil = x2 1.327 S26
1.642

0.644
1:3 dil = x4 0.957
1.307 S27
1.620

0.723
1.034 AOC
1.377 ~~S27~~
1.707

To check if to be diluted or not
S28 (6 cup)
S29 (6 cup)
0.583
1.427
0.567 ~~S28~~
0.900

1.253 S28
1.591

0.628
0.926 S29
1.266 ~~S27~~
1:1 dil = x 1.550

0.719
1.056
1.326 AOC
1.680

*PRIORITY#1

Restrack # C28359 4

ENVIRONMENT PROTECTION AGENCY
Office of Enforcement

C28359

REGION 5
230 South arborn Street
Chicago, Illinois 60604

CHAIN OF CUSTODY RECORD

PROJ. NO.: 86 EF 10

PROJECT NAME: American Steel Foundries

SAMPLERS: (Signature) Michael Potter, Joseph Frelle

CDO 3424

STA. NO.	DATE 1986	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Soil Sample							Tag #	SEAL #	REMARKS
S01	8-6	1006		X	WASTE PILE FROM LOAD #2	1	•							5-90240	EF10-1	
S02	8-6	1030		X	WASTE PILE FROM LOAD #1	1	•							5-90241	"	
S03	8-6	1327		X	CARRIER BLAST DUST COLLECTOR	1	•							5-90242	"	
S04	8-6	1338		X	KNOCKOUT DUST COLLECTOR	1	•							5-90243	"	
S05	8-6	1415		X	CARWET BLAST DUST COLLECT.	1	•							5-90244	"	
S06	8-6	1425		X	TUMBLAST DUST COLLECT.	1	•							5-90245	"	
S07	8-7	1045		X	SOUTH END SAND SYSTEM	1	•							5-90229	"	
* S08	8-7	1100		X	SAND WASH & WET SCRUBBER SLURY	1	•							5-90246	EF10-2	PRIORITY 1
S09	8-7			X		1	•							5-90247	"	
* S10	8-7	1300		X	EAF DUST	1	•							5-90248	"	PRIORITY 1
* S11	8-7	1420		X	AFTER DUMP	1	•							5-90249	"	"
* S12	8-7	1418		X	LAST HALF OF DUMP	1	•							5-90227	"	"
S13	8-7	1414		X	1ST HALF OF DUMP	1	•							5-90226	"	
S14	8-7	1410		X	CORE OF LOAD	1	•							5-90250	"	
R15	8-7	1700		X	BLANK	1	•							5-90227	"	

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Joe Frelle	8-7-86 1800	AIRBORN			
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature) William Sanger	Date / Time 8/8/86 2:45PM	Remarks SAMPLES WITH A * BY THE NUMBER ARE PRIORITY #1	

Distribution: White — Accompanies Shipment; Pink — Coordinator Field Files; Yellow — Laboratory File

5-5415

ACTIVITY# C28359

(8)

ENVIRONMENTAL PROTECTION AGENCY
FOR THE TEAM: MINERALS-NUTRIENTS

8/29/86 REST OF SAMPLES

DIVISION/BRANCH ESD/EOO SAMPLING DATE 8/6-7/86 LAB ARRIVAL DATE 8/8/86 DUE DATE 8/15/86 PRIORITY #1

DU NUMBER D307 DATASET NUMBER 3424 STUDY AMERICAN STEEL FOUNDRIES PRIORITY 1 * CONTRACTOR N

CRL LOG NUMBER	SAMPLE DESCRIPTION	SEDIMENTS SOLIDS TOTAL SOLIDS % MIN45423	SEDIMENTS SOLIDS TOTAL VOLATILE SOLIDS % OF DRY WT. MIN45524	SEDIMENTS SOLIDS AMMONIA MG N/KG (DRY) MIN42925	SEDIMENTS SOLIDS TOTAL KJELDAHL NITROGEN MG N/KG (DRY) MIN43025	SEDIMENTS SOLIDS TOTAL PHOSPHORUS MG P/KG (DRY) MIN43126
8EF10						
S01	5-90240	X				
S02	5-90241	X				
S03	5-90242	X				
S04	5-90243	X				
S05	5-90244	X				
S06	5-90245	X				
S07	5-90229	X				
* S08	5-90246	X				
D09	5-90247	X				
* S10	5-90248	X				
* S11	5-90249	X				
* S12	5-90127	X				
S13	5-90226	X				
S14	5-90250	X				
R15	5-90227	X				

CRL NOTED: SAMPLES WITH A * BY THE NUMBER ARE PRIORITY #1

CRL V.2: 3/85

Restrack C28359

ENVIRONMENTAL PROTECTION AGENCY
FOR THE TEAM: PESTICIDES & PCB'S

8/29/86 REST OF SAMPLES

DIVISION/BRANCH EDO/ESD SAMPLING DATE 8-6-86 LAB ARRIVAL DATE 8/8/86 DUE DATE 8/15/86 * PRIORITY #1

DU NUMBER D-307 DATASET NUMBER 3424 STUDY American Steel Found. PRIORITY / * CONTRACTOR N

CRL LOG NUMBER	SAMPLE DESCRIPTION	MATRIX SOIL TEST Fluoride UNITS mg/kg PES235826	MATRIX TEST UNITS PES235826	MATRIX TEST UNITS PES235826	MATRIX TEST UNITS PES235826	MATRIX TEST UNITS PES235826	CRL TAG #
86EF10							
S01	SOIL	X					590240
S02		X					590241
S03		X					590242
S04		X					590243
S05		X					590244
S06		X					590245
S07		X					590229
* S08		X					590246
D09		X					590247
* S10		X					590248
* S11		X					590249
* S12		X					590127
S13		X					590226
S14		X					590250
R15		X					590227

CRL NOTED: SAMPLES WITH A * BY THE NUMBER ARE PRIORITY #1

Restrack # C28359

8/29/86 REST OF SAMPLES

ENVIRONMENTAL PROTECTION AGENCY
FOR THE TEAM: MINERALS-NUTRIENTS

DIVISION/BRANCH EDO/ESD SAMPLING DATE 8-6-86 LAB ARRIVAL DATE 8/8/86 DUE DATE 8/15/86 *PRIORITY#1

CU NUMBER D-307 DATASET NUMBER 3424 STUDY American Steel Foundr PRIORITY / * CONTRACTOR N

CRL LOG NUMBER 86EF10	SAMPLE DESCRIPTION	SEDIMENTS SOLIDS CHEMICAL OXYGEN DEMAND MG COD/KG (DRY) MIN43327	SEDIMENTS SOLIDS MERCURY MG HG/KG (DRY) MIN44728	SEDIMENTS SOLIDS PHENOLICS MG PHENOL/KG (DRY) MIN44829	SEDIMENTS SOLIDS CYANIDE MG CN/KG (DRY) MIN44930	CRL TAG#
S01	Soil			X	X	5-90240
S02				X	X	5-90241
S03				X	X	5-90242
S04				X	X	5-90243
S05				X	X	5-90244
S06				X	X	5-90245
S07				X	X	5-90229
* S08				X	X	5-90246
D09				X	X	5-90247
* S10				X	X	5-90248
* S11				X	X	5-90249
* S12				X	X	5-90127
S13				X	X	5-90226
S14				X	X	5-90250
R15				X	X	5-90227

CRL NOTED: SAMPLES WITH A * BY THE NUMBER ARE PRIORITY#1

Rerack C28359

ENVIRONMENTAL PROTECTION AGENCY
FOR THE TEAM: METALS

8/29/86 REST OF SAMPLES.

DIVISION/BRANCH EDO/ESD SAMPLING DATE 8-6-86 LAB ARRIVAL DATE 8/8/86 DUE DATE 8/15/86 *PRIORITY #1

DU NUMBER D-307 DATASET NUMBER 3424 STUDY American Steel Found PRIORITY / * CONTRACTOR N

CRL LOG NUMBER 86EF10	SAMPLE DESCRIPTION	EP TOX EXTRACT ICP METALS MG/L MET19369	EP TOX EXTRACT SE MG/L MET19109	EP TOX EXTRACT AS MG/L MET1989	EP TOX EXTRACT Pb MG/L	EP TOX EXTRACT Cr MG/L
S01	5-90240	X	X	X	X	X
S02	5-90241	X	X	X	X	X
S03	5-90242	X	X	X	X	X
S04	5-90243	X	X	X	X	X
S05	5-90244	X	X	X	X	X
S06	5-90245	X	X	X	X	X
S07	5-90229	X	X	X	X	X
* S08	5-90246	X	X	X	X	X
D09	5-90247	X	X	X	X	X
* S10	5-90248	X	X	X	X	X
* S11	5-90249	X	X	X	X	X
* S12	5-90127	X	X	X	X	X
S13	5-90226	X	X	X	X	X
S14	5-90250	X	X	X	X	X
R15	5-90227	X	X	X	X	X

*CRL NOTED: SAMPLES WITH A * BY THE NUMBER ARE PRIORITY #1