1151875 - R8 SDMS

Dec 14 - 2009

ASARCO

Linda Jacobson (3 Copies)
RCRA Project Manager
US EPA Region VIII
8ENF-T
1595 Wynkoop Street
Denver, Colorado 80202-1129

December 4, 2009

SENT BY CERTIFIED MAIL
RETURN RECEIPT REQUESTED

CONSENT DECREE
CIVIL ACTION NO. CV 98-3-H-CCL
EAST HELENA SITE
WORK PERFORMED IN NOVEMBER 2009
PROGRESS REPORT #131

Dear Ms. Jacobson:

On May 5, 1998, Asarco and the United States Environmental Protection Agency (EPA) entered into a Consent Decree (Decree) to further the objectives of the Resource Conservation and Recovery Act (RCRA) and the Clean Water Act (CWA). Section XI of the Decree (Reporting: Corrective Action) requires Asarco to submit certified monthly progress reports to EPA which discuss the actions taken by Asarco in achieving compliance with the Decree. The reports are to be submitted to EPA no later than the twentieth (20th) day of the following month. The following describes only those activities that have occurred or are related to projects performed during November 2009. The historical actions taken by Asarco in achieving compliance with the Decree are contained in previous monthly progress reports.

a. Describe the actions, progress, and status of projects which have been undertaken pursuant to Part VII of the Decree;

On November 4, 2009, James Swierc (Lewis and Clark County Water Protection District) was provided a hard copy of the Phase II RFI Site Characterization Report (September 2009).

On November 9, 2009, EPA and Montana Department of Environmental Quality (Department) officials conducted a compliance evaluation inspection of the East Helena Plant. Approximately twenty photographs of the facility were obtained, and four summary sheets of the CAMU Phase 1 cell leak detection and leachate collection volumes were provided.

The RCRA Consent Decree annual public meeting took place on November 10, 2009 at 7:00 pm at the East Helena Volunteer Firehall. In accordance with Section IX of the Decree (Community Relations at East Helena), notices that announced the annual public meeting were published on November 1, 2009 and November 8, 2009 in the Sunday editions of the Helena Independent Record. The affidavit of publication is attached to this monthly progress report. A November 8, 2009 Independent Record newspaper article further publicized the November 10, 2009 public meeting. Asarco mailed more than 200 letters, announcing the public meeting, to interested parties. During the meeting, the Montana Department of Environmental Quality presented an update on 2009 cleaning and demolition project being conducted at the East Helena Plant. The video recordation of the stack demolition premiered at the public meeting.

2009 Cleaning and Demolition Work Plan

During November, Cleveland Wrecking Company (CWC) completed all demolition and grading work and focused their attention on sweeping and general cleanup. All hauling of waste to the CAMU was completed on November 12, 2009. All CWC personnel, with the exception of the onsite project manager, demobilized from the site on November 12, 2009.

On November 2, 2009, IRS completed cleaning of the CSHB building. On November 5, 2009, Iver Johnson approved the cleaning with the exception of minor locations within the CSHB building, which were cleaned and approved on November 9, 2009. IRS completed the cleaning of all Alternate A items on November 9, 2009 and demobilized from the site on November 10, 2009.

On November 9, 2009, Asarco submitted to EPA and the Department the revised work order directive for installation of the temporary liner in the former coke storage area.

During November, Northwest Linings continued to place temporary liners within the plant site. High winds and a shortage of materials slowed liner installation. Installation of the temporary liners within the plant site is approximately 75% complete. Northwest Linings commenced installation of the temporary liner at the CAMU Phase 2 cell on November 20, 2009. As of November 30, 2009, the CAMU temporary liner installation is 95% complete.

On November 24, 2009, Asarco submitted the report on the historic recordation of buildings cleaned and demolished in the 2009 Work Plan for the facility. In addition to the report, archival quality photo documentation of structures cleaned and demolished was included as were Montana CRIS forms. A 3-disk set of complete individual interviews as well as interview transcripts was included in the deliverables. The purpose for this additional deliverable was to provide historic source material to augment the brief stack demolition video, which was also submitted as a deliverable along with the report.

The stack demolition video publicly aired during the November 10, 2009 Asarco public meeting. The public meeting provided a review of events which took place at the plant during the past year as well as information on the bankruptcy and custodial trust activities. The video was very well accepted and it was announced that future, additional viewing opportunities would be scheduled on Helena Civic Television. Viewing times have been scheduled for December 2009 and the information has been forwarded on to the regulatory agencies. These actions conclude the anticipated work on the historic recordation of buildings that were cleaned or demolished in 2009. The only remaining task on this project will be to respond to any agency comments on the report and accompanying deliverables.

RCRA Facility Investigation (RFI) Phase II Site Characterization and Risk Assessment Work Plans

On November 20, 2009, Asarco (through Hydrometrics) provided EPA with a map and proposal for conducting the stream gaging study on Prickly Pear Creek. Following responses to EPA and Lewis and Clark personnel comments, EPA approved the proposal and directed Asarco to proceed. On November 25, 2009, a budget for conducting the study was provided to EPA. On December 2, 2009, Hydrometrics completed the synoptic conducting stream gaging study on Prickly Pear Creek.

Interim Measures

Hydrometrics personnel continued the fall semi-annual groundwater monitoring on November 2, 2009 and finished the monitoring program on November 19, 2009. A total of 174 groundwater samples were collected and submitted to Energy Laboratories to be analyzed for constituents listed in Table 3 of the 2009 Groundwater and Surface Water Sampling and Monitoring Plan (Hydrometrics, 2009). The total number of samples submitted to the lab included 42 QA/QC samples (14 DI blanks, 14 rinsate blanks, and 14 duplicates). Samples were not collected from eight wells (MW-7, DH-12, DH-16, DH-22, DH-31, DH-32, DH-38, DH-48) as they were dry or had insufficient water to sample. As part of the fall semi-annual monitoring program, Hydrometrics personnel conducted a well integrity survey. The well integrity survey evaluated the condition and security of each well by visually inspecting the well for damage, proper identification, and security of each well. In addition, the total depth of each well was measured to determine if any change in TD has occurred over time.

Corrective Action Management Unit (CAMU)

On November 9, 2009, Hydrometrics (on behalf of Asarco) provided EPA with the CAMU Phase 2 cell leak detection and leachate collection pumping volumes for 2008 and 2009.

During November 2009, Hydrometrics personnel continued to monitor the leak detection and leachate collection sumps at the CAMU. Approximately 15,000 gallons of water was pumped from the leachate collection sump in November.

The leak detection sump continues to have zero flow, although a small amount of water (3-4 inches) is present in the bottom of the sump.

RI/FS Long-Term Monitoring Program

On November 20, 2009, Asarco conducted the monthly sampling of select residential groundwater wells, as prescribed in the 2009 Groundwater and Surface Water Sampling and Monitoring Plan (May 2009). The laboratory analytical reports for this sampling event have not been received from Energy Laboratories. Copies of the October 2009 residential well notification letters, along with the respective laboratory analytical reports are attached to this monthly progress report.

A summary of the correspondence transmitted as part of the East Helena Consent Decree in November 2009 is included in Attachment 1.

b. Identify any requirements under the Part VII of the Decree that were not completed in a timely manner, and problems or anticipated problem areas affecting compliance with the Decree;

There were no requirements that were not completed in a timely manner nor were there problems or anticipated problem areas that may affect compliance with the Decree.

c. Describe projects completed during the prior month, as well as activities scheduled for the next month;

In accordance with the 1) 2006 Interim Measures Work Plan Addendum, Final Cleaning, Soil Sampling, Backfilling, and Interim Cap Work Plan and 2) 2006 Interim Measures Work Plan Addendum, Former Acid Plant Sediment Drying Area Slurry Wall, Monitoring, Operation, and Maintenance Work Plan, four areas in which interim caps have been installed are being inspected on a monthly basis. These monthly inspections were expanded to include areas in which above grade demolition activities were conducted under the 1) 2008 Interim Measures Work Plan and 2) 2008 and 2009 Cleaning and Demolition Project Work Plan, with the most recent inspections occurring on November 6, 2009.

CAMU Landfill - In accordance with the July 2000 CAMU Design Analysis Report (Operation and Maintenance Plan), the CAMU is being inspected monthly with the most recent having occurred on November 2, 2009. The inspections of the CAMU Phase 2 cell temporary cover are being conducted on a weekly schedule. These monthly and weekly inspections documented that the CAMU Phase 1 and Phase 2 cell are operating as designed.

During December 2009, Northwest Lining will continue with the installation of temporary lining in the areas impacted by the 2009 Work Plan. The well integrity

evaluation will be tabulated and recommendations for any repairs will be summarized in December 2009.

d. Describe and estimate the percentage of studies completed;

The Pump and Treat Pilot Scale Testing for Source Area Reduction of Groundwater Contamination is approximately 100% complete.

The jar testing (Phase I) of the East Helena PRB Materials Testing Program is 100% complete.

The slurry wall construction in the former acid plant sediment drying area is 100% complete. On July 24, 2008, Asarco submitted to EPA the Addendum to Interim Measures Work Plan, Former Acid Plan Sediment Drying Wall, Monitoring, Operations, and Maintenance Report, Asarco East Helena Facility.

The interim capping project for the former acid plant sediment drying area, dross area, sinter plant area, gas cleaning section of the acid plant, thaw house, contact section of the acid plant, blast furnace baghouse, blast furnace flue, and Monier flue is 100% complete.

The revised January 2008 CAMU Phase 2 Cell Design Analyses is 100% complete, the CAMU Phase 2 Cell financial assurance is fully funded, and construction and 2008 waste placement within the CAMU Phase 2 cell is 100% complete.

The slurry wall construction in the former speiss-dross plant area is 100% complete. On September 18, 2008, Asarco submitted to EPA the Addendum to Interim Measures Work Plan, Speiss-Dross Area Slurry Wall, Monitoring, Operations, and Maintenance Report, Asarco East Helena Facility.

Asarco completed the historic recordation tasks associated with the 2008 Cleaning and Demolition Work Plan. On September 23 and 30, 2008, the Phase 1 Historic Recordation Reports were submitted to EPA.

The obligations contained in the 2008 Interim Measures Work Plan Addendum, Blast Furnace Flue and Monier Flue Cleaning and Demolition and Demolition Footprint Exposed Areas Soil Sampling are 100% complete. On February 20, 2009, the findings from this completed work plan were submitted to EPA in a Summary Report.

Asarco completed the 2008 construction activities associated with the CAMU Phase 2 Cell. On January 30, 2009, the CAMU Phase 2 Cell, 2008 Construction Report was submitted to EPA.

Asarco (through ARCADIS) completed the historic recordation of buildings scheduled for cleaning and demolition prescribed in the 2009 Cleaning and Demolition Work Plan.

Asarco submitted the Phase 2 RCRA Facility Investigation (RFI) Work Plan to EPA.

Asarco submitted the Baseline Ecological Risk Assessment Work Plan (June 2009) and Field Sampling and Analysis Plan (FSAP) to EPA, the Montana Department of Environmental Quality and U.S. Fish Wildlife Service.

Asarco submitted the historic recordation script video for the 2009 stack demolition.

Asarco submitted the Human Health Risk Assessment Work Plan (October 2009) to EPA

Asarco submitted the Phase II RCRA Facility Investigation Site Characterization Work Plan (September 2009) to EPA

e. Describe and summarize all findings to date;

The details of past findings through September are described and summarized in previous monthly progress reports.

f. Describe actions being taken to address problems;

There were no other actions required to address problems associated with the Decree.

g. Identify changes in key personnel during the period;

There were no changes in key personnel during the period. Asarco continues to use the services of Hydrometrics Incorporated to perform the various activities required under the Consent Decree.

h. Include copies of the results of sampling and tests conducted and other data generated pursuant to work performed under Part VII of the Decree since the last Progress Report. Asarco may submit data that has been validated and confirmed by Asarco to supplement any prior submitted data. Updated validated and confirmed data shall be included with the RFI Report, if not delivered before;

Three validation packages entitled *"Validation Summary, Asarco East Helena Interim Measures, RCRA Consent Decree, Groundwater and CAMU Wells, Quarterly Sampling Event, Inorganic Analysis, August and September 2009"* and

"Validation Summary, Asarco East Helena RCRA Consent Decree, New Groundwater Wells, Inorganic Analyses, June 2009 Sample Event" and *"Validation Summary, Asarco East Helena Post RI/FS Long-Term Monitoring Project, East Helena Residential Groundwater, Inorganic Analyses, October 2009 Sample Event"* are is attached to this monthly progress report.

One data submittal entitled *"September 2009 Quarterly Monitoring Data Submittal, Asarco East Helena CAMU Monitoring Wells"* is attached to this monthly progress report.

i. Describe the status of financial assurance mechanisms, including whether any changes have occurred, or are expected to occur which might affect them, and the status of efforts to bring such mechanisms back into compliance with the requirements of this Decree.

ASARCO filed a voluntary petition for relief under chapter 11 of Title 11 of the United States Bankruptcy Code in the Southern District of Texas on August 9, 2005. ASARCO hopes to use its chapter 11 bankruptcy proceeding to improve its financial position to the point where it can successfully reorganize and emerge from bankruptcy. ASARCO further hopes that at that time it will be in a position to make the required financial assurance demonstration. Asarco has established the necessary CAMU Phase 2 Cell financial assurance and has provided EPA with the complete executed original of the CAMU Trust Fund Agreement.

Sincerely,

Jon Nickel

Jon Nickel

CERTIFICATION
PURSUANT TO U.S. v ASARCO INCORPORATED
(CV-98-3-H-CCL, USDC, D. Montana)

I certify under penalty of law that this document, November 2009 Progress Report and all attachments, were prepared under my direct supervision in accordance with a system designed to assure that qualified personnel gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment for knowing violations.

Signature _____
Name: Thomas L. Aldrich
Title: Vice President Environmental Affairs
Date: December 7, 2009

CONSENT DECREE
EAST HELENA SITE
NOVEMBER 2009 PROGRESS REPORT
SUMMARY OF CORRESPONDENCE
ATTACHMENT 1

DATE OF TRANSMITTAL	CORRESPONDENCE SENT FROM	CORRESPONDENCE SENT TO	SUBJECT	RESPONSE
November 4, 2009	Bob Anderson	Jim Swierc	Phase II RFI Site Characterization Report	No Formal Response Required
November 9, 2009	Jon Nickel	Linda Jacobson	Summary Tables for CAMU Phase 1 Cell Leachate and Leak Detection Volumes	No Formal Response Required
Attached to This Monthly Progress Report	Jon Nickel	Linda Jacobson	Affidavit of Publication	No Formal Response Required
November 9, 2009	Jon Nickel	Linda Jacobson	Revised Work Order for Lining Coke Storage Area	EPA Approval
November 24, 2009	Jon Nickel	Josef Warhank	Historic Recordation Deliverables for 2009 Work Plan	Awaiting Approval
November 20, 2009	Bob Anderson	Linda Jacobson	Stream Gaging Map and Proposal	EPA Approval
November 25, 2009	Bob Anderson	Linda Jacobson	Budget for Conducting Stream Gaging Proposal	EPA Approval
November 9, 2009	Mark Rhodes	Linda Jacobson	Summary Tables for CAMU Phase 2 Cell Leachate and Leak Detection Volumes	No Formal Response Required

Attached to This Monthly Progress Report	Jon Nickel	Linda Jacobson	Validation Summary, Asarco East Helena Interim Measures, RCRA Consent Decree, Groundwater and CAMU Wells, Quarterly Sampling Event, Inorganic Analysis, August and September 2009	No Formal Response Required
Attached to This Monthly Progress Report	Jon Nickel	Linda Jacobson	Validation Summary, Asarco East Helena RCRA Consent Decree, New Groundwater Wells, Inorganic Analyses, June 2009 Sample Event	No Formal Response Required
Attached to This Monthly Progress Report	Jon Nickel	Linda Jacobson	Validation Summary, Asarco East Helena Post RI/FS Long-Term Monitoring Project, East Helena Residential Groundwater, Inorganic Analyses, October 2009 Sample Event	No Formal Response Required
Attached to This Monthly Progress Report	Jon Nickel	Linda Jacobson	September 2009 Quarterly Monitoring Data Submittal, Asarco East Helena CAMU Monitoring Wells	No Formal Response Required

AFFIDAVIT OF PUBLICATION
STATE OF MONTANA,

County of Lewis & Clark,

Sharon Lynn Hencley

Being duly sworn, deposes and says:

That she is the principal clerk of the Independent Record a newspaper of general circulation published daily in the City of Helena, in the County of Lewis & Clark, State of Montana, and has charge of the advertisement thereof:

That the Public Notice - Asarco

a true copy of which is hereto annexed, was published in said newspaper on the following dates: viz.:

November 1, 8, 2009

making in all 2 publication(s).

Subscribed and sworn to before me this 8 day of November, 2009.

NOTARY PUBLIC for the State of Montana
Printed Name: Rose Marie Farr
Residing at Helena, Montana
My commission expires 8-15-2010

(NOTARIAL SEAL)

ROSE MARIE FARR
NOTARY PUBLIC for the
State of Montana
Residing at Helena, Montana
My Commission Expires
August 15, 2010

PUBLIC NOTICE

Asarco will hold a public meeting on Tuesday, November 10, 2009 at 7:00 pm at the City of East Helena Volunteer Firehall located on 4 East Pacific Street in East Helena. During the meeting, ASARCO representatives will provide the public with an update regarding the process of implementing the East Helena Consent Decree, CV 98-3-H-CCL. Asarco will update the public on the most recent residential public water supply system, and groundwater monitoring results. A Montana Department of Environmental Quality (MDEQ) representative will also provide a presentation on the work that Asarco has completed this year in cleaning and demolition within the East Helena Plant. United States Environmental Protection Agency (EPA) representatives will participate in the discussions and provide information on residential soil cleanup and opportunities for public participation. There will be an opportunity during the meeting for the public to ask questions. Asarco, EPA, and the MDEQ encourage all East Helena residents to attend this informative meeting.

November 1, 8, 2009

ASARCO

November 12, 2009

Pat Foley
203 Gail Street
P. O. Box 1551
East Helena, Montana 59635

Dear Mr. Foley:

Enclosed are the analytical results for the water sample that was collected from the 203 Gail Street ground water well on October 14, 2009. All the results are reported in milligrams per liter, unless otherwise noted. The physical parameters are reported in the units noted on the attached laboratory analytical report. "ND" indicates that the parameter was not detected at the reporting limit.

The water quality of your well is good with near neutral pH and low levels of total dissolved solids and metals. The water quality of the well is better than the Montana Human Health Standards and Federal Maximum Contaminant Level (MCL)/Action Levels for the constituents tested. These recent water quality results are consistent with previous monitoring data from your site and do not indicate significant changes from historical baseline data.

If you have any questions about the enclosed water quality results, please feel free to contact me at 227-4529.

Sincerely,

Jon Nickel

Jon Nickel

Enclosure
Cc: Bob Anderson
Tom Aldrich

ENERGY LABORATORIES, INC. * 3161 E Lyndale (59604) * PO Box 5688 * Helena, MT 59601
* 406.442.0711 * FAX 406.442.0712 * helena@energylab.com

LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-1009-303
Project: RI/FS Residential Long-Term October 2009
Matrix: Groundwater

Foley Residence
203 Gail Street

Lab ID: H09100179-004
Collection Date: 10/14/09 10:45
DateReceived: 10/14/09
Report Date: 10/29/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
pH	7.4	s.u.		0.1		A4500-H B	10/16/09 14:26 / hm			PH2_091016A	11	091016A-PH-W
Conductivity	287	umhos/cm		1		A2510 B	10/16/09 14:24 / hm			COND_091016A	15	091016A-COND-PROBE W
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	10/16/09 13:55 / JG			124 (14410200)_091016B	10	7131
Solids, Total Dissolved TDS @ 180 C	190	mg/L		10		A2540 C	10/16/09 14:16 / JG			124 (14410200)_091016A	15	7133
INORGANICS												
Alkalinity, Total as CaCO3	76	mg/L		1		A2320 B	10/20/09 20:54 / hm			MAN-TECH_091021A	42	R57626
Bicarbonate as HCO3	92	mg/L		1		A2320 B	10/20/09 20:54 / hm			MAN-TECH_091021A	42	R57626
Chloride	4	mg/L		1		E300.0	10/20/09 22:09 / hm			IC101-H_091020A	28	R57532
Sulfate	53	mg/L		1		E300.0	10/20/09 22:09 / hm			IC101-H_091020A	28	R57532
METALS, DISSOLVED												
Aluminum	ND	mg/L		0.1		E200.8	10/20/09 00:54 / eli-b			SUB-B137708	29	B_R137708
Antimony	ND	mg/L		0.003		E200.8	10/20/09 00:54 / eli-b			SUB-B137708	29	B_R137708
Arsenic	ND	mg/L		0.002		E200.8	10/20/09 00:54 / eli-b			SUB-B137708	29	B_R137708
Barium	ND	mg/L		0.1		E200.7	10/16/09 18:08 / eli-b			SUB-B137645	52	B_R137645
Beryllium	ND	mg/L		0.001		E200.7	10/16/09 18:08 / eli-b			SUB-B137645	52	B_R137645
Cadmium	ND	mg/L		0.001		E200.7	10/16/09 18:08 / eli-b			SUB-B137645	52	B_R137645
Calcium	31	mg/L		1		E200.7	10/16/09 18:08 / eli-b			SUB-B137645	52	B_R137645
Chromium	ND	mg/L		0.001		E200.8	10/20/09 00:54 / eli-b			SUB-B137708	29	B_R137708
Cobalt	ND	mg/L		0.01		E200.7	10/16/09 18:08 / eli-b			SUB-B137645	52	B_R137645
Copper	0.013	mg/L		0.001		E200.7	10/16/09 18:08 / eli-b			SUB-B137645	52	B_R137645
Gold	ND	mg/L		0.01		E200.7	10/16/09 18:08 / eli-b			SUB-B137645	52	B_R137645
Iron	ND	mg/L		0.02		E200.7	10/16/09 18:08 / eli-b			SUB-B137645	52	B_R137645
Lead	ND	mg/L		0.005		E200.8	10/20/09 00:54 / eli-b			SUB-B137708	29	B_R137708
Magnesium	7	mg/L		1		E200.7	10/16/09 18:08 / eli-b			SUB-B137645	52	B_R137645
Manganese	ND	mg/L		0.01		E200.7	10/16/09 18:08 / eli-b			SUB-B137645	52	B_R137645
Mercury	ND	mg/L		0.001		E200.8	10/20/09 00:54 / eli-b			SUB-B137708	29	B_R137708
Nickel	ND	mg/L		0.01		E200.7	10/16/09 18:08 / eli-b			SUB-B137645	52	B_R137645
Potassium	3	mg/L		1		E200.7	10/16/09 18:08 / eli-b			SUB-B137645	52	B_R137645
Selenium	ND	mg/L		0.001		E200.8	10/20/09 00:54 / eli-b			SUB-B137708	29	B_R137708
Silver	ND	mg/L		0.005		E200.7	10/16/09 18:08 / eli-b			SUB-B137645	52	B_R137645
Sodium	13	mg/L		1		E200.7	10/16/09 18:08 / eli-b			SUB-B137645	52	B_R137645
Tellurium	ND	mg/L		0.1		E200.7	10/16/09 18:08 / eli-b			SUB-B137645	52	B_R137645

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 3161 E Lyndale (59604) * PO Box 5688 * Helena, MT 59601
* 406.442.0711 * FAX 406.442.0712 * helena@energylab.com

LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-1009-303
Project: RI/FS Residential Long-Term October 2009
Matrix: Groundwater

Lab ID: H09100179-004
Collection Date: 10/14/09 10:45
DateReceived: 10/14/09
Report Date: 10/29/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
METALS, DISSOLVED												
Thallium	ND	mg/L		0.001		E200.8	10/20/09 00:54 / eli-b			SUB-B137708	29	B_R137708
Vanadium	ND	mg/L		0.01		E200.7	10/16/09 18:08 / eli-b			SUB-B137645	52	B_R137645
Zinc	ND	mg/L		0.02		E200.8	10/20/09 00:54 / eli-b			SUB-B137708	29	B_R137708

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

ASARCO

November 12, 2009

John Simac
2540 Wylie Drive
P. O. Box 59
East Helena, Montana 59635

Dear Mr. Simac:

Enclosed are the analytical results for the water samples that were collected from your ground water drinking well on October 14, 2009. Your irrigation well was not in service during the sampling event. All the results are reported in milligrams per liter, unless otherwise noted. The physical parameters are reported in the units noted on the attached laboratory analytical report. "ND" indicates that the parameter was not detected at the reporting limit.

The water quality of your well is good with near neutral pH and low levels of total dissolved solids and metals. The water quality of the well is better than the Montana Human Health Standards and Federal Maximum Contaminant Level (MCL)/Action Levels for the constituents tested. These recent water quality results are consistent with previous monitoring data from your site and do not indicate significant changes from historical baseline data.

If you have any questions about the enclosed water quality results, please feel free to contact me at 227-4529.

Sincerely,

Jon Nickel

Jon Nickel

Enclosures
Cc: Bob Anderson
Tom Aldrich

ENERGY LABORATORIES, INC. * 3161 E Lyndale (59604) * PO Box 5688 * Helena, MT 59601
* 406.442.0711 * FAX 406.442.0712 * helena@energylab.com

LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-1009-302
Project: RI/FS Residential Long-Term October 2009
Matrix: Groundwater

Simac Drinking Water
2540 Wylie Drive

Lab ID: H09100179-003
Collection Date: 10/14/09 10:20
DateReceived: 10/14/09
Report Date: 10/29/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
pH	7.4	s.u.		0.1		A4500-H B	10/16/09 14:25 / hm			PH2_091016A	10	091016A-PH-W
Conductivity	477	umhos/cm		1		A2510 B	10/16/09 14:14 / hm			COND_091016A	13	091016A-COND-PROBE W
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	10/16/09 13:54 / JG			-124 (14410200)_091016B	9	7131
Solids, Total Dissolved TDS @ 180 C	341	mg/L		10		A2540 C	10/16/09 14:16 / JG			124 (14410200)_091016A	14	7133
INORGANICS												
Alkalinity, Total as CaCO3	110	mg/L		1		A2320 B	10/20/09 20:49 / hm			MAN-TECH_091021A	40	R57626
Bicarbonate as HCO3	140	mg/L		1		A2320 B	10/20/09 20:49 / hm			MAN-TECH_091021A	40	R57626
Chloride	7	mg/L		1		E300.0	10/20/09 21:20 / hm			IC101-H_091020A	25	R57532
Sulfate	110	mg/L		1		E300.0	10/20/09 21:20 / hm			IC101-H_091020A	25	R57532
METALS, DISSOLVED												
Aluminum	ND	mg/L		0.1		E200.8	10/20/09 00:50 / eli-b			SUB-B137708	28	B_R137708
Antimony	ND	mg/L		0.003		E200.8	10/20/09 00:50 / eli-b			SUB-B137708	28	B_R137708
Arsenic	ND	mg/L		0.002		E200.8	10/20/09 00:50 / eli-b			SUB-B137708	28	B_R137708
Barium	ND	mg/L		0.1		E200.7	10/16/09 17:55 / eli-b			SUB-B137645	51	B_R137645
Beryllium	ND	mg/L		0.001		E200.7	10/16/09 17:55 / eli-b			SUB-B137645	51	B_R137645
Cadmium	ND	mg/L		0.001		E200.7	10/16/09 17:55 / eli-b			SUB-B137645	51	B_R137645
Calcium	58	mg/L		1		E200.7	10/16/09 17:55 / eli-b			SUB-B137645	51	B_R137645
Chromium	0.001	mg/L		0.001		E200.8	10/20/09 17:52 / eli-b			SUB-B137777	10	B_R137777
Cobalt	ND	mg/L		0.01		E200.7	10/16/09 17:55 / eli-b			SUB-B137645	51	B_R137645
Copper	ND	mg/L		0.001		E200.8	10/20/09 17:52 / eli-b			SUB-B137777	10	B_R137777
Gold	ND	mg/L		0.01		E200.7	10/16/09 17:55 / eli-b			SUB-B137645	51	B_R137645
Iron	ND	mg/L		0.02		E200.7	10/16/09 17:55 / eli-b			SUB-B137645	51	B_R137645
Lead	ND	mg/L		0.005		E200.8	10/20/09 00:50 / eli-b			SUB-B137708	28	B_R137708
Magnesium	13	mg/L		1		E200.7	10/16/09 17:55 / eli-b			SUB-B137645	51	B_R137645
Manganese	ND	mg/L		0.01		E200.7	10/16/09 17:55 / eli-b			SUB-B137645	51	B_R137645
Mercury	ND	mg/L		0.001		E200.8	10/20/09 00:50 / eli-b			SUB-B137708	28	B_R137708
Nickel	ND	mg/L		0.01		E200.7	10/16/09 17:55 / eli-b			SUB-B137645	51	B_R137645
Potassium	5	mg/L		1		E200.7	10/16/09 17:55 / eli-b			SUB-B137645	51	B_R137645
Selenium	0.004	mg/L		0.001		E200.8	10/20/09 00:50 / eli-b			SUB-B137708	28	B_R137708
Silver	ND	mg/L		0.005		E200.7	10/16/09 17:55 / eli-b			SUB-B137645	51	B_R137645
Sodium	17	mg/L		1		E200.7	10/16/09 17:55 / eli-b			SUB-B137645	51	B_R137645
Tellurium	ND	mg/L		0.1		E200.7	10/16/09 17:55 / eli-b			SUB-B137645	51	B_R137645

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-1009-302
Project: RI/FS Residential Long-Term October 2009
Matrix: Groundwater

Lab ID: H09100179-003
Collection Date: 10/14/09 10:20
DateReceived: 10/14/09
Report Date: 10/29/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
METALS, DISSOLVED												
Thallium	ND	mg/L		0.001		E200.8	10/20/09 00:50 / eli-b			SUB-B137708	28	B_R137708
Vanadium	ND	mg/L		0.01		E200.7	10/16/09 17:55 / eli-b			SUB-B137645	51	B_R137645
Zinc	0.03	mg/L		0.02		E200.8	10/20/09 00:50 / eli-b			SUB-B137708	28	B_R137708

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

November 12, 2009

David Jensen
P. O. Box 1021
401 Gail Street
East Helena, Montana 59635

Dear Mr. Jensen:

Enclosed are the analytical results for the water samples (both original and duplicate) that were collected from your ground water well on October 14, 2009. All the results are reported in milligrams per liter, unless otherwise noted. The physical parameters are reported in the units noted on the attached laboratory analytical report. "ND" indicates that the parameter was not detected at the reporting limit.

The water quality of your well is good with near neutral pH and low levels of total dissolved solids and metals. The water quality of the well is better than the Montana Human Health Standards and Federal Maximum Concentration Limits (MCL)/Action Levels for the constituents tested.

If you have any questions about the enclosed water quality results, please feel free to contact me at 227-4529.

Sincerely,

Jon Nickel

Enclosure
Cc: Bob Anderson
Tom Aldrich

ENERGY LABORATORIES, INC. * 3161 E Lyndale (59604) * PO Box 5688 * Helena, MT 59601
* 406.442.0711 * FAX 406.442.0712 * helena@energylab.com

LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-1009-300
Project: RI/FS Residential Long-Term October 2009
Matrix: Groundwater

Jensen Residence (Original Sample)
401 Gail Street

Lab ID: H09100179-001
Collection Date: 10/14/09 08:10
DateReceived: 10/14/09
Report Date: 10/29/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
pH	7.4	s.u.		0.1		A4500-H B	10/16/09 14:23 / hm			PH2_091016A	8	091016A-PH-W
Conductivity	783	umhos/cm		1		A2510 B	10/16/09 14:10 / hm			COND_091016A	11	091016A-COND-PROBE W
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	10/16/09 13:53 / JG			-124 (14410200)_091016B	6	7131
Solids, Total Dissolved TDS @ 180 C	568	mg/L		10		A2540 C	10/16/09 14:15 / JG			124 (14410200)_091016A	10	7133
INORGANICS												
Alkalinity, Total as CaCO3	120	mg/L		1		A2320 B	10/20/09 20:22 / hm			MAN-TECH_091021A	32	R57626
Bicarbonate as HCO3	150	mg/L		1		A2320 B	10/20/09 20:22 / hm			MAN-TECH_091021A	32	R57626
Chloride	27	mg/L		1		E300.0	10/20/09 20:47 / hm			IC101-H_091020A	23	R57532
Sulfate	240	mg/L		1		E300.0	10/20/09 20:47 / hm			IC101-H_091020A	23	R57532
METALS, DISSOLVED												
Aluminum	ND	mg/L		0.1		E200.8	10/20/09 00:26 / eli-b			SUB-B137708	26	B_R137708
Antimony	ND	mg/L		0.003		E200.8	10/20/09 00:26 / eli-b			SUB-B137708	26	B_R137708
Arsenic	0.003	mg/L		0.002		E200.8	10/20/09 00:26 / eli-b			SUB-B137708	26	B_R137708
Barium	ND	mg/L		0.1		E200.7	10/16/09 17:39 / eli-b			SUB-B137645	49	B_R137645
Beryllium	ND	mg/L		0.001		E200.7	10/16/09 17:39 / eli-b			SUB-B137645	49	B_R137645
Cadmium	ND	mg/L		0.001		E200.7	10/16/09 17:39 / eli-b			SUB-B137645	49	B_R137645
Calcium	102	mg/L		1		E200.7	10/16/09 17:39 / eli-b			SUB-B137645	49	B_R137645
Chromium	ND	mg/L		0.001		E200.8	10/20/09 00:26 / eli-b			SUB-B137708	26	B_R137708
Cobalt	ND	mg/L		0.01		E200.7	10/16/09 17:39 / eli-b			SUB-B137645	49	B_R137645
Copper	0.003	mg/L		0.001		E200.8	10/20/09 00:26 / eli-b			SUB-B137708	26	B_R137708
Gold	ND	mg/L		0.01		E200.7	10/16/09 17:39 / eli-b			SUB-B137645	49	B_R137645
Iron	0.05	mg/L		0.02		E200.7	11/02/09 12:07 / eli-b			SUB-B138393	1	B_R138393
Lead	ND	mg/L		0.005		E200.8	10/20/09 00:26 / eli-b			SUB-B137708	26	B_R137708
Magnesium	22	mg/L		1		E200.7	10/16/09 17:39 / eli-b			SUB-B137645	49	B_R137645
Manganese	0.02	mg/L		0.01		E200.8	10/20/09 00:26 / eli-b			SUB-B137708	26	B_R137708
Mercury	ND	mg/L		0.001		E200.8	10/20/09 00:26 / eli-b			SUB-B137708	26	B_R137708
Nickel	ND	mg/L		0.01		E200.7	10/16/09 17:39 / eli-b			SUB-B137645	49	B_R137645
Potassium	6	mg/L		1		E200.7	10/16/09 17:39 / eli-b			SUB-B137645	49	B_R137645
Selenium	0.027	mg/L		0.001		E200.8	10/20/09 00:26 / eli-b			SUB-B137708	26	B_R137708
Silver	ND	mg/L		0.005		E200.7	10/16/09 17:39 / eli-b			SUB-B137645	49	B_R137645
Sodium	25	mg/L		1		E200.7	10/16/09 17:39 / eli-b			SUB-B137645	49	B_R137645
Tellurium	ND	mg/L		0.1		E200.7	10/16/09 17:39 / eli-b			SUB-B137645	49	B_R137645

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-1009-300
Project: RI/FS Residential Long-Term October 2009
Matrix: Groundwater

Lab ID: H09100179-001
Collection Date: 10/14/09 08:10
DateReceived: 10/14/09
Report Date: 10/29/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
METALS, DISSOLVED												
Thallium	ND	mg/L		0.001		E200.8	10/20/09 00:26 / eli-b			SUB-B137708	26	B_R137708
Vanadium	ND	mg/L		0.01		E200.7	10/16/09 17:39 / eli-b			SUB-B137645	49	B_R137645
Zinc	0.04	mg/L		0.02		E200.8	10/20/09 00:26 / eli-b			SUB-B137708	26	B_R137708

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-1009-301
Project: RI/FS Residential Long-Term October 2009
Matrix: Groundwater

Jensen Residence (Duplicate Sample)
401 Gail Street

Lab ID: H09100179-002
Collection Date: 10/14/09 08:20
DateReceived: 10/14/09
Report Date: 10/29/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
pH	7.3	s.u.		0.1		A4500-H B	10/16/09 14:24 / hm			PH2_091016A	9	091016A-PH-W
Conductivity	782	umhos/cm		1		A2510 B	10/16/09 14:12 / hm			COND_091016A	12	091016A-COND-PROBE W
Solids, Total Suspended TSS @ 105 C	10	mg/L		10		A2540 D	10/16/09 13:54 / JG			-124 (14410200)_091016B	7	7131
Solids, Total Dissolved TDS @ 180 C	572	mg/L		10		A2540 C	10/16/09 14:15 / JG			124 (14410200)_091016A	11	7133
INORGANICS												
Alkalinity, Total as CaCO3	120	mg/L		1		A2320 B	10/20/09 20:43 / hm			MAN-TECH_091021A	38	R57626
Bicarbonate as HCO3	150	mg/L		1		A2320 B	10/20/09 20:43 / hm			MAN-TECH_091021A	38	R57626
Chloride	27	mg/L		1		E300.0	10/20/09 21:03 / hm			IC101-H_091020A	24	R57532
Sulfate	240	mg/L		1		E300.0	10/20/09 21:03 / hm			IC101-H_091020A	24	R57532
METALS, DISSOLVED												
Aluminum	ND	mg/L		0.1		E200.8	10/20/09 00:30 / eli-b			SUB-B137708	27	B_R137708
Antimony	ND	mg/L		0.003		E200.8	10/20/09 00:30 / eli-b			SUB-B137708	27	B_R137708
Arsenic	0.003	mg/L		0.002		E200.8	10/20/09 00:30 / eli-b			SUB-B137708	27	B_R137708
Barium	ND	mg/L		0.1		E200.7	10/16/09 17:51 / eli-b			SUB-B137645	50	B_R137645
Beryllium	ND	mg/L		0.001		E200.7	10/16/09 17:51 / eli-b			SUB-B137645	50	B_R137645
Cadmium	ND	mg/L		0.001		E200.7	10/16/09 17:51 / eli-b			SUB-B137645	50	B_R137645
Calcium	102	mg/L		1		E200.7	10/16/09 17:51 / eli-b			SUB-B137645	50	B_R137645
Chromium	0.001	mg/L		0.001		E200.8	10/20/09 17:48 / eli-b			SUB-B137777	9	B_R137777
Cobalt	ND	mg/L		0.01		E200.7	10/16/09 17:51 / eli-b			SUB-B137645	50	B_R137645
Copper	ND	mg/L		0.001		E200.7	10/16/09 17:51 / eli-b			SUB-B137645	50	B_R137645
Gold	ND	mg/L		0.01		E200.7	10/16/09 17:51 / eli-b			SUB-B137645	50	B_R137645
Iron	0.04	mg/L		0.02		E200.7	10/16/09 17:51 / eli-b			SUB-B137645	50	B_R137645
Lead	ND	mg/L		0.005		E200.8	10/20/09 00:30 / eli-b			SUB-B137708	27	B_R137708
Magnesium	22	mg/L		1		E200.7	10/16/09 17:51 / eli-b			SUB-B137645	50	B_R137645
Manganese	0.02	mg/L		0.01		E200.7	10/16/09 17:51 / eli-b			SUB-B137645	50	B_R137645
Mercury	ND	mg/L		0.001		E200.8	10/20/09 00:30 / eli-b			SUB-B137708	27	B_R137708
Nickel	ND	mg/L		0.01		E200.7	10/16/09 17:51 / eli-b			SUB-B137645	50	B_R137645
Potassium	6	mg/L		1		E200.7	10/16/09 17:51 / eli-b			SUB-B137645	50	B_R137645
Selenium	0.028	mg/L		0.001		E200.8	10/20/09 00:30 / eli-b			SUB-B137708	27	B_R137708
Silver	ND	mg/L		0.005		E200.7	10/16/09 17:51 / eli-b			SUB-B137645	50	B_R137645
Sodium	25	mg/L		1		E200.7	10/16/09 17:51 / eli-b			SUB-B137645	50	B_R137645
Tellurium	ND	mg/L		0.1		E200.7	10/16/09 17:51 / eli-b			SUB-B137645	50	B_R137645

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-1009-301
Project: RI/FS Residential Long-Term October 2009
Matrix: Groundwater

Lab ID: H09100179-002
Collection Date: 10/14/09 08:20
DateReceived: 10/14/09
Report Date: 10/29/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
METALS, DISSOLVED												
Thallium	ND	mg/L		0.001		E200.8	10/20/09 00:30 / eli-b			SUB-B137708	27	B_R137708
Vanadium	ND	mg/L		0.01		E200.7	10/16/09 17:51 / eli-b			SUB-B137645	50	B_R137645
Zinc	0.04	mg/L		0.02		E200.8	10/20/09 00:30 / eli-b			SUB-B137708	27	B_R137708

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

VALIDATION SUMMARY

ASARCO EAST HELENA RCRA CONSENT DECREE

NEW GROUNDWATER WELLS

INORGANIC ANALYSES

JUNE 2009 SAMPLE EVENT

ENERGY LABORATORY WORK ORDER NOS. H09060354 AND H09060373

Prepared for:
Mr. Jon Nickel
Asarco LLC
PO Box 1230
East Helena, MT 59635

Prepared by:
Linda L. Tangen
6900 Cherry Blossom Lane
Albuquerque, NM 87111

November 2009

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GLOSSARY OF TERMS

CLP..... Contract Laboratory Program

COC..... Chain of Custody

CRDL..... Contract Required Detection Limit

DI..... Deionized Water

DIS..... Dissolved

DQO..... Data Quality Objective

ELI-Hel ..... Energy Laboratories, Inc., Helena, Montana

EPA..... U.S. Environmental Protection Agency

ICV ..... Initial Calibration Verification

IDL ..... Instrument Detection Limit

LCS..... Laboratory Control Sample

LFB..... Laboratory Fortified Blank

MS ..... Matrix Spike

NA ..... Not Applicable

PDLG..... Project Detection Limit Goal

QC ..... Quality Control

RI/FS..... Remedial Investigation/Feasibility Study

RPD ..... Relative Percent Difference

SC ..... Specific Conductivity

TDS ..... Total Dissolved Solids

SUMMARY

Groundwater samples were collected June 23 and 25, 2009 for the ASARCO East Helena Facility RCRA Consent Decree new well sampling event. Inorganic constituents for these samples were validated using U.S. Environmental Protection Agency (EPA) guidelines for data validation (EPA 2002) and the project work plan (ASARCO 2002 and 2007). Samples were analyzed by Energy Laboratories, Inc. (ELI-Hel) in Helena, Montana, under work orders H09060354 and H09060373.

The validated database is located in Appendix 1. Field notes, chain of custody forms, and laboratory reports are located in Appendices 2, 3, and 4, respectively.

Data quality objectives for this project are as follows:

- **Precision** is determined by field and laboratory duplicate sample results that are within control limits. The completeness objective for precision is 90% of the duplicate sample results within control limits. **This objective was met as 100% of the field and laboratory duplicate results were within control limits.**

- **Accuracy** is determined by laboratory control sample (LCS) and matrix spike (MS) sample results that are within control limits. The completeness objective for accuracy is 90% of the LCS and MS sample results within control limits. **This objective was met as 100% of the LCS results and 100% of the MS results were within control limits.**

  ***Note:** Due to the lack of LCSs for dissolved metals, fortified laboratory blanks were used to assess the accuracy for these analytes. In several cases, samples used for matrix spikes for were from unknown sources and therefore, could not be used to evaluate the accuracy of this sampling event's data. This is explained further in the following report.

- **Completeness** is calculated by the number of valid (not rejected) data per number of planned data, expressed as a percentage. The completeness goal for this project was 90%. **This goal was met as 100% of the planned data were analyzed and deemed valid.**

Conclusion

The data collected in June 2009 for the ASARCO East Helena RCRA Consent Decree new well sampling event can be used for the purposes they were intended. Of the measured results, **100% can be used without qualification**.

Data Validation Report by: Linda L. Tangen

Client Review: Jon Nickel

DATA VALIDATION REPORT

1. INTRODUCTION

- This validation applies to analyses for 24 groundwater and quality control samples collected on June 23 and 25, 2009 for the ASARCO East Helena RCRA Consent Decree new well sampling event (ASARCO 2009). Samples were analyzed by Energy Laboratories in Helena, Montana (ELI-Hel) under work order H09080098. One field blank and one field duplicate sample were included with these samples.

- Validation procedures used are generally consistent with:
  - _X_ EPA Contract Laboratory Program (CLP) National Functional Guidelines for Inorganics Data Review (EPA 2002)
  - _X_ Work Plan – RCRA Consent Decree Monitoring Plan (ASARCO 2002)
  - ____ Other

- Overall level of validation:
  - ____ CLP
  - _X_ Standard – Field and laboratory quality control (QC) samples are reviewed; and samples associated with QC violations are flagged.
  - ____ Visual

2. DELIVERABLES

- All laboratory document deliverables were present as specified in the CLP-Statement of Work (EPA 2001), and/or the project contract.
  - _X_ Yes
  - ____ No

- All documentation of field procedures was provided as required.
  - _X_ Yes
  - ____ No

- Data entry for documents was accurate and complete.
  - _X_ Yes
  - ____ No

3. FIELD PROCEDURES

- Samples were collected from all project-required sites.
  - _X_ Yes - see notes
  - ____ No

  Notes: This report covers data that were collected from new well sites EH-128 through EH-136.

- Field parameters were measured in accordance with the project work plan.
  _X_ Yes
  ____ No

- Field instruments were calibrated daily and before measurements were collected.
  _X_ Yes
  ____ No

- Chains of Custodies (COCs) were properly filled out and signed by the field personnel.
  _X_ Yes
  ____ No

- Data entry into field books, on COCs, and on sample labels were accurate and complete.
  _X_ Yes
  ____ No

4. FIELD BLANKS

Blanks: Please note that the highest blank value associated with any particular analyte is the blank value used for the flagging process.

Deionized water (DI), trip, rinsate, or any other field blanks have been carried out at the proper frequency (one rinsate blank and one DI blank per event).
_X_ Yes
____ No

Reported results on the field blanks were less than the Project Detection Limit Goals (PDLGs) or reporting limit.
_X_ Yes
____ No – see notes
Notes: Samples associated with blank detections, and with detected results less than five times the blank value are normally flagged **"UJ"** to indicate a possible positive bias. However, for this sampling event, the associated results were not less than five times the blank value and therefore, were not qualified for these detections. Following is a summary of the field blank detection.

Blank Type	Sample Code	Sample Date	Parameter	PDLG (mg/L)	Result (mg/L)	5 X Result (mg/L)	Flags
DI	AEH-0906-106	6/23/09	Copper (Dis)	0.01	0.02	0.10	0*

***Notes:** Associated results were greater than five times the blank value.

5. FIELD DUPLICATES

Field duplicates have been collected at the proper frequency (one field duplicate per event).
_X_ Yes
___ No

Field duplicate relative percent differences (RPDs) were within the required control limits (RPD of 20% or less). If the sample or duplicate result is less or equal to five times the PDLG, the RPD criteria are not used. In these cases, the difference between the sample and the duplicate results must be within ± the PDLG.
_X_ Yes
___ No

6. LABORATORY PROCEDURES

- **Laboratory procedures followed**
  _X_ CLP-Statement of Work (EPA 2001)
  ___ SW-846 (EPA 1986)
  _X_ Methods for Chemical Analysis of Water and Wastes (EPA 1983)

- **Holding times met**
  _X_ Yes
  ___ No

- **Consistency with project requirements**
  Analyses were carried out as required by the project work plan (ASARCO 2009).
  _X_ Yes
  ___ No

  Project specified methods were used.
  _X_ Yes
  ___ No

7. DETECTION LIMITS

- Reporting detection limits met PDLGs.
  _X_ Yes
  ___ No

8. LABORATORY BLANKS

Please note that the highest blank value associated with any particular analyte is the blank value used for the flagging process.

- Method blanks were prepared and analyzed at the required frequency (one per batch or one per 20 samples, whichever is greater.

  _X_ Yes
  ____ No

- All the analytes in the blank were less than the PDLG.

  _X_ Yes
  ____ No

9. LABORATORY MATRIX SPIKES

- A Matrix Spike (MS) sample (pre-digestion) was analyzed at the proper frequency (one per batch and/or matrix).

  _X_ Yes
  ____ No

- MS recoveries were within the required control limits (75-125%).

  _X_ Yes
  ____ No

10. LABORATORY DUPLICATES

- Laboratory duplicate samples were analyzed at the proper frequency (one per batch or one per 20 samples, whichever is greater).

  _X_ Yes
  ____ No

- RPDs were within the required control limits (RPD of 20% or less). If the sample or duplicate result is less or equal to five times the PDLG, the RPD criteria are not used. In these cases, the difference between the sample and the duplicate results must be within ± the PDLG.

  _X_ Yes
  ____ No

11. LABORATORY CONTROL STANDARDS (LCS)

Laboratory Fortified Blanks (LFBs) were used in lieu of LCS' for metal analyses. This is acceptable for the purpose of the project.

- The reference material used for the LCS or LFB was of the correct matrix.
  _X_ Yes
  ____ No

- LCS' or LFBs were prepared and analyzed at the proper frequency (one per batch or one per 20 samples, whichever is greater).
  _X_ Yes
  ____ No

- LCS recoveries were within the required control limits (80-120% or certified range).
  _X_ Yes
  ____ No

12. DATA QUALITY OBJECTIVES (DQOs)

- The data quality goal was met for precision (90% of the field and laboratory duplicates were within control limits).
  _X_ Yes –see the following table
  ____ No

Precision Objectives

QC Type	Total Results	# of Results Out of Control Limits	# of Results Within Control Limits	% Within Control Limits
Field Duplicates	26	0	26	100.0%
Lab Duplicates	40	0	40	100.0%
Overall	**66**	**0**	**66**	**100.0%**

- The data quality goal was met for accuracy (90% of the LCS and matrix spike results were within control limits).
  _X_ Yes – see the following table
  ____ No

Accuracy Objectives

QC Type	Total Results	# of Results Out of Control Limits	# of Results Within Control Limits	% Within Control Limits
LCS' and LFBs	14	0	14	100.0%
Matrix Spikes	52	8	44	84.6%
Overall	**66**	**8**	**58**	**87.9%**

- DQO target for completeness was met (the number of valid results divided by the number of possible results is 90% or above).
  _X_ Yes – see the table on the following page
  ____ No

Completeness

# of Planned Measurements	Actual # of Measurements	# of Rejected Measurements	# of Valid Measurements	Completeness
303	303	0	303	100.0%

- Samples were qualified for QC exceedances and deficiencies.
  ____ Yes
  _X_ No – see the following table

Qualification of Samples

# of Measurements	# of Qualified Measurements	# Not Qualified	% Not Qualified
303	0	303	100.0%

13. CONCLUSION

The data collected in June 2009 for the ASARCO East Helena Facility RCRA Consent Decree new well sampling event are deemed acceptable and can be used for the purposes they were intended.

Data Validation Report by: Linda L. Tangen

Client Review by: Jon Nickel

REFERENCES

ASARCO 2009. *RCRA Consent Decree Monitoring Plan.* ASARCO LLC. March.

EPA 1983. *Methods for Chemical Analysis of Water and Wastes.* United States Environmental Protection Agency. March.

EPA 1986. *Test Method for Evaluating Solid Waste: Physical/Chemical Methods 3rd Ed. 4 Vols.* United States Environmental Protection Agency. November.

EPA 2001. *USEPA Contract Laboratory Program Statement of Work for Inorganic Analysis.* United States Environmental Protection Agency. Document Number ILM05.2. December.

EPA 2002. *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review.* United States Environmental Protection Agency. July.

APPENDIX 1

DATABASE

ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - June 2009

Database: ASARCO, East Helena Plant

Table of Contents by Station Type

Page	Station Type	Station Name
1	Groundwater	EH-123
1	Groundwater	EH-124
1	Groundwater	EH-125
2	Groundwater	EH-126
2	Groundwater	EH-127
2	Groundwater	EH-128
3	Groundwater	EH-129
3	Groundwater	EH-130
4	Groundwater	EH-131
4	Groundwater	EH-132
4	Groundwater	EH-133
5	Groundwater	EH-134
5	Groundwater	EH-135
6	Groundwater	EH-136
6	Quality Control	DI BLANK
7	Quality Control	RINSATE

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

Run Time: 11/24/2009 10:26:05 AM

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ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - June 2009

Database: ASARCO, East Helena Plant

Table of Contents By Lab Sample ID

Page	Lab Sample ID	Sample ID	Sample Date	Station Name
1	H09060354-001	AEH-0906-100	6/23/2009	EH-123
1	H09060354-002	AEH-0906-101	6/23/2009	EH-124
1	H09060354-003	AEH-0906-102	6/23/2009	EH-125
2	H09060354-004	AEH-0906-103	6/23/2009	EH-127
2	H09060354-005	AEH-0906-104	6/23/2009	EH-127
2	H09060354-006	AEH-0906-105	6/23/2009	EH-126
6	H09060354-007	AEH-0906-106	6/23/2009	DI BLANK
7	H09060354-008	AEH-0906-107	6/23/2009	RINSATE
6	H09060354-009	AEH-0906-108	6/24/2009	EH-136
4	H09060354-010	AEH-0906-109	6/24/2009	EH-131
5	H09060354-011	AEH-0906-110	6/24/2009	EH-135
6	H09060354-012	AEH-0906-111	6/24/2009	DI BLANK
7	H09060354-013	AEH-0906-112	6/24/2009	RINSATE
3	H09060354-014	AEH-0906-113	6/24/2009	EH-130
5	H09060354-015	AEH-0906-114	6/24/2009	EH-135
5	H09060354-016	AEH-0906-115	6/24/2009	EH-135
3	H09060354-017	AEH-0906-116	6/24/2009	EH-129
5	H09060354-018	AEH-0906-117	6/24/2009	EH-134
4	H09060373-001	AEH-0906-118	6/25/2009	EH-133
6	H09060373-002	AEH-0906-119	6/25/2009	DI BLANK
7	H09060373-003	AEH-0906-120	6/25/2009	RINSATE
4	H09060373-004	AEH-0906-121	6/25/2009	EH-132
2	H09060373-005	AEH-0906-122	6/25/2009	EH-128
3	H09060373-006	AEH-0906-123	6/25/2009	EH-128

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

Run Time: 11/24/2009 10:26:05 AM

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ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - June 2009

Database: ASARCO, East Helena Plant

Table of Contents by Sample ID

Page	Sample ID	Lab Sample ID	Sample Date	Station Name
1	AEH-0906-100	H09060354-001	6/23/2009	EH-123
1	AEH-0906-101	H09060354-002	6/23/2009	EH-124
1	AEH-0906-102	H09060354-003	6/23/2009	EH-125
2	AEH-0906-103	H09060354-004	6/23/2009	EH-127
2	AEH-0906-104	H09060354-005	6/23/2009	EH-127
2	AEH-0906-105	H09060354-006	6/23/2009	EH-126
6	AEH-0906-106	H09060354-007	6/23/2009	DI BLANK
7	AEH-0906-107	H09060354-008	6/23/2009	RINSATE
6	AEH-0906-108	H09060354-009	6/24/2009	EH-136
4	AEH-0906-109	H09060354-010	6/24/2009	EH-131
5	AEH-0906-110	H09060354-011	6/24/2009	EH-135
6	AEH-0906-111	H09060354-012	6/24/2009	DI BLANK
7	AEH-0906-112	H09060354-013	6/24/2009	RINSATE
3	AEH-0906-113	H09060354-014	6/24/2009	EH-130
5	AEH-0906-114	H09060354-015	6/24/2009	EH-135
5	AEH-0906-115	H09060354-016	6/24/2009	EH-135
3	AEH-0906-116	H09060354-017	6/24/2009	EH-129
5	AEH-0906-117	H09060354-018	6/24/2009	EH-134
4	AEH-0906-118	H09060373-001	6/25/2009	EH-133
6	AEH-0906-119	H09060373-002	6/25/2009	DI BLANK
7	AEH-0906-120	H09060373-003	6/25/2009	RINSATE
4	AEH-0906-121	H09060373-004	6/25/2009	EH-132
2	AEH-0906-122	H09060373-005	6/25/2009	EH-128
3	AEH-0906-123	H09060373-006	6/25/2009	EH-128

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

Run Time: 11/24/2009 10:26:05 AM

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ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - June 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	EH-123	EH-124	EH-125
Water	SAMPLE DATE	6/23/2009	6/23/2009	6/23/2009
	SAMPLE TIME	07:50	10:00	10:40
	LAB	ELI	ELI	ELI
	LAB NUMBER	H09060354-001	H09060354-002	H09060354-003
	SAMPLE NUMBER	AEH-0906-100	AEH-0906-101	AEH-0906-102
	TYPE	Groundwater	Groundwater	Groundwater
	GROUP	RI	RI	RI
	DESCRIPTION			
	REMARKS			
Common Ions (mg/L): ppm unless noted				
	Calcium (Ca) (DIS)	66	47	105
	Magnesium (Mg) (DIS)	20	13	28
	Potassium (K) (DIS)	7	5	5
	Sodium (Na) (DIS)	38	31	84
Metals (mg/L): ppm unless noted				
	Arsenic (As) (DIS)	0.009	<0.005	<0.005
	Cadmium (Cd) (DIS)	<0.001	<0.001	<0.001
	Copper (Cu) (DIS)	<0.01	<0.01	<0.01
	Iron (Fe) (DIS)	0.02	<0.02	<0.02
	Lead (Pb) (DIS)	<0.01	<0.01	<0.01
	Manganese (Mn) (DIS)	<0.01	<0.01	<0.01
	Selenium (Se) (DIS)	0.003	0.003	0.092
	Zinc (Zn) (DIS)	<0.01	<0.01	<0.01
Physical/Fld-Lab: ppm unless noted				
	Oxygen (O) (DIS) (Fld)	6.59	9.22	4.23
	Depth To Water Level (ft)	42.59	36.71	32.69
	pH (Fld)	7.28	7.35	6.7
	SC (umhos/cm at 25 C) (Fld)	644	480	1087
	Water Temperature (C) (Fld)	11.9	10.8	10.7

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

Run Time: 11/24/2009 10:26:05 AM

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ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - June 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	EH-126	EH-127	EH-127	EH-128
Water	SAMPLE DATE	6/23/2009	6/23/2009	6/23/2009	6/25/2009
	SAMPLE TIME	11:50	12:45	13:00	09:35
	LAB	ELI	ELI	ELI	ELI
	LAB NUMBER	H09060354-006	H09060354-004	H09060354-005	H09060373-005
	SAMPLE NUMBER	AEH-0906-105	AEH-0906-103	AEH-0906-104	AEH-0906-122
	TYPE	Groundwater	Groundwater	Groundwater	Groundwater
	GROUP	R1	R1	R1	R1
	DESCRIPTION				New Well
	REMARKS			Field Duplicate	
Common Ions (mg/L): ppm unless noted					
	Calcium (Ca) (DIS)	86	28	28	
	Magnesium (Mg) (DIS)	39	6	6	
	Potassium (K) (DIS)	4	3	3	
	Sodium (Na) (DIS)	35	13	13	
Metals (mg/L): ppm unless noted					
	Arsenic (As) (DIS)	0.005	<0.005	<0.005	0.034
	Cadmium (Cd) (DIS)	<0.001	<0.001	<0.001	
	Copper (Cu) (DIS)	<0.01	<0.01	<0.01	
	Iron (Fe) (DIS)	<0.02	<0.02	<0.02	
	Lead (Pb) (DIS)	<0.01	<0.01	<0.01	
	Manganese (Mn) (DIS)	<0.01	<0.01	<0.01	
	Selenium (Se) (DIS)	0.104	<0.001	<0.001	<0.001
	Zinc (Zn) (DIS)	<0.01	<0.01	<0.01	
Physical/Fld-Lab: ppm unless noted					
	Oxygen (O) (DIS) (Fld)	7.77	10.8		8.07
	Depth To Water Level (ft)	51.66	25.54		35.14
	pH (Fld)	7.11	6.97		7.51
	SC (umhos/cm at 25 C) (Fld)	861	257		318
	Water Temperature (C) (Fld)	11.25	8.77		14.76

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - June 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	EH-128	EH-129	EH-130
Water	SAMPLE DATE	6/25/2009	6/24/2009	6/24/2009
	SAMPLE TIME	09:50	14:25	12:45
	LAB	ELI	ELI	ELI
	LAB NUMBER	H09060373-006	H09060354-017	H09060354-014
	SAMPLE NUMBER	AEH-0906-123	AEH-0906-116	AEH-0906-113
	TYPE	Groundwater	Groundwater	Groundwater
	GROUP	R1	R1	R1
	DESCRIPTION	New Well	New Well	New Well
	REMARKS	Field Duplicate		
Common Ions (mg/L): ppm unless noted				
	Calcium (Ca) (DIS)		39	34
	Magnesium (Mg) (DIS)		14	8
	Potassium (K) (DIS)		6	3
	Sodium (Na) (DIS)		24	26
Metals (mg/L): ppm unless noted				
	Arsenic (As) (DIS)	0.035	0.007	<0.005
	Cadmium (Cd) (DIS)		<0.001	<0.001
	Copper (Cu) (DIS)		<0.01	<0.01
	Iron (Fe) (DIS)		<0.02	<0.02
	Lead (Pb) (DIS)		<0.01	<0.01
	Manganese (Mn) (DIS)		<0.01	<0.01
	Selenium (Se) (DIS)	<0.001	0.002	0.009
	Zinc (Zn) (DIS)		<0.01	<0.01
Physical/Fld-Lab: ppm unless noted				
	Oxygen (O) (DIS) (Fld)		6.53	4.13
	Depth To Water Level (ft)		51.18	42.5
	pH (Fld)		7.3	6.89
	SC (umhos/cm at 25 C) (Fld)		4.08	363
	Water Temperature (C) (Fld)		14.55	11.17

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - June 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	EH-131	EH-132	EH-133
Water	SAMPLE DATE	6/24/2009	6/25/2009	6/25/2009
	SAMPLE TIME	10:10	09:10	08:20
	LAB	ELI	ELI	ELI
	LAB NUMBER	H09060354-010	H09060373-004	H09060373-001
	SAMPLE NUMBER	AEH-0906-109	AEH-0906-121	AEH-0906-118
	TYPE	Groundwater	Groundwater	Groundwater
	GROUP	R1	R1	R1
	DESCRIPTION	New Well	New Well	New Well
	REMARKS			
Common Ions (mg/L): ppm unless noted				
	Calcium (Ca) (DIS)	28		
	Magnesium (Mg) (DIS)	7		
	Potassium (K) (DIS)	3		
	Sodium (Na) (DIS)	13		
Metals (mg/L): ppm unless noted				
	Arsenic (As) (DIS)	<0.005	0.03	0.007
	Cadmium (Cd) (DIS)	<0.001		
	Copper (Cu) (DIS)	<0.01		
	Iron (Fe) (DIS)	<0.02		
	Lead (Pb) (DIS)	<0.01		
	Manganese (Mn) (DIS)	<0.01		
	Selenium (Se) (DIS)	<0.001	<0.001	<0.001
	Zinc (Zn) (DIS)	<0.01		
Physical/Fld-Lab: ppm unless noted				
	Oxygen (O) (DIS) (Fld)	7.01	6.35	7.63
	Depth To Water Level (ft)	30.71	44.19	46.44
	pH (Fld)	6.92	7.51	7.36
	SC (umhos/cm at 25 C) (Fld)	263	286	360
	Water Temperature (C) (Fld)	9.53	14.48	13.35

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - June 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	EH-134	EH-135	EH-135	EH-135
Water	SAMPLE DATE	6/24/2009	6/24/2009	6/24/2009	6/24/2009
	SAMPLE TIME	14:58	11:05	13:30	13:45
	LAB	ELI	ELI	ELI	ELI
	LAB NUMBER	H09060354-018	H09060354-011	H09060354-015	H09060354-016
	SAMPLE NUMBER	AEH-0906-117	AEH-0906-110	AEH-0906-114	AEH-0906-115
	TYPE	Groundwater	Groundwater	Groundwater	Groundwater
	GROUP	R1	R1	R1	R1
	DESCRIPTION	New Well	New Well	New Well	New Well
	REMARKS				Field Duplicate
Common Ions (mg/L): ppm unless noted					
	Calcium (Ca) (DIS)	41	30	29	29
	Magnesium (Mg) (DIS)	12	7	7	7
	Potassium (K) (DIS)	6	3	3	3
	Sodium (Na) (DIS)	20	13	13	12
Metals (mg/L): ppm unless noted					
	Arsenic (As) (DIS)	0.005	<0.005	<0.005	<0.005
	Cadmium (Cd) (DIS)	<0.001	<0.001	<0.001	<0.001
	Copper (Cu) (DIS)	<0.01	<0.01	<0.01	<0.01
	Iron (Fe) (DIS)	<0.02	<0.02	<0.02	<0.02
	Lead (Pb) (DIS)	<0.01	<0.01	<0.01	<0.01
	Manganese (Mn) (DIS)	<0.01	<0.01	<0.01	<0.01
	Selenium (Se) (DIS)	<0.001	<0.001	<0.001	<0.001
	Zinc (Zn) (DIS)	<0.01	<0.01	<0.01	0.02
Physical/Fld-Lab: ppm unless noted					
	Oxygen (O) (DIS) (Fld)	7.23	6.97	6.92	
	Depth To Water Level (ft)	50.67	33.98	25.56	
	pH (Fld)	7.38	6.95	6.97	
	SC (umhos/cm at 25 C) (Fld)	383	273	266	
	Water Temperature (C) (Fld)	14.06	9.36	9.73	

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - June 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	EH-136	DI BLANK	DI BLANK	DI BLANK
Water	SAMPLE DATE	6/24/2009	6/23/2009	6/24/2009	6/25/2009
	SAMPLE TIME	08:55	12:10	11:20	08:35
	LAB	ELI	ELI	ELI	ELI
	LAB NUMBER	H09060354-009	H09060354-007	H09060354-012	H09060373-002
	SAMPLE NUMBER	AEH-0906-108	AEH-0906-106	AEH-0906-111	AEH-0906-119
	TYPE	Groundwater	QC	QC	QC
	GROUP	RI	RI	RI	RI
	DESCRIPTION	New Well			
	REMARKS		Blank	Blank	
Common Ions (mg/L): ppm unless noted					
	Calcium (Ca) (DIS)	24	<1	<1	
	Magnesium (Mg) (DIS)	6	<1	<1	
	Potassium (K) (DIS)	2	<1	<1	
	Sodium (Na) (DIS)	11	<1	<1	
Metals (mg/L): ppm unless noted					
	Arsenic (As) (DIS)	<0.005	<0.005	<0.005	<0.005
	Cadmium (Cd) (DIS)	<0.001	<0.001	<0.001	
	Copper (Cu) (DIS)	<0.01	0.02	<0.01	
	Iron (Fe) (DIS)	<0.02	<0.02	<0.02	
	Lead (Pb) (DIS)	<0.01	<0.01	<0.01	
	Manganese (Mn) (DIS)	<0.01	<0.01	<0.01	
	Selenium (Se) (DIS)	<0.001	<0.001	<0.001	<0.001
	Zinc (Zn) (DIS)	<0.01	<0.01	<0.01	
Physical/Fld-Lab: ppm unless noted					
	Oxygen (O) (DIS) (Fld)	9.19			
	Depth To Water Level (ft)	26.46			
	pH (Fld)	7.06			
	SC (umhos/cm at 25 C) (Fld)	226			
	Water Temperature (C) (Fld)	7.95			

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - June 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	RINSATE	RINSATE	RINSATE
Water	SAMPLE DATE	6/23/2009	6/24/2009	6/25/2009
	SAMPLE TIME	12:25	12:20	08:50
	LAB	ELI	ELI	ELI
	LAB NUMBER	H09060354-008	H09060354-013	H09060373-003
	SAMPLE NUMBER	AEH-0906-107	AEH-0906-112	AEH-0906-120
	TYPE	QC	QC	QC
	GROUP	R1	R1	R1
	DESCRIPTION			
	REMARKS	Blank	Blank	
Common Ions (mg/L): ppm unless noted				
	Calcium (Ca) (DIS)	<1	<1	
	Magnesium (Mg) (DIS)	<1	<1	
	Potassium (K) (DIS)	<1	<1	
	Sodium (Na) (DIS)	<1	<1	
Metals (mg/L): ppm unless noted				
	Arsenic (As) (DIS)	<0.005	<0.005	<0.005
	Cadmium (Cd) (DIS)	<0.001	<0.001	
	Copper (Cu) (DIS)	<0.01	<0.01	
	Iron (Fe) (DIS)	<0.02	<0.02	
	Lead (Pb) (DIS)	<0.01	<0.01	
	Manganese (Mn) (DIS)	<0.01	<0.01	
	Selenium (Se) (DIS)	<0.001	<0.001	<0.001
	Zinc (Zn) (DIS)	<0.01	<0.01	

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

APPENDIX 2

FIELD NOTES

STANDARD OPERATING PROCEDURE
INSTRUMENT CALIBRATION FORM
HF-FORM-500

Hydrometrics, Inc.
Consulting Scientists and Engineers

Project Name: ASARCO E. Helena

Project Number: 1054

Date: 6/23/09

Personnel: A. Tourbinais

Weather Conditions:

calm	breeze	windy
no precip	rain	snow
clear	p. cloudy	overcast

Air Temperature:
°F °C

pH

Meter Type: YSI
SN:

Time	Buffer	Temperature °C	Reading (Temp Corrected)
7:38	4	17.3	4.00
7:35	7	17.4	7.00
7:45	10	17.4	9.98
Calibration check:			

Specific Conductance

Meter Type: YSI SN:

Time	Standard	Temperature	Reading (Temp Corrected)	Cell Factor
7:30	1413	17.7°C	1413	
Calibration check:				

Dissolved Oxygen

Meter Type: YSI
SN:
Time: 7:50
Calibration Results: 8.83

Turbidity

Meter Type: SN:
Standard: Reading:

Redox Potential (Eh)

Meter Type:
SN:
Electrode: Ag/AgCl
Other:
Time:
ZoBell Solution Potential (mV):
Temperature:

PID/FID

Meter Type: SN:
Span Gas Type:

Time	Span Gas		Calibration Memory	Response Factor	Reading
	Gauge Pressure	Concentration			
Calibration Check:					

Notes/Additional Information:

STANDARD OPERATING PROCEDURE
INSTRUMENT CALIBRATION FORM
HF-FORM-500

Hydrometrics, Inc.
Consulting Scientists and Engineers

Project Name: ASARCO E. Helena

Project Number: 1054

Date: 6/24/09

Personnel: A Jordinais

Weather Conditions:

calm	breeze	windy
no precip	rain	snow
clear	p. cloudy	overcast

Air Temperature:
°F °C

pH

Meter Type: YSI
SN:

Time	Buffer	Temperature	Reading (Temp Corrected)
8:00	4	17.46	4.00
7:55	7	17.57	7.00
8:05	10	17.93	9.96
Calibration check:			

Specific Conductance

Meter Type: YSI SN:

Time	Standard	Temperature	Reading (Temp Corrected)	Cell Factor
8:10	1413	17.79	1413	
Calibration check:				

Dissolved Oxygen

Meter Type: YSI
SN:
Time: 8:15
Calibration Results: 13.42°C
8.87

Turbidity

Meter Type: SN:
Standard: Reading:

Redox Potential (Eh)

Meter Type:
SN:
Electrode: Ag/AgCl
Other:
Time:
ZoBell Solution Potential (mV):
Temperature:

PID/FID

Meter Type: SN:
Span Gas Type:

Time	Span Gas		Calibration Memory	Response Factor	Reading
	Gauge Pressure	Concentration			
Calibration Check:					

Notes/Additional Information:

STANDARD OPERATING PROCEDURE
INSTRUMENT CALIBRATION FORM
HF-FORM-500

Hydrometrics, Inc.
Consulting Scientists and Engineers

Project Name: ASARCO E. Helena

Project Number: 1054

Date: 6/25/09

Personnel: A Jourdinais

Weather Conditions:

calm	breeze	windy
no precip	rain	snow
clear	p. cloudy	overcast

Air Temperature:
°F °C

pH

Meter Type: YSI
SN:

Time	Buffer	Temperature	Reading (Temp Corrected)
8:05	4	20.100	4.00
7:55	7	21.23	7.00
8:00	10	20.57	10.00
Calibration check:			

Dissolved Oxygen

Meter Type: YSI
SN:
Time: 8:15
Calibration Results: 14.83°C
8.58

Specific Conductance

Meter Type: YSI SN:

Time	Standard	Temperature	Reading (Temp Corrected)	Cell Factor
8:10	1413	20.81	1413	
Calibration check:				

Turbidity

Meter Type: SN:
Standard: Reading:

Redox Potential (Eh)

Meter Type:
SN:
Electrode: Ag/AgCl
Other:
Time:
ZoBell Solution Potential (mV):
Temperature:

PID/FID

Meter Type: SN:
Span Gas Type:

Time	Span Gas		Calibration Memory	Response Factor	Reading
	Gauge Pressure	Concentration			
Calibration Check:					

Notes/Additional Information:

Hydrometrics, Inc.

STANDARD OPERATING PROCEDURE
WATER SAMPLING FORM
HF-FORM-430

Consulting Scientists, Engineers and Contractors

Project Name: ASARCO E. Helena
Project Code: 1054
Sample Team Member(s): B. Lane, A. Fourdonnais
Laboratory Used: Energy Labs

Site Designation: EH-123
Sample Code Number: AEH-0906-100
Sample Date: ~~6/23/2009~~ 6/23/09
Sample Time: 0750 (military)

If Duplicate Sample Collected, Please Record Below

Duplicate Sample Code #:
Duplicate Sample Time:

Site Conditions

New Site: Yes (No) Photo taken: Yes (No)
Site Type: DRY surface water process water (monitoring well) domestic well adit seep spring other:
Weather Conditions: (calm) breeze windy (no precip.) rain snow (clear) p. cloudy overcast
Air Temperature: °C 60 °F

For Groundwater Samples

well volume formula: V = (TD-SWL)x(Dia.²) / 25 — Comments

TD(ft.) 63 Pumping Rate .5 gpm
SWL (ft): 42.59' no access/pumping
Casing Diameter (I.D.") 2"
Water Volume (V) (gal): 3.2 V x 3 =(gal) 9.6
MP Description Top of PVC
Actual Vol. Removed (gal.) 10
Water Level Recovery: slow moderate rapid

For Surface Water Samples

Flow Method: Marsh McBirney Volumetric Flume Weir Estimate
Other Flow or Description:
Flow: gpm cfs Staff Gage:

Field Parameter Stabilization

Time (military)	Oxidation Reduction Potential (mV)	Dissolved Oxygen (mg/l)	pH	S.C. (µmhos/cm)	Turbidity (n.t.u.)	Temperature (°C)	Additional Parameters or Notes
07:25	Pump	ON					
07:30		6.74	7.46	643		11.9	
07:35		6.68	7.38	644		11.9	
07:38		6.64	7.33	644		11.9	
07:42		6.57	7.29	644		11.9	
0745		6.59	7.28	644		11.9	

Turbidity: (circle) (clear) slight moderate very

Sample Method: (describe) (grab) composite (pump) bailer other 12v

Field Parameters

	Sample	Duplicate
ORP (mV)		
DO (mg/l)	6.59	
pH	7.28	
SC (µmhos/cm)	644	
Turbidity (ntu)		
H_2O Tmp. (°C)	11.9	
Color	clear	
Other; odor	none	

Bottles Collected

Quantity	Size	Filter or Unfilt.	Preservative	Parameter	Additional Notes
1	250	F	HNO3	Dis metals	

Comments:

Sample Team Member Signature: [signature] Page of

Hydrometrics, Inc.

STANDARD OPERATING PROCEDURE
WATER SAMPLING FORM
HF-FORM-430

Consulting Scientists, Engineers and Contractors

Project Name: ASARCO E. Helena
Project Code: 1054
Sample Team Member(s): R. Luna A. Jourdonnais
Laboratory Used: Energy Labs

Site Designation: EH-124
Sample Code Number: AEH-0906- 101
Sample Date: ~~6/22/2009~~ 6/23/09
Sample Time: 1000 (military)

If Duplicate Sample Collected, Please Record Below

Duplicate Sample Code #:
Duplicate Sample Time:

Site Conditions

New Site: Yes **No** Photo taken: Yes **No**
Site Type: DRY surface water process water **monitoring well** domestic well adit seep spring other:
Weather Conditions: **calm** breeze windy **no precip.** rain snow **clear** p. cloudy overcast
Air Temperature: °C 65 °F

For Groundwater Samples

well volume formula: $V = \frac{(TD-SWL)x(Dia.^2)}{25}$ Comments

TD(ft.) 77' Pumping Rate _____ gpm
SWL (ft): 36.71' no access/pumping
Casing Diameter (I.D.") 3"
Water Volume (V) (gal): 6.5 V x 3 =(gal) 19.5
MP Description Top of PVC
Actual Vol. Removed (gal.) 28
Water Level Recovery: slow moderate rapid

For Surface Water Samples

Flow Method: Marsh McBirney Volumetric Flume Weir Estimate
Other Flow or Description:
Flow: gpm cfs Staff Gage:

Field Parameter Stabilization

Time (military)	Oxidation Reduction Potential (mV)	Dissolved Oxygen (mg/l)	pH	S.C. (µmhos/cm)	Turbidity (n.t.u.)	Temperature (°C)	Additional Parameters or Notes
0945	Pump	ON					
0950		16.15	7.33	481		10.8	
0952		9.65	7.34	481		11.1	
0954		9.44	7.35	480		10.8	
0958		9.27	7.35	480		10.8	
1001		9.22	7.35	480		10.8	
		Do OFF					

Turbidity: (circle) **clear** moderate slight very

Sample Method: (describe) **grab** composite **pump** bailer other 12v

Field Parameters

	Sample	Duplicate
ORP (mV)		
DO (mg/l)	9.22	
pH	7.35	
SC (µmhos/cm)	480	
Turbidity (ntu)		
H_2O Tmp. (°C)	10.8	
Color	clear	
Other; odor	none	

Bottles Collected

Quantity	Size	Filter or Unfilt.	Preservative	Parameter	Additional Notes
1	250	F	HNO3	Dis metals	

Comments:

Sample Team Member Signature: R. Luna

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Hydrometrics, Inc.

STANDARD OPERATING PROCEDURE
WATER SAMPLING FORM
HF-FORM-430

Consulting Scientists, Engineers and Contractors

Project Name: ASARCO E. Helena
Project Code: 1054
Sample Team Member(s): R. Lane A. Sondermann
Laboratory Used: Energy Labs

Site Designation: EH-125
Sample Code Number: AEH-0906- 102
Sample Date: ~~6/22/2009~~ 6/23/09
Sample Time: 1040 (military)

If Duplicate Sample Collected, Please Record Below

Duplicate Sample Code #: /
Duplicate Sample Time: /

For Groundwater Samples

well volume formula: V = (TD-SWL)x(Dia.^{2}) / 25

Comments

TD(ft.) 72 Pumping Rate 1.5 gpm
SWL (ft): 32.69 no access/pumping
Casing Diameter (I.D.") 2"
Water Volume (V) (gal): 6.3 V x 3 =(gal) 18.9
MP Description Top of PVC
Actual Vol. Removed (gal.) 24
Water Level Recovery: slow (moderate) rapid

Site Conditions

New Site: Yes (No) Photo taken: Yes (No)
Site Type: DRY surface water process water (monitoring well) domestic well adit seep spring other:
Weather Conditions: (calm) breeze windy (no precip.) rain snow (clear) p. cloudy overcast
Air Temperature: °C 70 °F

For Surface Water Samples

Flow Method: Marsh McBirney Volumetric Flume Weir Estimate
Other Flow or Description:
Flow: gpm cfs Staff Gage:

Field Parameter Stabilization

Time (military)	Oxidation Reduction Potential (mV)	Dissolved Oxygen (mg/l)	pH	S.C. (µmhos/cm)	Turbidity (n.t.u.)	Temperature (°C)	Additional Parameters or Notes
1020	Pump	ON					
1030		4.41	6.73	1161		10.7	
1032		4.33	6.72	1127		10.7	
1034		4.39	6.70	1106		10.7	
1035		4.26	6.70	1096		10.7	
1036		4.23	6.70	1087		10.7	

16

Turbidity: (circle) (clear) slight moderate very

Sample Method: (describe) (grab) composite (pump) 12v bailer other

Field Parameters

	Sample	Duplicate
ORP (mV)		
DO (mg/l)	4.23	
pH	6.70	
SC (µmhos/cm)	1087	
Turbidity (ntu)		
H_2O Tmp. (°C)	10.7	
Color	Clear	
Other; odor	none	

Bottles Collected

Quantity	Size	Filter or Unfilt.	Preservative	Parameter	Additional Notes
1	250	F	HNO3	Dis metals	

Comments:

Sample Team Member Signature: [signature] Page of

Hydrometrics, Inc.

STANDARD OPERATING PROCEDURE
WATER SAMPLING FORM
HF-FORM-430

Consulting Scientists, Engineers and Contractors

Project Name: ASARCO E. Helena
Project Code: 1054
Sample Team Member(s): R. Lane A. Jourdonais
Laboratory Used: Energy Labs

Site Designation: EH-127
Sample Code Number: AEH-0906-103
Sample Date: ~~6/22/2009~~ 6/29/09
Sample Time: 12:45 (military)

If Duplicate Sample Collected, Please Record Below

Duplicate Sample Code #: AEH-0906-104
Duplicate Sample Time: 13:00

For Groundwater Samples

well volume formula: V = (TD-SWL)x(Dia.^{2}) / 25 — Comments: 4.0

TD(ft.) 76.5 Pumping Rate 2.5 gpm
SWL (ft): 25.54 no access/pumping
Casing Diameter (I.D.") 2
Water Volume (V) (gal): 8.15 V x 3 =(gal) 24.4
MP Description Top of PVC
Actual Vol. Removed (gal.) 25
Water Level Recovery: slow moderate rapid

Site Conditions

New Site: Yes No Photo taken: Yes (No)
Site Type: DRY surface water process water (monitoring well) domestic well adit seep spring other:
Weather Conditions: (calm) breeze windy no precip. rain snow clear p. cloudy overcast
Air Temperature: ~~75~~ °C 75 °F

For Surface Water Samples

Flow Method: Marsh McBirney Volumetric Flume Weir Estimate
Other Flow or Description:
Flow: gpm cfs Staff Gage:

Field Parameter Stabilization

Time (military)	Oxidation Reduction Potential (mV)	Dissolved Oxygen (mg/l)	pH	S.C. (µmhos/cm)	Turbidity (n.t.u.)	Temperature (°C)	Additional Parameters or Notes
12:16							
12:20		13.02	7.47	271		9.13	
12:25		12.22	7.05	256		8.67	
12:30		11.92	6.99	257		8.72	
12:35		11.28	6.99	257		8.70	
12:41		10.80	6.97	257		8.77	

Turbidity: (circle) (clear) slight moderate very

Sample Method: (describe) (grab) composite (pump) bailer other 12v

Field Parameters

	Sample	Duplicate
ORP (mV)		
DO (mg/l)	10.80	
pH	6.97	
SC (µmhos/cm)	257	
Turbidity (ntu)		
H_2O Tmp. (°C)	8.77	
Color	None	
Other; odor	None	

Bottles Collected

Quantity	Size	Filter or Unfilt.	Preservative	Parameter	Additional Notes
1	250	F	HNO3	Dis metals	

Comments:

Sample Team Member Signature: [signature] Page of

Hydrometrics, Inc.

STANDARD OPERATING PROCEDURE
WATER SAMPLING FORM
HF-FORM-430

Consulting Scientists, Engineers and Contractors

Project Name: ASARCO E. Helena
Project Code: 1054
Sample Team Member(s): RL, AJ
Laboratory Used: Energy Labs

Site Designation: EH-126
Sample Code Number: AEH-0906- ~~105~~ 105
Sample Date: ~~6/22/2009~~ 6/23/09
Sample Time: 11:50 (military)

If Duplicate Sample Collected, Please Record Below

Duplicate Sample Code #:
Duplicate Time:

For Groundwater Samples

well volume formula: V = (TD-SWL)x(Dia.^{2}) / 25

Comments

TD(ft.) 77 Pumping Rate 1.2 gpm
SWL (ft): 51.66 no access/pumping
Casing Diameter (I.D.") 2
Water Volume (V) (gal): 4.05 V x 3 =(gal) 16.4
MP Description Top of PVC
Actual Vol. Removed (gal.) 18
Water Level Recovery: slow moderate rapid

Site Conditions

New Site: Yes No Photo taken: Yes No
Site Type: DRY surface water process water
monitoring well domestic well adit seep
spring other:
Weather Conditions: calm breeze windy
no precip. rain snow
clear p. cloudy overcast
Air Temperature: °C 70 °F

For Surface Water Samples

Flow Method: Marsh McBirney Volumetric Flume Weir Estimate
Other Flow or Description:
Flow: gpm cfs Staff Gage:

Field Parameter Stabilization

Time (military)	Oxidation Reduction Potential (mV)	Dissolved Oxygen (mg/l)	pH	S.C. (µmhos/cm)	Turbidity (n.t.u.)	Temperature (°C)	Additional Parameters or Notes
11:33							
11:35		6.98	6.91	877		11.14	
15 11:38		7.54	7.02	862		11.10	
11:41		7.65	7.05	860		11.13	
11:45		7.68	7.10	852		11.58	
11:48		7.77	7.11	861		11.25	

Turbidity: (circle) clear slight moderate very

Sample Method: (describe) grab composite pump 12v bailer other

Field Parameters

	Sample	Duplicate
ORP (mV)		
DO (mg/l)	7.77	
pH	7.11	
SC (µmhos/cm)	861	
Turbidity (ntu)		
H_2O Tmp. (°C)	11.25	
Color	None	
Other; odor	None	

Bottles Collected

Quantity	Size	Filter or Unfilt.	Preservative	Parameter	Additional Notes
1	250	F	HNO3	Dis metals	

Comments:

Sample Team Member Signature: [signature] Page of

Hydrometrics, Inc.

STANDARD OPERATING PROCEDURE
WATER SAMPLING FORM
HF-FORM-430

Consulting Scientists, Engineers and Contractors

Project Name: ASARCO E. Helena
Project Code: 1054
Sample Team Member(s): B Lane, A Jourdonnais
Laboratory Used: Energy Labs

Site Designation: DI BLANK
Sample Code Number: AEH-0906- ~~1004~~ 106
Sample Date: ~~6/22/2009~~ 6/23/09
Sample Time: 1210 (military)

If Duplicate Sample Collected, Please Record Below

Duplicate Sample Code #:
Duplicate Sample Time:

Site Conditions

New Site: Yes No Photo taken: Yes No
Site Type: DRY surface water process water
monitoring well domestic well adit seep
spring other: QA/QC
Weather Conditions: calm breeze windy
no precip. rain snow
clear p. cloudy overcast
Air Temperature: °C °F

For Groundwater Samples

well volume formula: V = (TD-SWL)x(Dia.^{2}) / 25 Comments
TD(ft.) Pumping Rate gpm
SWL (ft): no access/pumping
Casing Diameter (I.D.")
Water Volume (V) (gal): V x 3 =(gal)
MP Description
Actual Vol. Removed (gal.)
Water Level Recovery: slow moderate rapid

For Surface Water Samples

Flow Method: Marsh McBirney Volumetric Flume Weir Estimate
Other Flow or Description:
Flow: gpm cfs Staff Gage:

Field Parameter Stabilization

Time (military)	Oxidation Reduction Potential (mV)	Dissolved Oxygen (mg/l)	pH	S.C. (µmhos/cm)	Turbidity (n.t.u.)	Temperature (°C)	Additional Parameters or Notes

Turbidity: (circle) clear slight moderate very

Sample Method: (describe) grab composite pump bailer other
12v

Field Parameters

	Sample	Duplicate
ORP (mV)		
DO (mg/l)		
pH		
SC (µmhos/cm)		
Turbidity (ntu)		
H_2O Tmp. (°C)		
Color		
Other: odor		

Bottles Collected

Quantity	Size	Filter or Unfilt.	Preservative	Parameter	Additional Notes
1	250	F	HNO3	Dis metals	

Comments:

Sample Team Member Signature: Page of

Hydrometrics, Inc.

STANDARD OPERATING PROCEDURE
WATER SAMPLING FORM
HF-FORM-430

Consulting Scientists, Engineers and Contractors

Project Name: ASARCO E. Helena
Project Code: 1054
Sample Team Member(s): RL, AJ
Laboratory Used: Energy Labs

Site Designation: Rinsate Blank
Sample Code Number: AEH-0906-107
Sample Date: ~~6/22/2009~~ 6/23/09
Sample Time: 1235 (military)

If Duplicate Sample Collected, Please Record Below

Duplicate Sample Code #:
Duplicate Sample Time:

Site Conditions

New Site: Yes (No) Photo taken: Yes (No)
Site Type: DRY surface water process water
monitoring well domestic well adit seep
spring other: QAQC Rinsate
Weather Conditions: calm breeze windy
no precip. rain snow
clear p. cloudy overcast
Air Temperature: °C 70 °F

For Groundwater Samples

well volume formula: V = (TD-SWL)x(Dia.^{2}) / 25 Comments
TD(ft.) Pumping Rate gpm
SWL (ft): no access/pumping
Casing Diameter (I.D.")
Water Volume (V) (gal): V x 3 =(gal)
MP Description
Actual Vol. Removed (gal.)
Water Level Recovery: slow moderate rapid

For Surface Water Samples

Flow Method: Marsh McBirney Volumetric Flume Weir Estimate
Other Flow or Description:
Flow: gpm cfs Staff Gage:

Field Parameter Stabilization

Time (military)	Oxidation Reduction Potential (mV)	Dissolved Oxygen (mg/l)	pH	S.C. (µmhos/cm)	Turbidity (n.t.u.)	Temperature (°C)	Additional Parameters or Notes

Turbidity: (circle) (clear) slight moderate very

Sample Method: (describe) grab composite pump bailer other
12v

Field Parameters

	Sample	Duplicate
ORP (mV)		
DO (mg/l)		
pH		
SC (µmhos/cm)		
Turbidity (ntu)		
H_2O Tmp. (°C)		
Color		
Other; odor		

Bottles Collected

Quantity	Size	Filter or Unfilt.	Preservative	Parameter	Additional Notes
1	250	F	HNO3	Dis metals	

Comments:

Sample Team Member Signature: Rid 2 Page of

Hydrometrics, Inc.

STANDARD OPERATING PROCEDURE
WATER SAMPLING FORM
HF-FORM-430

Consulting Scientists, Engineers and Contractors

Project Name: ASARCO E. Helena
Project Code: 1054
Sample Team Member(s): A Jourdonnais, J Clum
Laboratory Used: Energy Labs

Site Designation: EH-136
Sample Code Number: AEH-0906-108
Sample Date: ~~6/22/2009~~ 6/24/2009
Sample Time: 08:55 (military)

If Duplicate Sample Collected, Please Record Below

Duplicate Sample Code #:
Duplicate Sample Time:

Site Conditions

New Site: Yes No Photo taken: Yes (No)
Site Type: DRY surface water process water
(monitoring well) domestic well adit seep
spring other:
Weather Conditions: (calm) breeze windy
no precip. rain snow
(clear) p. cloudy overcast
Air Temperature: °C 75 °F

For Groundwater Samples

well volume formula: V = (TD-SWL)x(Dia.²) / 25 — Comments

TD(ft.) 78.3 Pumping Rate 0.8 gpm
SWL (ft): 26.46 no access/pumping
Casing Diameter (I.D.") 2
Water Volume (V) (gal): 8.29 V x 3 =(gal) 24.9
MP Description top of PVC
Actual Vol. Removed (gal.) 25
Water Level Recovery: slow moderate rapid

For Surface Water Samples

Flow Method: Marsh McBirney Volumetric Flume Weir Estimate
Other Flow or Description:
Flow: gpm cfs Staff Gage:

Field Parameter Stabilization

Time (military)	Oxidation Reduction Potential (mV)	Dissolved Oxygen (mg/l)	pH	S.C. (µmhos/cm)	Turbidity (n.t.u.)	Temperature (°C)	Additional Parameters or Notes
08:19							
08:25		10.24	7.30	227		8.01	
08:35		9.78	7.19	226		7.97	
08:45		9.44	7.10	227		7.88	
08:50		9.31	7.08	227		7.92	
08:55		9.19	7.06	226		7.95	

Turbidity: (circle) (clear) slight moderate very

Sample Method: (describe) (grab) composite (pump) bailer other 12v

Field Parameters

	Sample	Duplicate
ORP (mV)		
DO (mg/l)	9.19	
pH	7.08	
SC (µmhos/cm)	226	
Turbidity (ntu)		
H_2O Tmp. (°C)	7.95	
Color	Clear	
Other; odor	none	

Bottles Collected

Quantity	Size	Filter or Unfilt.	Preservative	Parameter	Additional Notes
1	250	F	HNO3	Dis metals	

Comments: lock missing

Sample Team Member Signature: [signature] Page of

Hydrometrics, Inc.

STANDARD OPERATING PROCEDURE
WATER SAMPLING FORM
HF-FORM-430

Consulting Scientists, Engineers and Contractors

Project Name: ASARCO E. Helena
Project Code: 1054
Sample Team Member(s): A. Jourdonnais, J. Clem
Laboratory Used: Energy Labs

Site Designation: EH-131
Sample Code Number: AEH-0906-109
Sample Date: ~~6/22/2009~~ 6/24/09
Sample Time: 1010 (military)

If Duplicate Sample Collected, Please Record Below

Duplicate Sample Code #:
Duplicate Sample Time:

Site Conditions

New Site: Yes No Photo taken: Yes (No)
Site Type: DRY surface water process water
(monitoring well) domestic well adit seep
spring other:
Weather Conditions: (calm) breeze windy
no precip. rain snow
(clear) p. cloudy overcast
Air Temperature: °C 85 °F

For Groundwater Samples

well volume formula: $V = \frac{(TD-SWL)x(Dia.^2)}{25}$ Comments

TD(ft.) 87.8 Pumping Rate 0.6 gpm
SWL (ft): 30.71 no access/pumping
Casing Diameter (I.D.") 2
Water Volume (V) (gal): 9.13 V x 3 =(gal) 27.4
MP Description top of PVC
Actual Vol. Removed (gal.) 28
Water Level Recovery: slow moderate rapid

For Surface Water Samples

Flow Method: Marsh McBirney Volumetric Flume Weir Estimate
Other Flow or Description:
Flow: gpm cfs Staff Gage:

Field Parameter Stabilization

Time (military)	Oxidation Reduction Potential (mV)	Dissolved Oxygen (mg/l)	pH	S.C. (µmhos/cm)	Turbidity (n.t.u.)	Temperature (°C)	Additional Parameters or Notes
09:23							
09:30		8.33	6.99	253		9.50	
09:40		7.72	6.95	262		9.28	
09:50		7.48	6.94	263		9.29	
10:00		7.26	6.93	263		9.40	
10:10		7.01	6.92	263		9.53	

Turbidity: (circle) (clear) moderate slight very

Sample Method: (describe) (grab) composite (pump) bailer other 12v

Field Parameters

	Sample	Duplicate
ORP (mV)		
DO (mg/l)	7.01	
pH	6.92	
SC (µmhos/cm)	263	
Turbidity (ntu)		
H_2O Tmp. (°C)	9.53	
Color	Clear	
Other; odor	None	

Bottles Collected

Quantity	Size	Filter or Unfilt.	Preservative	Parameter	Additional Notes
1	250	F	HNO3	Dis metals	

Comments: No Lock on Well cap

Sample Team Member Signature: [signature] Page of

Hydrometrics, Inc.

STANDARD OPERATING PROCEDURE
WATER SAMPLING FORM
HF-FORM-430

Consulting Scientists, Engineers and Contractors

Project Name: ASARCO E. Helena
Project Code: 1054
Sample Team Member(s): A Jourdennais, J Clum
Laboratory Used: Energy Labs

Site Designation: EH-135
Sample Code Number: AEH-0906-110
Sample Date: ~~6/22/2009~~ 6/29/09
Sample Time: 11:05 (military)

If Duplicate Sample Collected, Please Record Below

Duplicate Sample Code #:
Duplicate Sample Time:

For Groundwater Samples

well volume formula: V = (TD-SWL)x(Dia.^{2}) / 25 — Comments

TD(ft.) 88.7' Pumping Rate 1.0 gpm
SWL (ft): 33.48 no access/pumping
Casing Diameter (I.D.") 2
Water Volume (V) (gal): 8.84 V x 3 =(gal) 26.5
MP Description Top of PVC
Actual Vol. Removed (gal.) 27
Water Level Recovery: slow moderate rapid

Site Conditions

New Site: Yes No Photo taken: Yes (No)
Site Type: DRY surface water process water monitoring well domestic well adit seep spring other:
Weather Conditions: (calm) breeze windy no precip. rain snow (clear) p. cloudy overcast
Air Temperature: °C °F

For Surface Water Samples

Flow Method: Marsh McBirney Volumetric Flume Weir Estimate
Other Flow or Description:
Flow: gpm cfs Staff Gage:

Field Parameter Stabilization

Time (military)	Oxidation Reduction Potential (mV)	Dissolved Oxygen (mg/l)	pH	S.C. (µmhos/cm)	Turbidity (n.t.u.)	Temperature (°C)	Additional Parameters or Notes
10:34							
~~10:40~~		7.12	6.94	274		9.50	
10:46		7.10	6.95	274		9.28	
10:53		6.99	6.95	274		9.32	
10:59		7.01	6.95	273		9.37	
11:01		6.97	6.95	273		9.36	

Turbidity: (circle) (clear) slight moderate very

Sample Method: (describe) (grab) composite (pump) bailer other 12v

Field Parameters

	Sample	Duplicate
ORP (mV)		
DO (mg/l)	6.97	
pH	6.95	
SC (µmhos/cm)	273	
Turbidity (ntu)		
H_2O Tmp. (°C)	9.36	
Color	Clear	
Other; odor	None	

Bottles Collected

Quantity	Size	Filter or Unfilt.	Preservative	Parameter	Additional Notes
1	250	F	HNO3	Dis metals	

Comments: No lock on well cap

Sample Team Member Signature: [signature] Page of

Hydrometrics, Inc.

STANDARD OPERATING PROCEDURE
WATER SAMPLING FORM
HF-FORM-430

Consulting Scientists, Engineers and Contractors

Project Name: ASARCO E. Helena
Project Code: 1054
Sample Team Member(s): Ashdownak, J. Clum
Laboratory Used: Energy Labs

Site Designation: DZ Blank
Sample Code Number: AEH-0906- 111
Sample Date: ~~6/22/2009~~ 6/24/09
Sample Time: 11:20 (military)

If Duplicate Sample Collected, Please Record Below

Duplicate Sample Code #:
Duplicate Sample Time:

Site Conditions

New Site: Yes No Photo taken: Yes No
Site Type: DRY surface water process water
monitoring well domestic well adit seep
spring other:
Weather Conditions: calm breeze windy
no precip. rain snow
clear p. cloudy overcast
Air Temperature: °C °F

For Groundwater Samples

well volume formula: V = (TD-SWL)x(Dia.^{2}) / 25
Comments
TD(ft.) Pumping Rate gpm
SWL (ft): no access/pumping
Casing Diameter (I.D.")
Water Volume (V) (gal): V x 3 =(gal)
MP Description
Actual Vol. Removed (gal.)
Water Level Recovery: slow moderate rapid

For Surface Water Samples

Flow Method: Marsh McBirney Volumetric Flume Weir Estimate
Other Flow or Description:
Flow: gpm cfs Staff Gage:

Field Parameter Stabilization

Time (military)	Oxidation Reduction Potential (mV)	Dissolved Oxygen (mg/l)	pH	S.C. (µmhos/cm)	Turbidity (n.t.u.)	Temperature (°C)	Additional Parameters or Notes

Turbidity: (circle) clear moderate slight very

Sample Method: (describe) grab composite pump bailer other
12v

Field Parameters

	Sample	Duplicate
ORP (mV)		
DO (mg/l)		
pH		
SC (µmhos/cm)		
Turbidity (ntu)		
H_2O Tmp. (°C)		
Color		
Other: odor		

Bottles Collected

Quantity	Size	Filter or Unfilt.	Preservative	Parameter	Additional Notes
1	250	F	HNO3	Dis metals	

Comments:

Sample Team Member Signature: Calum [illegible]

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Hydrometrics, Inc.

STANDARD OPERATING PROCEDURE
WATER SAMPLING FORM
HF-FORM-430

Consulting Scientists, Engineers and Contractors

Project Name: ASARCO E. Helena
Project Code: 1054
Sample Team Member(s): A. Lordemann, J. Chim
Laboratory Used: Energy Labs

Site Designation: Rinsate Blank
Sample Code Number: AEH-0906- 112
Sample Date: 6/22/2009
Sample Time: 1220 (military)

If Duplicate Sample Collected, Please Record Below

Duplicate Sample Code #:
Duplicate Time:

For Groundwater Samples

well volume formula: $V = \frac{(TD-SWL)x(Dia.^2)}{25}$ Comments

TD(ft.) Pumping Rate gpm
SWL (ft): no access/pumping
Casing Diameter (I.D.")
Water Volume (V) (gal): V x 3 =(gal)
MP Description
Actual Vol. Removed (gal.)
Water Level Recovery: slow moderate rapid

Site Conditions

New Site: Yes No Photo taken: Yes No
Site Type: DRY surface water process water
monitoring well domestic well adit seep
spring other:
Weather Conditions: calm breeze windy
no precip. rain snow
clear p. cloudy overcast
Air Temperature: °C °F

For Surface Water Samples

Flow Method: Marsh McBirney Volumetric Flume Weir Estimate
Other Flow or Description:
Flow: gpm cfs Staff Gage:

Field Parameter Stabilization

Time (military)	Oxidation Reduction Potential (mV)	Dissolved Oxygen (mg/l)	pH	S.C. (µmhos/cm)	Turbidity (n.t.u.)	Temperature (°C)	Additional Parameters or Notes

Turbidity: (circle) clear moderate slight very

Sample Method: (describe) grab composite pump bailer other
12v

Field Parameters

	Sample	Duplicate
ORP (mV)		
DO (mg/l)		
pH		
SC (µmhos/cm)		
Turbidity (ntu)		
H_2O Tmp. (°C)		
Color		
Other; odor		

Bottles Collected

Quantity	Size	Filter or Unfilt.	Preservative	Parameter	Additional Notes
1	250	F	HNO3	Dis metals	

Comments:

Sample Team Member Signature: [signature] Page of

Hydrometrics, Inc.

STANDARD OPERATING PROCEDURE
WATER SAMPLING FORM
HF-FORM-430

Consulting Scientists, Engineers and Contractors

Project Name: ASARCO E. Helena
Project Code: 1054
Sample Team Member(s): A. Jourdonnais, J. Clum
Laboratory Used: Energy Labs

Site Designation: EH-130
Sample Code Number: AEH-0906- 113
Sample Date: ~~6/22/2009~~ 6/24/09
Sample Time: 12:45 (military)

If Duplicate Sample Collected, Please Record Below

Duplicate Sample Code #:
Duplicate Sample Time:

Site Conditions

New Site: Yes No Photo taken: Yes (No)
Site Type: DRY surface water process water (monitoring well) domestic well adit seep spring other:
Weather Conditions: (calm) breeze windy no precip. rain snow (clear) p. cloudy overcast
Air Temperature: °C 85 °F

For Groundwater Samples

well volume formula: V = (TD-SWL)x(Dia.²) / 25 — Comments

TD(ft.) 80.8 Pumping Rate 0.8 gpm
SWL (ft): 42.50 no access/pumping
Casing Diameter (I.D.") 2
Water Volume (V) (gal): 6.13 V x 3 =(gal) 18.38
MP Description Top of PVC
Actual Vol. Removed (gal.) 19
Water Level Recovery: slow moderate rapid

For Surface Water Samples

Flow Method: Marsh McBirney Volumetric Flume Weir Estimate
Other Flow or Description:
Flow: gpm cfs Staff Gage:

Field Parameter Stabilization

Time (military)	Oxidation Reduction Potential (mV)	Dissolved Oxygen (mg/l)	pH	S.C. (µmhos/cm)	Turbidity (n.t.u.)	Temperature (°C)	Additional Parameters or Notes
12:17							
12:25		5.39	6.92	349		11.29	
12:30		4.92	6.90	359		11.20	
12:35		4.35	6.89	362		11.13	
12:40		4.18	6.89	363		11.18	
12:45		4.13	6.89	363		11.17	

Turbidity: (circle) clear slight moderate very

Sample Method: (describe) (grab) composite (pump) bailer other 12v

Field Parameters

	Sample	Duplicate
ORP (mV)		
DO (mg/l)	4.13	
pH	6.89	
SC (µmhos/cm)	363	
Turbidity (ntu)		
H_2O Tmp. (°C)	11.17	
Color	Clear	
Other; odor	None	

Bottles Collected

Quantity	Size	Filter or Unfilt.	Preservative	Parameter	Additional Notes
1	250	F	HNO3	Dis metals	

Comments: No lock on well cap

Sample Team Member Signature: [signature] Page of

Hydrometrics, Inc.

STANDARD OPERATING PROCEDURE
WATER SAMPLING FORM
HF-FORM-430

Consulting Scientists, Engineers and Contractors

Project Name: ASARCO E. Helena
Project Code: 1054
Sample Team Member(s): A Scordomous, J Clum
Laboratory Used: Energy Labs

Site Designation: EH-135
Sample Code Number: AEH-0906-114
Sample Date: ~~8/22/2009~~ 6/24/09
Sample Time: 1330 (military)

If Duplicate Sample Collected, Please Record Below

Duplicate Sample Code #: AEH-0906-115
Duplicate Sample Time: 13:45

For Groundwater Samples

well volume formula: V = (TD-SWL)x(Dia.^{2}) / 25

Comments

TD(ft.) 68.6 Pumping Rate 1.2 gpm
SWL (ft): 25.56 no access/pumping
Casing Diameter (I.D.") 2
Water Volume (V) (gal): 6.89 V x 3 =(gal) 20.7
MP Description Top of PVC
Actual Vol. Removed (gal.) 21
Water Level Recovery: slow moderate rapid

Site Conditions

New Site: Yes No Photo taken: Yes (No)
Site Type: DRY surface water process water
(monitoring well) domestic well adit seep
spring other: QA/QC
Weather Conditions: (calm) breeze windy
no precip. rain snow
(clear) p. cloudy overcast
Air Temperature: °C 85 °F

For Surface Water Samples

Flow Method: Marsh McBirney Volumetric Flume Weir Estimate
Other Flow or Description:
Flow: gpm cfs Staff Gage:

Field Parameter Stabilization

Time (military)	Oxidation Reduction Potential (mV)	Dissolved Oxygen (mg/l)	pH	S.C. (µmhos/cm)	Turbidity (n.t.u.)	Temperature (°C)	Additional Parameters or Notes
1308							
1312		6.99	7.15	266		9.83	
1318		7.07	7.04	266		9.76	
1322		7.08	7.01	266		9.77	
1326		6.98	7.01	266		9.71	
1330		6.92	6.97	266		9.73	

Turbidity: (circle) (clear) slight moderate very

Sample Method: (describe) (grab) composite (pump) 12v bailer other

Field Parameters

	Sample	Duplicate
ORP (mV)		
DO (mg/l)	6.92	
pH	6.97	
SC (µmhos/cm)	266	
Turbidity (ntu)		
H_2O Tmp. (°C)	9.73	
Color	Clear	
Other; odor	None	

Bottles Collected

Quantity	Size	Filter or Unfilt.	Preservative	Parameter	Additional Notes
1	250	F	HNO3	Dis metals	

Comments: Well head lock missing – Well labeled the same as well located in different area. See map for clarification.

Sample Team Member Signature: Calum

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STANDARD OPERATING PROCEDURE
WATER SAMPLING FORM
HF-FORM-430

Consulting Scientists, Engineers and Contractors

Project Name: ASARCO E. Helena
Project Code: 1054
Sample Team Member(s): A. Jourdonnais, J. Clum
Laboratory Used: Energy Labs

Site Designation: EH-~~#~~129
Sample Code Number: AEH-0906- 116
Sample Date: ~~6/22/2009~~ 6/24/09
Sample Time: 14:25 (military)

If Duplicate Sample Collected, Please Record Below

Duplicate Sample Code #:
Duplicate Sample Time:

For Groundwater Samples

well volume formula: V = (TD-SWL)x(Dia.^{2}) / 25 — Comments

TD(ft.) 73.8 Pumping Rate 0.6 gpm
SWL (ft): 51.18 no access/pumping
Casing Diameter (I.D.") 2
Water Volume (V) (gal): 6.82 V x 3 =(gal) 20.5
MP Description Top of PVC
Actual Vol. Removed (gal.) 21
Water Level Recovery: slow moderate rapid

Site Conditions

New Site: Yes No Photo taken: Yes (No)
Site Type: DRY surface water process water (monitoring well) domestic well adit seep spring other:
Weather Conditions: (calm) breeze windy no precip. rain snow (clear) p. cloudy overcast
Air Temperature: °C 85 °F

For Surface Water Samples

Flow Method: Marsh McBirney Volumetric Flume Weir Estimate
Other Flow or Description:
Flow: gpm cfs Staff Gage:

Field Parameter Stabilization

Time (military)	Oxidation Reduction Potential (mV)	Dissolved Oxygen (mg/l)	pH	S.C. (µmhos/cm)	Turbidity (n.t.u.)	Temperature (°C)	Additional Parameters or Notes
13:47							
13:57		5.95	7.09	363		14.06	
14:04		5.94	7.22	403		14.17	
14:11		6.66	7.27	407		14.28	
14:18		6.66	7.29	407		14.28	
14:25		6.53	7.30	408		14.55	

Turbidity: (circle) clear moderate slight very

Sample Method: (describe) (grab) composite (pump) bailer other 12v

Field Parameters

	Sample	Duplicate
ORP (mV)		
DO (mg/l)	6.53	
pH	7.30	
SC (µmhos/cm)	408	
Turbidity (ntu)		
H_2O Tmp. (°C)	14.55	
Color	Clear	
Other; odor	None	

Bottles Collected

Quantity	Size	Filter or Unfilt.	Preservative	Parameter	Additional Notes
1	250	F	HNO3	Dis metals	

Comments: No leak on well cap

Sample Team Member Signature: [signature]

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HF-FORM-430 (1/98)

Hydrometrics, Inc.

STANDARD OPERATING PROCEDURE
WATER SAMPLING FORM
HF-FORM-430

Consulting Scientists, Engineers and Contractors

Project Name: ASARCO E. Helena
Project Code: 1054
Sample Team Member(s): A. Jourdonnais, J. Clum
Laboratory Used: Energy Labs

Site Designation: EH-134
Sample Code Number: AEH-0906- 117
Sample Date: ~~6/22/2009~~ 6/24/2009
Sample Time: 14:50 (military)

If Duplicate Sample Collected, Please Record Below

Duplicate Sample Code #:
Duplicate Sample Time:

For Groundwater Samples

well volume formula: V = (TD-SWL)x(Dia.^{2}) / 25

Comments

TD(ft.) 67.7 Pumping Rate 0.6 gpm
SWL (ft): 50.67 no access/pumping
Casing Diameter (I.D.") 2
Water Volume (V) (gal): 2.72 V x 3 =(gal) 8.16
MP Description Top of PVC
Actual Vol. Removed (gal.) 9
Water Level Recovery: slow moderate rapid

Site Conditions

New Site: Yes No Photo taken: Yes (No)
Site Type: DRY surface water process water
(monitoring well) domestic well adit seep
spring other:
Weather Conditions: calm (breeze) windy
no precip. rain snow
(clear) p. cloudy overcast
Air Temperature: °C 85 °F

For Surface Water Samples

Flow Method: Marsh McBirney Volumetric Flume Weir Estimate
Other Flow or Description:
Flow: gpm cfs Staff Gage:

Field Parameter Stabilization

Time (military)	Oxidation Reduction Potential (mV)	Dissolved Oxygen (mg/l)	pH	S.C. (µmhos/cm)	Turbidity (n.t.u.)	Temperature (°C)	Additional Parameters or Notes
14:35							
14:38		6.69	7.35	401		14.75	
14:41		6.77	7.37	387		13.99	
14:44		6.86	7.38	383		14.01	
14:47		7.04	7.39	383		14.02	
14:50		7.23	7.39	383		14.06	

Turbidity: (circle) (clear) slight moderate very

Sample Method: (describe) (grab) composite (pump) bailer other 12v

Field Parameters

	Sample	Duplicate
ORP (mV)		
DO (mg/l)		
pH		
SC (µmhos/cm)		
Turbidity (ntu)		
H_2O Tmp. (°C)		
Color		
Other; odor		

Bottles Collected

Quantity	Size	Filter or Unfilt.	Preservative	Parameter	Additional Notes
1	250	F	HNO3	Dis metals	

Comments:

Sample Team Member Signature: [signature]

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Hydrometrics, Inc.

STANDARD OPERATING PROCEDURE
WATER SAMPLING FORM
HF-FORM-430

Consulting Scientists, Engineers and Contractors

Project Name: ASARCO E. Helena
Project Code: 1054
Sample Team Member(s): A. Gourdonnait, J. Clum
Laboratory Used: Energy Labs

Site Designation: EH-13
Sample Code Number: AEH-0906- 118
Sample Date: ~~6/22/2009~~ 06/25/09
Sample Time: 08:20 (military)

If Duplicate Sample Collected, Please Record Below

Duplicate Sample Code #:
Duplicate Sample Time:

Site Conditions

New Site: Yes No Photo taken: Yes (No)
Site Type: DRY surface water / process water
(monitoring well) domestic well adit seep
spring other:
Weather Conditions: (calm) breeze windy
no precip. rain snow
(clear) p. cloudy overcast
Air Temperature: °C 65 °F

For Groundwater Samples

well volume formula: V = (TD-SWL)x(Dia.²) / 25 — Comments

TD(ft.) 99.4 Pumping Rate 0.7 gpm
SWL (ft): 46.44 no access/pumping
Casing Diameter (I.D.") 2
Water Volume (V) (gal): 8.47 V x 3 =(gal) 25.4
MP Description Top of Pvc
Actual Vol. Removed (gal.) 2.6
Water Level Recovery: slow moderate rapid

For Surface Water Samples

Flow Method: Marsh McBirney Volumetric Flume Weir Estimate
Other Flow or Description:
Flow: gpm cfs Staff Gage:

Field Parameter Stabilization

Time (military)	Oxidation Reduction Potential (mV)	Dissolved Oxygen (mg/l)	pH	S.C. (µmhos/cm)	Turbidity (n.t.u.)	Temperature (°C)	Additional Parameters or Notes
07:38							
0748		7.72	7.30	362		13.23	
0956		7.67	7.34	361		13.27	
0804		7.51	7.35	360		13.33	
0812		7.52	7.36	360		13.35	
0820		7.63	7.36	360		13.35	

Turbidity: (circle) (clear) slight moderate very

Sample Method: (describe) (grab) composite (pump) bailer other 12v

Field Parameters

	Sample	Duplicate
ORP (mV)		
DO (mg/l)	7.63	
pH	7.36	
SC (µmhos/cm)	360	
Turbidity (ntu)		
H_2O Tmp. (°C)	13.35	
Color	Clear	
Other; odor	None	

Bottles Collected

Quantity	Size	Filter or Unfilt.	Preservative	Parameter	Additional Notes
1	250	F	HNO3	Dis metals	

Comments: No lock on well cap

Sample Team Member Signature: Celam

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Hydrometrics, Inc.

STANDARD OPERATING PROCEDURE
WATER SAMPLING FORM
HF-FORM-430

Consulting Scientists, Engineers and Contractors

Project Name: ASARCO E. Helena
Project Code: 1054
Sample Team Member(s): A. Jourdonnais J. Clem
Laboratory Used: Energy Labs

Site Designation: DI Blank
Sample Code Number: AEH-0906- 119
Sample Date: 6/22/2009 6/25/09
Sample Time: 08:35 (military)

If Duplicate Sample Collected, Please Record Below

Duplicate Sample Code #:
Duplicate Sample Time:

For Groundwater Samples

well volume formula: $V = \frac{(TD-SWL)x(Dia.^2)}{25}$ Comments

TD(ft.) Pumping Rate gpm
SWL (ft): no access/pumping
Casing Diameter (I.D.")
Water Volume (V) (gal): V x 3 =(gal)
MP Description
Actual Vol. Removed (gal.)
Water Level Recovery: slow moderate rapid

Site Conditions

New Site: Yes No Photo taken: Yes No
Site Type: DRY surface water process water monitoring well domestic well adit seep spring other:
Weather Conditions: calm breeze windy no precip. rain snow clear p. cloudy overcast
Air Temperature: °C °F

For Surface Water Samples

Flow Method: Marsh McBirney Volumetric Flume Weir Estimate
Other Flow or Description:
Flow: gpm cfs Staff Gage:

Field Parameter Stabilization

Time (military)	Oxidation Reduction Potential (mV)	Dissolved Oxygen (mg/l)	pH	S.C. (µmhos/cm)	Turbidity (n.t.u.)	Temperature (°C)	Additional Parameters or Notes

Turbidity: (circle) clear moderate slight very

Sample Method: (describe) grab composite pump bailer other 12v

Field Parameters

	Sample	Duplicate
ORP (mV)		
DO (mg/l)		
pH		
SC (µmhos/cm)		
Turbidity (ntu)		
H_2O Tmp. (°C)		
Color		
Other; odor		

Bottles Collected

Quantity	Size	Filter or Unfilt.	Preservative	Parameter	Additional Notes
1	250	F	HNO3	Dis metals	

Comments:

Sample Team Member Signature: Page of

Hydrometrics, Inc.

STANDARD OPERATING PROCEDURE
WATER SAMPLING FORM
HF-FORM-430

Consulting Scientists, Engineers and Contractors

Project Name: ASARCO E. Helena
Project Code: 1054
Sample Team Member(s): A. Jardonnais, J. Clum
Laboratory Used: Energy Labs

Site Designation: Rinsate Blank
Sample Code Number: AEH-0906- 120
Sample Date: ~~6/22/2009~~ 6/25/2009
Sample Time: 08:50 (military)

If Duplicate Sample Collected, Please Record Below

Duplicate Sample Code #:
Duplicate Sample Time:

For Groundwater Samples

well volume formula: $V = \frac{(TD-SWL)x(Dia.^2)}{25}$ Comments

TD(ft.) _____ Pumping Rate _____ gpm
SWL (ft): _____ no access/pumping
Casing Diameter (I.D.") _____
Water Volume (V) (gal): _____ V x 3 =(gal) _____
MP Description _____
Actual Vol. Removed (gal.) _____
Water Level Recovery: slow moderate rapid

Site Conditions

New Site: Yes No Photo taken: Yes No
Site Type: DRY surface water process water
monitoring well domestic well adit seep
spring other
Weather Conditions: calm breeze windy
no precip. rain snow
clear p. cloudy overcast
Air Temperature: °C °F

For Surface Water Samples

Flow Method: Marsh McBirney Volumetric Flume Weir Estimate
Other Flow or Description:
Flow: gpm cfs Staff Gage:

Field Parameter Stabilization

Time (military)	Oxidation Reduction Potential (mV)	Dissolved Oxygen (mg/l)	pH	S.C. (µmhos/cm)	Turbidity (n.t.u.)	Temperature (°C)	Additional Parameters or Notes

Turbidity: (circle) clear moderate slight very

Sample Method: (describe) grab composite pump bailer other 12v

Field Parameters

	Sample	Duplicate
ORP (mV)		
DO (mg/l)		
pH		
SC (µmhos/cm)		
Turbidity (ntu)		
H_2O Tmp. (°C)		
Color		
Other; odor		

Bottles Collected

Quantity	Size	Filter or Unfilt.	Preservative	Parameter	Additional Notes
1	250	F	HNO3	Dis metals	

Comments:

Sample Team Member Signature: [signature] Page of

Hydrometrics, Inc.

STANDARD OPERATING PROCEDURE
WATER SAMPLING FORM
HF-FORM-430

Consulting Scientists, Engineers and Contractors

Project Name: ASARCO E. Helena
Project Code: 1054
Sample Team Member(s): A Jourdonnes, J. Clum
Laboratory Used: Energy Labs

Site Designation: EH-132
Sample Code Number: AEH-0906-121
Sample Date: ~~6/22/2009~~ 6/25/2009
Sample Time: 09:10 (military)

If Duplicate Sample Collected, Please Record Below

Duplicate Sample Code #:
Duplicate Sample Time:

Site Conditions

New Site: Yes No Photo taken: Yes (No)
Site Type: DRY surface water process water (monitoring well) domestic well adit seep spring other:
Weather Conditions: (calm) breeze windy no precip. rain snow (clear) p. cloudy overcast
Air Temperature: °C 76 °F

For Groundwater Samples

well volume formula: V = (TD-SWL)x(Dia.²) / 25 — Comments

TD(ft.) 84.3 Pumping Rate 0.8 gpm
SWL (ft): 44.19 no access/pumping
Casing Diameter (I.D.") 2"
Water Volume (V) (gal): 6.42 V x 3 =(gal) 19.3
MP Description Top of
Actual Vol. Removed (gal.) 20
Water Level Recovery: slow moderate rapid

For Surface Water Samples

Flow Method: Marsh McBirney Volumetric Flume Weir Estimate
Other Flow or Description:
Flow: gpm cfs Staff Gage:

Field Parameter Stabilization

Time (military)	Oxidation Reduction Potential (mV)	Dissolved Oxygen (mg/l)	pH	S.C. (µmhos/cm)	Turbidity (n.t.u.)	Temperature (°C)	Additional Parameters or Notes
08:41							
08:50		7.31	7.40	282		14.45	
08:55		6.64	7.39	283		14.47	
09:00		6.51	7.38	284		14.47	
09:05		6.34	7.37	286		14.48	
09:10		6.35	7.37	286		14.48	

Turbidity: (circle) (clear) slight moderate very

Sample Method: (describe) (grab) composite (pump) bailer other 12v

Field Parameters

	Sample	Duplicate
ORP (mV)		
DO (mg/l)	6.35	
pH	7.37	
SC (µmhos/cm)	286	
Turbidity (ntu)		
H_2O Tmp. (°C)	14.48	
Color	Clear	
Other; odor	None	

Bottles Collected

Quantity	Size	Filter or Unfilt.	Preservative	Parameter	Additional Notes
1	250	F	HNO3	Dis metals	

Comments: No lock on well cap

Sample Team Member Signature: Celan

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STANDARD OPERATING PROCEDURE
WATER SAMPLING FORM
HF-FORM-430

Consulting Scientists, Engineers and Contractors

Project Name: ASARCO E. Helena
Project Code: 1054
Sample Team Member(s): A. Jourdonais, J. Gum
Laboratory Used: Energy Labs

Site Designation: EH-128
Sample Code Number: AEH-0906-122
Sample Date: 6/22/2009
Sample Time: 0933 (military)

If Duplicate Sample Collected, Please Record Below

Duplicate Sample Code #: AEH-0906-123
Duplicate Sample Time: 09:50

For Groundwater Samples

well volume formula: V = (TD-SWL)x(Dia.²) / 25 — Comments

TD(ft.) 46.9 Pumping Rate 1.0 gpm
SWL (ft): 35.14 no access/pumping
Casing Diameter (I.D.") 2
Water Volume (V) (gal): 1.88 V x 3 =(gal) 5.64
MP Description Top of PVC
Actual Vol. Removed (gal.) 6
Water Level Recovery: slow moderate rapid

Site Conditions

New Site: Yes No Photo taken: Yes (No)
Site Type: DRY surface water process water monitoring well domestic well adit seep spring other:
Weather Conditions: (calm) breeze windy no precip. rain snow (clear) p. cloudy overcast
Air Temperature: °C 25 °F

For Surface Water Samples

Flow Method: Marsh McBirney Volumetric Flume Weir Estimate
Other Flow or Description:
Flow: gpm cfs Staff Gage:

Field Parameter Stabilization

Time (military)	Oxidation Reduction Potential (mV)	Dissolved Oxygen (mg/l)	pH	S.C. (µmhos/cm)	Turbidity (n.t.u.)	Temperature (°C)	Additional Parameters or Notes
09:26							
09:28		7.10	7.39	311		14.83	
09:29		7.26	7.42	315		14.76	
09:30		7.48	7.44	316		14.74	
09:31		7.82	7.46	318		14.74	
09:32		7.93	7.48	318		14.77	
09:33		8.07	7.51	318		14.76	

Turbidity: (circle) (clear) slight moderate very

Sample Method: (describe) (grab) composite (pump) bailer other 12v

Field Parameters

	Sample	Duplicate
ORP (mV)		
DO (mg/l)	8.07	
pH	7.51	
SC (µmhos/cm)	318	
Turbidity (ntu)		
H_2O Tmp. (°C)	14.76	
Color	Clear	
Other; odor	None	

Bottles Collected

Quantity	Size	Filter or Unfilt.	Preservative	Parameter	Additional Notes
1	250	F	HNO3	Dis metals	

Comments: Lock missing on well cap

Sample Team Member Signature: [signature] Page of

APPENDIX 3

CHAIN OF CUSTODIES

Hydrometrics, Inc.

CHAIN OF CUSTODY RECORD

3020 Bozeman Avenue • Helena, Montana 59601 • (406) 443-4150

PROJ. NO.	PROJECT NAME
1054	ASARCO E. Helena

SAMPLERS: (Signature) [illegible]

DATE	TIME	COMP	GRAB	SAMPLE NUMBER	NO. OF CONTAINERS	Commons: UF/RAW	Nutrients: UF/H_2SO_4	Diss. Metal F/HNO_3, As, Se	CN UF/NaOH	Total Metals: UF/HNO_3	Total Recoverable Metals UF/HNO_3	BTEX	TPH								REMARKS
6/23/09	0750		X	AEH-0906-100	1			X													
	1000			101																	
	1040			102																	
	1245			103																	
	1300			104																	
	1150			105																	
	1210			106																	
	1225			107																	
6/24/09	08:55			AEH-0906-108	1			X													
	10:10			-109																	
	11:05			-110																	
	11:20			-111																	
	12:20			-112																	
	12:45			-113																	
	13:30			-114																	

Relinquished (Signature)	Date/Time	Received by: (Signature)	Lab	P.O. #	Shipped via: Bus, Fed Ex, UPS
[illegible]	6/24/09 1638	[illegible]	Energy Labs	B.11 ASARCO Directly	Other Hand delivered
					Air Bill #

Relinquished (Signature)	Date/Time	Received by: (Signature)	Remarks
			temp 4.4 Rush

Relinquished (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Enclosed:
				☑ Parameter sheet w/detection limits ☐ QA/QC standard mixing instructions ☐ Cover letter ☐ Other

Split Samples:
[] Accepted [] Declined
Signature

HFORM-1-5/99

Return results & electronic copy to:
QA/QC Dept. at address at top of page

Hydrometrics, Inc.

CHAIN OF CUSTODY RECORD

3020 Bozeman Avenue • Helena, Montana 59601 • (406) 443-4150

PROJ. NO.: 1054

PROJECT NAME: ASARCO E. HELENA

SAMPLERS: (Signature) [signature]

DATE	TIME	COMP	GRAB	SAMPLE NUMBER	NO. OF CONTAINERS	Commons UF/RAW	Nutrients UF/H_2SO_4	Diss. Metal F/HNO_3 As, Se	CN UF/NaOH	Total Metals UF/HNO_3	Total Recoverable Metals UF/HNO_3	BTEX	TPH							REMARKS
6/24/09	13:45		X	AEH-0906-115	1			X												
↓	14:25		↓	-116	↓			↓												
↓	14:8		↓	-117	↓			↓												

Relinquished (Signature)	Date/Time	Received by: (Signature)	Lab	P.O. #	Shipped via: Bus, Fed Ex, UPS
[signature]	6/24/09 1638	[signature]	Energy Labs	Bill ASARCO Directly	Other Hand Delivered Air Bill #
Relinquished (Signature)	**Date/Time**	**Received by: (Signature)**	**Remarks**		
			Rush		
Relinquished (Signature)	**Date/Time**	**Received for Laboratory by: (Signature)**	**Date/Time**	**Enclosed:** ☒ Parameter sheet w/detection limits ☐ QA/QC standard mixing instructions ☐ Cover letter ☐ Other	
				Split Samples: [] Accepted [] Declined Signature	

HFORM-1-5/99

Return results & electronic copy to:
QA/QC Dept. at address at top of page

Hydrometrics, Inc.

3020 Bozeman Avenue • Helena, Montana 59601 • (406) 443-4150

CHAIN OF CUSTODY RECORD

PROJ. NO.: 1054

PROJECT NAME: ASARCO E. HELENA

SAMPLERS: (Signature)

DATE	TIME	COMP	GRAB	SAMPLE NUMBER	NO. OF CONTAINERS	Commons UF/RAW	Nutrients UF/H_2SO_4	Diss. Metal F/HNO_3 As, Se	CN UF/NaOH	Total Metals UF/HNO_3	Total Recoverable Metals UF/HNO_3	BTEX	TPH							REMARKS
6/25/09	08:20		X	AEH-MW6-118	1			X												
	08:35			-119																
	08:50			-120																
	09:10			-121																
	09:35			-122																
	09:50			-123																

Relinquished (Signature)	Date/Time	Received by: (Signature)	Lab	P.O. #	Shipped via: Bus, Fed Ex, UPS
	11:25 6/25/09		ENERGY LABS	BILL ASARCO DIRECT	Other Hand Delivered
					Air Bill #
Relinquished (Signature)	Date/Time	Received by: (Signature)	Remarks: RUSH temp 4.3		
Relinquished (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Enclosed: ☒ Parameter sheet w/detection limits ☐ QA/QC standard mixing instructions ☐ Cover letter ☐ Other	
				Split Samples: ☐ Accepted ☐ Declined	Signature

HFORM-1-5/99

Return results & electronic copy to:
QA/QC Dept. at address at top of page

APPENDIX 4

LABORATORY REPORT

ENERGY LABORATORIES, INC. * 3161 E Lyndale (59604) * PO Box 5688 * Helena, MT 59601
Toll Free 877.472.0711 * 406.442.0711 * FAX 406.442.0712 * helena@energylab.com

ANALYTICAL SUMMARY REPORT

July 14, 2009

Asarco Consulting
5219 N Shirley St
Ruston, WA 98407

Workorder No.: H09060354

Project Name: 1054 Asarco E Helena

Energy Laboratories Inc received the following 18 samples for Asarco Consulting on 6/24/2009 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H09060354-001	AEH-0906-100	06/23/09 7:50	06/24/09	Groundwater	Metals by ICP/ICPMS, Dissolved
H09060354-002	AEH-0906-101	06/23/09 10:00	06/24/09	Groundwater	Same As Above
H09060354-003	AEH-0906-102	06/23/09 10:40	06/24/09	Groundwater	Same As Above
H09060354-004	AEH-0906-103	06/23/09 12:45	06/24/09	Groundwater	Same As Above
H09060354-005	AEH-0906-104	06/23/09 13:00	06/24/09	Groundwater	Same As Above
H09060354-006	AEH-0906-105	06/23/09 11:50	06/24/09	Groundwater	Same As Above
H09060354-007	AEH-0906-106	06/23/09 12:10	06/24/09	Groundwater	Same As Above
H09060354-008	AEH-0906-107	06/23/09 12:25	06/24/09	Groundwater	Same As Above
H09060354-009	AEH-0906-108	06/24/09 8:55	06/24/09	Groundwater	Same As Above
H09060354-010	AEH-0906-109	06/24/09 10:10	06/24/09	Groundwater	Same As Above
H09060354-011	AEH-0906-110	06/24/09 11:05	06/24/09	Groundwater	Same As Above
H09060354-012	AEH-0906-111	06/24/09 11:20	06/24/09	Groundwater	Same As Above
H09060354-013	AEH-0906-112	06/24/09 12:20	06/24/09	Groundwater	Same As Above
H09060354-014	AEH-0906-113	06/24/09 12:45	06/24/09	Groundwater	Same As Above
H09060354-015	AEH-0906-114	06/24/09 13:30	06/24/09	Groundwater	Same As Above
H09060354-016	AEH-0906-115	06/24/09 13:45	06/24/09	Groundwater	Same As Above
H09060354-017	AEH-0906-116	06/24/09 14:25	06/24/09	Groundwater	Same As Above
H09060354-018	AEH-0906-117	06/24/09 14:58	06/24/09	Groundwater	Same As Above

BRANCH LABORATORY LOCATIONS
eli-b - Energy Laboratories, Inc. - Billings, MT, EPA # MT00005
eli-c - Energy Laboratories, Inc. - Casper, WY, EPA# WY00002
eli-g - Energy Laboratories, Inc. - Gillette, WY, EPA# WY00006
eli-h - Energy Laboratories, Inc. - Helena, MT, EPA# MT00945
eli-r - Energy Laboratories, Inc. - Rapid City, SD, EPA# SD00012
eli-t - Energy Laboratories, Inc. - College Station, TX, EPA# TX01520

SUBCONTRACTING ANALYSIS
Subcontracting of sample analyses to an outside laboratory may be required. If so, ENERGY LABORATORIES, INC. will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories are indicated within the Laboratory Analytical Report.

SAMPLE TEMPERATURE COMPLIANCE: 4°C (±2°C)
Temperature of samples received may not be considered properly preserved by accepted standards. Samples that are hand delivered immediately after collection shall be considered acceptable if there is evidence that the chilling process has begun.

ENERGY LABORATORIES, INC. * 3161 E Lyndale (59604) * PO Box 5688 * Helena, MT 59601
Toll Free 877.472.0711 * 406.442.0711 * FAX 406.442.0712 * helena@energylab.com

ANALYTICAL SUMMARY REPORT

ELI appreciates the opportunity to provide you with this analytical service. For additional information, including certifications, and analytical services visit our web page www.energylab.com.

Report Approved By: Jonathan D. Hager

Digitally signed by Jonathan D. Hager
DN: cn=Jonathan D. Hager, o=Energy Laboratory-Helena, ou=Assistant Lab Manager, email=jhager@energylab.com, c=US
Date: 2009.07.14 16:42:01 -06'00'

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Toll Free 877.472.0711 * 406.442.0711 * FAX 406.442.0712 * helena@energylab.com

LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0906-100
Lab ID: H09060354-001
Matrix: Groundwater

Project: 1054 Asarco E Helena
Collection Date: 06/23/09 07:50 **DateReceived:** 06/24/09
Report Date: 07/14/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Arsenic	0.009	mg/L		0.005		E200.8	06/25/09 20:25 / eli-b		SUB-B131857	7	B_R131857
Cadmium	ND	mg/L		0.001		E200.8	07/10/09 18:53 / eli-b		SUB-B132611	26	B_R132611
Calcium	66	mg/L		1		E200.7	07/13/09 10:38 / eli-b		SUB-B132647	17	B_R132647
Copper	ND	mg/L		0.01		E200.8	06/25/09 20:25 / eli-b		SUB-B131857	7	B_R131857
Iron	0.02	mg/L		0.02		E200.7	07/13/09 10:38 / eli-b		SUB-B132647	17	B_R132647
Lead	ND	mg/L		0.01		E200.8	06/25/09 20:25 / eli-b		SUB-B131857	7	B_R131857
Magnesium	20	mg/L		1		E200.7	07/13/09 10:38 / eli-b		SUB-B132647	17	B_R132647
Manganese	ND	mg/L		0.01		E200.8	06/25/09 20:25 / eli-b		SUB-B131857	7	B_R131857
Potassium	7	mg/L		1		E200.7	07/13/09 10:38 / eli-b		SUB-B132647	17	B_R132647
Selenium	0.003	mg/L		0.001		E200.8	06/25/09 20:25 / eli-b		SUB-B131857	7	B_R131857
Sodium	38	mg/L		1		E200.7	07/13/09 10:38 / eli-b		SUB-B132647	17	B_R132647
Zinc	ND	mg/L		0.01		E200.8	06/25/09 20:25 / eli-b		SUB-B131857	7	B_R131857

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0906-101
Lab ID: H09060354-002
Matrix: Groundwater

Project: 1054 Asarco E Helena
Collection Date: 06/23/09 10:00 **DateReceived:** 06/24/09
Report Date: 07/14/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Arsenic	ND	mg/L		0.005		E200.8	06/25/09 20:51 / eli-b		SUB-B131857	8	B_R131857
Cadmium	ND	mg/L		0.001		E200.8	07/10/09 18:57 / eli-b		SUB-B132611	36	B_R132611
Calcium	47	mg/L		1		E200.7	07/13/09 10:48 / eli-b		SUB-B132647	18	B_R132647
Copper	ND	mg/L		0.01		E200.8	06/25/09 20:51 / eli-b		SUB-B131857	8	B_R131857
Iron	ND	mg/L		0.02		E200.7	07/13/09 10:48 / eli-b		SUB-B132647	18	B_R132647
Lead	ND	mg/L		0.01		E200.8	06/25/09 20:51 / eli-b		SUB-B131857	8	B_R131857
Magnesium	13	mg/L		1		E200.7	07/13/09 10:48 / eli-b		SUB-B132647	18	B_R132647
Manganese	ND	mg/L		0.01		E200.8	06/25/09 20:51 / eli-b		SUB-B131857	8	B_R131857
Potassium	5	mg/L		1		E200.7	07/13/09 10:48 / eli-b		SUB-B132647	18	B_R132647
Selenium	0.003	mg/L		0.001		E200.8	06/25/09 20:51 / eli-b		SUB-B131857	8	B_R131857
Sodium	31	mg/L		1		E200.7	07/13/09 10:48 / eli-b		SUB-B132647	18	B_R132647
Zinc	ND	mg/L		0.01		E200.8	06/25/09 20:51 / eli-b		SUB-B131857	8	B_R131857

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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Toll Free 877.472.0711 * 406.442.0711 * FAX 406.442.0712 * helena@energylab.com

LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0906-102
Lab ID: H09060354-003
Matrix: Groundwater

Project: 1054 Asarco E Helena
Collection Date: 06/23/09 10:40 **DateReceived:** 06/24/09
Report Date: 07/14/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Arsenic	ND	mg/L		0.005		E200.8	06/25/09 20:58 / eli-b		SUB-B131857	9	B_R131857
Cadmium	ND	mg/L		0.001		E200.8	07/10/09 19:17 / eli-b		SUB-B132611	37	B_R132611
Calcium	105	mg/L		1		E200.7	07/13/09 10:55 / eli-b		SUB-B132647	19	B_R132647
Copper	ND	mg/L		0.01		E200.8	06/25/09 20:58 / eli-b		SUB-B131857	9	B_R131857
Iron	ND	mg/L		0.02		E200.7	07/13/09 10:55 / eli-b		SUB-B132647	19	B_R132647
Lead	ND	mg/L		0.01		E200.8	06/25/09 20:58 / eli-b		SUB-B131857	9	B_R131857
Magnesium	28	mg/L		1		E200.7	07/13/09 10:55 / eli-b		SUB-B132647	19	B_R132647
Manganese	ND	mg/L		0.01		E200.8	06/25/09 20:58 / eli-b		SUB-B131857	9	B_R131857
Potassium	5	mg/L		1		E200.7	07/13/09 10:55 / eli-b		SUB-B132647	19	B_R132647
Selenium	0.092	mg/L		0.001		E200.8	06/25/09 20:58 / eli-b		SUB-B131857	9	B_R131857
Sodium	84	mg/L		1		E200.7	07/13/09 10:55 / eli-b		SUB-B132647	19	B_R132647
Zinc	ND	mg/L		0.01		E200.8	06/25/09 20:58 / eli-b		SUB-B131857	9	B_R131857

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0906-103
Lab ID: H09060354-004
Matrix: Groundwater

Project: 1054 Asarco E Helena
Collection Date: 06/23/09 12:45 **DateReceived:** 06/24/09
Report Date: 07/14/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Arsenic	ND	mg/L		0.005		E200.8	06/25/09 21:05 / eli-b		SUB-B131857	10	B_R131857
Cadmium	ND	mg/L		0.001		E200.8	07/10/09 19:21 / eli-b		SUB-B132611	38	B_R132611
Calcium	28	mg/L		1		E200.7	07/13/09 10:59 / eli-b		SUB-B132647	20	B_R132647
Copper	ND	mg/L		0.01		E200.8	06/25/09 21:05 / eli-b		SUB-B131857	10	B_R131857
Iron	ND	mg/L		0.02		E200.7	07/13/09 10:59 / eli-b		SUB-B132647	20	B_R132647
Lead	ND	mg/L		0.01		E200.8	06/25/09 21:05 / eli-b		SUB-B131857	10	B_R131857
Magnesium	6	mg/L		1		E200.7	07/13/09 10:59 / eli-b		SUB-B132647	20	B_R132647
Manganese	ND	mg/L		0.01		E200.8	06/25/09 21:05 / eli-b		SUB-B131857	10	B_R131857
Potassium	3	mg/L		1		E200.7	07/13/09 10:59 / eli-b		SUB-B132647	20	B_R132647
Selenium	ND	mg/L		0.001		E200.8	06/25/09 21:05 / eli-b		SUB-B131857	10	B_R131857
Sodium	13	mg/L		1		E200.7	07/13/09 10:59 / eli-b		SUB-B132647	20	B_R132647
Zinc	ND	mg/L		0.01		E200.8	06/25/09 21:05 / eli-b		SUB-B131857	10	B_R131857

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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Toll Free 877.472.0711 * 406.442.0711 * FAX 406.442.0712 * helena@energylab.com

LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0906-104
Lab ID: H09060354-005
Matrix: Groundwater

Project: 1054 Asarco E Helena
Collection Date: 06/23/09 13:00 **DateReceived:** 06/24/09
Report Date: 07/14/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Arsenic	ND	mg/L		0.005		E200.8	06/25/09 21:12 / eli-b		SUB-B131857	11	B_R131857
Cadmium	ND	mg/L		0.001		E200.8	07/10/09 19:25 / eli-b		SUB-B132611	39	B_R132611
Calcium	28	mg/L		1		E200.7	07/13/09 11:02 / eli-b		SUB-B132647	21	B_R132647
Copper	ND	mg/L		0.01		E200.8	06/25/09 21:12 / eli-b		SUB-B131857	11	B_R131857
Iron	ND	mg/L		0.02		E200.7	07/13/09 11:02 / eli-b		SUB-B132647	21	B_R132647
Lead	ND	mg/L		0.01		E200.8	06/25/09 21:12 / eli-b		SUB-B131857	11	B_R131857
Magnesium	6	mg/L		1		E200.7	07/13/09 11:02 / eli-b		SUB-B132647	21	B_R132647
Manganese	ND	mg/L		0.01		E200.8	06/25/09 21:12 / eli-b		SUB-B131857	11	B_R131857
Potassium	3	mg/L		1		E200.7	07/13/09 11:02 / eli-b		SUB-B132647	21	B_R132647
Selenium	ND	mg/L		0.001		E200.8	06/25/09 21:12 / eli-b		SUB-B131857	11	B_R131857
Sodium	13	mg/L		1		E200.7	07/13/09 11:02 / eli-b		SUB-B132647	21	B_R132647
Zinc	ND	mg/L		0.01		E200.8	06/25/09 21:12 / eli-b		SUB-B131857	11	B_R131857

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 3161 E Lyndale (59604) * PO Box 5688 * Helena, MT 59601
Toll Free 877.472.0711 * 406.442.0711 * FAX 406.442.0712 * helena@energylab.com

LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0906-105
Lab ID: H09060354-006
Matrix: Groundwater

Project: 1054 Asarco E Helena
Collection Date: 06/23/09 11:50 **DateReceived:** 06/24/09
Report Date: 07/14/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Arsenic	0.005	mg/L		0.005		E200.8	06/25/09 21:18 / eli-b		SUB-B131857	12	B_R131857
Cadmium	ND	mg/L		0.001		E200.8	07/10/09 19:29 / eli-b		SUB-B132611	40	B_R132611
Calcium	86	mg/L		1		E200.7	07/13/09 11:13 / eli-b		SUB-B132647	22	B_R132647
Copper	ND	mg/L		0.01		E200.8	06/25/09 21:18 / eli-b		SUB-B131857	12	B_R131857
Iron	ND	mg/L		0.02		E200.7	07/13/09 11:13 / eli-b		SUB-B132647	22	B_R132647
Lead	ND	mg/L		0.01		E200.8	06/25/09 21:18 / eli-b		SUB-B131857	12	B_R131857
Magnesium	39	mg/L		1		E200.7	07/13/09 11:13 / eli-b		SUB-B132647	22	B_R132647
Manganese	ND	mg/L		0.01		E200.8	06/25/09 21:18 / eli-b		SUB-B131857	12	B_R131857
Potassium	4	mg/L		1		E200.7	07/13/09 11:13 / eli-b		SUB-B132647	22	B_R132647
Selenium	0.104	mg/L		0.001		E200.8	06/25/09 21:18 / eli-b		SUB-B131857	12	B_R131857
Sodium	35	mg/L		1		E200.7	07/13/09 11:13 / eli-b		SUB-B132647	22	B_R132647
Zinc	ND	mg/L		0.01		E200.8	06/25/09 21:18 / eli-b		SUB-B131857	12	B_R131857

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0906-106
Lab ID: H09060354-007
Matrix: Groundwater

Project: 1054 Asarco E Helena
Collection Date: 06/23/09 12:10 **DateReceived:** 06/24/09
Report Date: 07/14/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Arsenic	ND	mg/L		0.005		E200.8	06/25/09 21:52 / eli-b		SUB-B131857	13	B_R131857
Cadmium	ND	mg/L		0.001		E200.8	07/10/09 19:33 / eli-b		SUB-B132611	41	B_R132611
Calcium	ND	mg/L		1		E200.7	07/13/09 11:16 / eli-b		SUB-B132647	23	B_R132647
Copper	0.02	mg/L		0.01		E200.8	06/25/09 21:52 / eli-b		SUB-B131857	13	B_R131857
Iron	ND	mg/L		0.02		E200.7	07/13/09 11:16 / eli-b		SUB-B132647	23	B_R132647
Lead	ND	mg/L		0.01		E200.8	06/25/09 21:52 / eli-b		SUB-B131857	13	B_R131857
Magnesium	ND	mg/L		1		E200.7	07/13/09 11:16 / eli-b		SUB-B132647	23	B_R132647
Manganese	ND	mg/L		0.01		E200.8	06/25/09 21:52 / eli-b		SUB-B131857	13	B_R131857
Potassium	ND	mg/L		1		E200.7	07/13/09 11:16 / eli-b		SUB-B132647	23	B_R132647
Selenium	ND	mg/L		0.001		E200.8	06/25/09 21:52 / eli-b		SUB-B131857	13	B_R131857
Sodium	ND	mg/L		1		E200.7	07/13/09 11:16 / eli-b		SUB-B132647	23	B_R132647
Zinc	ND	mg/L		0.01		E200.8	06/25/09 21:52 / eli-b		SUB-B131857	13	B_R131857

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0906-107
Lab ID: H09060354-008
Matrix: Groundwater

Project: 1054 Asarco E Helena
Collection Date: 06/23/09 12:25 **DateReceived:** 06/24/09
Report Date: 07/14/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Arsenic	ND	mg/L		0.005		E200.8	06/25/09 21:59 / eli-b		SUB-B131857	14	B_R131857
Cadmium	ND	mg/L		0.001		E200.8	07/10/09 19:45 / eli-b		SUB-B132611	42	B_R132611
Calcium	ND	mg/L		1		E200.7	07/13/09 11:20 / eli-b		SUB-B132647	24	B_R132647
Copper	ND	mg/L		0.01		E200.8	06/25/09 21:59 / eli-b		SUB-B131857	14	B_R131857
Iron	ND	mg/L		0.02		E200.7	07/13/09 11:20 / eli-b		SUB-B132647	24	B_R132647
Lead	ND	mg/L		0.01		E200.8	06/25/09 21:59 / eli-b		SUB-B131857	14	B_R131857
Magnesium	ND	mg/L		1		E200.7	07/13/09 11:20 / eli-b		SUB-B132647	24	B_R132647
Manganese	ND	mg/L		0.01		E200.8	06/25/09 21:59 / eli-b		SUB-B131857	14	B_R131857
Potassium	ND	mg/L		1		E200.7	07/13/09 11:20 / eli-b		SUB-B132647	24	B_R132647
Selenium	ND	mg/L		0.001		E200.8	06/25/09 21:59 / eli-b		SUB-B131857	14	B_R131857
Sodium	ND	mg/L		1		E200.7	07/13/09 11:20 / eli-b		SUB-B132647	24	B_R132647
Zinc	ND	mg/L		0.01		E200.8	06/25/09 21:59 / eli-b		SUB-B131857	14	B_R131857

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0906-108
Lab ID: H09060354-009
Matrix: Groundwater

Project: 1054 Asarco E Helena
Collection Date: 06/24/09 08:55 **DateReceived:** 06/24/09
Report Date: 07/14/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Arsenic	ND	mg/L		0.005		E200.8	06/25/09 22:05 / eli-b		SUB-B131857	15	B_R131857
Cadmium	ND	mg/L		0.001		E200.8	07/10/09 19:49 / eli-b		SUB-B132611	43	B_R132611
Calcium	24	mg/L		1		E200.7	07/13/09 11:24 / eli-b		SUB-B132647	7	B_R132647
Copper	ND	mg/L		0.01		E200.8	06/25/09 22:05 / eli-b		SUB-B131857	15	B_R131857
Iron	ND	mg/L		0.02		E200.7	07/13/09 11:24 / eli-b		SUB-B132647	7	B_R132647
Lead	ND	mg/L		0.01		E200.8	06/25/09 22:05 / eli-b		SUB-B131857	15	B_R131857
Magnesium	6	mg/L		1		E200.7	07/13/09 11:24 / eli-b		SUB-B132647	7	B_R132647
Manganese	ND	mg/L		0.01		E200.8	06/25/09 22:05 / eli-b		SUB-B131857	15	B_R131857
Potassium	2	mg/L		1		E200.7	07/13/09 11:24 / eli-b		SUB-B132647	7	B_R132647
Selenium	ND	mg/L		0.001		E200.8	06/25/09 22:05 / eli-b		SUB-B131857	15	B_R131857
Sodium	11	mg/L		1		E200.7	07/13/09 11:24 / eli-b		SUB-B132647	7	B_R132647
Zinc	ND	mg/L		0.01		E200.8	06/25/09 22:05 / eli-b		SUB-B131857	15	B_R131857

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0906-109
Lab ID: H09060354-010
Matrix: Groundwater

Project: 1054 Asarco E Helena
Collection Date: 06/24/09 10:10 **DateReceived:** 06/24/09
Report Date: 07/14/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Arsenic	ND	mg/L		0.005		E200.8	06/25/09 22:12 / eli-b		SUB-B131857	16	B_R131857
Cadmium	ND	mg/L		0.001		E200.8	07/10/09 19:53 / eli-b		SUB-B132611	27	B_R132611
Calcium	28	mg/L		1		E200.7	07/13/09 11:28 / eli-b		SUB-B132647	8	B_R132647
Copper	ND	mg/L		0.01		E200.8	06/25/09 22:12 / eli-b		SUB-B131857	16	B_R131857
Iron	ND	mg/L		0.02		E200.7	07/13/09 11:28 / eli-b		SUB-B132647	8	B_R132647
Lead	ND	mg/L		0.01		E200.8	06/25/09 22:12 / eli-b		SUB-B131857	16	B_R131857
Magnesium	7	mg/L		1		E200.7	07/13/09 11:28 / eli-b		SUB-B132647	8	B_R132647
Manganese	ND	mg/L		0.01		E200.8	06/25/09 22:12 / eli-b		SUB-B131857	16	B_R131857
Potassium	3	mg/L		1		E200.7	07/13/09 11:28 / eli-b		SUB-B132647	8	B_R132647
Selenium	ND	mg/L		0.001		E200.8	06/25/09 22:12 / eli-b		SUB-B131857	16	B_R131857
Sodium	13	mg/L		1		E200.7	07/13/09 11:28 / eli-b		SUB-B132647	8	B_R132647
Zinc	ND	mg/L		0.01		E200.8	06/25/09 22:12 / eli-b		SUB-B131857	16	B_R131857

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0906-110
Lab ID: H09060354-011
Matrix: Groundwater

Project: 1054 Asarco E Helena
Collection Date: 06/24/09 11:05 **DateReceived:** 06/24/09
Report Date: 07/14/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Arsenic	ND	mg/L		0.005		E200.8	06/25/09 22:19 / eli-b		SUB-B131857	17	B_R131857
Cadmium	ND	mg/L		0.001		E200.8	07/10/09 20:14 / eli-b		SUB-B132611	28	B_R132611
Calcium	30	mg/L		1		E200.7	07/13/09 11:31 / eli-b		SUB-B132647	9	B_R132647
Copper	ND	mg/L		0.01		E200.8	06/25/09 22:19 / eli-b		SUB-B131857	17	B_R131857
Iron	ND	mg/L		0.02		E200.7	07/13/09 11:31 / eli-b		SUB-B132647	9	B_R132647
Lead	ND	mg/L		0.01		E200.8	06/25/09 22:19 / eli-b		SUB-B131857	17	B_R131857
Magnesium	7	mg/L		1		E200.7	07/13/09 11:31 / eli-b		SUB-B132647	9	B_R132647
Manganese	ND	mg/L		0.01		E200.8	06/25/09 22:19 / eli-b		SUB-B131857	17	B_R131857
Potassium	3	mg/L		1		E200.7	07/13/09 11:31 / eli-b		SUB-B132647	9	B_R132647
Selenium	ND	mg/L		0.001		E200.8	06/25/09 22:19 / eli-b		SUB-B131857	17	B_R131857
Sodium	13	mg/L		1		E200.7	07/13/09 11:31 / eli-b		SUB-B132647	9	B_R132647
Zinc	ND	mg/L		0.01		E200.8	06/25/09 22:19 / eli-b		SUB-B131857	17	B_R131857

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0906-111
Lab ID: H09060354-012
Matrix: Groundwater

Project: 1054 Asarco E Helena
Collection Date: 06/24/09 11:20 **DateReceived:** 06/24/09
Report Date: 07/14/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Arsenic	ND	mg/L		0.005		E200.8	06/25/09 22:45 / eli-b		SUB-B131857	18	B_R131857
Cadmium	ND	mg/L		0.001		E200.8	07/10/09 20:18 / eli-b		SUB-B132611	29	B_R132611
Calcium	ND	mg/L		1		E200.7	07/13/09 11:43 / eli-b		SUB-B132647	10	B_R132647
Copper	ND	mg/L		0.01		E200.8	06/25/09 22:45 / eli-b		SUB-B131857	18	B_R131857
Iron	ND	mg/L		0.02		E200.7	07/13/09 11:43 / eli-b		SUB-B132647	10	B_R132647
Lead	ND	mg/L		0.01		E200.8	06/25/09 22:45 / eli-b		SUB-B131857	18	B_R131857
Magnesium	ND	mg/L		1		E200.7	07/13/09 11:43 / eli-b		SUB-B132647	10	B_R132647
Manganese	ND	mg/L		0.01		E200.8	06/25/09 22:45 / eli-b		SUB-B131857	18	B_R131857
Potassium	ND	mg/L		1		E200.7	07/13/09 11:43 / eli-b		SUB-B132647	10	B_R132647
Selenium	ND	mg/L		0.001		E200.8	06/25/09 22:45 / eli-b		SUB-B131857	18	B_R131857
Sodium	ND	mg/L		1		E200.7	07/13/09 11:43 / eli-b		SUB-B132647	10	B_R132647
Zinc	ND	mg/L		0.01		E200.8	06/25/09 22:45 / eli-b		SUB-B131857	18	B_R131857

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0906-112
Lab ID: H09060354-013
Matrix: Groundwater

Project: 1054 Asarco E Helena
Collection Date: 06/24/09 12:20 **DateReceived:** 06/24/09
Report Date: 07/14/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Arsenic	ND	mg/L		0.005		E200.8	06/25/09 22:52 / eli-b		SUB-B131857	19	B_R131857
Cadmium	ND	mg/L		0.001		E200.8	07/10/09 20:22 / eli-b		SUB-B132611	30	B_R132611
Calcium	ND	mg/L		1		E200.7	07/13/09 11:46 / eli-b		SUB-B132647	11	B_R132647
Copper	ND	mg/L		0.01		E200.8	06/25/09 22:52 / eli-b		SUB-B131857	19	B_R131857
Iron	ND	mg/L		0.02		E200.7	07/13/09 11:46 / eli-b		SUB-B132647	11	B_R132647
Lead	ND	mg/L		0.01		E200.8	06/25/09 22:52 / eli-b		SUB-B131857	19	B_R131857
Magnesium	ND	mg/L		1		E200.7	07/13/09 11:46 / eli-b		SUB-B132647	11	B_R132647
Manganese	ND	mg/L		0.01		E200.8	06/25/09 22:52 / eli-b		SUB-B131857	19	B_R131857
Potassium	ND	mg/L		1		E200.7	07/13/09 11:46 / eli-b		SUB-B132647	11	B_R132647
Selenium	ND	mg/L		0.001		E200.8	06/25/09 22:52 / eli-b		SUB-B131857	19	B_R131857
Sodium	ND	mg/L		1		E200.7	07/13/09 11:46 / eli-b		SUB-B132647	11	B_R132647
Zinc	ND	mg/L		0.01		E200.8	06/25/09 22:52 / eli-b		SUB-B131857	19	B_R131857

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0906-113
Lab ID: H09060354-014
Matrix: Groundwater

Project: 1054 Asarco E Helena
Collection Date: 06/24/09 12:45 **DateReceived:** 06/24/09
Report Date: 07/14/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Arsenic	ND	mg/L		0.005		E200.8	06/25/09 23:26 / eli-b		SUB-B131857	20	B_R131857
Cadmium	ND	mg/L		0.001		E200.8	07/10/09 20:26 / eli-b		SUB-B132611	31	B_R132611
Calcium	34	mg/L		1		E200.7	07/13/09 11:57 / eli-b		SUB-B132647	12	B_R132647
Copper	ND	mg/L		0.01		E200.8	06/25/09 23:26 / eli-b		SUB-B131857	20	B_R131857
Iron	ND	mg/L		0.02		E200.7	07/13/09 11:57 / eli-b		SUB-B132647	12	B_R132647
Lead	ND	mg/L		0.01		E200.8	06/25/09 23:26 / eli-b		SUB-B131857	20	B_R131857
Magnesium	8	mg/L		1		E200.7	07/13/09 11:57 / eli-b		SUB-B132647	12	B_R132647
Manganese	ND	mg/L		0.01		E200.8	06/25/09 23:26 / eli-b		SUB-B131857	20	B_R131857
Potassium	3	mg/L		1		E200.7	07/13/09 11:57 / eli-b		SUB-B132647	12	B_R132647
Selenium	0.009	mg/L		0.001		E200.8	06/25/09 23:26 / eli-b		SUB-B131857	20	B_R131857
Sodium	26	mg/L		1		E200.7	07/13/09 11:57 / eli-b		SUB-B132647	12	B_R132647
Zinc	ND	mg/L		0.01		E200.8	06/25/09 23:26 / eli-b		SUB-B131857	20	B_R131857

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0906-114
Lab ID: H09060354-015
Matrix: Groundwater

Project: 1054 Asarco E Helena
Collection Date: 06/24/09 13:30 **DateReceived:** 06/24/09
Report Date: 07/14/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Arsenic	ND	mg/L		0.005		E200.8	06/25/09 23:32 / eli-b		SUB-B131857	21	B_R131857
Cadmium	ND	mg/L		0.001		E200.8	07/10/09 20:30 / eli-b		SUB-B132611	32	B_R132611
Calcium	29	mg/L		1		E200.7	07/13/09 12:00 / eli-b		SUB-B132647	13	B_R132647
Copper	ND	mg/L		0.01		E200.8	06/25/09 23:32 / eli-b		SUB-B131857	21	B_R131857
Iron	ND	mg/L		0.02		E200.7	07/13/09 12:00 / eli-b		SUB-B132647	13	B_R132647
Lead	ND	mg/L		0.01		E200.8	06/25/09 23:32 / eli-b		SUB-B131857	21	B_R131857
Magnesium	7	mg/L		1		E200.7	07/13/09 12:00 / eli-b		SUB-B132647	13	B_R132647
Manganese	ND	mg/L		0.01		E200.8	06/25/09 23:32 / eli-b		SUB-B131857	21	B_R131857
Potassium	3	mg/L		1		E200.7	07/13/09 12:00 / eli-b		SUB-B132647	13	B_R132647
Selenium	ND	mg/L		0.001		E200.8	06/25/09 23:32 / eli-b		SUB-B131857	21	B_R131857
Sodium	13	mg/L		1		E200.7	07/13/09 12:00 / eli-b		SUB-B132647	13	B_R132647
Zinc	ND	mg/L		0.01		E200.8	06/25/09 23:32 / eli-b		SUB-B131857	21	B_R131857

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0906-115
Lab ID: H09060354-016
Matrix: Groundwater

Project: 1054 Asarco E Helena
Collection Date: 06/24/09 13:45 **DateReceived:** 06/24/09
Report Date: 07/14/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Arsenic	ND	mg/L		0.005		E200.8	06/25/09 23:39 / eli-b		SUB-B131857	22	B_R131857
Cadmium	ND	mg/L		0.001		E200.8	07/10/09 20:34 / eli-b		SUB-B132611	33	B_R132611
Calcium	29	mg/L		1		E200.7	07/13/09 12:04 / eli-b		SUB-B132647	14	B_R132647
Copper	ND	mg/L		0.01		E200.8	06/25/09 23:39 / eli-b		SUB-B131857	22	B_R131857
Iron	ND	mg/L		0.02		E200.7	07/13/09 12:04 / eli-b		SUB-B132647	14	B_R132647
Lead	ND	mg/L		0.01		E200.8	06/25/09 23:39 / eli-b		SUB-B131857	22	B_R131857
Magnesium	7	mg/L		1		E200.7	07/13/09 12:04 / eli-b		SUB-B132647	14	B_R132647
Manganese	ND	mg/L		0.01		E200.8	06/25/09 23:39 / eli-b		SUB-B131857	22	B_R131857
Potassium	3	mg/L		1		E200.7	07/13/09 12:04 / eli-b		SUB-B132647	14	B_R132647
Selenium	ND	mg/L		0.001		E200.8	06/25/09 23:39 / eli-b		SUB-B131857	22	B_R131857
Sodium	12	mg/L		1		E200.7	07/13/09 12:04 / eli-b		SUB-B132647	14	B_R132647
Zinc	0.02	mg/L		0.01		E200.8	06/25/09 23:39 / eli-b		SUB-B131857	22	B_R131857

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0906-116
Lab ID: H09060354-017
Matrix: Groundwater

Project: 1054 Asarco E Helena
Collection Date: 06/24/09 14:25 **DateReceived:** 06/24/09
Report Date: 07/14/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Arsenic	0.007	mg/L		0.005		E200.8	06/25/09 23:46 / eli-b		SUB-B131857	23	B_R131857
Cadmium	ND	mg/L		0.001		E200.8	07/10/09 20:38 / eli-b		SUB-B132611	34	B_R132611
Calcium	39	mg/L		1		E200.7	07/13/09 12:07 / eli-b		SUB-B132647	15	B_R132647
Copper	ND	mg/L		0.01		E200.8	06/25/09 23:46 / eli-b		SUB-B131857	23	B_R131857
Iron	ND	mg/L		0.02		E200.7	07/13/09 12:07 / eli-b		SUB-B132647	15	B_R132647
Lead	ND	mg/L		0.01		E200.8	06/25/09 23:46 / eli-b		SUB-B131857	23	B_R131857
Magnesium	14	mg/L		1		E200.7	07/13/09 12:07 / eli-b		SUB-B132647	15	B_R132647
Manganese	ND	mg/L		0.01		E200.8	06/25/09 23:46 / eli-b		SUB-B131857	23	B_R131857
Potassium	6	mg/L		1		E200.7	07/13/09 12:07 / eli-b		SUB-B132647	15	B_R132647
Selenium	0.002	mg/L		0.001		E200.8	06/25/09 23:46 / eli-b		SUB-B131857	23	B_R131857
Sodium	24	mg/L		1		E200.7	07/13/09 12:07 / eli-b		SUB-B132647	15	B_R132647
Zinc	ND	mg/L		0.01		E200.8	06/25/09 23:46 / eli-b		SUB-B131857	23	B_R131857

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0906-117
Lab ID: H09060354-018
Matrix: Groundwater

Project: 1054 Asarco E Helena
Collection Date: 06/24/09 14:58 **DateReceived:** 06/24/09
Report Date: 07/14/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Arsenic	0.005	mg/L		0.005		E200.8	06/25/09 23:53 / eli-b		SUB-B131857	24	B_R131857
Cadmium	ND	mg/L		0.001		E200.8	07/10/09 20:42 / eli-b		SUB-B132611	35	B_R132611
Calcium	41	mg/L		1		E200.7	07/13/09 12:11 / eli-b		SUB-B132647	16	B_R132647
Copper	ND	mg/L		0.01		E200.8	06/25/09 23:53 / eli-b		SUB-B131857	24	B_R131857
Iron	ND	mg/L		0.02		E200.7	07/13/09 12:11 / eli-b		SUB-B132647	16	B_R132647
Lead	ND	mg/L		0.01		E200.8	06/25/09 23:53 / eli-b		SUB-B131857	24	B_R131857
Magnesium	12	mg/L		1		E200.7	07/13/09 12:11 / eli-b		SUB-B132647	16	B_R132647
Manganese	ND	mg/L		0.01		E200.8	06/25/09 23:53 / eli-b		SUB-B131857	24	B_R131857
Potassium	6	mg/L		1		E200.7	07/13/09 12:11 / eli-b		SUB-B132647	16	B_R132647
Selenium	ND	mg/L		0.001		E200.8	06/25/09 23:53 / eli-b		SUB-B131857	24	B_R131857
Sodium	20	mg/L		1		E200.7	07/13/09 12:11 / eli-b		SUB-B132647	16	B_R132647
Zinc	ND	mg/L		0.01		E200.8	06/25/09 23:53 / eli-b		SUB-B131857	24	B_R131857

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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Client: Asarco Consulting
Work Order: H09060354
Project: 1054 Asarco E Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R131857

Date: *14-Jul-09*

Run ID :Run Order: **SUB-B131857: 2** SampType: **Method Blank** Sample ID: **LRB** Method: **E200.8**
Analysis Date: **06/25/09 17:10** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	3E-05									
Copper	ND	8E-05									
Lead	1E-05	8E-06									
Manganese	ND	2E-05									
Selenium	ND	0.0002									
Zinc	0.001	0.0001									

Associated samples: H09060354-001A; H09060354-002A; H09060354-003A; H09060354-004A; H09060354-005A; H09060354-006A; H09060354-007A; H09060354-008A; H09060354-009A; H09060354-010A; H09060354-011A; H09060354-012A; H09060354-013A; H09060354-014A; H09060354-015A; H09060354-016A; H09060354-017A; H09060354-018A

Run ID :Run Order: **SUB-B131857: 3** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**
Analysis Date: **06/25/09 17:17** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.052	0.0050	0.05		**104**	85	115				
Copper	0.053	0.010	0.05		**105**	85	115				
Lead	0.050	0.010	0.05	0.00001	**101**	85	115				
Manganese	0.052	0.010	0.05		**105**	85	115				
Selenium	0.055	0.0050	0.05		**110**	85	115				
Zinc	0.056	0.010	0.05	0.00143	**110**	85	115				

Associated samples: H09060354-001A; H09060354-002A; H09060354-003A; H09060354-004A; H09060354-005A; H09060354-006A; H09060354-007A; H09060354-008A; H09060354-009A; H09060354-010A; H09060354-011A; H09060354-012A; H09060354-013A; H09060354-014A; H09060354-015A; H09060354-016A; H09060354-017A; H09060354-018A

Run ID :Run Order: **SUB-B131857: 4** SampType: **Sample Matrix Spike** Sample ID: **B09061372-005AMS** Method: **E200.8**
Analysis Date: **06/26/09 00:06** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.052	0.0010	0.05	0.00034	**104**	70	130				
Copper	0.21	0.010	0.05	0.1753	**69**	70	130				S
Lead	0.052	0.0010	0.05	0.00266	**99**	70	130				
Manganese	0.052	0.010	0.05	0.00177	**101**	70	130				
Selenium	0.057	0.0050	0.05	0.00306	**109**	70	130				
Zinc	0.87	0.010	0.05	0.8395		70	130				A

Associated samples: H09060354-001A; H09060354-002A; H09060354-003A; H09060354-004A; H09060354-005A; H09060354-006A; H09060354-007A; H09060354-008A; H09060354-009A; H09060354-010A; H09060354-011A; H09060354-012A; H09060354-013A; H09060354-014A; H09060354-015A; H09060354-016A; H09060354-017A; H09060354-018A

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limit
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

SEPTEMBER 2009 QUARTERLY MONITORING DATA SUBMITTAL ASARCO EAST HELENA CAMU MONITORING WELLS

Prepared for:
ASARCO LLC
P.O. Box 1230
East Helena, MT 59635

Prepared by:
Hydrometrics, Inc.
3020 Bozeman Avenue
Helena, MT 59601

November 2009

SEPTEMBER 2009 QUARTERLY MONITORING DATA SUBMITTAL ASARCO EAST HELENA CAMU MONITORING WELLS

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November 2009

SEPTEMBER 2009 QUARTERLY MONITORING DATA SUBMITTAL
ASARCO EAST HELENA CAMU MONITORING WELLS

This data submittal presents the groundwater quality and water level data collected during the September 2009 (3rd quarter) monitoring event for the Asarco East Helena CAMU monitoring well network. As described in the CAMU Groundwater Sampling and Monitoring Plan (SMP) and the 2008 Groundwater Monitoring Report (GMR) submitted to EPA in March 2009, the CAMU well network consists of eleven monitoring wells designated MW-1 through MW-11, sampled on a quarterly basis. To evaluate potential groundwater impacts from the CAMU, water quality results are compared with well-specific concentration limits for dissolved metals, and tests for statistically significant data trends are conducted using the Mann-Kendall test for trend.

In accordance with the SMP, the summary tables, graphs, and statistical tests required for the CAMU groundwater data have been updated to include the September 2009 monitoring data. The September 2009 data submittal consists of the following items (attached):

1. September 2009 summary data table and well-specific concentration limit table;
2. Time-concentration plots through September 2009;
3. September 2009 potentiometric map;
4. September 2009 dissolved arsenic concentration map;
5. September 2009 dissolved manganese concentration map;
6. Mann-Kendall trend test results table; and
7. Seasonal Mann-Kendall trend test results table.

September 2009 groundwater quality and water levels in the CAMU monitoring wells were generally consistent with previous results. Note that well MW-7 was not sampled during the September 2009 monitoring event, due to a lack of sufficient water in the well for collecting a water quality sample. The only statistically significant trends noted were decreasing trends for dissolved manganese at well MW-2 and dissolved arsenic at well MW-6.

As noted in the previous quarterly data submittal (May 2009), the CAMU groundwater monitoring program was modified slightly beginning with the May 2009 sampling. Two new dissolved metals were added to the parameter list (gold and tellurium), and the laboratory reporting limits for a number of dissolved metals were lowered, including cobalt (lowered from 0.01 mg/L to 0.0005 mg/L), copper (0.004 mg/L to 0.001 mg/L), mercury (0.006 mg/L to 0.0001 mg/L), selenium (0.005 mg/L to 0.001 mg/L), thallium (0.002 mg/L to 0.001 mg/L), and zinc (0.02 mg/L to 0.01 mg/L). These changes were introduced to make the monitoring consistent with other site data collection programs. The well-specific concentration limits for the CAMU wells (see attached Table 5-1 from the 2008 GMR) are

based on the reporting limits in effect when the program was initiated, and remain appropriate for evaluating potential groundwater impacts from the CAMU.

As shown in the attached data summary table, one parameter exceeded the associated concentration limit in the September 2009 data set (chromium at well MW-10, with a concentration of 0.003 mg/L compared with a well-specific concentration limit of 0.001 mg/L). These results contrast with the May 2009 monitoring results, which showed three exceedances for dissolved selenium and one exceedance each for copper and vanadium. Dissolved copper at MW-9 decreased from 0.023 mg/L in May to <0.001 mg/L in September. Dissolved selenium results decreased from May to September 2009 at wells MW-1 (0.006 mg/L to 0.002 mg/L), MW-10 (0.007 mg/L to 0.003 mg/L), and MW-11 (0.010 mg/L to 0.004 mg/L).

No dissolved metals other than chromium at well MW-10 exceeded concentration limits. All concentrations of silver, aluminum, gold, beryllium, cadmium, cobalt, mercury, nickel, lead, antimony, tellurium, thallium, vanadium, and zinc were below reporting limits at all CAMU wells in September 2009.

SEPTEMBER 2009 SUMMARY DATA TABLE

ASARCO EAST HELENA CAMU MONITORING WELLS

September 2009 Asarco East Helena CAMU Groundwater Data

Site	Sample Date	Sample ID	Type	Lab ID	Depth To Water (ft)	Field Parameters			
						pH (s.u.)	SC (µmhos/cm)	Dissolved O_2 (mg/L)	Water Temp (°C)
MW-1	9/16/2009	AEH-0908-199		H09090235-002	50.83	7.07	438	8.04	10.57
MW-1	9/16/2009	AEH-0908-200	Field Duplicate	H09090235-003	50.83	7.07	438	8.04	10.57
MW-2	9/16/2009	AEH-0908-201		H09090235-004	33.86	6.82	502	0.72	10.27
MW-3	9/16/2009	AEH-0908-203		H09090235-006	29.55	6.8	586	3.08	10.13
MW-4	9/16/2009	AEH-0908-198		H09090235-001	45.31	6.83	549	7.79	11.92
MW-5	9/16/2009	AEH-0908-206		H09090235-009	52.11	7.22	363	7.34	11.28
MW-6	9/16/2009	AEH-0908-211		H09090235-013	25.74	6.92	780	0.75	10.6
MW-7	9/16/2009	AEH-0908-209	Insufficient Water	AEH-0908-209	57.68	Insufficient Water for Sample			
MW-8	9/16/2009	AEH-0908-207		H09090235-010	50.73	7.19	459	8.15	11.24
MW-9	9/16/2009	AEH-0908-205		H09090235-008	57.29	6.94	487	7.19	11.3
MW-10	9/16/2009	AEH-0908-208		H09090235-011	38.36	7.1	799	7.04	15.35
MW-11	9/16/2009	AEH-0908-210		H09090235-012	62.64	7.42	643	11.06	11.49
DI BLANK	9/16/2009	AEH-0908-202	Blank	H09090235-005					
RINSATE	9/16/2009	AEH-0908-204	Blank	H09090235-007					

Bold font indicates value exceeds concentration limit.

September 2009 Asarco East Helena CAMU Groundwater Data

Site	Sample Date	Sample ID	Type	pH (s.u.)	SC (µmhos/cm)	TDS (mg/L)	TSS (mg/L)	Total Alkalinity (mg/L as CaCO3)
MW-1	9/16/2009	AEH-0908-199		7.5	429	304	< 10	120
MW-1	9/16/2009	AEH-0908-200	Field Duplicate	7.5	430	296	< 10	110
MW-2	9/16/2009	AEH-0908-201		7.3	493	314	< 10	230
MW-3	9/16/2009	AEH-0908-203		7.1	574	372	< 10	250
MW-4	9/16/2009	AEH-0908-198		7.5	475	333	< 10	170
MW-5	9/16/2009	AEH-0908-206		7.6	355	237	< 10	140
MW-6	9/16/2009	AEH-0908-211		7.4	752	499	< 10	230
MW-7	9/16/2009	AEH-0908-209	Insufficient Water					
MW-8	9/16/2009	AEH-0908-207		7.5	459	315	< 10	150
MW-9	9/16/2009	AEH-0908-205		7.6	420	282	28	150
MW-10	9/16/2009	AEH-0908-208		7.5	815	563	23	250
MW-11	9/16/2009	AEH-0908-210		7.8	632	444	< 10	110
DI BLANK	9/16/2009	AEH-0908-202	Blank	5.8	2	< 10	< 10	2
RINSATE	9/16/2009	AEH-0908-204	Blank	5.7	2	< 10	< 10	2

Bold font indicates value exceeds concentration limit.

September 2009 Asarco East Helena CAMU Groundwater Data

Site	Sample Date	Sample ID	Type	HCO3 (mg/L)	Cl (mg/L)	SO4 (mg/L)	Ca (mg/L)	Mg (mg/L)	Na (mg/L)	K (mg/L)
MW-1	9/16/2009	AEH-0908-199		140	12	81	45	9	25	5
MW-1	9/16/2009	AEH-0908-200	Field Duplicate	140	12	81	44	9	24	5
MW-2	9/16/2009	AEH-0908-201		280	6	31	63	14	19	5
MW-3	9/16/2009	AEH-0908-203		300	9	53	72	16	22	6
MW-4	9/16/2009	AEH-0908-198		200	8	71	53	11	26	6
MW-5	9/16/2009	AEH-0908-206		170	6	33	37	8	20	4
MW-6	9/16/2009	AEH-0908-211		280	22	150	94	20	25	5
MW-7	9/16/2009	AEH-0908-209	Insufficient Water							
MW-8	9/16/2009	AEH-0908-207		190	9	69	51	10	22	6
MW-9	9/16/2009	AEH-0908-205		180	8	54	45	9	23	5
MW-10	9/16/2009	AEH-0908-208		300	25	170	96	24	35	7
MW-11	9/16/2009	AEH-0908-210		140	27	160	47	11	53	10
DI BLANK	9/16/2009	AEH-0908-202	Blank	2	< 1	< 1	< 1	< 1	< 1	< 1
RINSATE	9/16/2009	AEH-0908-204	Blank	2	< 1	< 1	< 1	< 1	< 1	< 1

Bold font indicates value exceeds concentration limit.

September 2009 Asarco East Helena CAMU Groundwater Data

Site	Sample Date	Sample ID	Type	Dissolved Metals (mg/L)								
				Ag	Al	As	Au	Ba	Be	Cd	Co	Cr
MW-1	9/16/2009	AEH-0908-199		< 0.005	< 0.1	0.004	< 0.01	< 0.1	< 0.001	< 0.001	< 0.01	< 0.001
MW-1	9/16/2009	AEH-0908-200	Field Duplicate	< 0.005	< 0.1	0.004	< 0.01	< 0.1	< 0.001	< 0.001	< 0.01	< 0.001
MW-2	9/16/2009	AEH-0908-201		< 0.005	< 0.1	0.012	< 0.01	< 0.1	< 0.001	< 0.001	< 0.01	< 0.001
MW-3	9/16/2009	AEH-0908-203		< 0.005	< 0.1	0.01	< 0.01	< 0.1	< 0.001	< 0.001	< 0.01	< 0.001
MW-4	9/16/2009	AEH-0908-198		< 0.005	< 0.1	0.003	< 0.01	< 0.1	< 0.001	< 0.001	< 0.01	< 0.001
MW-5	9/16/2009	AEH-0908-206		< 0.005	< 0.1	0.005	< 0.01	< 0.1	< 0.001	< 0.001	< 0.01	< 0.001
MW-6	9/16/2009	AEH-0908-211		< 0.005	< 0.1	0.053	< 0.01	0.1	< 0.001	< 0.001	< 0.01	0.003
MW-7	9/16/2009	AEH-0908-209	Insufficient Water									
MW-8	9/16/2009	AEH-0908-207		< 0.005	< 0.1	0.007	< 0.01	< 0.1	< 0.001	< 0.001	< 0.01	0.001
MW-9	9/16/2009	AEH-0908-205		< 0.005	< 0.1	0.006	< 0.01	< 0.1	< 0.001	< 0.001	< 0.01	< 0.001
MW-10	9/16/2009	AEH-0908-208		< 0.005	< 0.1	0.01	< 0.01	< 0.1	< 0.001	< 0.001	< 0.01	**0.003**
MW-11	9/16/2009	AEH-0908-210		< 0.005	< 0.1	0.017	< 0.01	< 0.1	< 0.001	< 0.001	< 0.01	< 0.001
DI BLANK	9/16/2009	AEH-0908-202	Blank	< 0.005	< 0.1	< 0.002	< 0.01	< 0.1	< 0.001	< 0.001	< 0.01	< 0.001
RINSATE	9/16/2009	AEH-0908-204	Blank	< 0.005	< 0.1	< 0.002	< 0.01	< 0.1	< 0.001	< 0.001	< 0.01	< 0.001

Bold font indicates value exceeds concentration limit.

September 2009 Asarco East Helena CAMU Groundwater Data

Site	Sample Date	Sample ID	Type	Dissolved Metals (mg/L)								
				Cu	Fe	Hg	Mn	Ni	Pb	Sb	Se	Te
MW-1	9/16/2009	AEH-0908-199		< 0.001	< 0.02	< 0.001	< 0.01	< 0.01	< 0.005	< 0.003	0.002	< 0.1
MW-1	9/16/2009	AEH-0908-200	Field Duplicate	< 0.001	< 0.02	< 0.001	< 0.01	< 0.01	< 0.005	< 0.003	0.002	< 0.1
MW-2	9/16/2009	AEH-0908-201		< 0.001	< 0.02	< 0.001	0.23	< 0.01	< 0.005	< 0.003	< 0.001	< 0.1
MW-3	9/16/2009	AEH-0908-203		0.002	< 0.02	< 0.001	0.02	< 0.01	< 0.005	< 0.003	0.005	< 0.1
MW-4	9/16/2009	AEH-0908-198		< 0.001	< 0.02	< 0.001	< 0.01	< 0.01	< 0.005	< 0.003	0.001	< 0.1
MW-5	9/16/2009	AEH-0908-206		< 0.001	< 0.02	< 0.001	< 0.01	< 0.01	< 0.005	< 0.003	0.001	< 0.1
MW-6	9/16/2009	AEH-0908-211		< 0.001	0.06	< 0.001	3.54	< 0.01	< 0.005	< 0.003	0.004	< 0.1
MW-7	9/16/2009	AEH-0908-209	Insufficient Water									
MW-8	9/16/2009	AEH-0908-207		< 0.001	< 0.02	< 0.001	< 0.01	< 0.01	< 0.005	< 0.003	0.001	< 0.1
MW-9	9/16/2009	AEH-0908-205		< 0.001	< 0.02	< 0.001	< 0.01	< 0.01	< 0.005	< 0.003	0.001	< 0.1
MW-10	9/16/2009	AEH-0908-208		< 0.001	< 0.02	< 0.001	< 0.01	< 0.01	< 0.005	< 0.003	0.003	< 0.1
MW-11	9/16/2009	AEH-0908-210		< 0.001	< 0.02	< 0.001	< 0.01	< 0.01	< 0.005	< 0.003	0.004	< 0.1
DI BLANK	9/16/2009	AEH-0908-202	Blank	< 0.001	< 0.02	< 0.001	< 0.01	< 0.01	< 0.005	< 0.003	< 0.001	< 0.1
RINSATE	9/16/2009	AEH-0908-204	Blank	< 0.001	< 0.02	< 0.001	< 0.01	< 0.01	< 0.005	< 0.003	< 0.001	< 0.1

Bold font indicates value exceeds concentration limit.

September 2009 Asarco East Helena CAMU Groundwater Data

Site	Sample Date	Sample ID	Type	Dissolved Metals (mg/L)		
				Tl	V	Zn
MW-1	9/16/2009	AEH-0908-199		< 0.001	< 0.01	< 0.01
MW-1	9/16/2009	AEH-0908-200	Field Duplicate	< 0.001	< 0.01	< 0.01
MW-2	9/16/2009	AEH-0908-201		< 0.001	< 0.01	< 0.01
MW-3	9/16/2009	AEH-0908-203		< 0.001	< 0.01	< 0.01
MW-4	9/16/2009	AEH-0908-198		< 0.001	< 0.01	< 0.01
MW-5	9/16/2009	AEH-0908-206		< 0.001	< 0.01	< 0.01
MW-6	9/16/2009	AEH-0908-211		< 0.001	< 0.01	< 0.01
MW-7	9/16/2009	AEH-0908-209	Insufficient Water			
MW-8	9/16/2009	AEH-0908-207		< 0.001	< 0.01	< 0.01
MW-9	9/16/2009	AEH-0908-205		< 0.001	< 0.01	< 0.01
MW-10	9/16/2009	AEH-0908-208		< 0.001	< 0.01	< 0.01
MW-11	9/16/2009	AEH-0908-210		< 0.001	< 0.01	< 0.01
DI BLANK	9/16/2009	AEH-0908-202	Blank	< 0.001	< 0.01	< 0.01
RINSATE	9/16/2009	AEH-0908-204	Blank	< 0.001	< 0.01	< 0.01

Bold font indicates value exceeds concentration limit.

WELL-SPECIFIC CONCENTRATION LIMITS

ASARCO EAST HELENA CAMU MONITORING WELLS

CONCENTRATION LIMITS FOR CONSTITUENTS OF CONCERN – UPDATED MARCH 2009
(TABLE 5-1 FROM 2008 GROUNDWATER MONITORING REPORT)

Parameter	Well-Specific Concentration Limits (mg/L)										
	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9	MW-10	MW-11
Aluminum(Al)	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	*0.3*	**0.1**	**0.1**	**0.1**	**0.1**
Antimony (Sb)	**0.005**	**0.005**	**0.005**	**0.005**	**0.005**	**0.005**	**0.005**	**0.005**	**0.005**	**0.005**	**0.005**
Arsenic (As)	0.008	0.019	0.013	*0.015*	0.009	0.254	0.027	0.009	0.007	0.014	0.018
Barium (Ba)	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	0.1	ND	**0.1**	**0.1**	**0.1**	**0.1**
Beryllium (Be)	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**
Cadmium (Cd)	**0.001**	**0.001**	**0.001**	*0.003*	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**
Chromium (Cr)	**0.001**	**0.001**	**0.001**	**0.001**	*0.003*	*0.003*	ND	**0.001**	**0.001**	**0.001**	**0.001**
Cobalt (Co)	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**
Copper (Cu)	**0.004**	**0.004**	**0.004**	**0.004**	**0.004**	*0.012*	**0.004**	**0.004**	**0.004**	**0.004**	*0.012*
Iron (Fe)	*0.06*	*0.06*	*0.06*	*0.06*	*0.06*	0.29	0.08	**0.02**	**0.02**	**0.02**	**0.02**
Lead (Pb)	*0.015*	**0.005**	**0.005**	*0.015*	**0.005**	*0.015*	**0.005**	**0.005**	**0.005**	**0.005**	**0.005**
Manganese (Mn)	*0.045*	0.336	0.036	**0.015**	*0.045*	5.55	*0.045*	*0.045*	**0.015**	**0.015**	*0.045*
Mercury (Hg)	**0.006**	**0.006**	**0.006**	**0.006**	**0.006**	**0.006**	**0.006**	**0.006**	**0.006**	**0.006**	**0.006**
Nickel (Ni)	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**
Selenium (Se)	**0.005**	**0.005**	0.010	*0.015*	**0.005**	*0.015*	**0.005**	**0.005**	**0.005**	**0.005**	**0.005**
Silver (Ag)	**0.005**	**0.005**	**0.005**	**0.005**	**0.005**	**0.005**	ND	*0.015*	**0.005**	**0.005**	**0.005**
Thallium (Tl)	**0.002**	**0.002**	**0.002**	**0.002**	**0.002**	**0.002**	**0.002**	**0.002**	**0.002**	**0.002**	**0.002**
Tin (Sn)	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**
Vanadium (V)	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	*0.03*
Zinc (Zn)	**0.02**	**0.02**	**0.02**	**0.02**	**0.02**	**0.02**	**0.02**	*0.06*	*0.06*	*0.06*	*0.06*

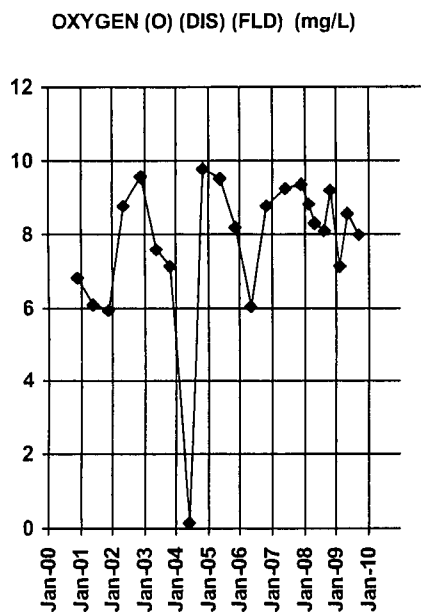
NOTE: Concentration limits derived from existing metals data set for each well as follows:

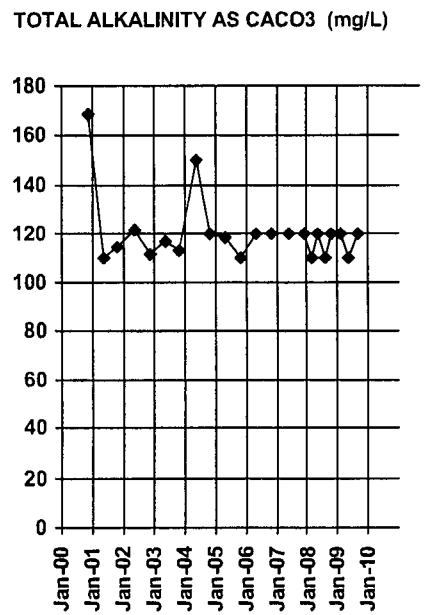
[1] If all data below reporting limits, concentration limit set at the PQL (Table 3-3). These parameters denoted in **bold type**.
[2] If >50% of data below reporting limits, concentration limit set at 3x the PQL (Table 3-3). These parameters denoted in *italic type*.
[3] If <=50% of data below reporting limits, concentration limit set at the average plus two standard deviations. These data denoted in normal font.
[4] Shaded cells denote limits established in March 2009; unshaded cells denote limits established in SMP (Hydrometrics, 2007).

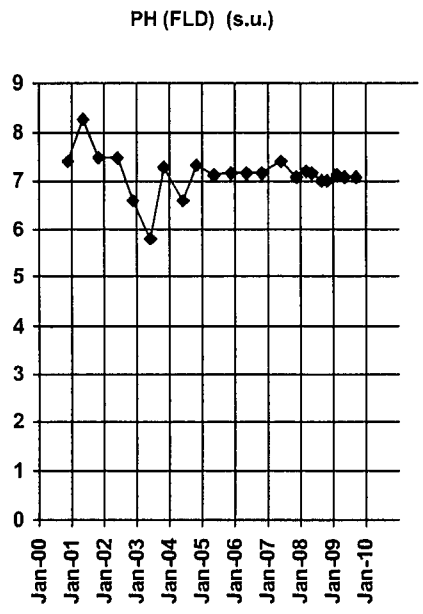
ND = no data available, well-specific concentration limit not calculated

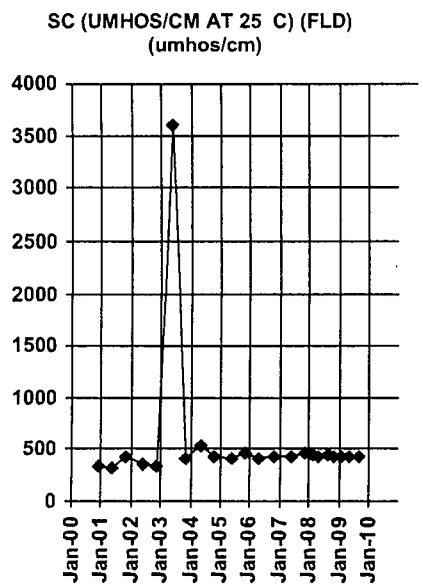
TIME-CONCENTRATION PLOTS THROUGH SEPTEMBER 2009

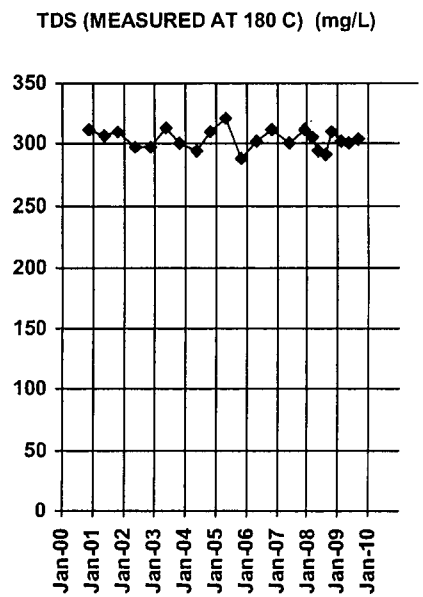
ASARCO EAST HELENA CAMU MONITORING WELLS

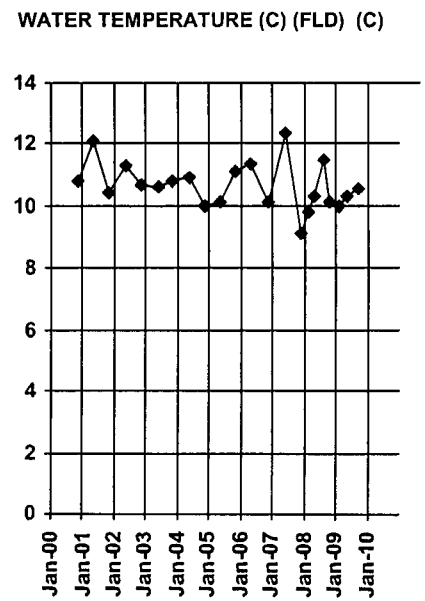












STATION

MW-1

Sampling Dates
11/17/00 - 09/16/09

September 2009 Groundwater Monitoring Results

Asarco East Helena CAMU Wells

Legend

Parameter (Units)

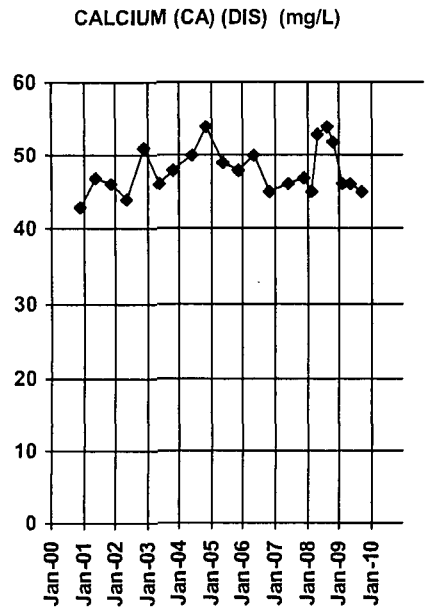
Date Sampled

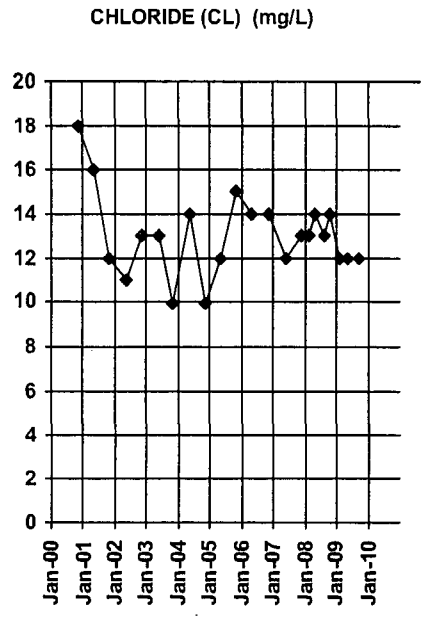
Data Source

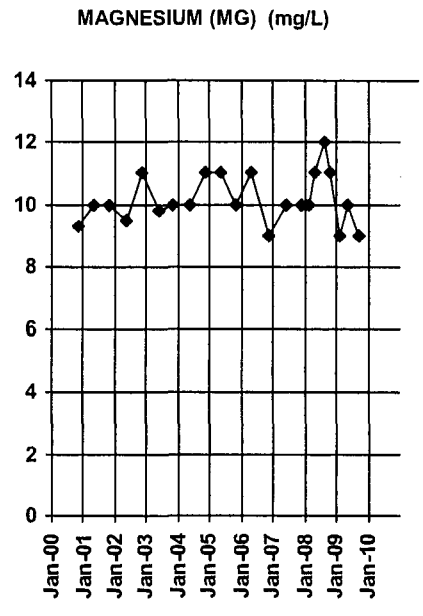
ASARCO, East Helena Plant

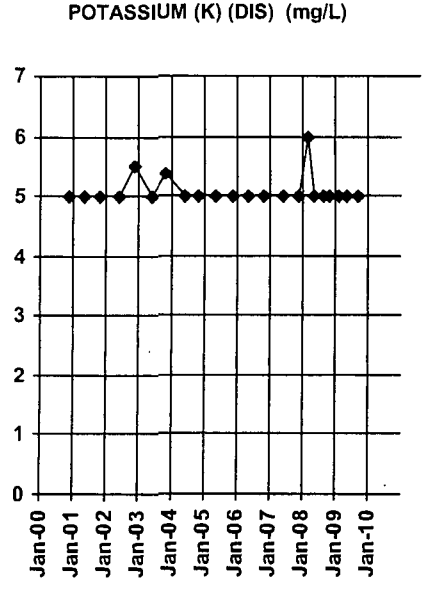
Graph Date Range

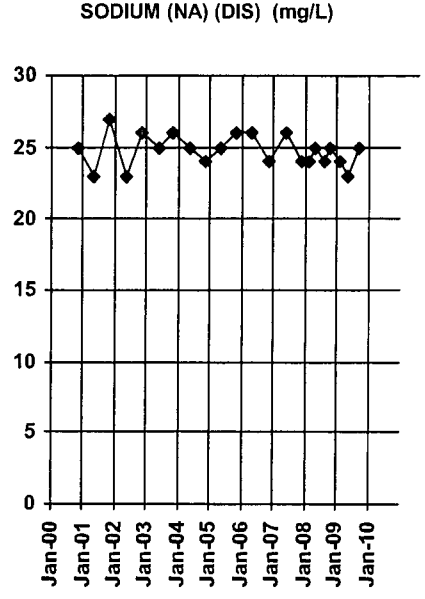
2000 - 2009

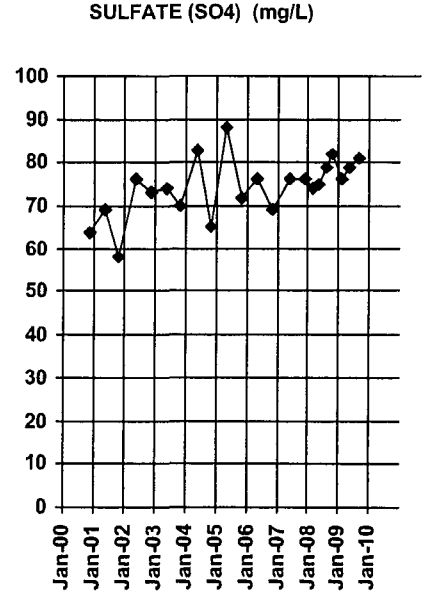












STATION

MW-1

Sampling Dates
11/17/00 - 09/16/09

September 2009 Groundwater Monitoring Results

Asarco East Helena CAMU Wells

Legend

Parameter (Units)

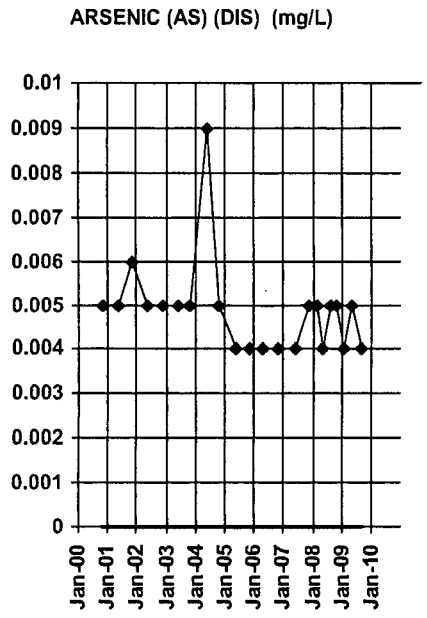
Date Sampled

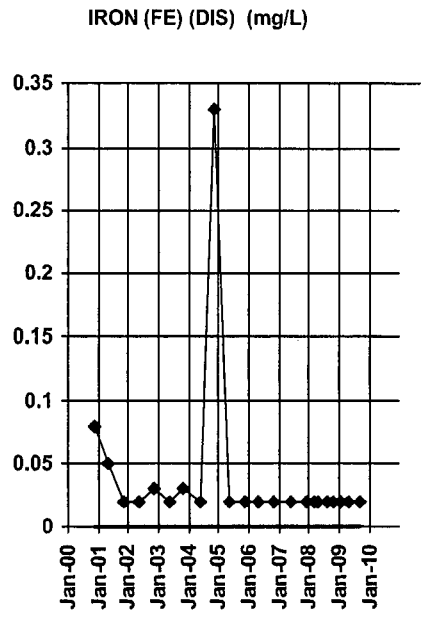
Data Source

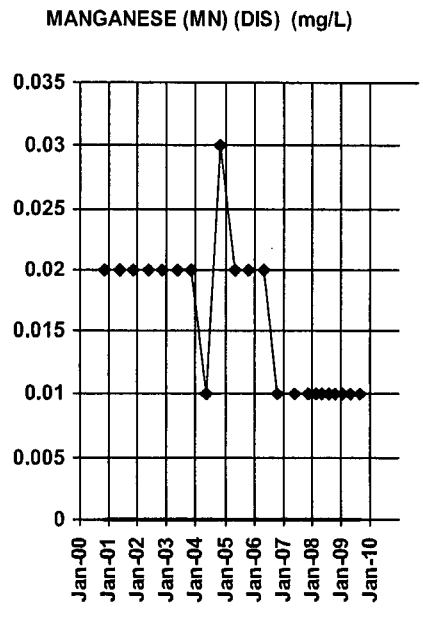
ASARCO, East Helena Plant

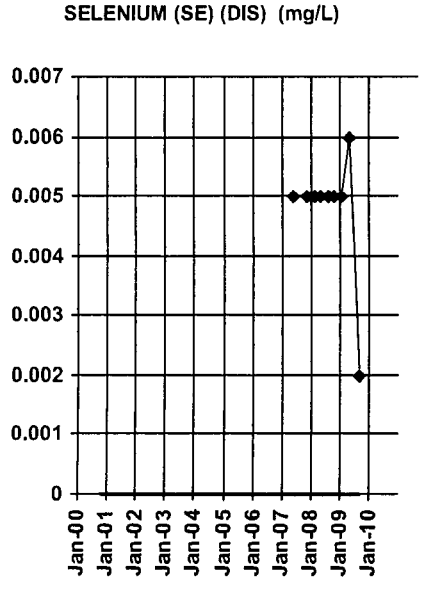
Graph Date Range

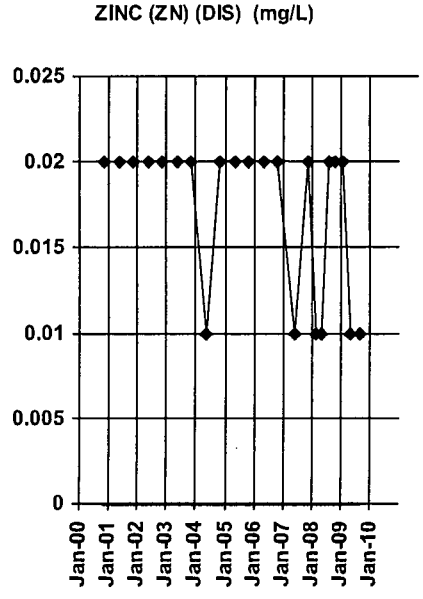
2000 - 2009











STATION

MW-1

Sampling Dates
11/17/00 - 09/16/09

September 2009 Groundwater Monitoring Results

Asarco East Helena CAMU Wells

Legend

Parameter (Units)

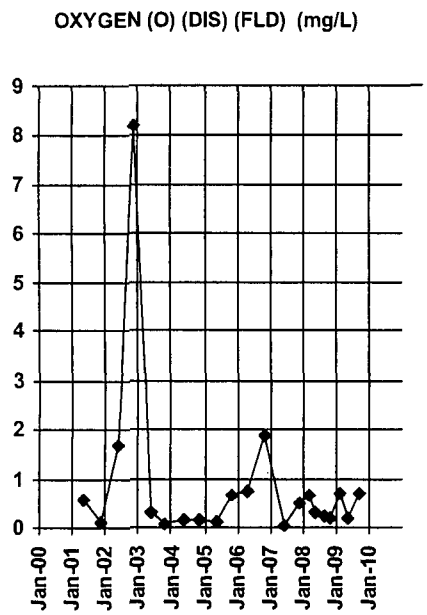
Date Sampled

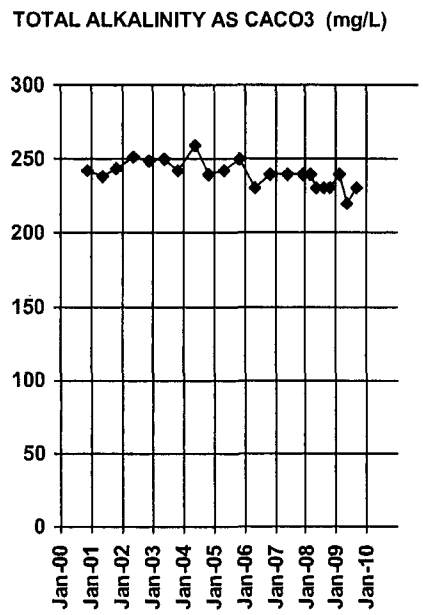
Data Source

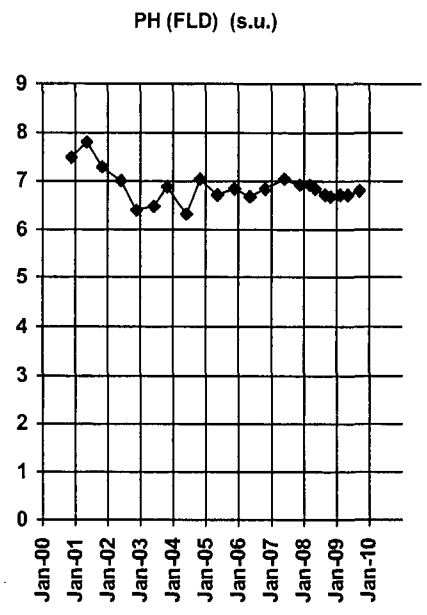
ASARCO, East Helena Plant

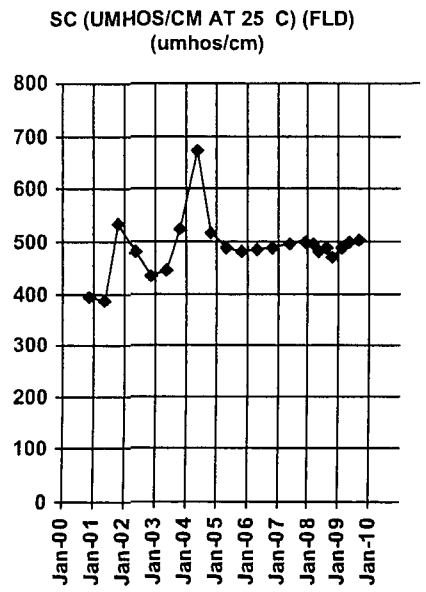
Graph Date Range

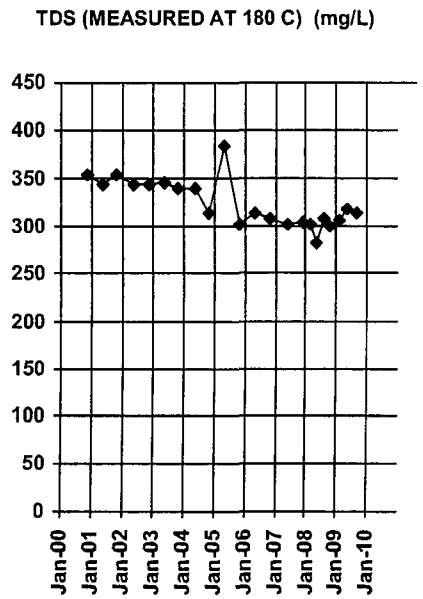
2000 - 2009

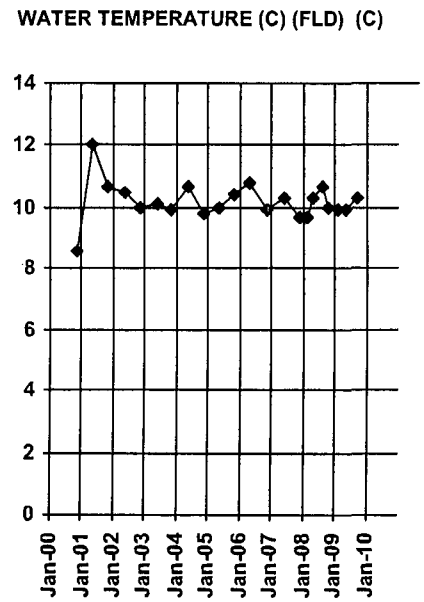












STATION

MW-2

Sampling Dates
11/16/00 - 09/16/09

September 2009 Groundwater Monitoring Results

Asarco East Helena CAMU Wells

Legend

Parameter (Units)

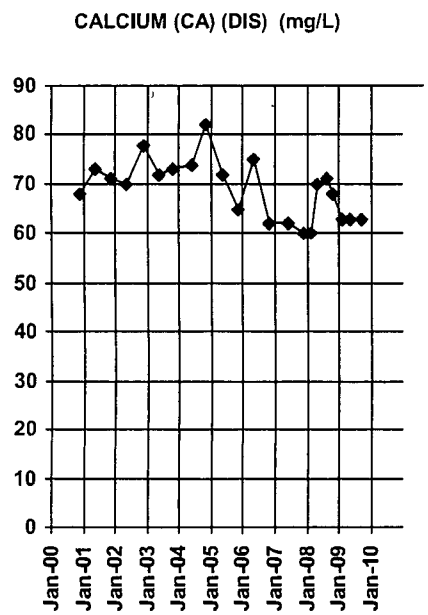
Date Sampled

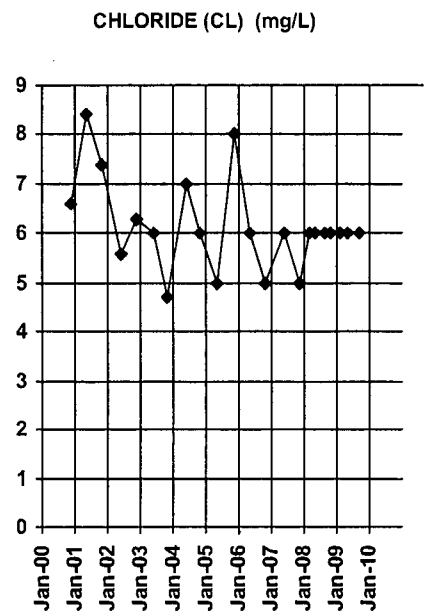
Data Source

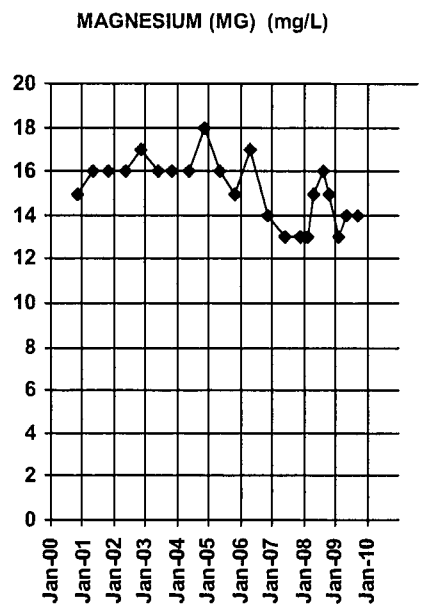
ASARCO, East Helena Plant

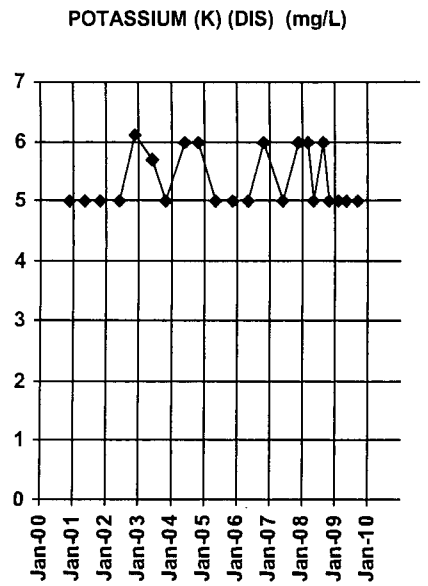
Graph Date Range

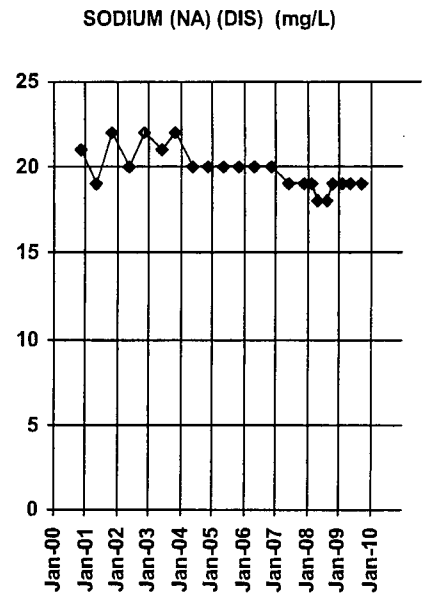
2000 - 2009

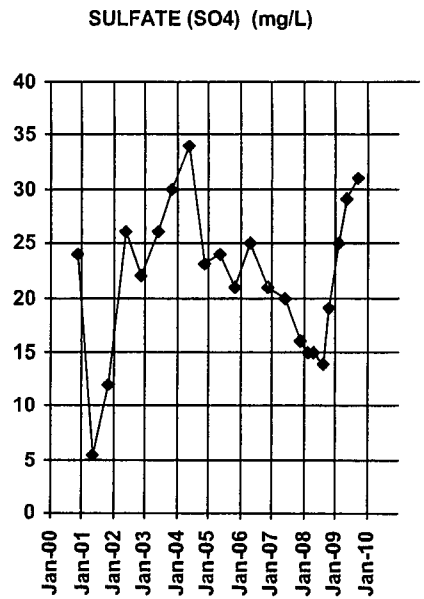












STATION

MW-2

Sampling Dates
11/16/00 - 09/16/09

September 2009 Groundwater Monitoring Results

Asarco East Helena CAMU Wells

Legend

Parameter (Units)

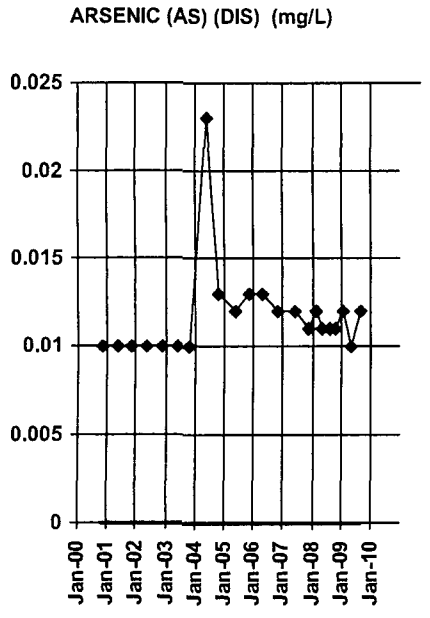
Date Sampled

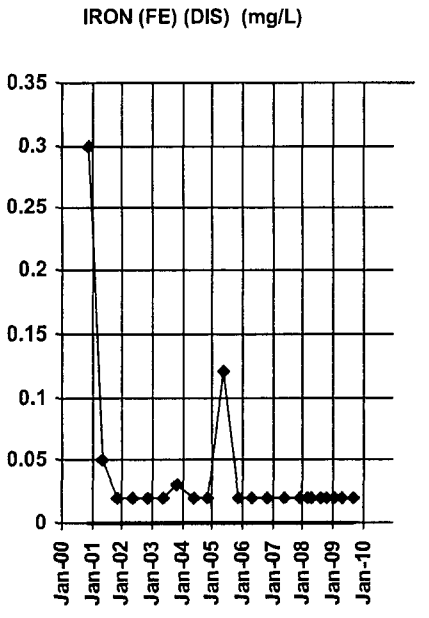
Data Source

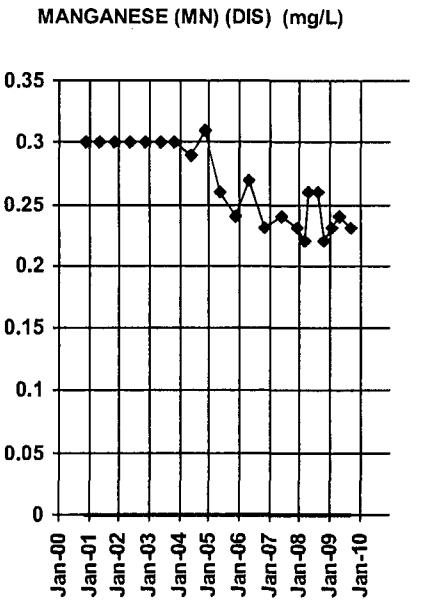
ASARCO, East Helena Plant

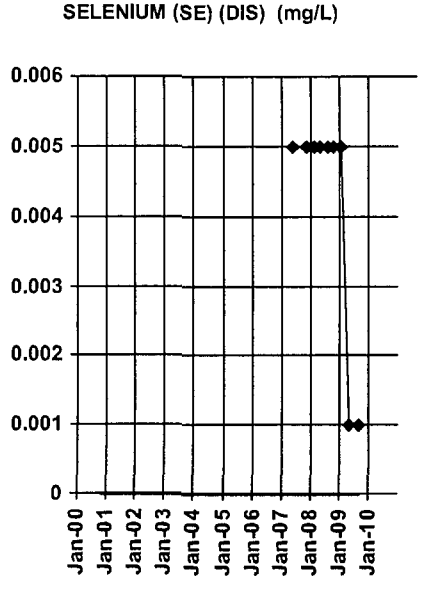
Graph Date Range

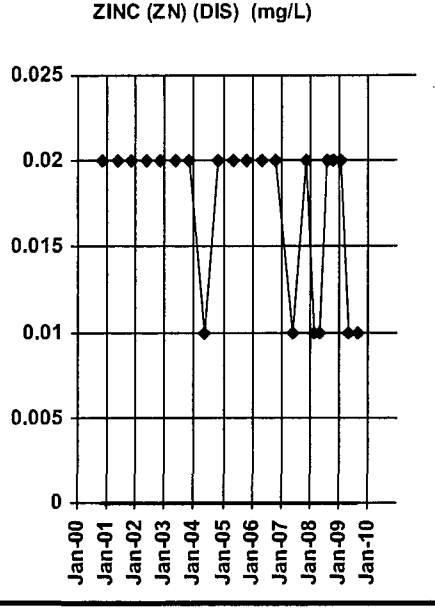
2000 - 2009











STATION

MW-2

Sampling Dates
11/16/00 - 09/16/09

September 2009 Groundwater Monitoring Results

Asarco East Helena CAMU Wells

Legend

Parameter (Units)

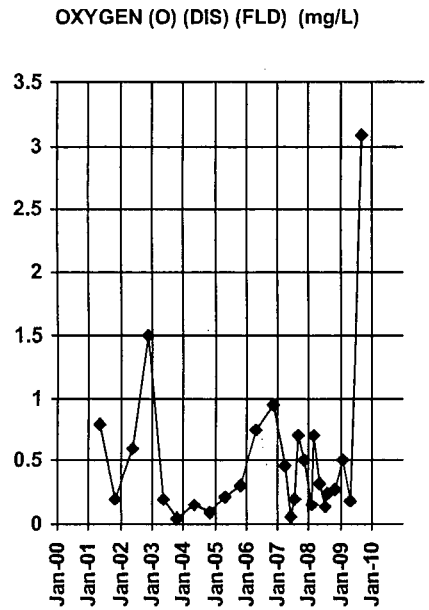
Date Sampled

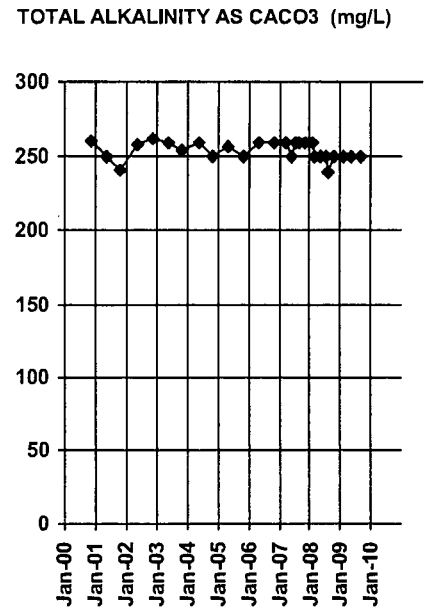
Data Source

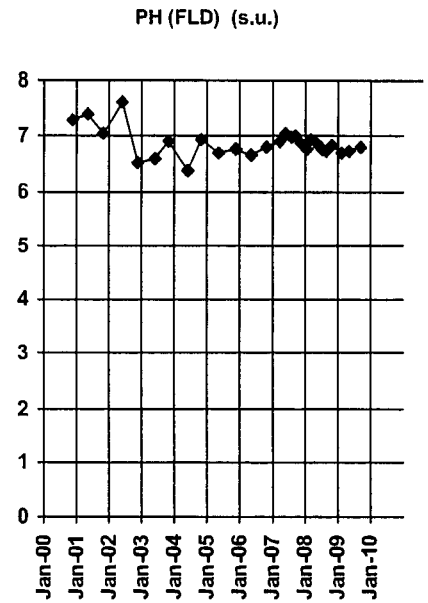
ASARCO, East Helena Plant

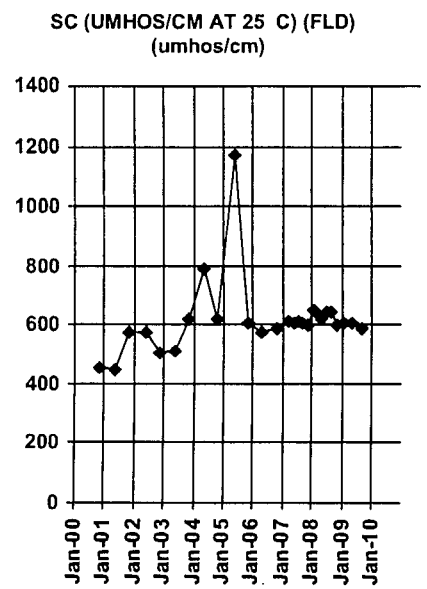
Graph Date Range

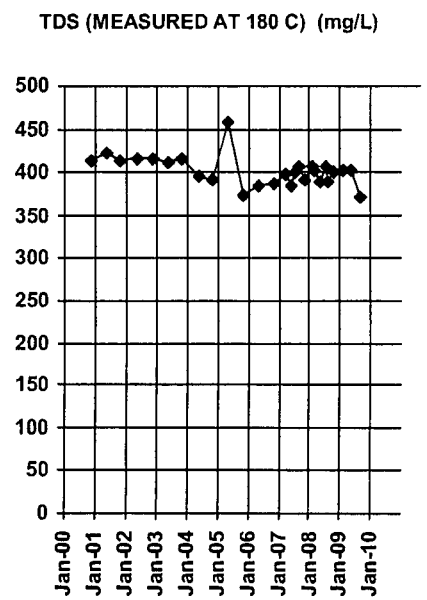
2000 - 2009

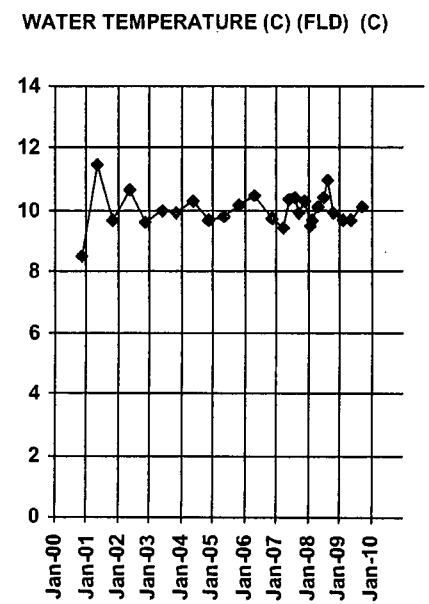












STATION

MW-3

Sampling Dates
11/16/00 - 09/16/09

September 2009 Groundwater Monitoring Results

Asarco East Helena CAMU Wells

Legend

Parameter (Units)

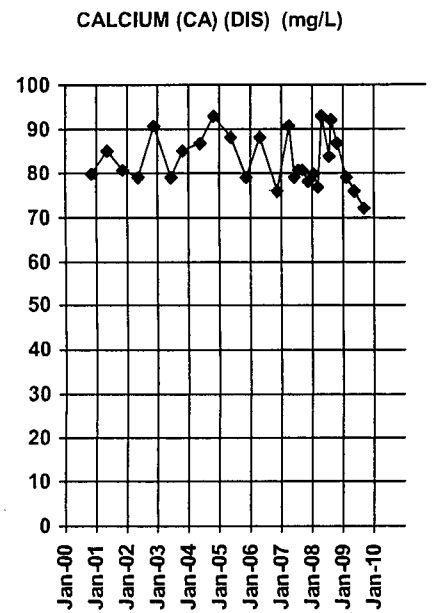
Date Sampled

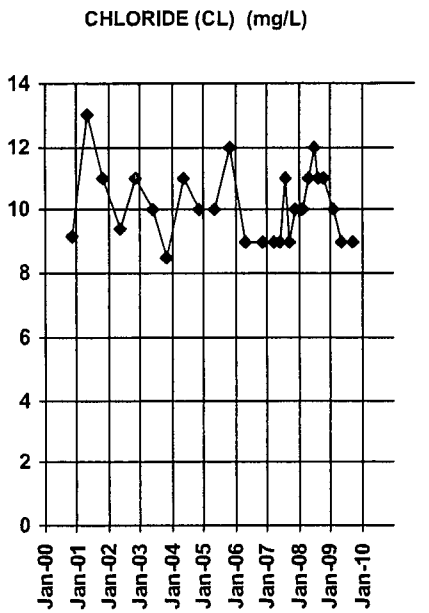
Data Source

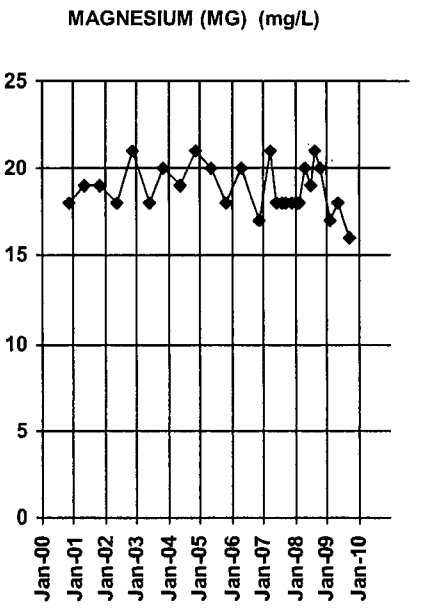
ASARCO, East Helena Plant

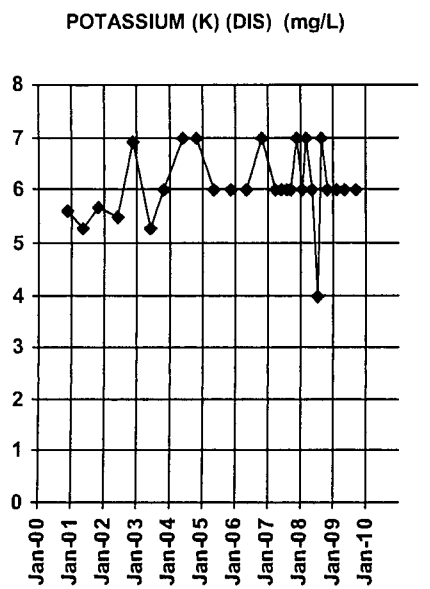
Graph Date Range

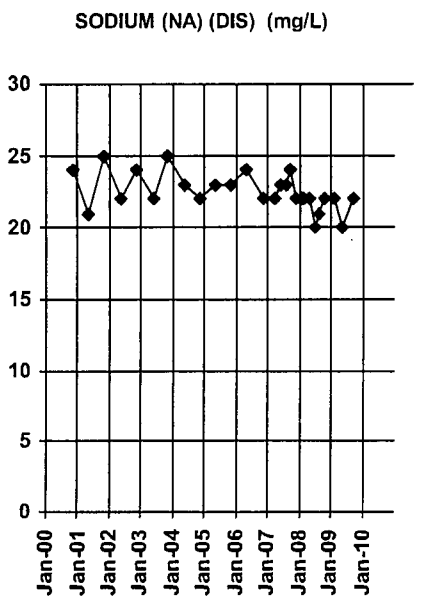
2000 - 2009

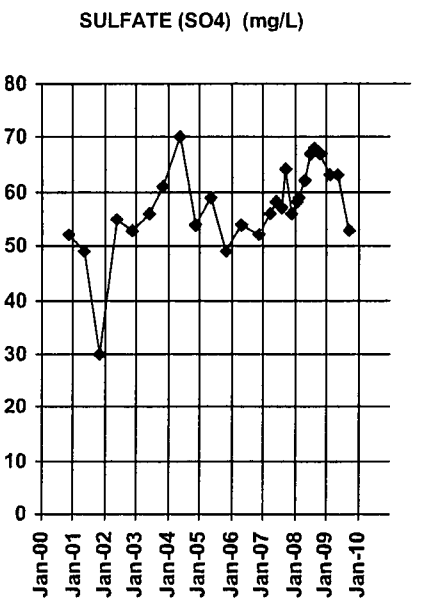












STATION

MW-3

Sampling Dates
11/16/00 - 09/16/09

September 2009 Groundwater Monitoring Results

Asarco East Helena CAMU Wells

Legend

Parameter (Units)

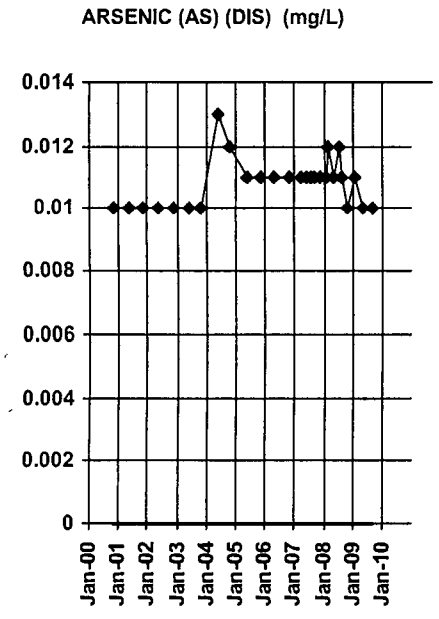
Date Sampled

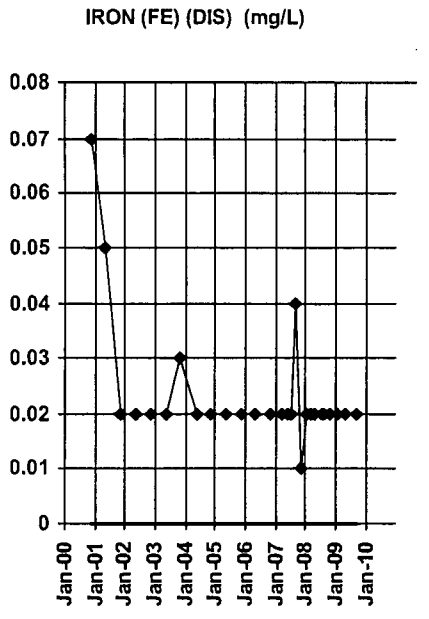
Data Source

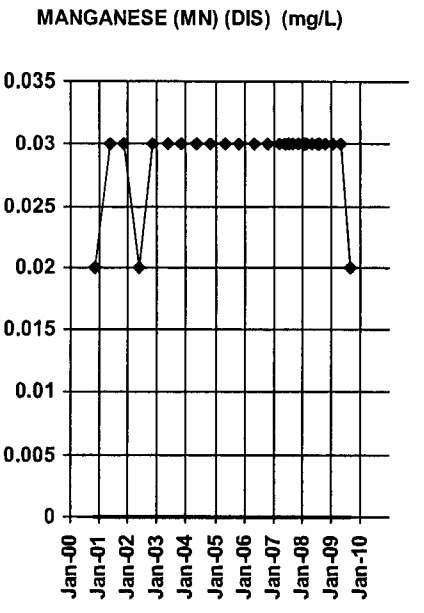
ASARCO, East Helena Plant

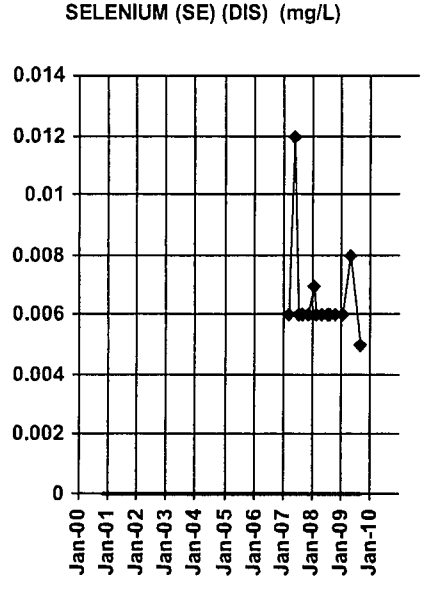
Graph Date Range

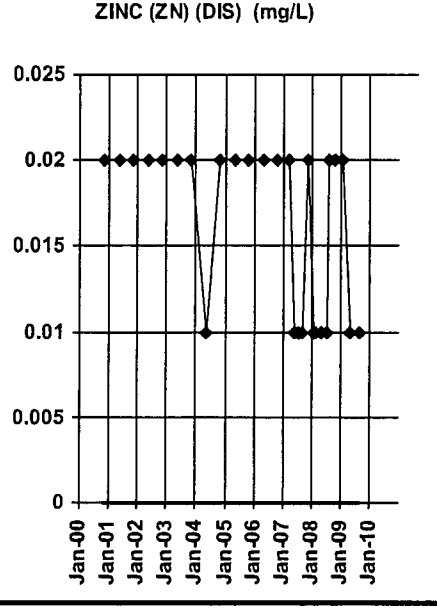
2000 - 2009











STATION

MW-3

Sampling Dates
11/16/00 - 09/16/09

September 2009 Groundwater Monitoring Results

Asarco East Helena CAMU Wells

Legend

Parameter (Units)

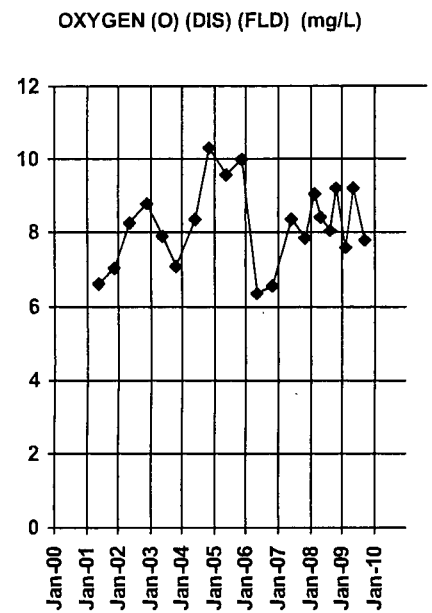
Date Sampled

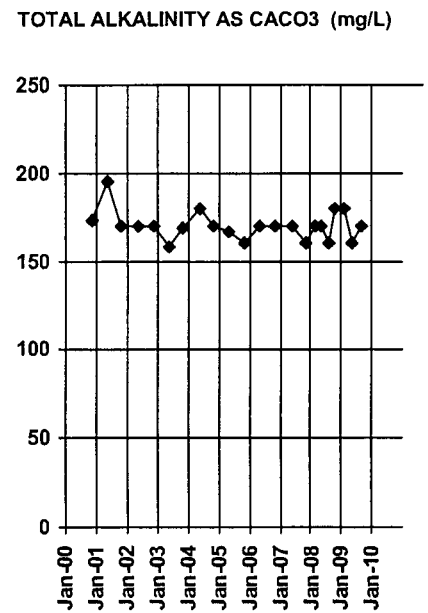
Data Source

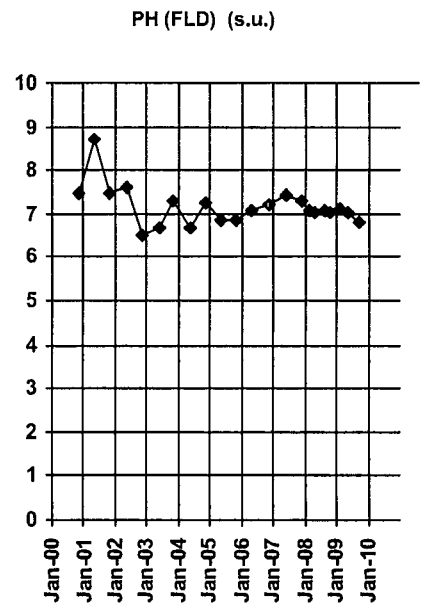
ASARCO, East Helena Plant

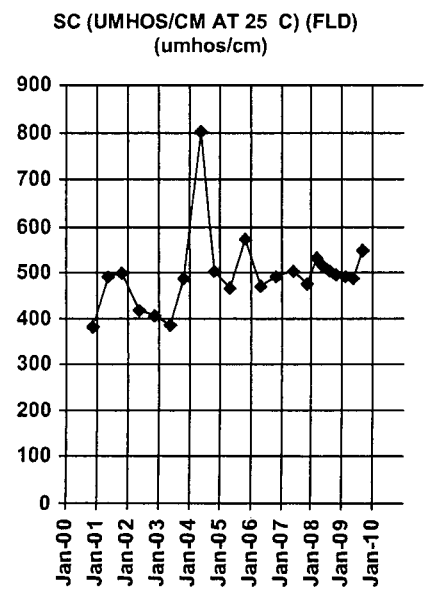
Graph Date Range

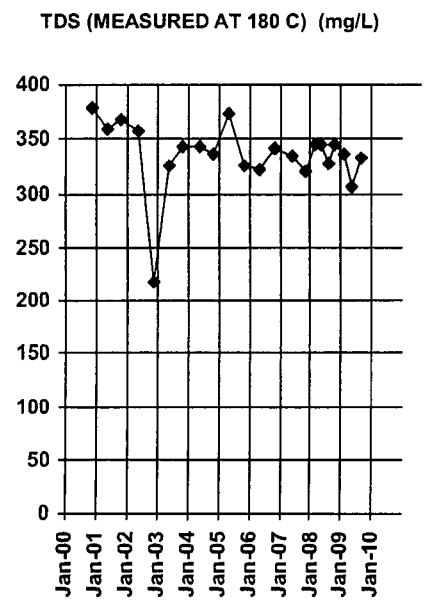
2000 - 2009

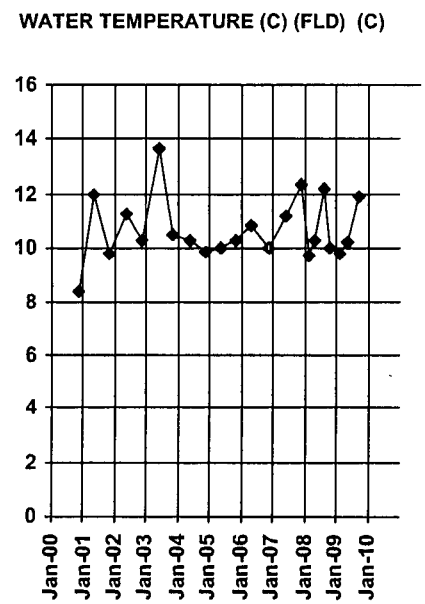












STATION

MW-4

Sampling Dates
11/16/00 - 09/16/09

September 2009 Groundwater Monitoring Results

Asarco East Helena CAMU Wells

Legend

Parameter (Units)

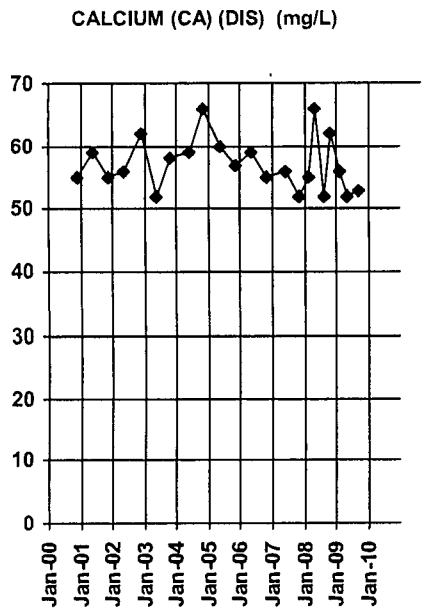
Date Sampled

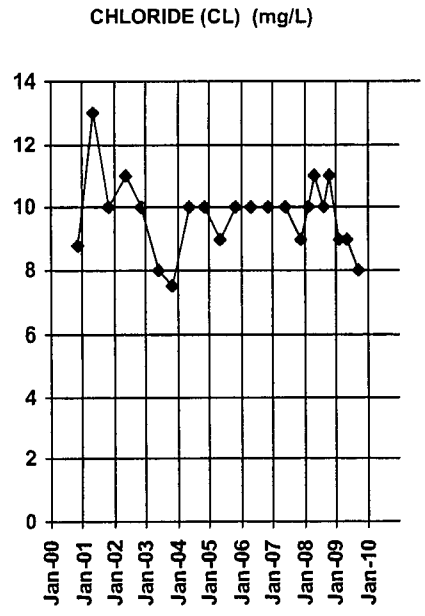
Data Source

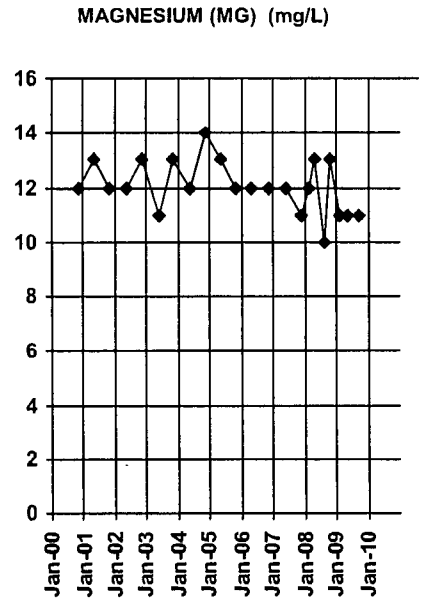
ASARCO, East Helena Plant

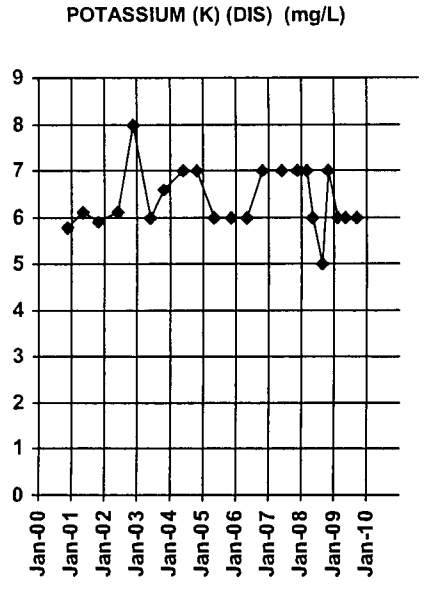
Graph Date Range

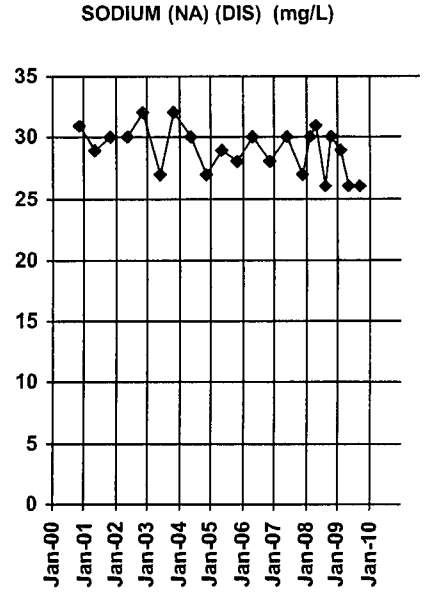
2000 - 2009

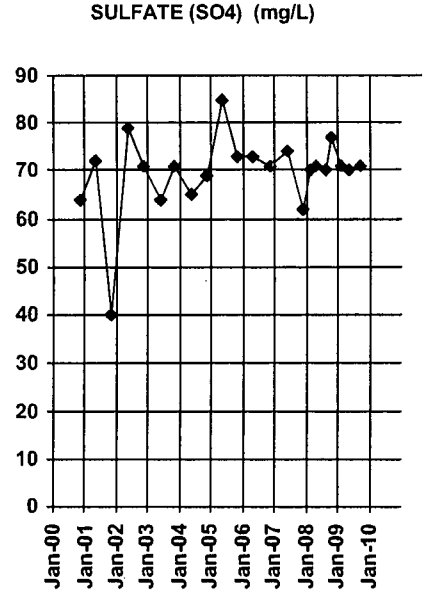












STATION

MW-4

Sampling Dates
11/16/00 - 09/16/09

September 2009 Groundwater Monitoring Results

Asarco East Helena CAMU Wells

Legend

Parameter (Units)

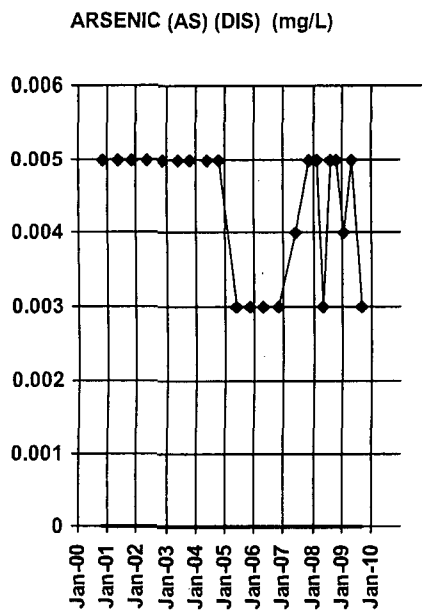
Date Sampled

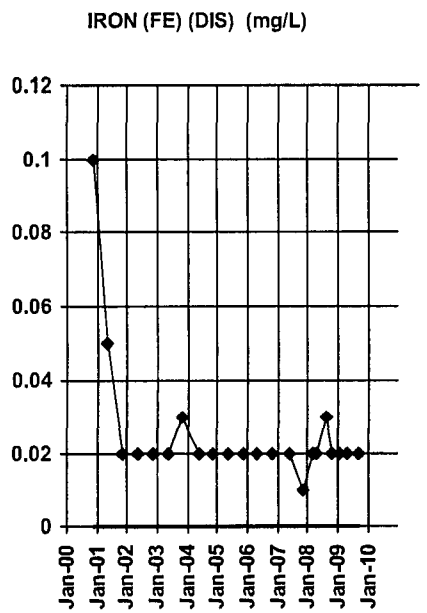
Data Source

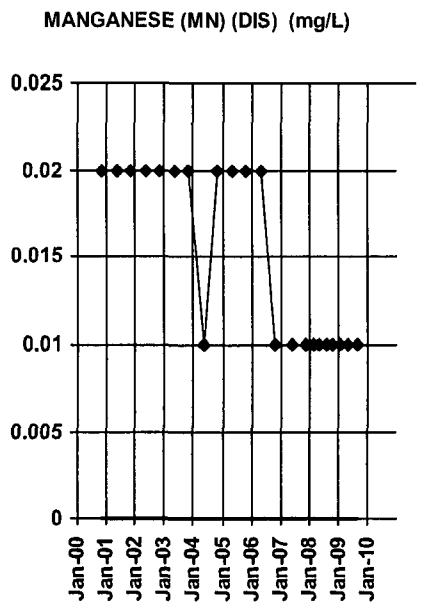
ASARCO, East Helena Plant

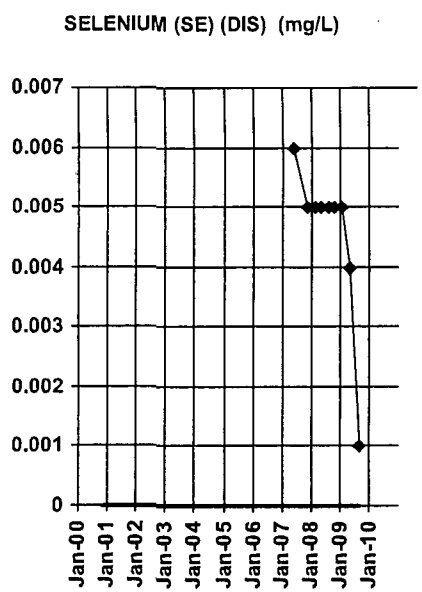
Graph Date Range

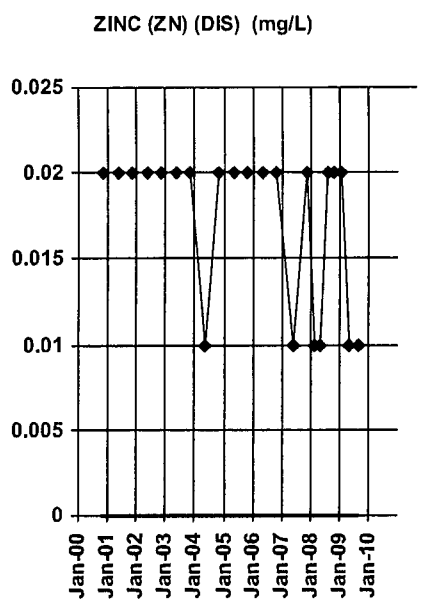
2000 - 2009











STATION

MW-4

Sampling Dates
11/16/00 - 09/16/09

September 2009 Groundwater Monitoring Results

Asarco East Helena CAMU Wells

Legend

Parameter (Units)

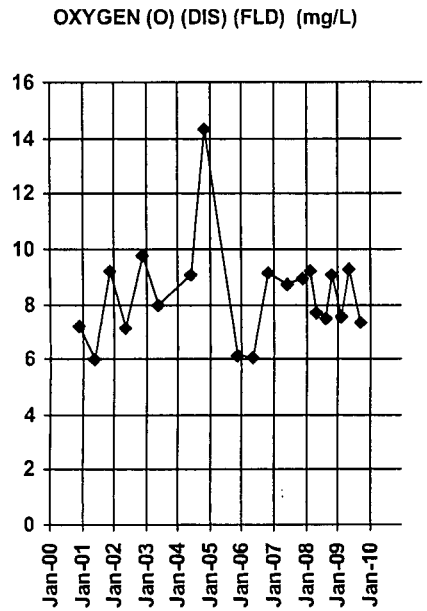
Date Sampled

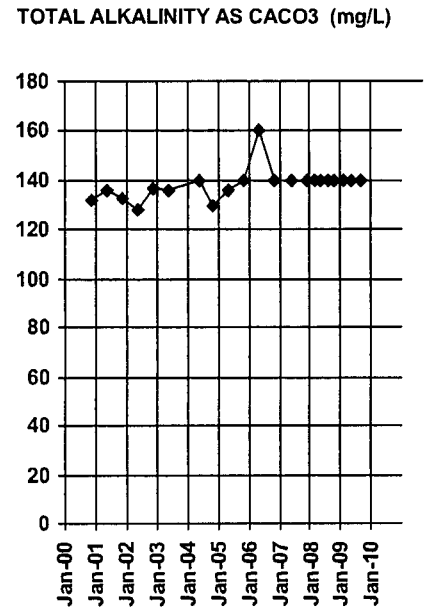
Data Source

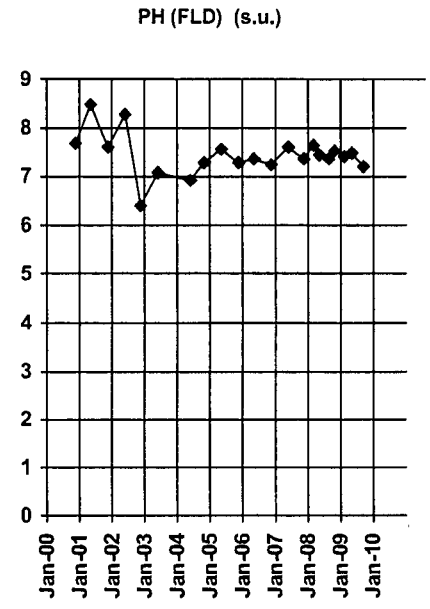
ASARCO, East Helena Plant

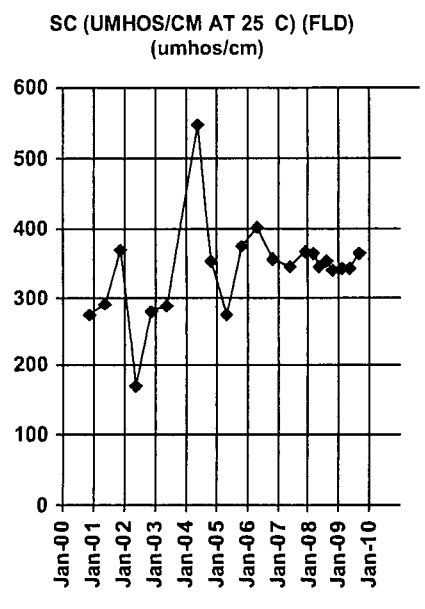
Graph Date Range

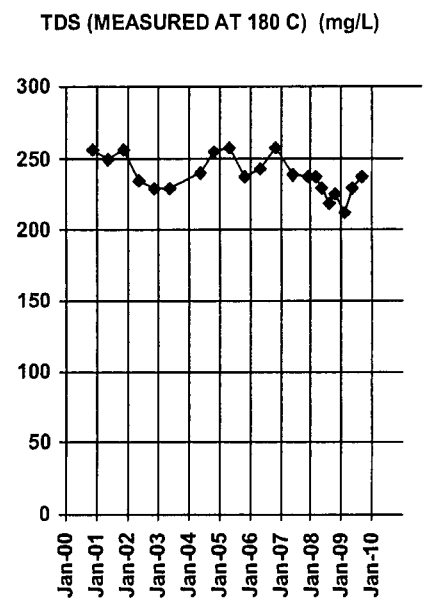
2000 - 2009

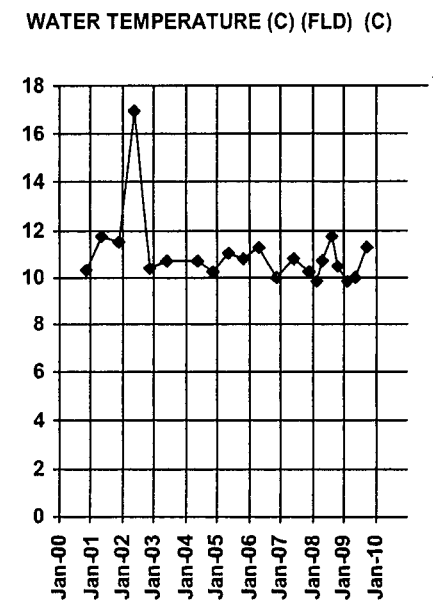












STATION

MW-5

Sampling Dates
11/17/00 - 09/16/09

September 2009 Groundwater Monitoring Results

Asarco East Helena CAMU Wells

Legend

Parameter (Units)

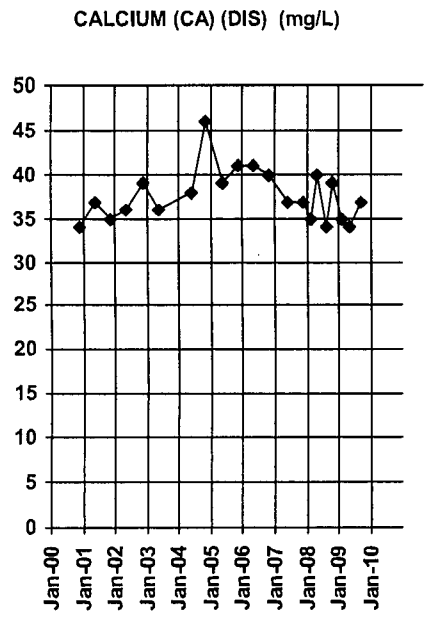
Date Sampled

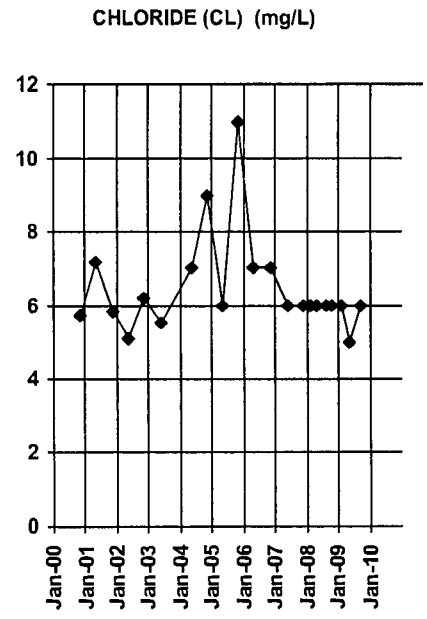
Data Source

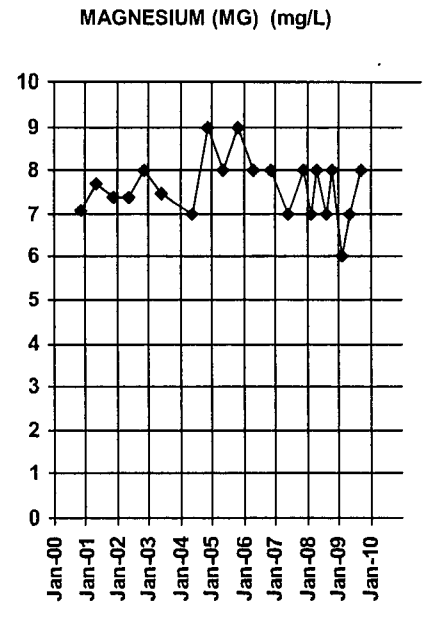
ASARCO, East Helena Plant

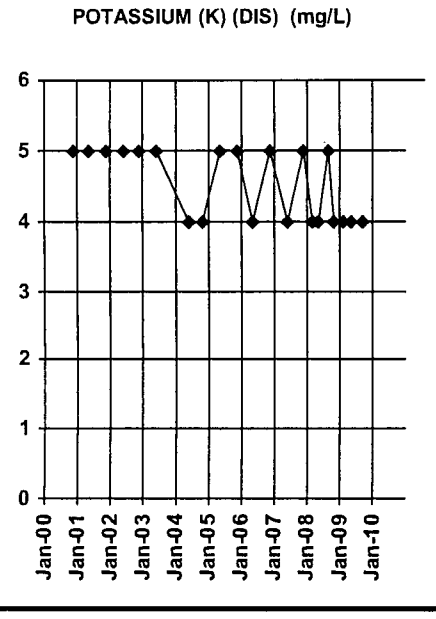
Graph Date Range

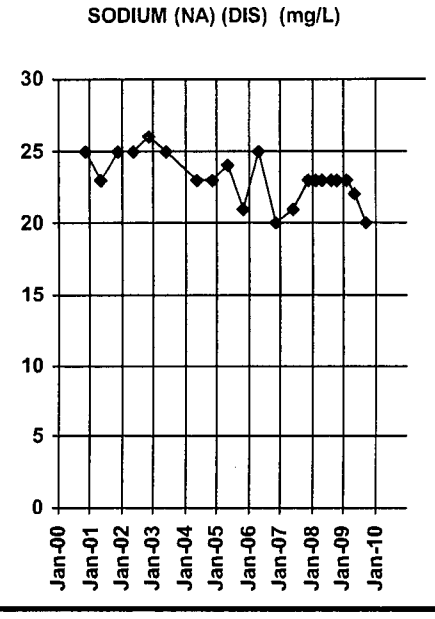
2000 - 2009

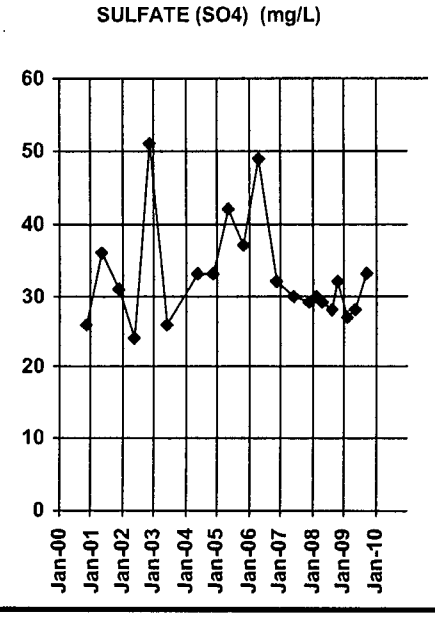












STATION

MW-5

Sampling Dates
11/17/00 - 09/16/09

September 2009 Groundwater Monitoring Results

Asarco East Helena CAMU Wells

Legend

Parameter (Units)

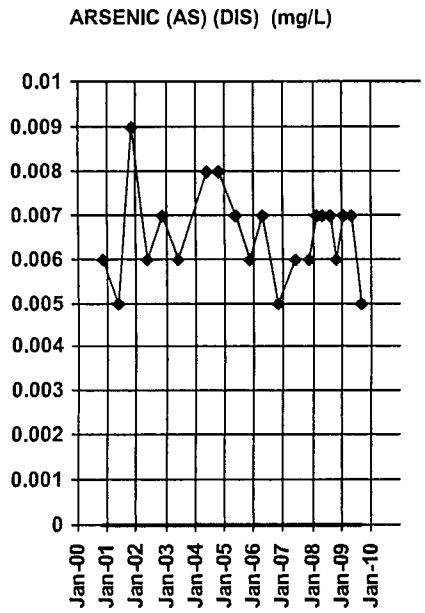
Date Sampled

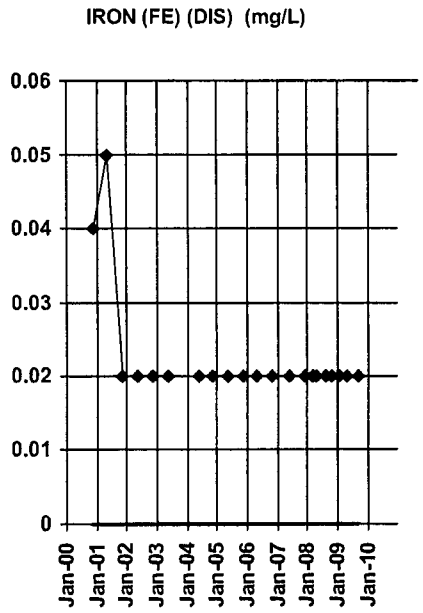
Data Source

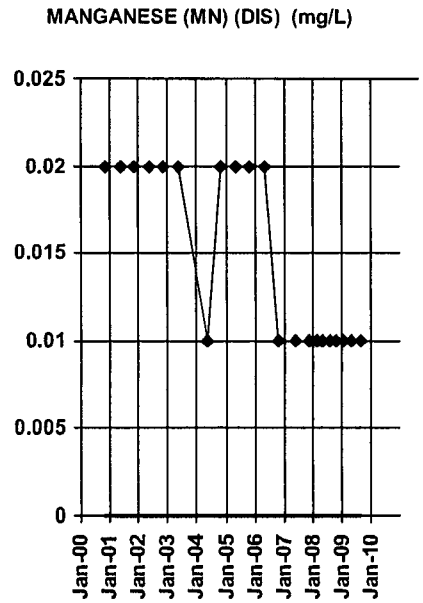
ASARCO, East Helena Plant

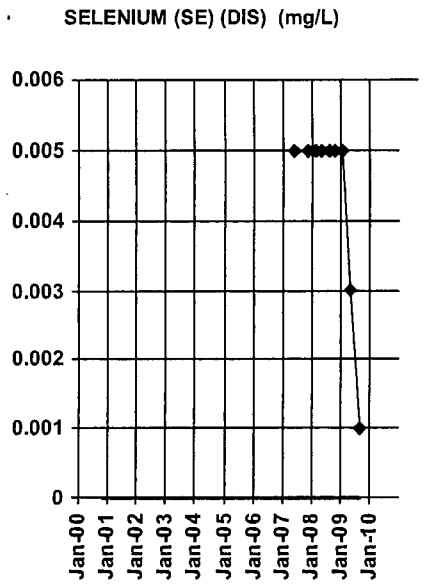
Graph Date Range

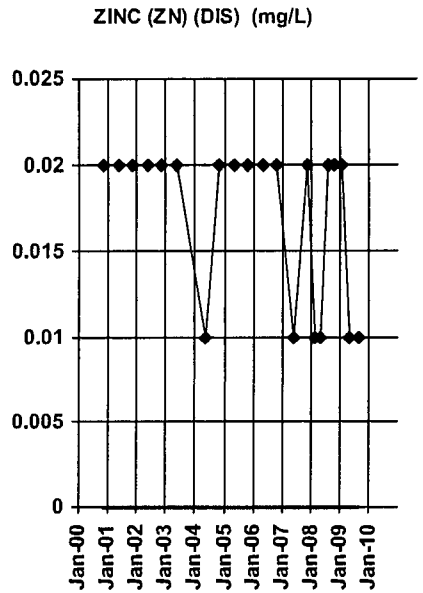
2000 - 2009











STATION

MW-5

Sampling Dates
11/17/00 - 09/16/09

September 2009 Groundwater Monitoring Results

Asarco East Helena CAMU Wells

Legend

Parameter (Units)

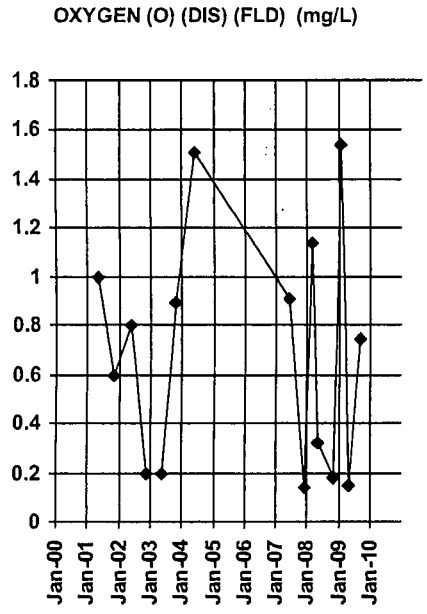
Date Sampled

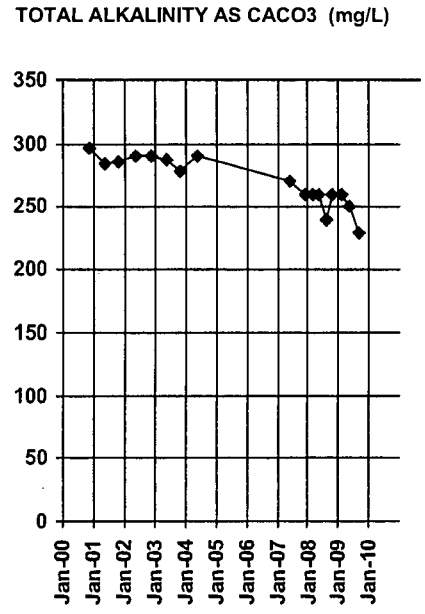
Data Source

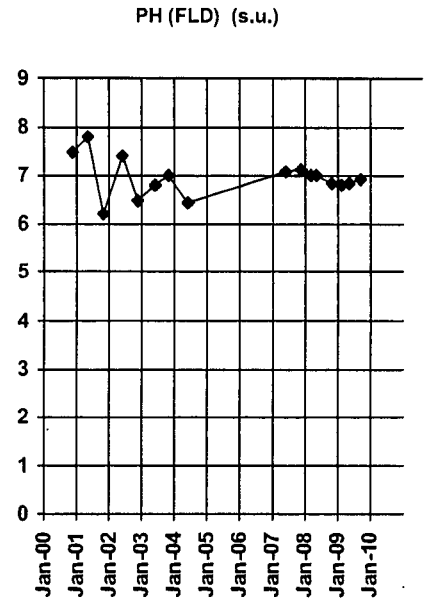
ASARCO, East Helena Plant

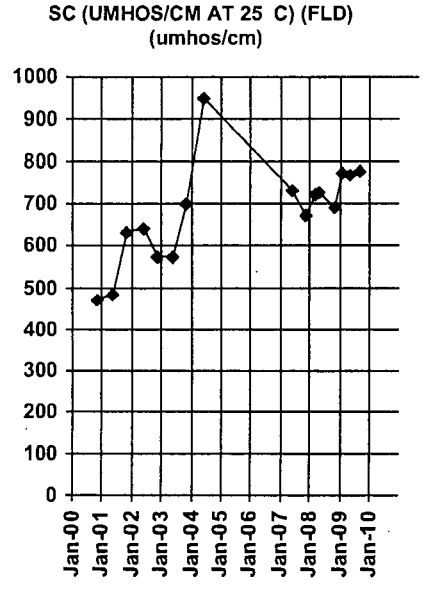
Graph Date Range

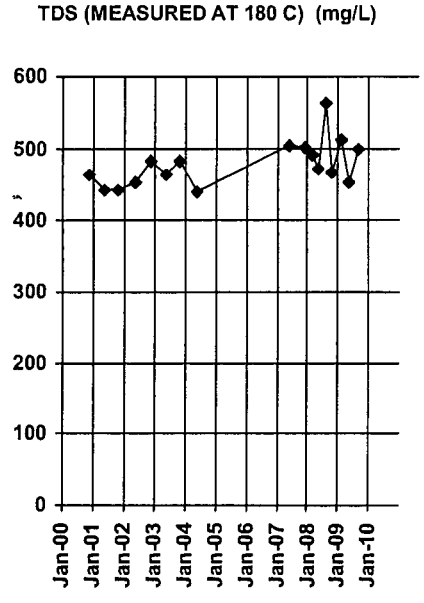
2000 - 2009

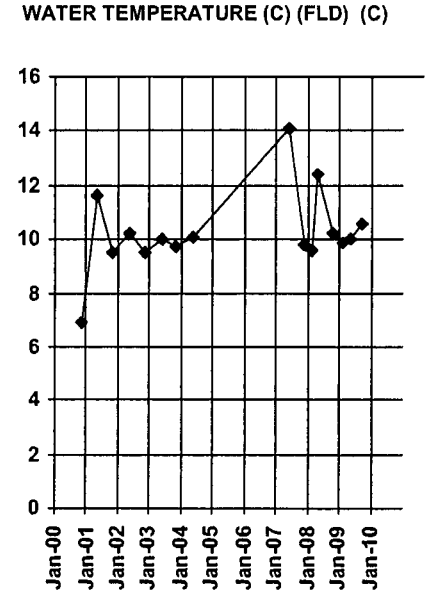












STATION

MW-6

Sampling Dates
11/16/00 - 09/16/09

September 2009 Groundwater Monitoring Results

Asarco East Helena CAMU Wells

Legend

Parameter (Units)

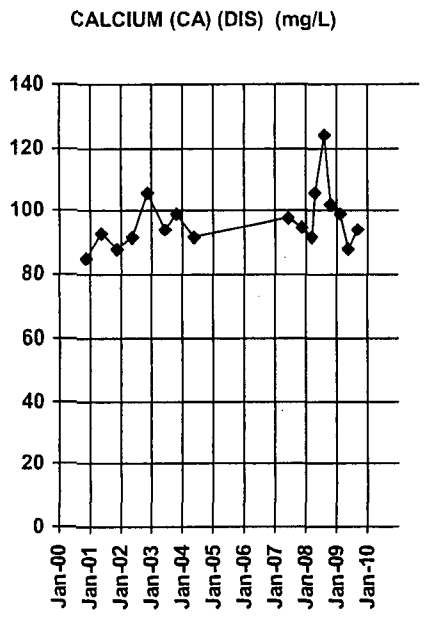
Date Sampled

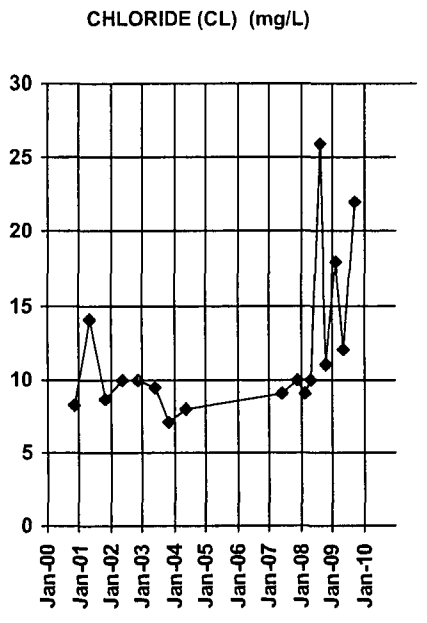
Data Source

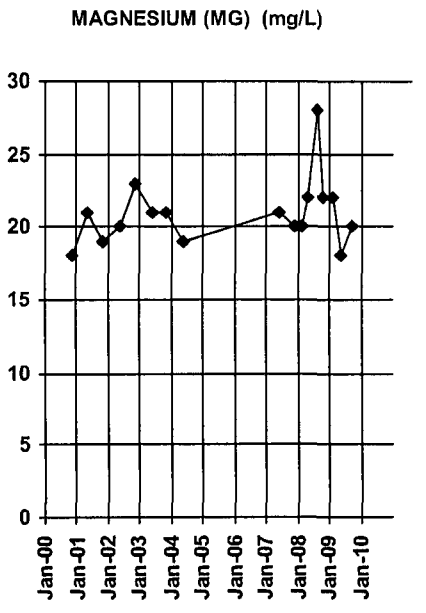
ASARCO, East Helena Plant

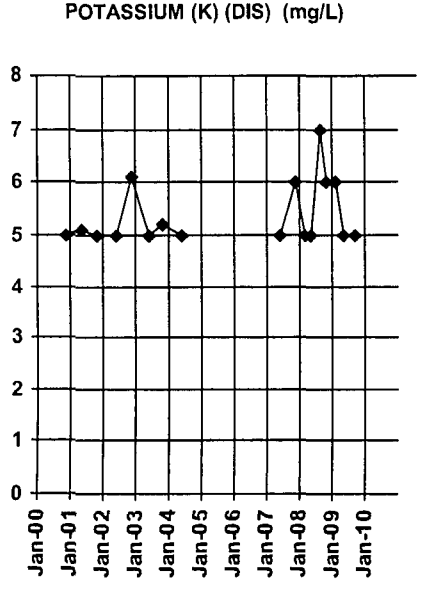
Graph Date Range

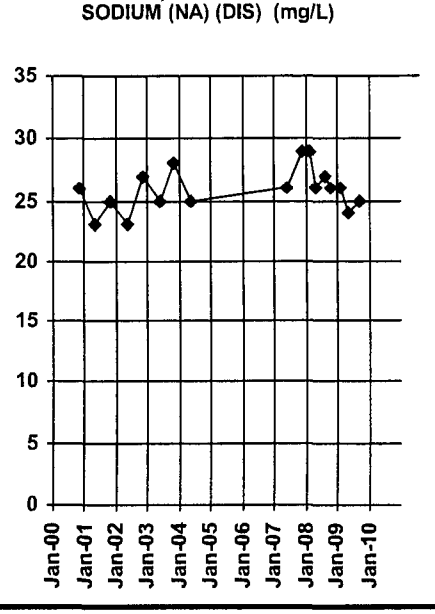
2000 - 2009

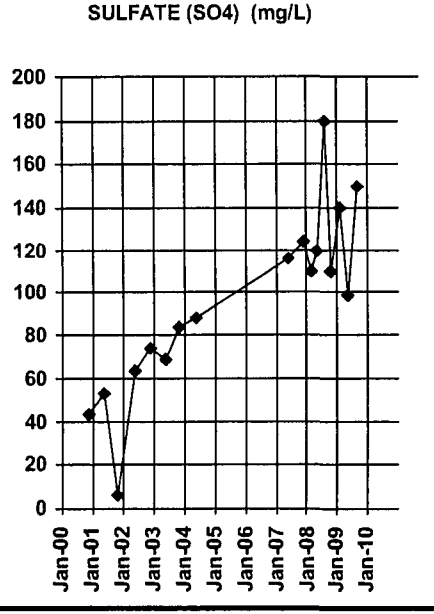












STATION

MW-6

Sampling Dates
11/16/00 - 09/16/09

September 2009 Groundwater Monitoring Results

Asarco East Helena CAMU Wells

Legend

Parameter (Units)

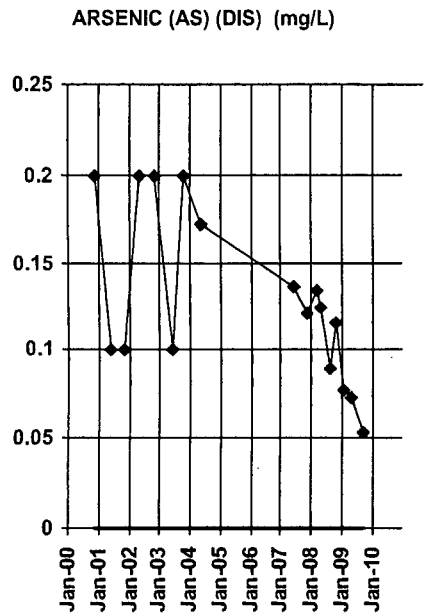
Date Sampled

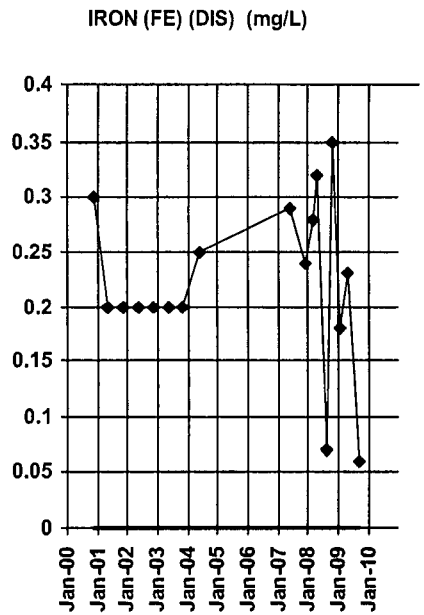
Data Source

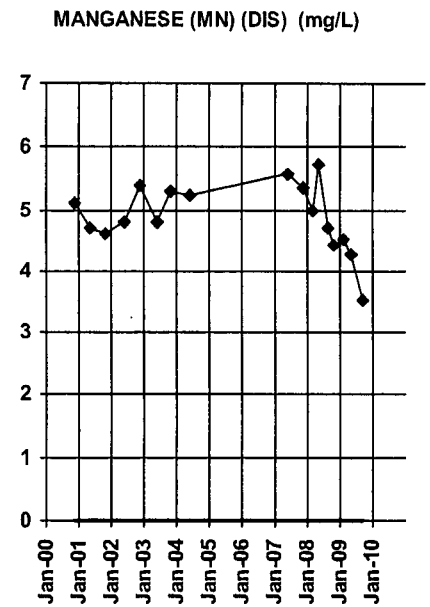
ASARCO, East Helena Plant

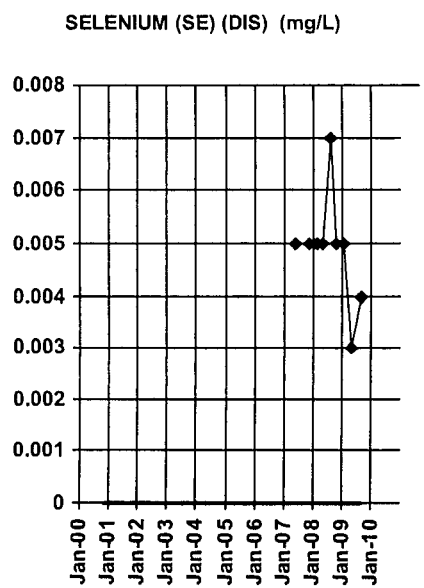
Graph Date Range

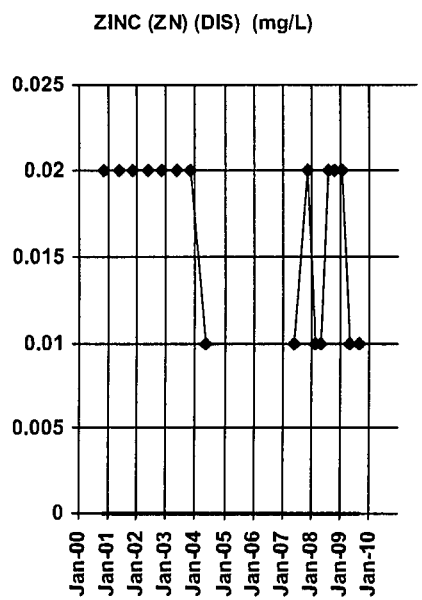
2000 - 2009











STATION

MW-6

Sampling Dates
11/16/00 - 09/16/09

September 2009 Groundwater Monitoring Results

Asarco East Helena CAMU Wells

Legend

Parameter (Units)

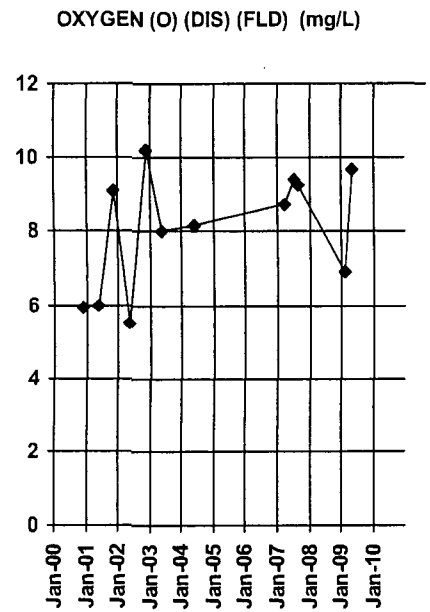
Date Sampled

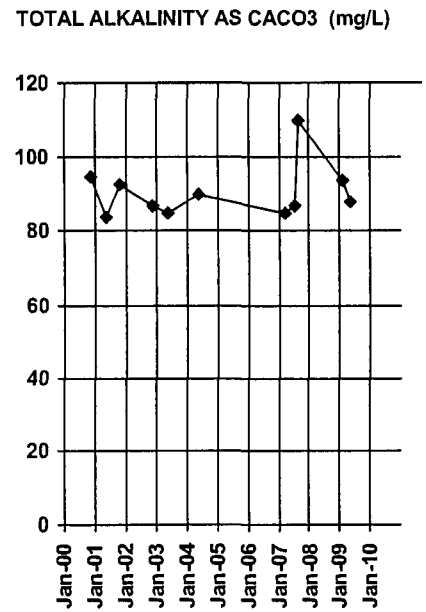
Data Source

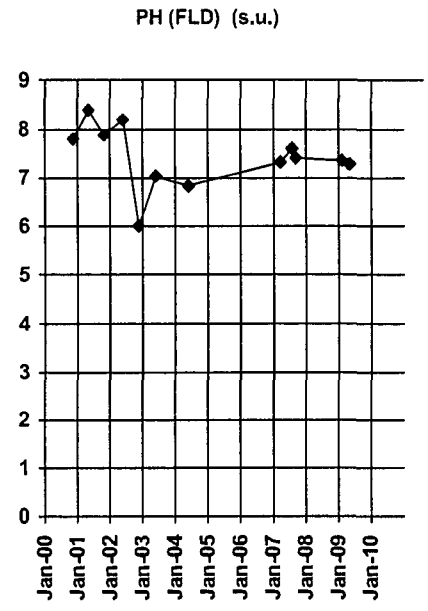
ASARCO, East Helena Plant

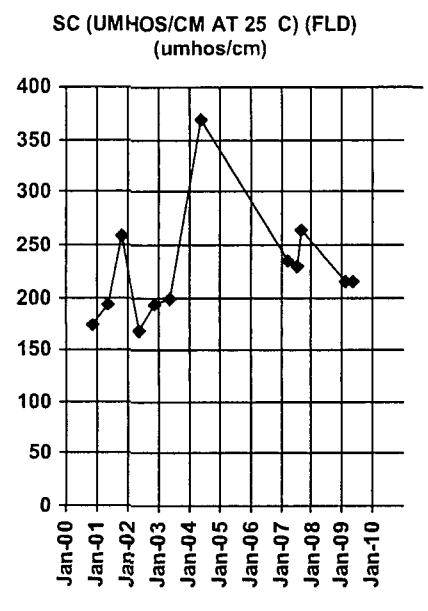
Graph Date Range

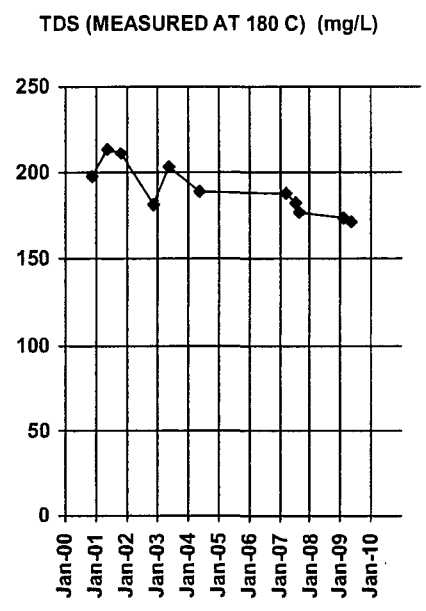
2000 - 2009

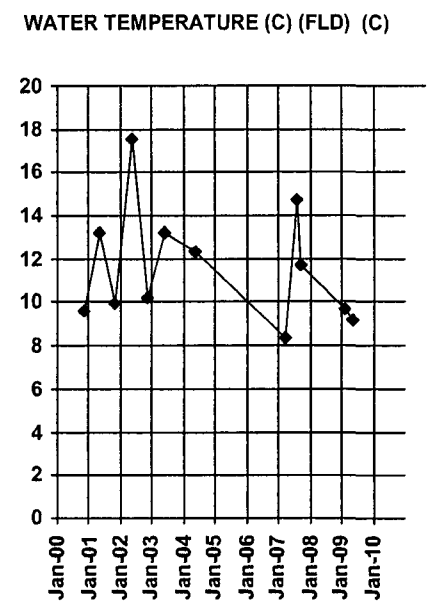












STATION

MW-7

Sampling Dates
11/17/00 - 05/08/09

September 2009 Groundwater Monitoring Results

Asarco East Helena CAMU Wells

Legend

Parameter (Units)

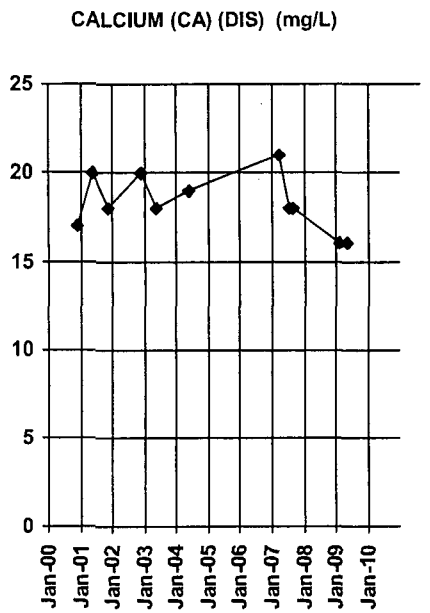
Date Sampled

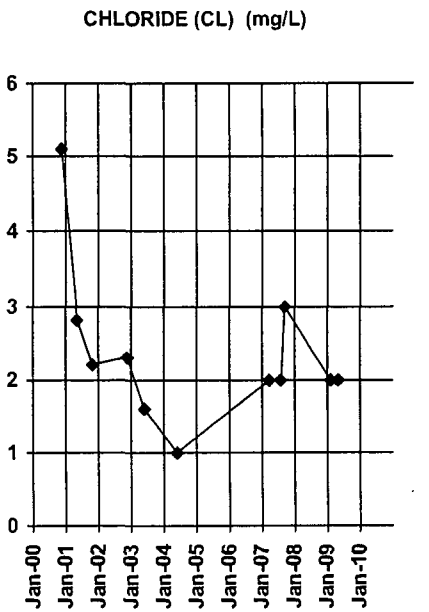
Data Source

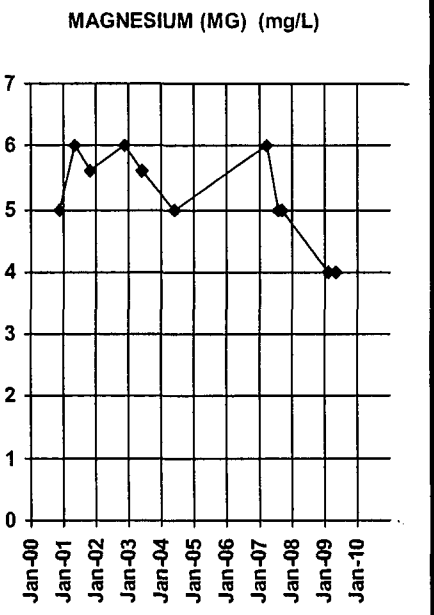
ASARCO, East Helena Plant

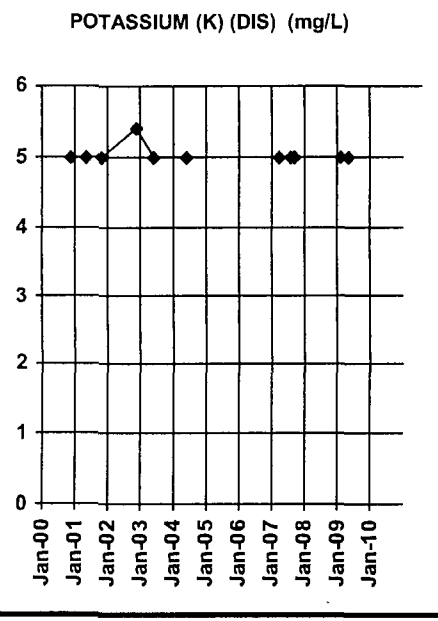
Graph Date Range

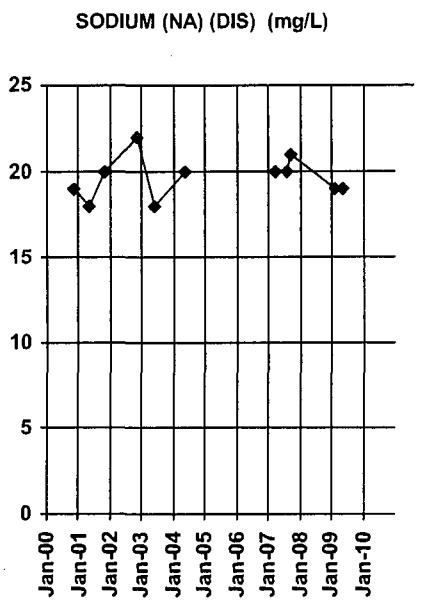
2000 - 2009

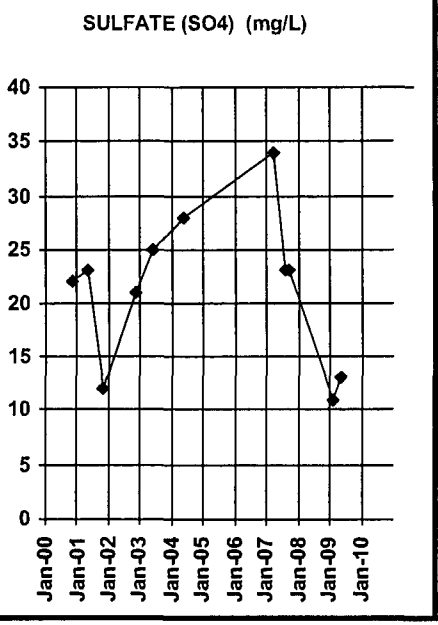












STATION

MW-7

Sampling Dates
11/17/00 - 05/08/09

September 2009 Groundwater Monitoring Results

Asarco East Helena CAMU Wells

Legend

Parameter (Units)

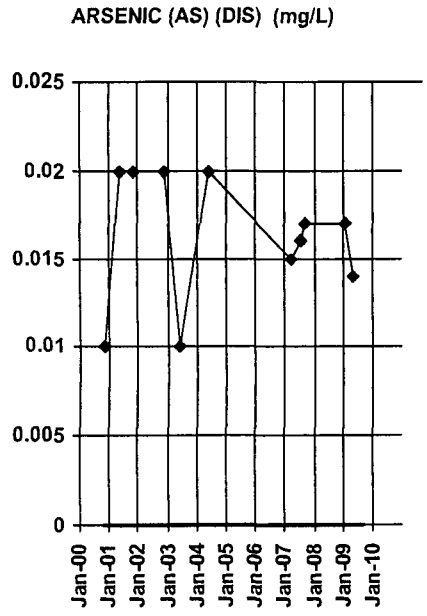
Date Sampled

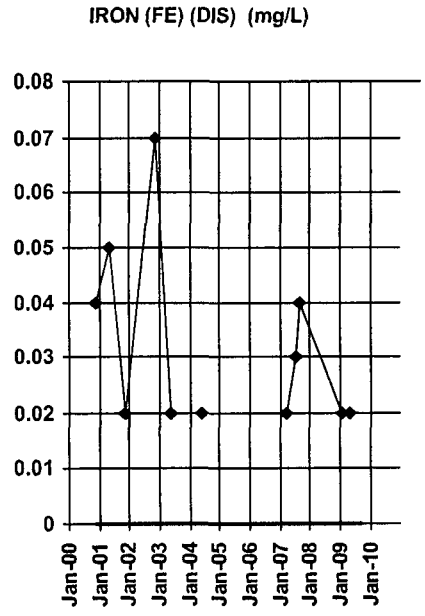
Data Source

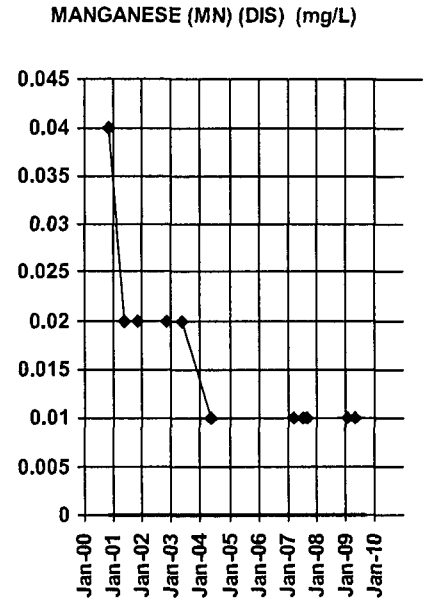
ASARCO, East Helena Plant

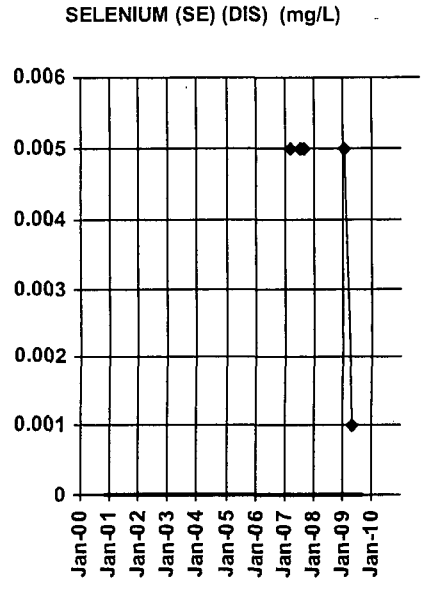
Graph Date Range

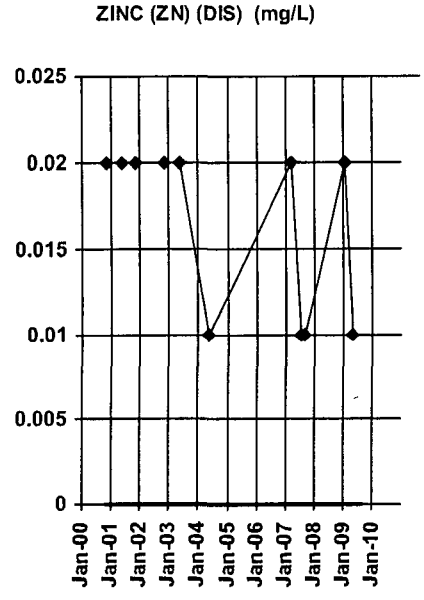
2000 - 2009











STATION

MW-7

Sampling Dates
11/17/00 - 05/08/09

September 2009 Groundwater Monitoring Results

Asarco East Helena CAMU Wells

Legend

Parameter (Units)

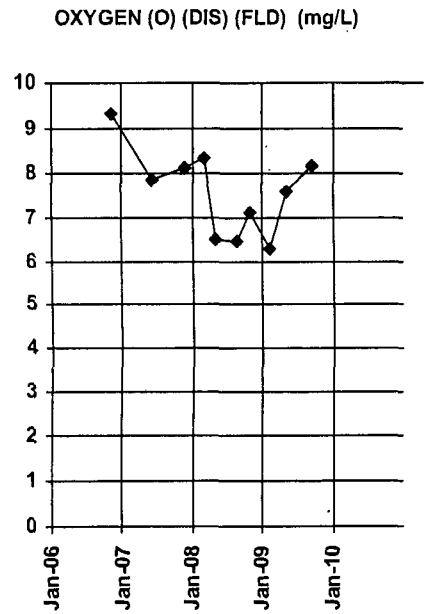
Date Sampled

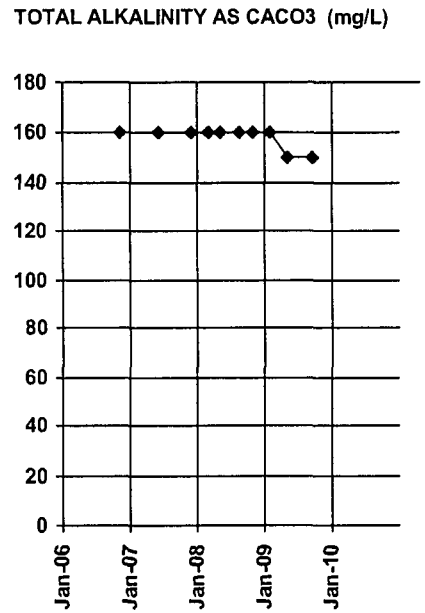
Data Source

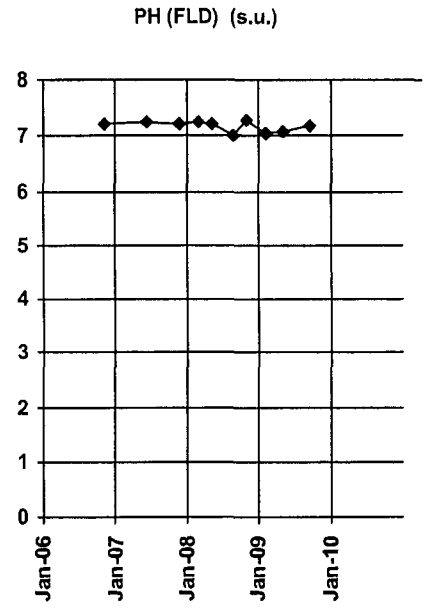
ASARCO, East Helena Plant

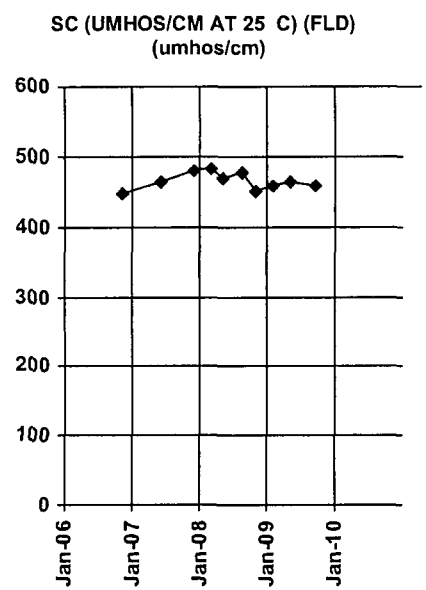
Graph Date Range

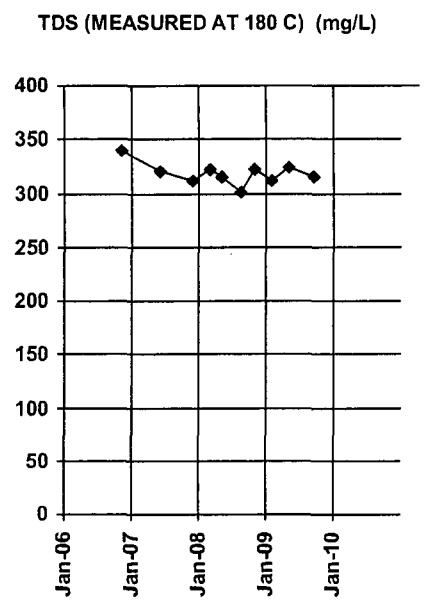
2000 - 2009

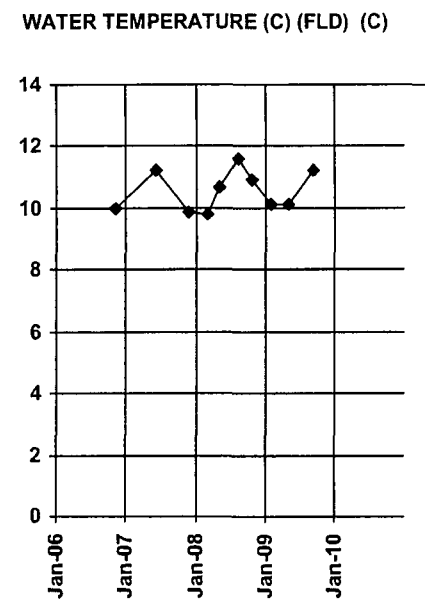












STATION

MW-8

Sampling Dates
11/09/06 - 09/16/09

September 2009 Groundwater Monitoring Results

Asarco East Helena CAMU Wells

Legend

Parameter (Units)

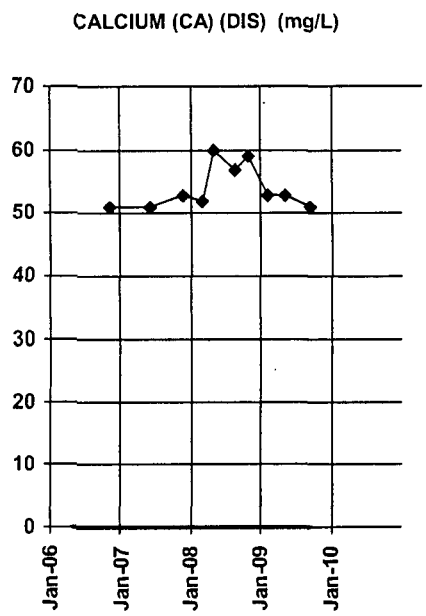
Date Sampled

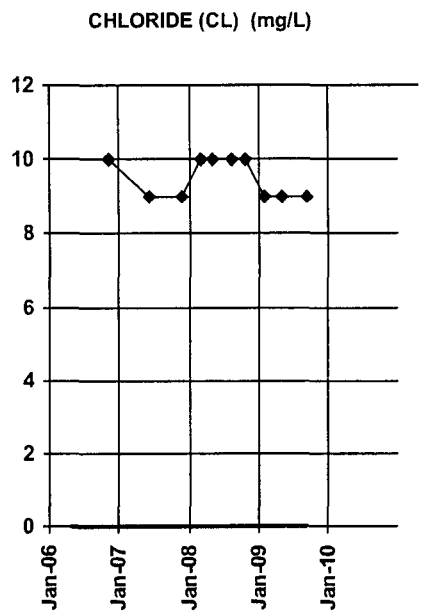
Data Source

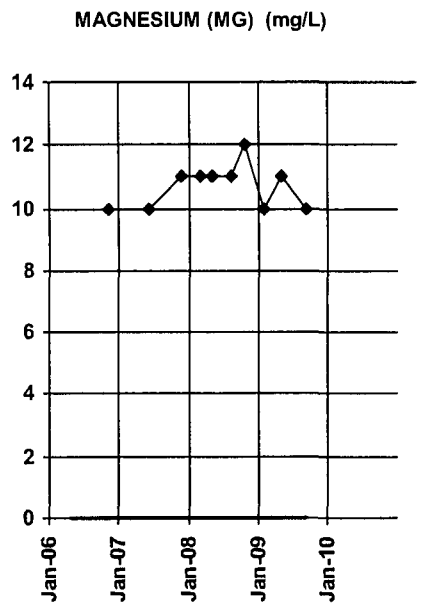
ASARCO, East Helena Plant

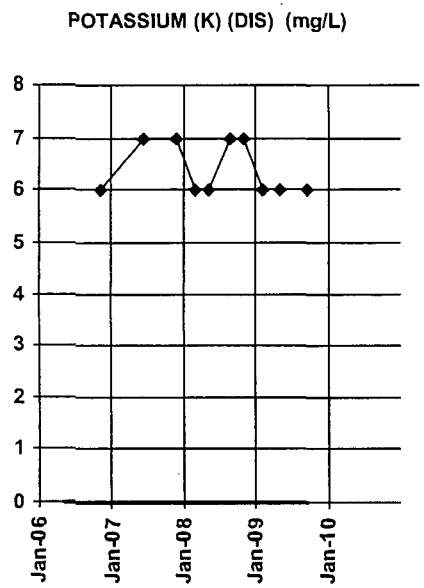
Graph Date Range

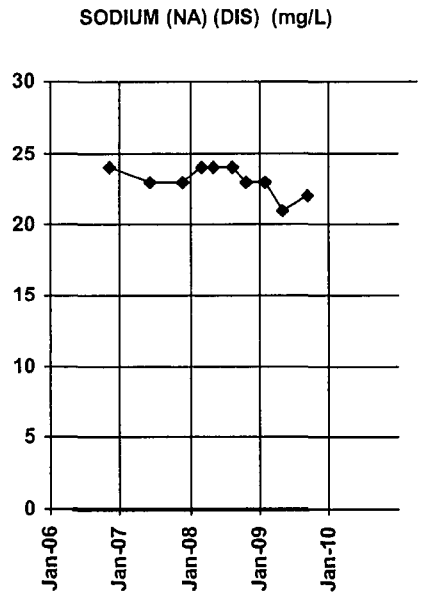
2006 - 2009

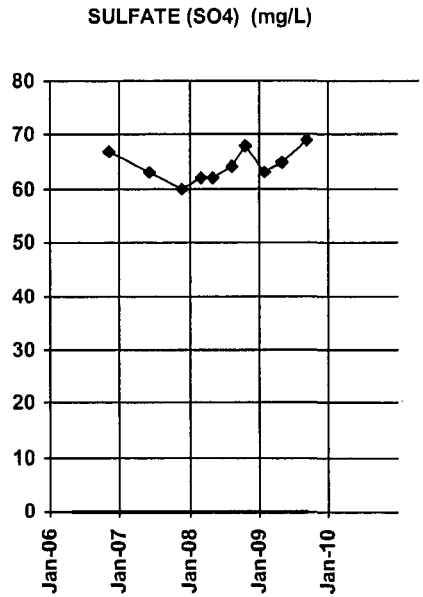












STATION

MW-8

Sampling Dates
11/09/06 - 09/16/09

September 2009 Groundwater Monitoring Results

Asarco East Helena CAMU Wells

Legend

Parameter (Units)

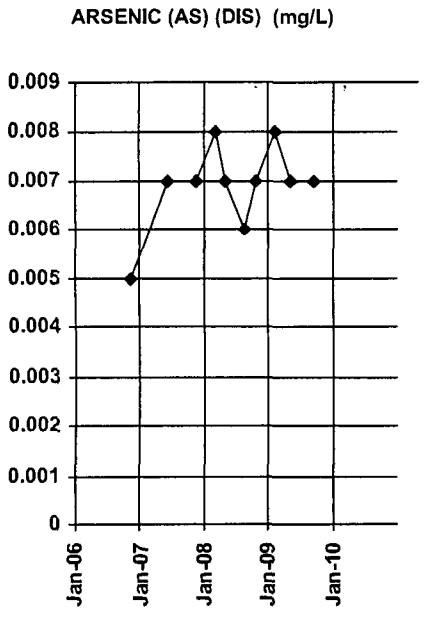
Date Sampled

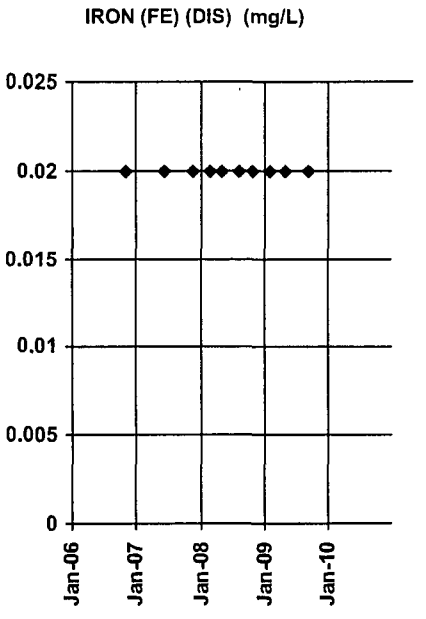
Data Source

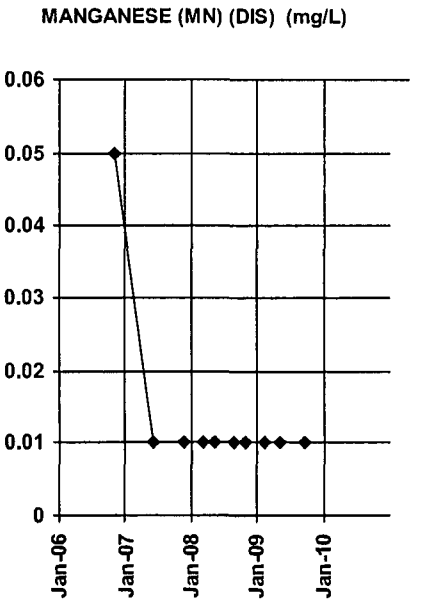
ASARCO, East Helena Plant

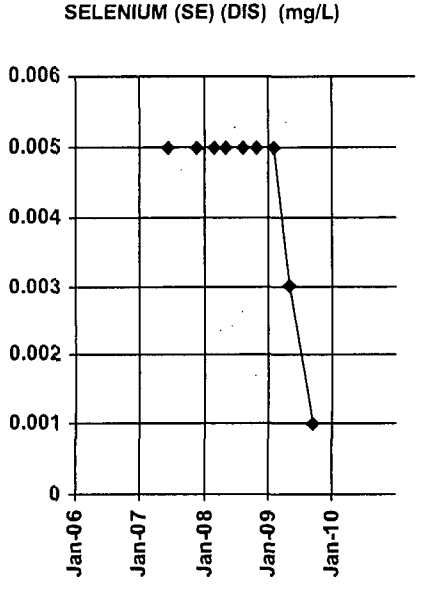
Graph Date Range

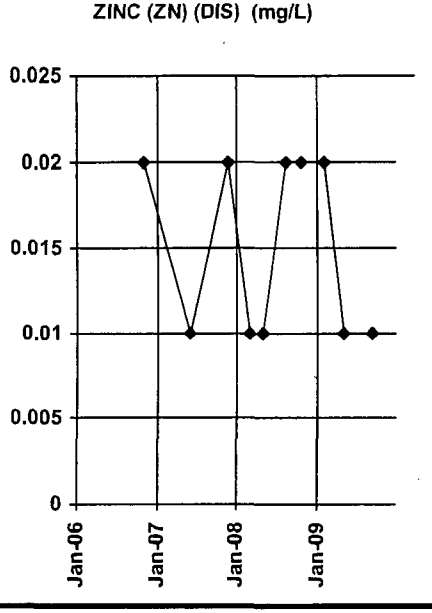
2006 - 2009











STATION

MW-8

Sampling Dates
11/09/06 - 09/16/09

September 2009 Groundwater Monitoring Results

Asarco East Helena CAMU Wells

Legend

Parameter (Units)

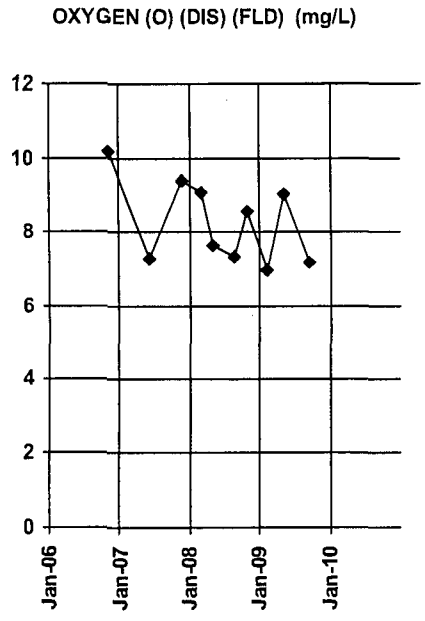
Date Sampled

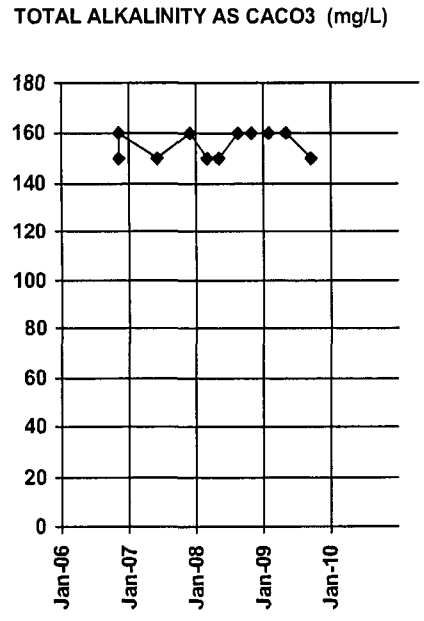
Data Source

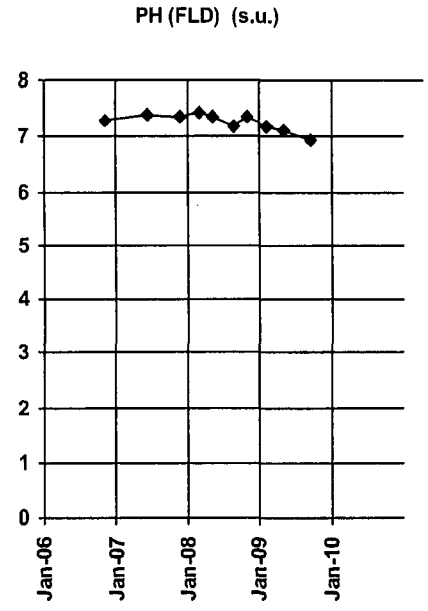
ASARCO, East Helena Plant

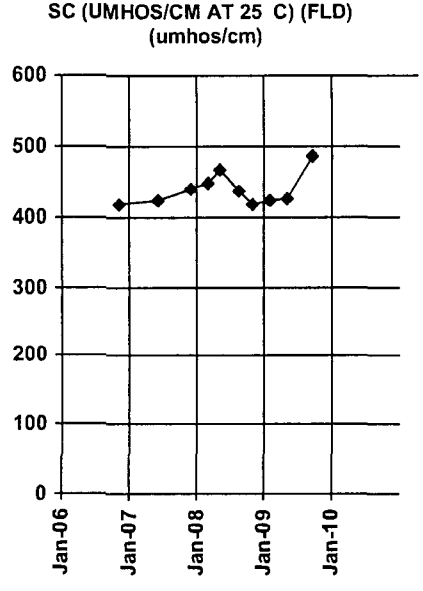
Graph Date Range

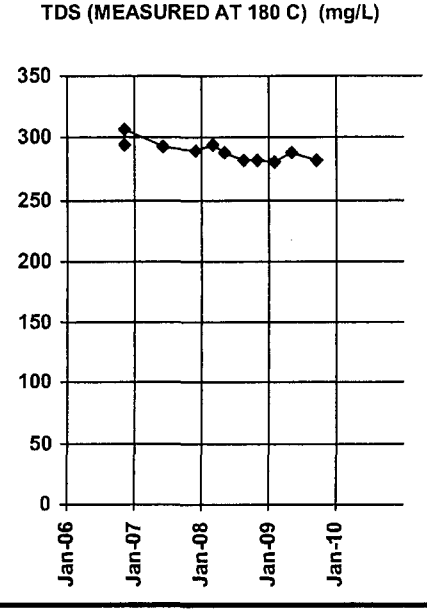
2006 - 2009

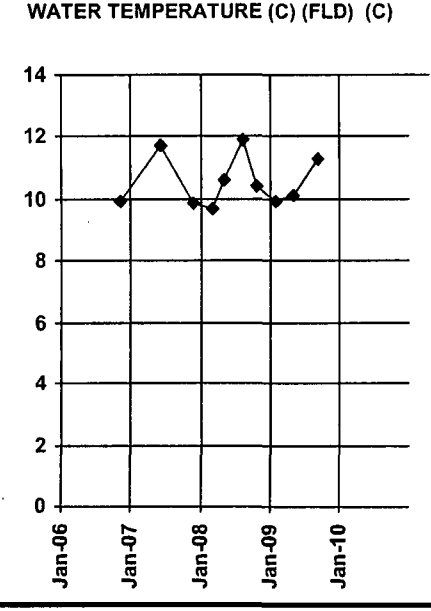












STATION

MW-9

Sampling Dates
11/09/06 - 09/16/09

September 2009 Groundwater Monitoring Results

Asarco East Helena CAMU Wells

Legend

Parameter (Units)

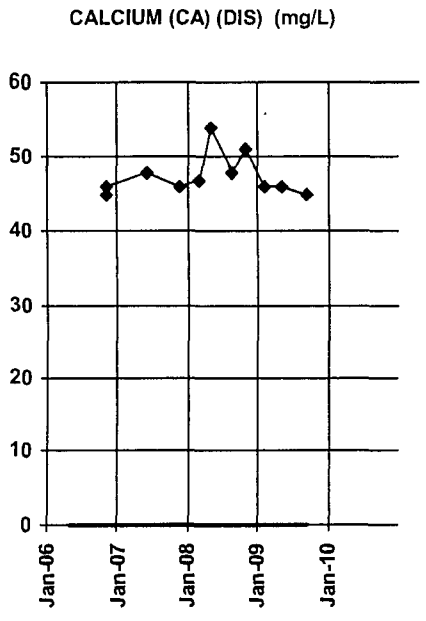
Date Sampled

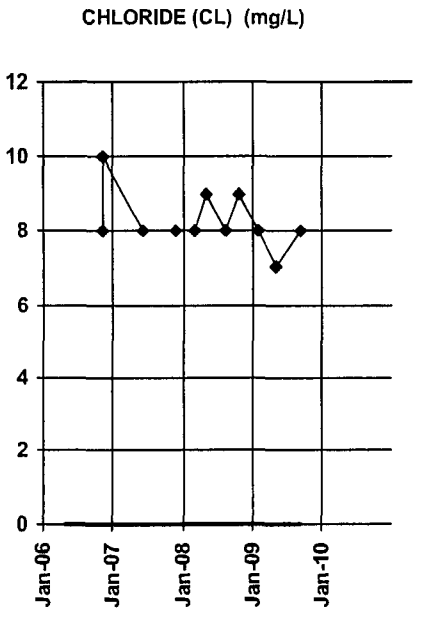
Data Source

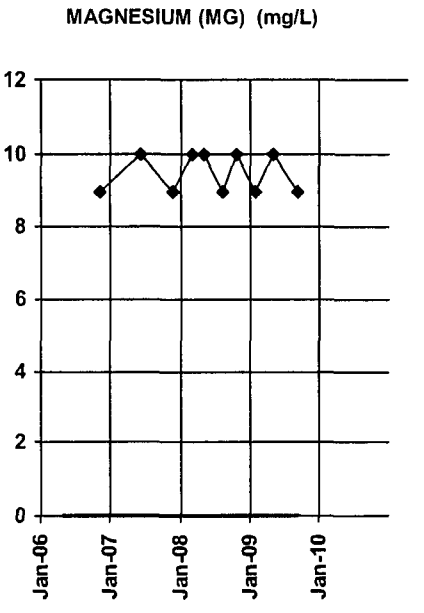
ASARCO, East Helena Plant

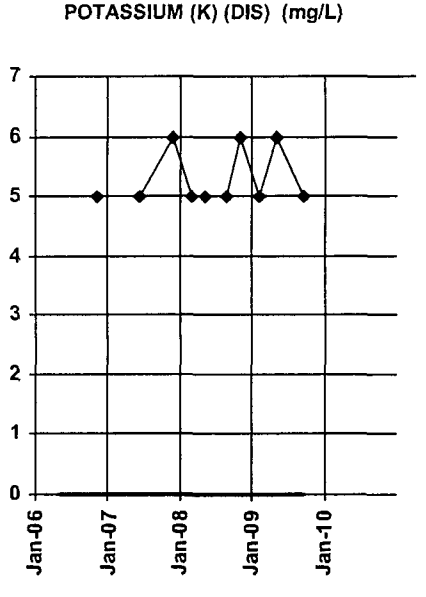
Graph Date Range

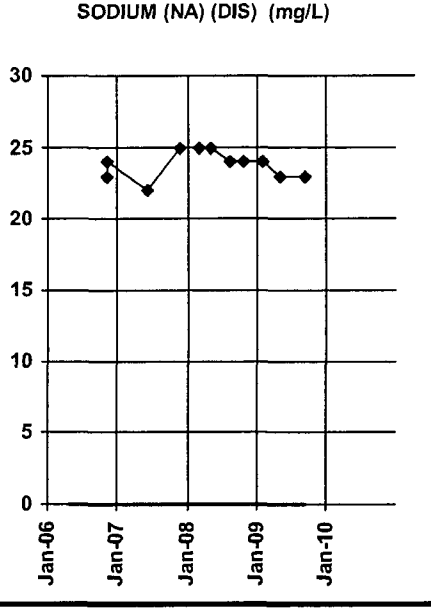
2006 - 2009

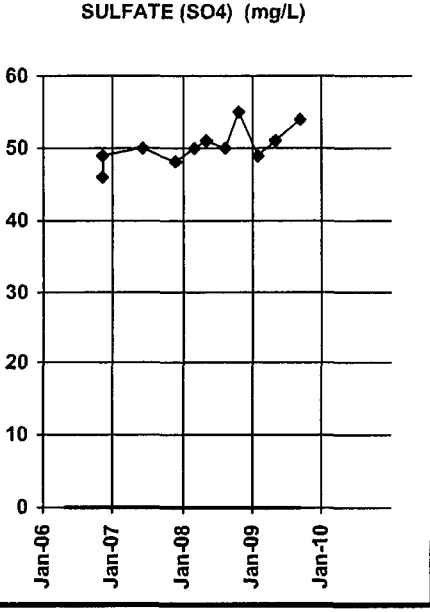












STATION

MW-9

Sampling Dates
11/09/06 - 09/16/09

September 2009 Groundwater Monitoring Results

Asarco East Helena CAMU Wells

Legend

Parameter (Units)

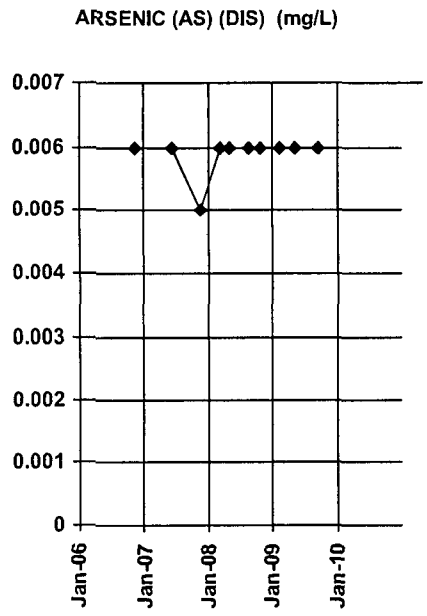
Date Sampled

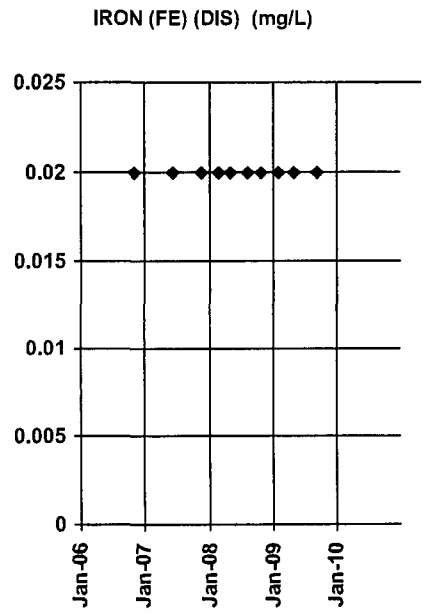
Data Source

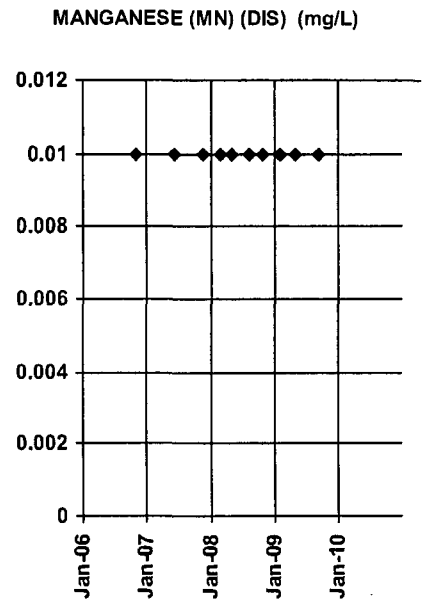
ASARCO, East Helena Plant

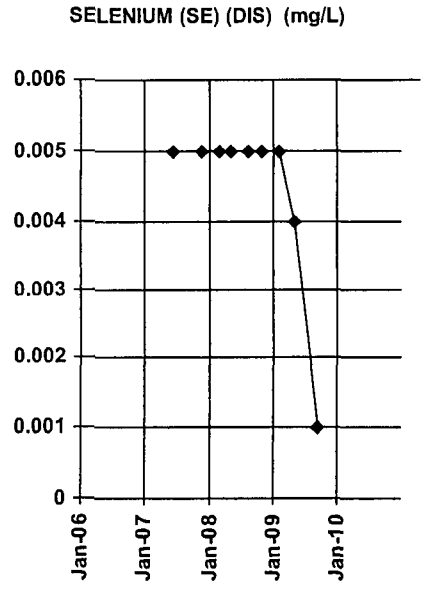
Graph Date Range

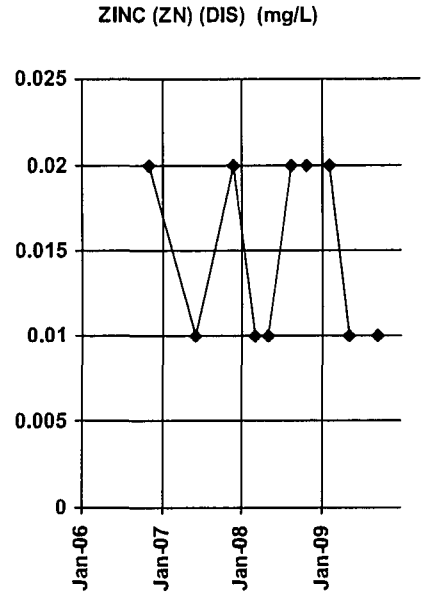
2006 - 2009











STATION

MW-9

Sampling Dates
11/09/06 - 09/16/09

September 2009 Groundwater Monitoring Results

Asarco East Helena CAMU Wells

Legend

Parameter (Units)

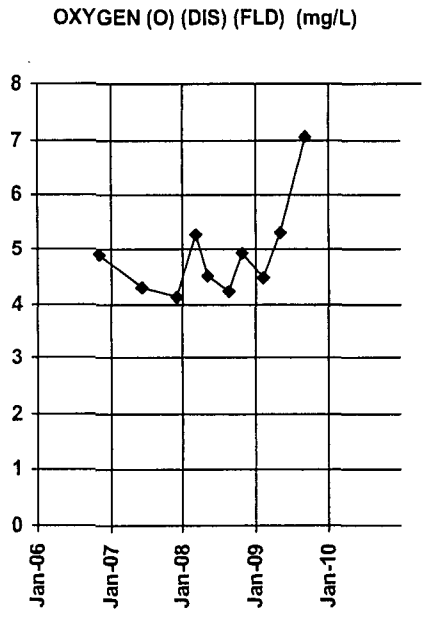
Date Sampled

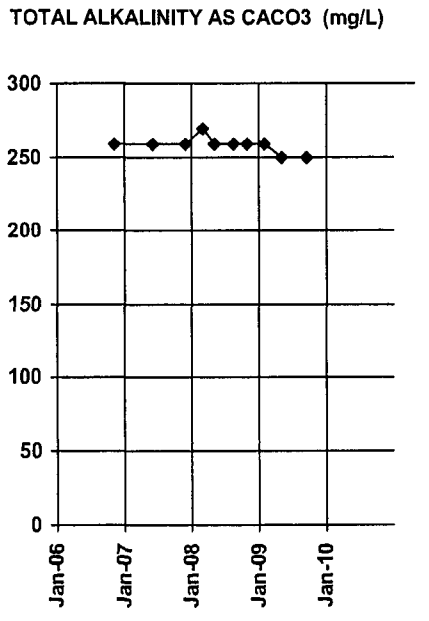
Data Source

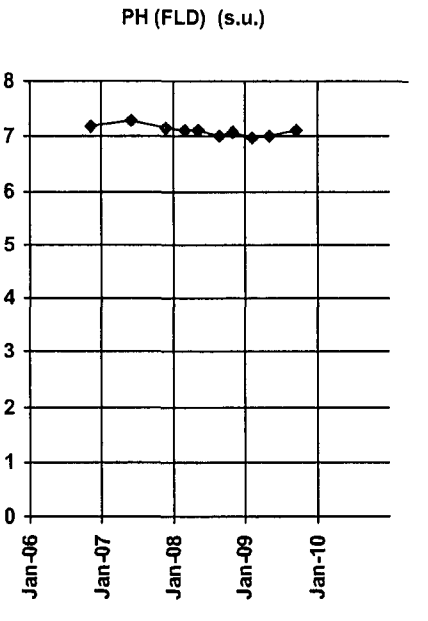
ASARCO, East Helena Plant

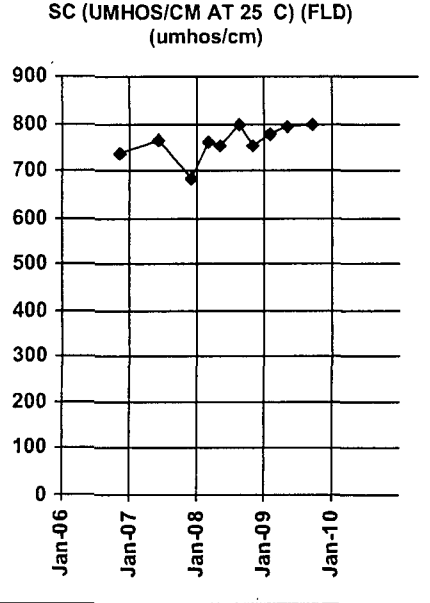
Graph Date Range

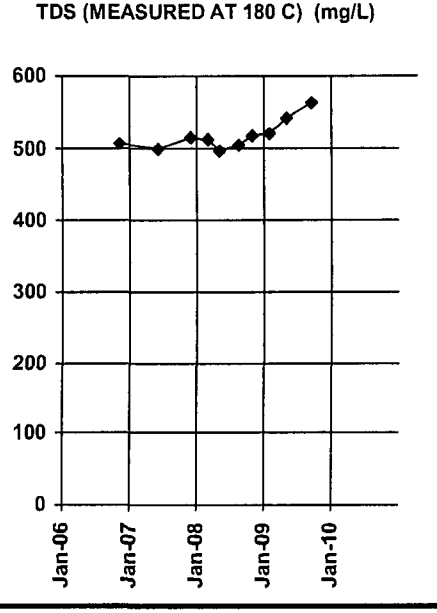
2006 - 2009

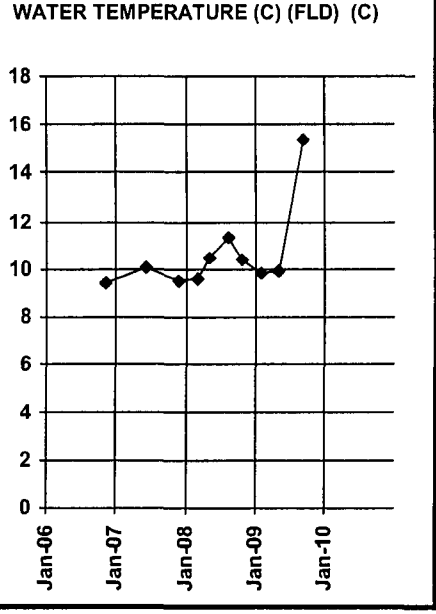












STATION

MW-10

Sampling Dates
11/09/06 - 09/16/09

September 2009 Groundwater Monitoring Results

Asarco East Helena CAMU Wells

Legend

Parameter (Units)

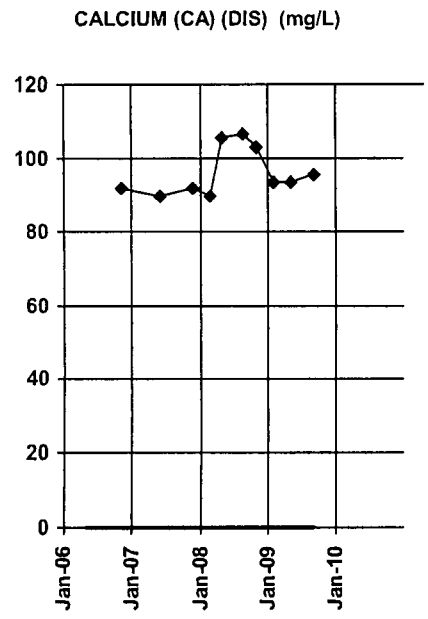
Date Sampled

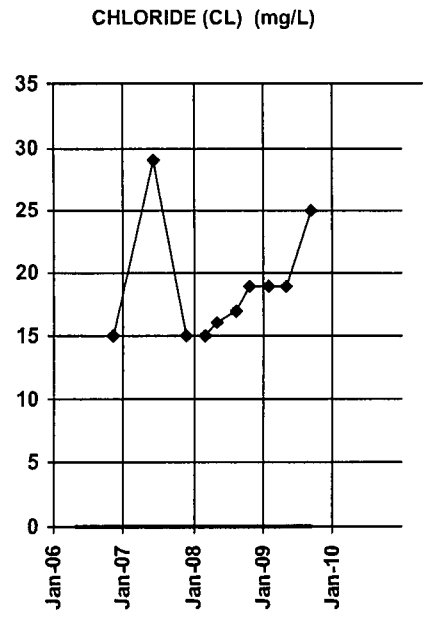
Data Source

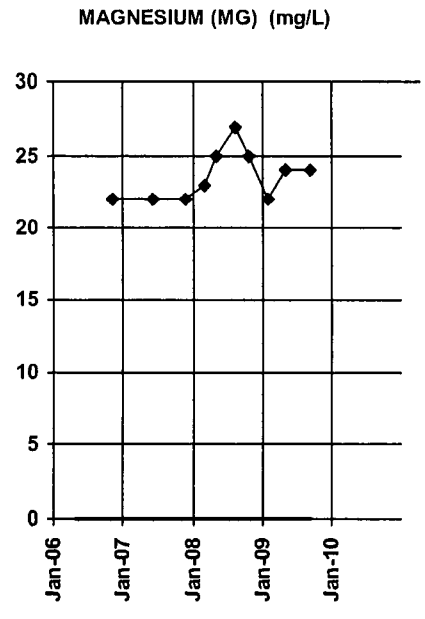
ASARCO, East Helena Plant

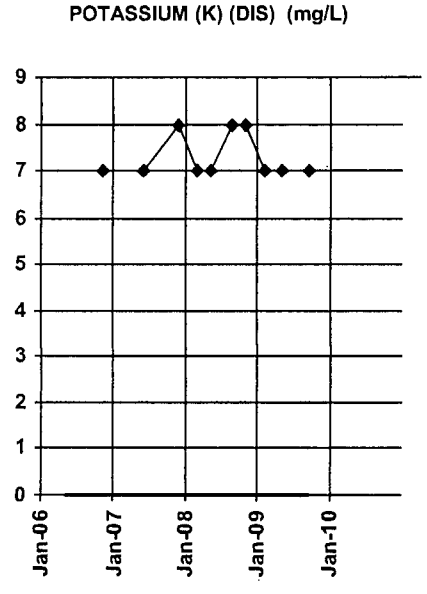
Graph Date Range

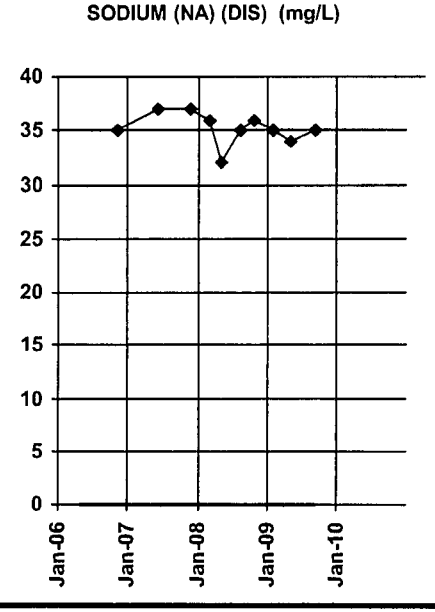
2006 - 2009

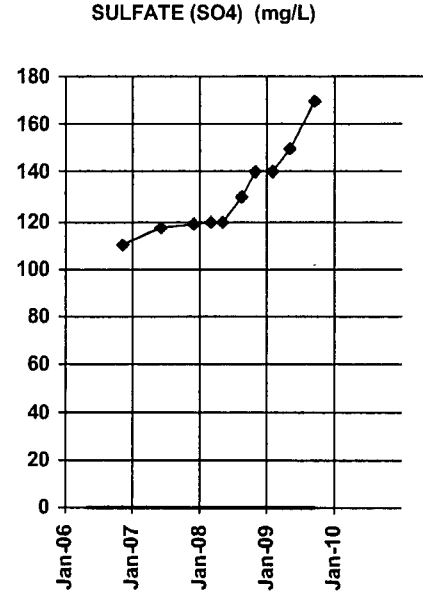












STATION

MW-10

Sampling Dates
11/09/06 - 09/16/09

September 2009 Groundwater Monitoring Results

Asarco East Helena CAMU Wells

Legend

Parameter (Units)

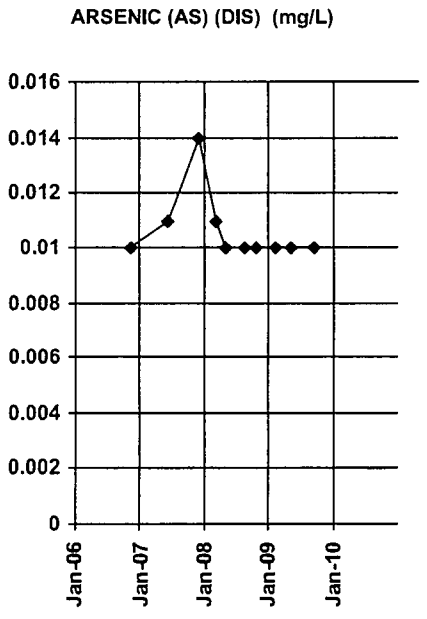
Date Sampled

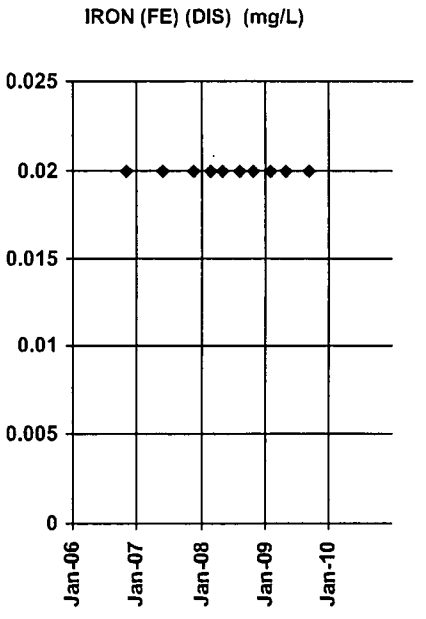
Data Source

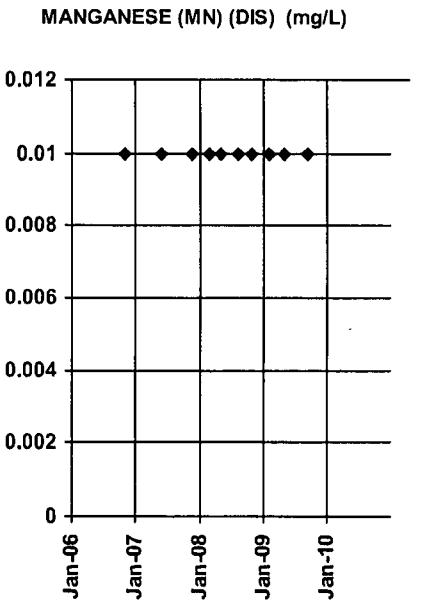
ASARCO, East Helena Plant

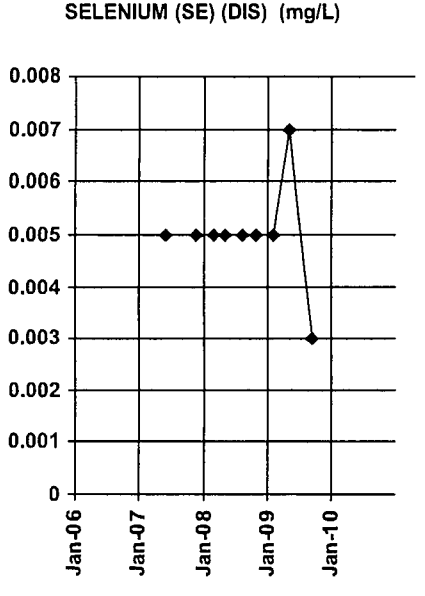
Graph Date Range

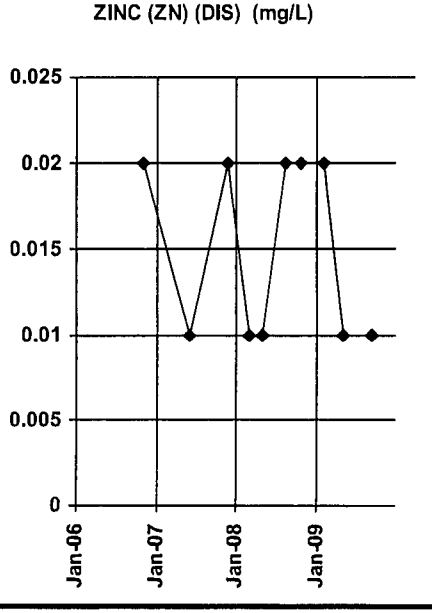
2006 - 2009











STATION

MW-10

Sampling Dates
11/09/06 - 09/16/09

September 2009 Groundwater Monitoring Results

Asarco East Helena CAMU Wells

Legend

Parameter (Units)

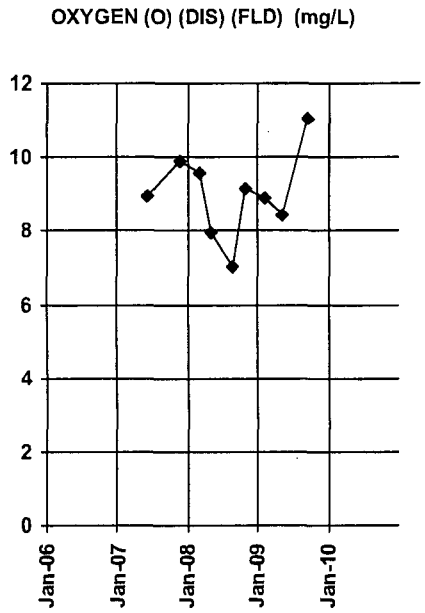
Date Sampled

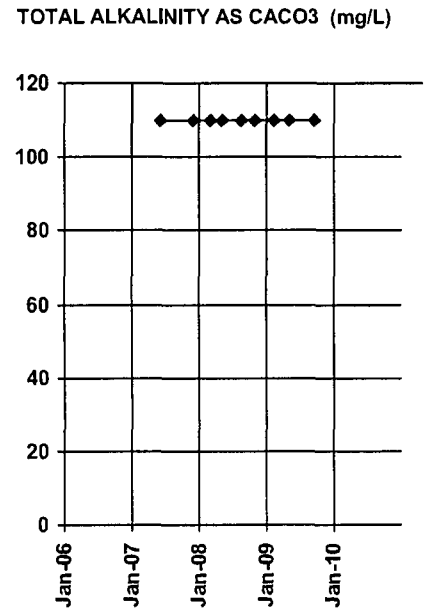
Data Source

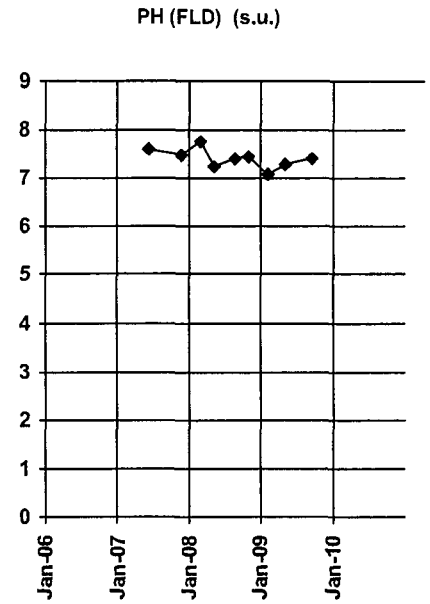
ASARCO, East Helena Plant

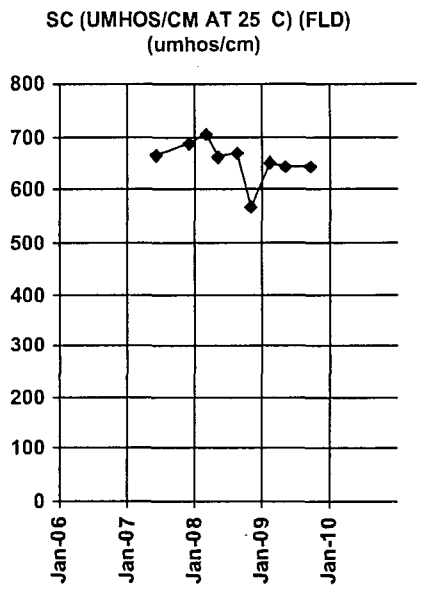
Graph Date Range

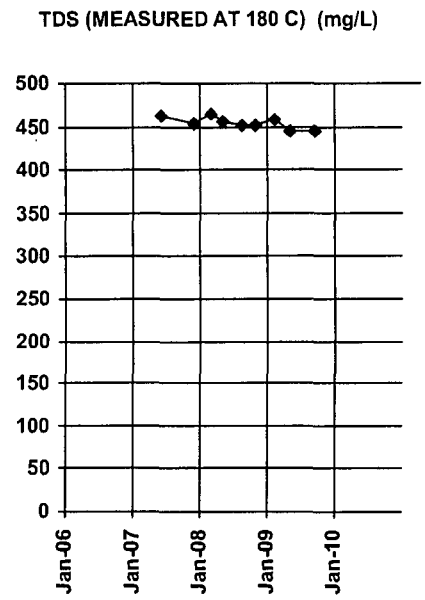
2006 - 2009

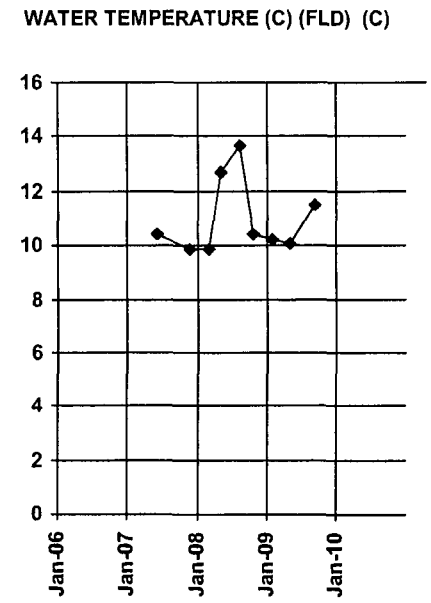












STATION

MW-11

Sampling Dates
06/08/07 - 09/16/09

September 2009 Groundwater Monitoring Results

Asarco East Helena CAMU Wells

Legend

Parameter (Units)

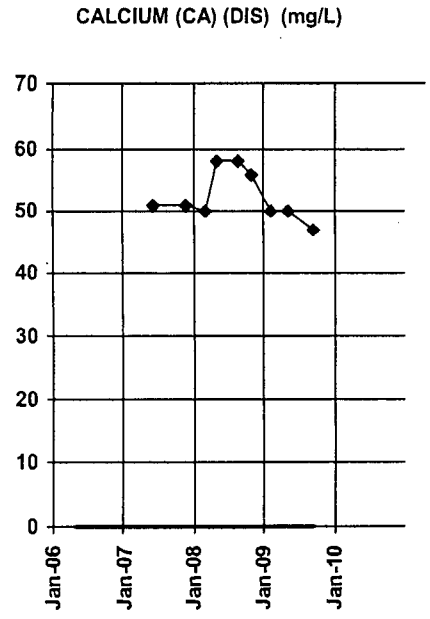
Date Sampled

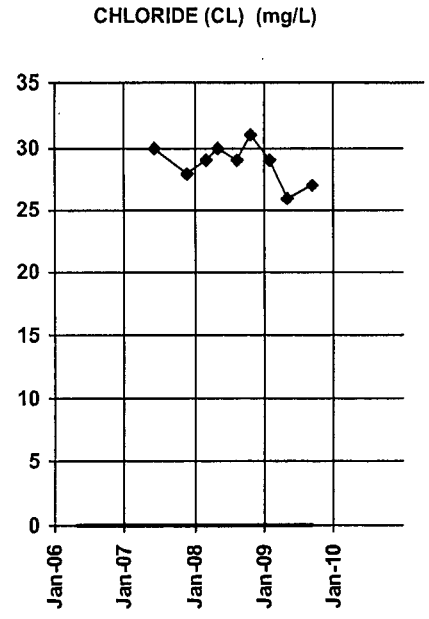
Data Source

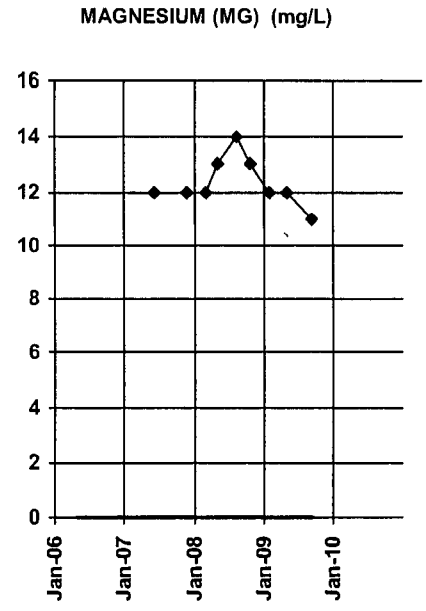
ASARCO, East Helena Plant

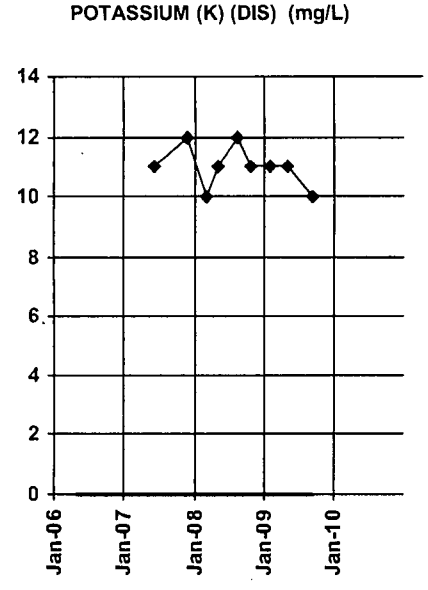
Graph Date Range

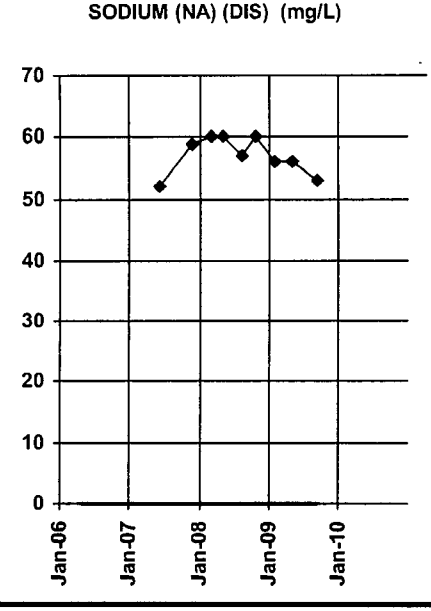
2006 - 2009

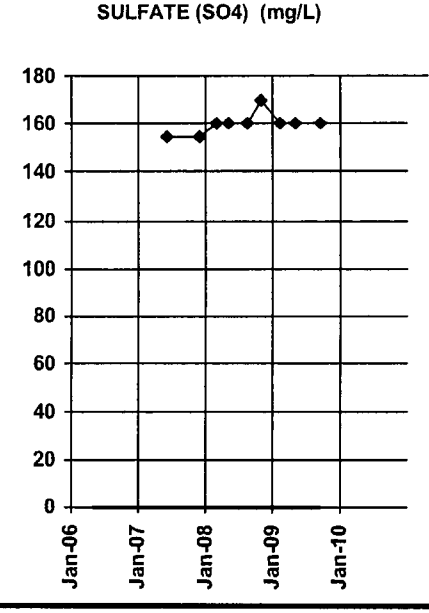












STATION

MW-11

Sampling Dates
06/08/07 - 09/16/09

September 2009 Groundwater Monitoring Results

Asarco East Helena CAMU Wells

Legend

Parameter (Units)

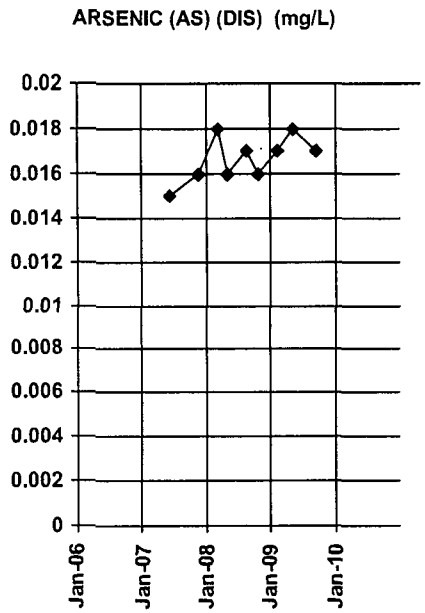
Date Sampled

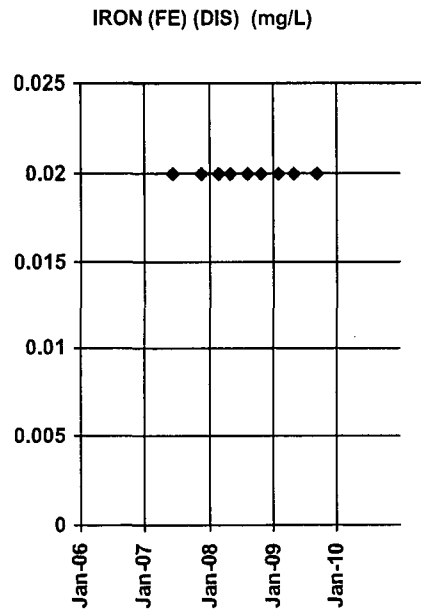
Data Source

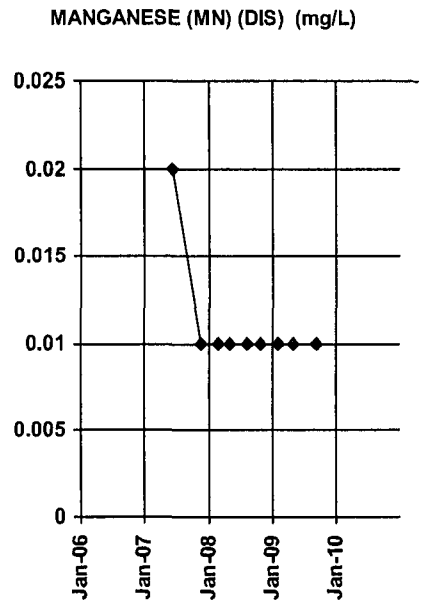
ASARCO, East Helena Plant

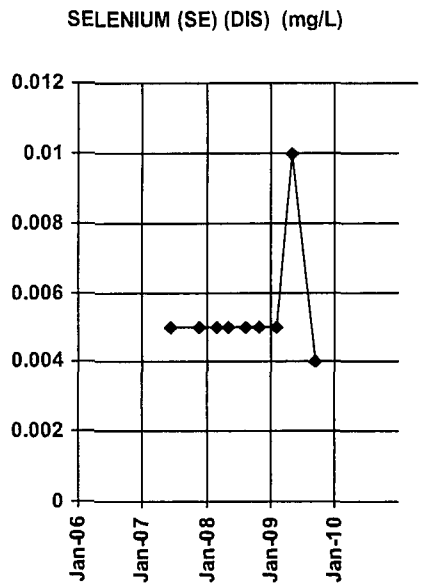
Graph Date Range

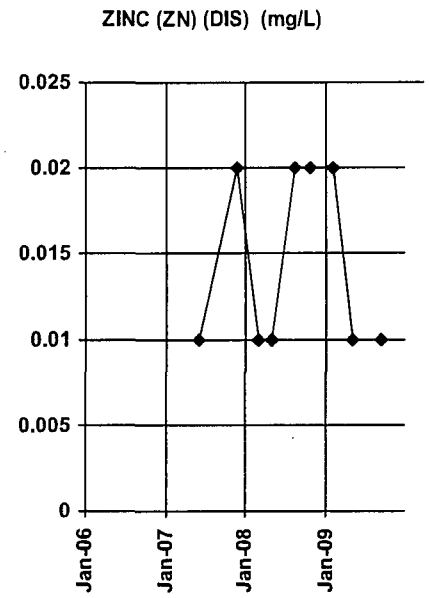
2006 - 2009











STATION

MW-11

Sampling Dates
06/08/07 - 09/16/09

September 2009 Groundwater Monitoring Results

Asarco East Helena CAMU Wells

Legend

Parameter (Units)

Date Sampled

Data Source

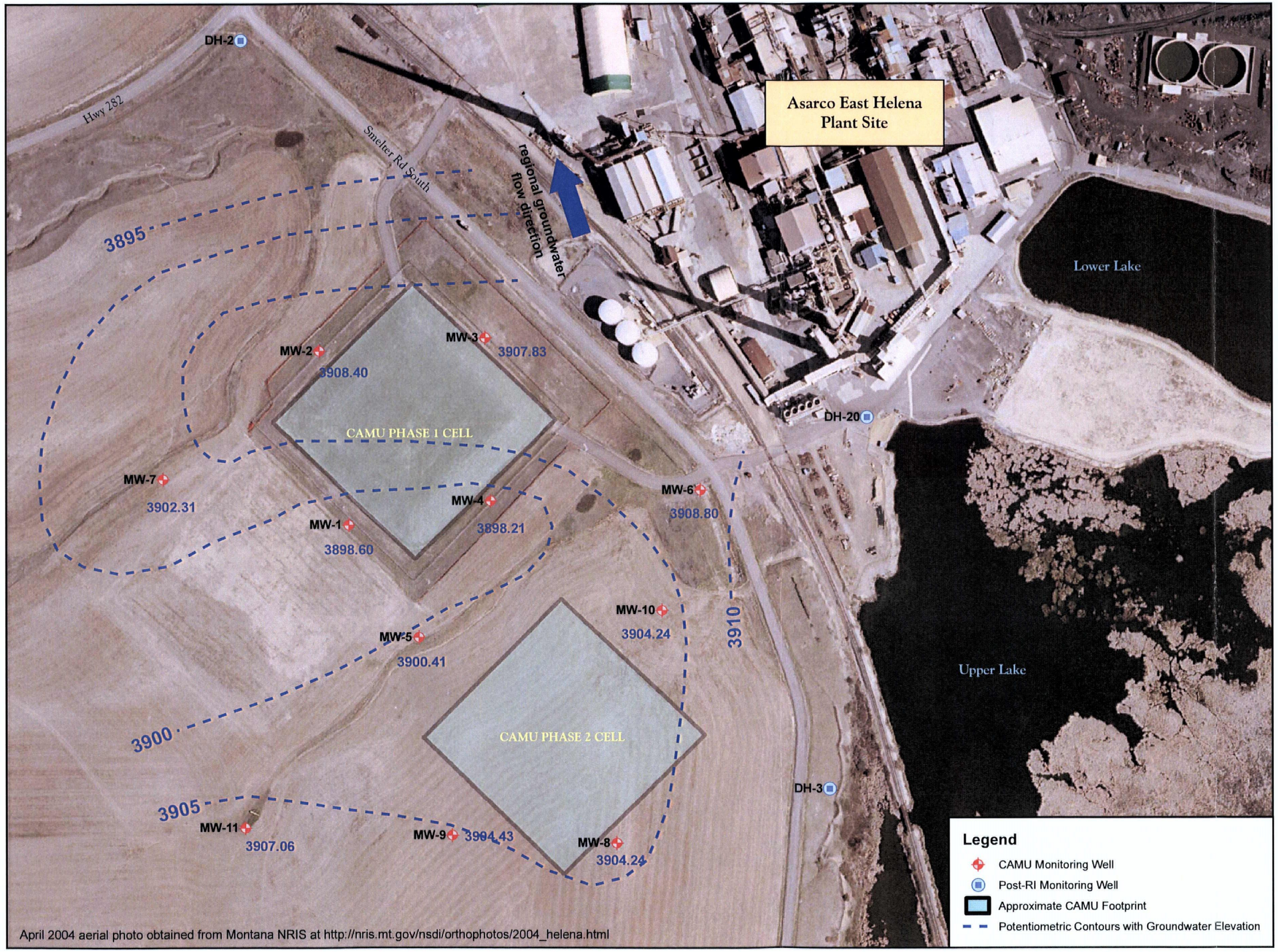
ASARCO, East Helena Plant

Graph Date Range

2006 - 2009

SEPTEMBER 2009 POTENTIOMETRIC MAP

ASARCO EAST HELENA CAMU MONITORING WELLS



April 2004 aerial photo obtained from Montana NRIS at http://nris.mt.gov/nsdi/orthophotos/2004_helena.html

N

0 125 250
Feet

NOTES:

(1) Water levels at Post-RI Monitoring Wells, Upper Lake, and Lower Lake measured on a semiannual basis, and are therefore not available for this monitoring event.

(2) Water levels in the Tertiary volcanic ash unit intercepted by CAMU monitoring wells do not appear to indicate a continuous hydraulically connected system.

September 2009
Groundwater Elevations
Asarco East Helena
CAMU Monitoring Wells

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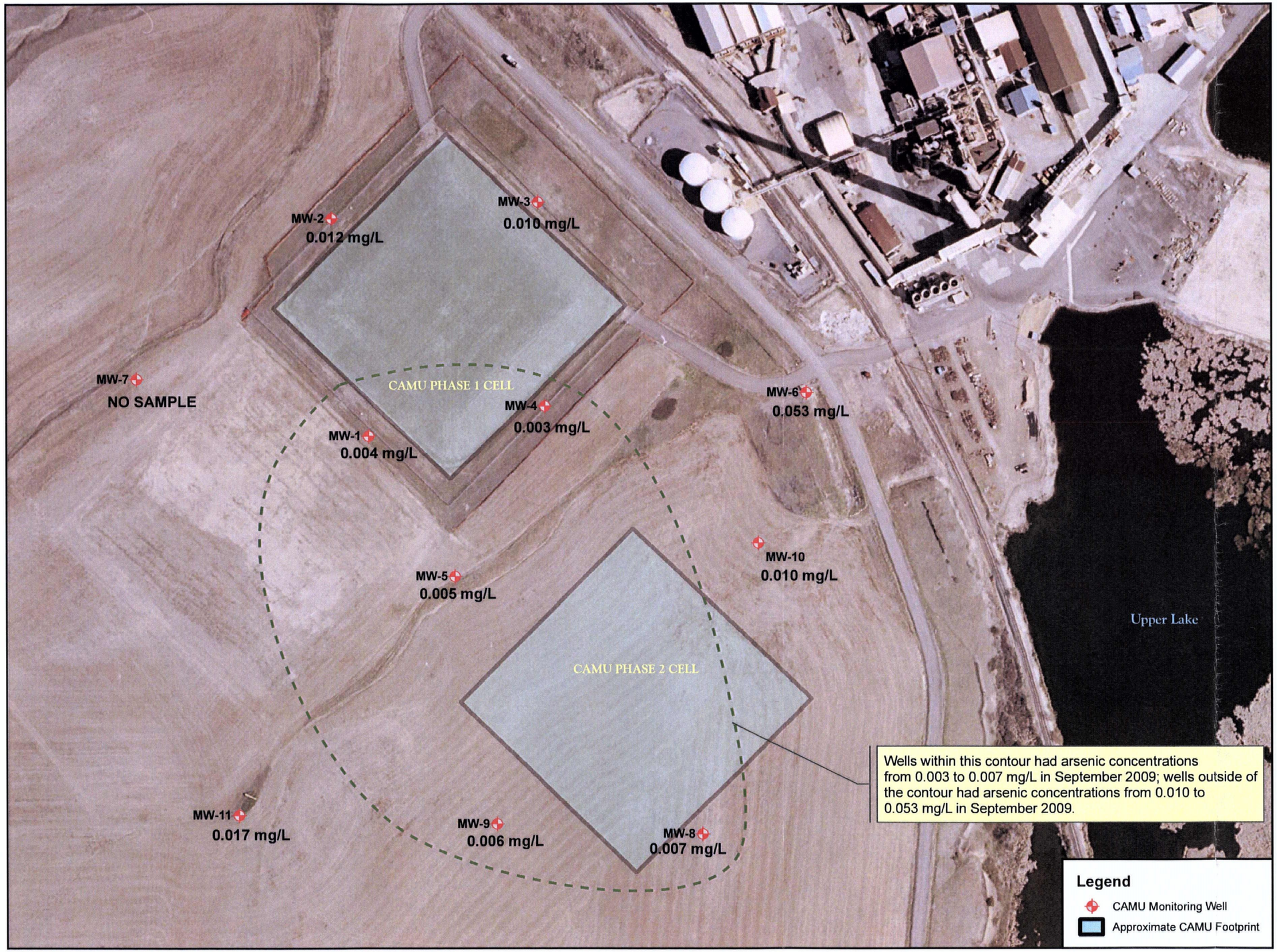
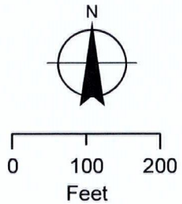
SEPTEMBER 2009 DISSOLVED ARSENIC CONCENTRATION MAP

ASARCO EAST HELENA CAMU MONITORING WELLS



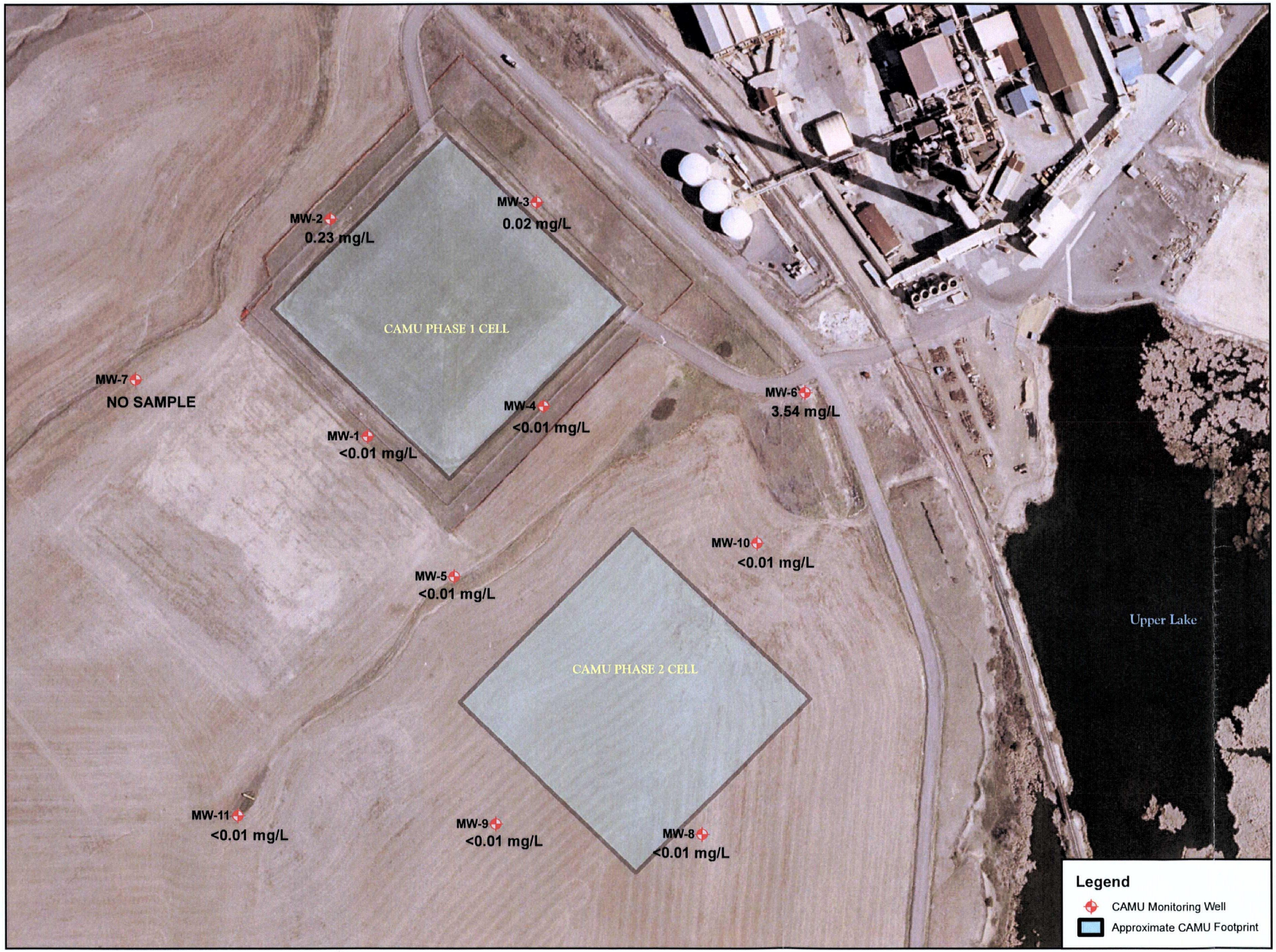


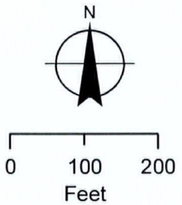
September 2009 Dissolved Arsenic Concentration Map
Asarco East Helena
CAMU Area Monitoring Wells

K:\PROJECT\1054\2009 CAMU GW\Sept09\sept09_arsenic.mxd

SEPTEMBER 2009 DISSOLVED MANGANESE CONCENTRATION MAP

ASARCO EAST HELENA CAMU MONITORING WELLS





September 2009
Dissolved Manganese
Concentration Map
Asarco East Helena
CAMU Area Monitoring Wells

K:\PROJECT\7007\2009 CAMU GW\Sept09\sept09_manganese.mxd

SEPTEMBER 2009 MANN-KENDALL TREND TEST RESULTS

ASARCO EAST HELENA CAMU MONITORING WELLS

SEPTEMBER 2009 MANN-KENDALL TREND TEST RESULTS
ASARCO EAST HELENA CAMU WELL GROUNDWATER DATA

Well	Statistic	Arsenic (Dissolved)	Iron (Dissolved)	Manganese (Dissolved)	Selenium (Dissolved)
MW-1	Trend	None	None	None	None
	Z-score	-1.10	-1.76	-0.315	0.00
	p-value	0.270	0.078	0.753	1.00
MW-2	Trend	None	None	**Decreasing**	NT
	Z-score	1.18	-1.37	**-3.93**	
	p-value	0.239	0.171	**0.0001**	
MW-3	Trend	None	None	None	None
	Z-score	1.28	-0.925	0.73	-0.90
	p-value	0.199	0.355	0.464	0.368
MW-4	Trend	None	None	NT	None
	Z-score	1.97	-0.423		-1.00
	p-value	0.049	0.673		0.316
MW-5	Trend	None	None	None	None
	Z-score	-0.127	-1.91	-1.57	0.00
	p-value	0.899	0.056	0.117	1.00
MW-6	Trend	**Decreasing**	None	None	None
	Z-score	**-2.91**	0.00	-1.32	1.50
	p-value	**0.004**	1.00	0.187	0.133
MW-7**	Trend	None	None	None	NT
	Z-score	-0.483	0.00	-1.42	
	p-value	0.629	1.00	0.155	
MW-8	Trend	None	NT	None	None
	Z-score	0.818		-1.39	0.00
	p-value	0.413		0.164	1.00
MW-9	Trend	None	NT	NT	None
	Z-score	0.696			0.00
	p-value	0.486			1.00
MW-10	Trend	None	NT	NT	None
	Z-score	-1.57			1.74
	p-value	0.117			0.082
MW-11	Trend	None	NT	None	None
	Z-score	1.53		-1.36	1.74
	p-value	0.126		0.175	0.082

NOTES: Two-sided test for trend performed at 99% confidence level ($\alpha = 0.01$).
Critical Z-score = 2.57 (if $|Z| > 2.57$, then $p < 0.01$ and trend is significant).
NT = not tested (all data below laboratory reporting limits).
**Well MW-7 not sampled in September 2009 due to insufficient water; test results are from May 2009.

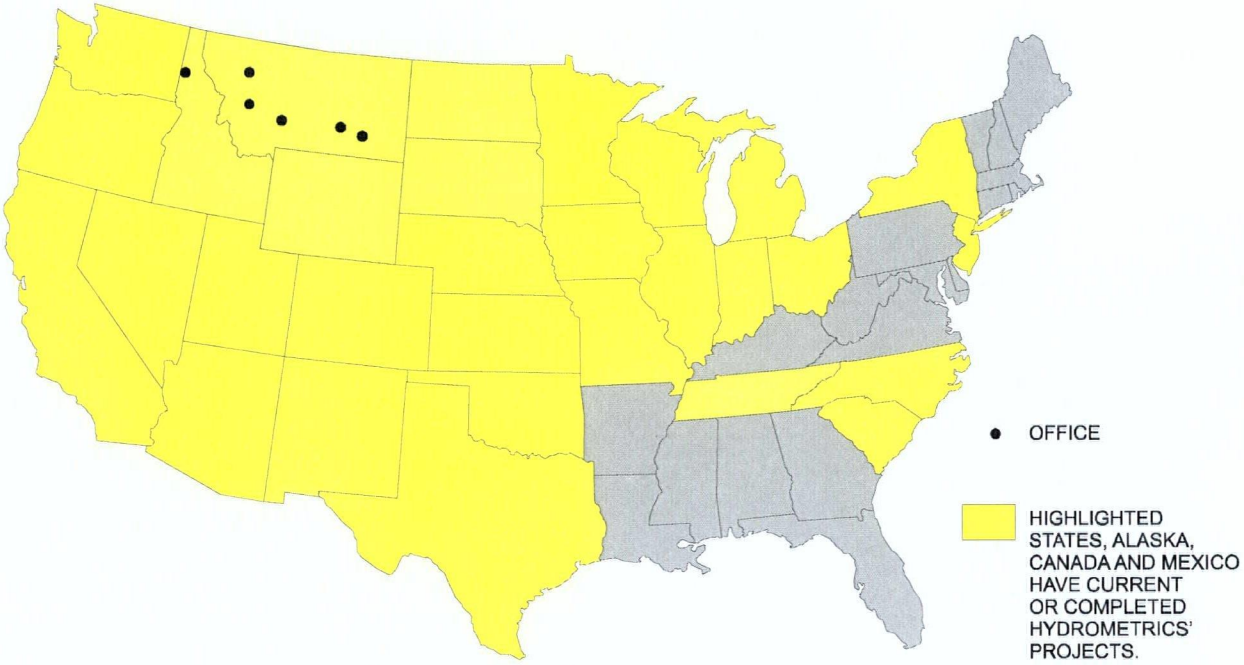
SEPTEMBER 2009 SEASONAL MANN-KENDALL TREND TEST RESULTS

ASARCO EAST HELENA CAMU MONITORING WELLS

SEPTEMBER 2009 SEASONAL MANN-KENDALL TREND TEST RESULTS
ASARCO EAST HELENA CAMU WELL GROUNDWATER DATA

Well	Statistic	Arsenic (Dissolved)	Iron (Dissolved)	Manganese (Dissolved)	Selenium (Dissolved)
MW-1	Trend	None	None	None	None
	Z-score	-1.04	-1.25	0.00	0.00
	p-value	0.298	0.210	1.00	1.00
MW-2	Trend	None	None	**Decreasing**	NT
	Z-score	1.17	-0.959	**-3.60**	
	p-value	0.242	0.338	**0.0003**	
MW-3	Trend	None	None	None	None
	Z-score	1.05	-1.66	1.47	-0.67
	p-value	0.293	0.097	0.142	0.505
MW-4	Trend	None	None	NT	None
	Z-score	1.82	-0.807		-0.463
	p-value	0.068	0.420		0.643
MW-5	Trend	None	None	None	None
	Z-score	0.085	-1.64	-1.31	0.00
	p-value	0.93	0.100	0.190	1.00
MW-6	Trend	None	None	None	None
	Z-score	-1.31	1.58	0.466	0.00
	p-value	0.189	0.113	0.641	1.00
MW-7**	Trend	None	None	None	NT
	Z-score	0.297	1.29	-0.612	
	p-value	0.766	0.198	0.540	
MW-8	Trend	None	NT	None	None
	Z-score	1.04		-0.612	0.00
	p-value	0.296		0.540	1.00
MW-9	Trend	None	NT	NT	None
	Z-score	0.00			0.00
	p-value	1.00			1.00
MW-10	Trend	None	NT	NT	None
	Z-score	-0.795			1.04
	p-value	0.427			0.296
MW-11	Trend	None	NT	None	None
	Z-score	0.463		-0.612	1.04
	p-value	0.643		0.540	0.296

NOTES: Two-sided test for trend performed at 99% confidence level ($\alpha = 0.01$).
Critical Z-score = 2.57 (if $|Z| > 2.57$, then $p < 0.01$ and trend is significant).
NT = not tested (all data below laboratory reporting limits).
**Well MW-7 not sampled in September 2009 due to insufficient water; test results are from May 2009.



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VALIDATION SUMMARY

ASARCO EAST HELENA POST RI/FS LONG-TERM MONITORING PROGRAM

EAST HELENA RESIDENTIAL GROUNDWATER INORGANIC ANALYSES

OCTOBER 2009 SAMPLE EVENT

ENERGY LABORATORY WORK ORDER NO. H09100179

Prepared for:
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November 2009

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GLOSSARY OF TERMS

CLP..... Contract Laboratory Program

COC..... Chain of Custody

CRDL..... Contract Required Detection Limit

DI..... Deionized Water

DIS..... Dissolved

DQO..... Data Quality Objective

ELI-Hel ..... Energy Laboratories, Inc., Helena, Montana

EPA..... U.S. Environmental Protection Agency

ICV ..... Initial Calibration Verification

IDL ..... Instrument Detection Limit

LCS..... Laboratory Control Sample

LFB..... Laboratory Fortified Blank

MS ..... Matrix Spike

NA ..... Not Applicable

PDLG..... Project Detection Limit Goal

QC ..... Quality Control

RI/FS..... Remedial Investigation/Feasibility Study

RPD ..... Relative Percent Difference

SC ..... Specific Conductivity

TDS ..... Total Dissolved Solids

SUMMARY

East Helena private well water (groundwater) samples were collected on October 14, 2009 for the ASARCO East Helena Facility Post RI/FS Long-Term Monitoring sample event. Inorganic constituents for these samples were validated using U.S. Environmental Protection Agency (EPA) guidelines for data validation (EPA 2004) and the project work plan (ASARCO 2002 and 2007). Samples were analyzed by Energy Laboratories, Inc. (ELI-Hel) in Helena, Montana, under work order H09100179.

Tables containing Validation Code Definitions (Table 1) and the Summary of Qualified Data (Table 2) are located in Appendix 1. The validated database is located in Appendix 2. Field notes, chain of custody forms, and laboratory reports are located in Appendices 3, 4, and 5, respectively.

Data quality objectives for this project are as follows:

- **Precision** is determined by field and laboratory duplicate sample results that are within control limits. The completeness objective for precision is 90% of the duplicate sample results within control limits. **This objective was met as 97.0% (32 out 33 results) of the field duplicate and 100% of the laboratory duplicate results were in control limits. The overall precision was calculated at 99.1% (112 out of 113 results).**

- **Accuracy** is determined by laboratory control sample (LCS) and matrix spike (MS) sample results that are within control limits. The completeness objective for accuracy is 90% of the LCS and MS sample results within control limits. **This objective was met as 100% of the LCS results and 85.7% (36 out of 42 results) of the MS results were within control limits. The overall accuracy was calculated at 92.7% (76 out of 82 results).**

  ***Note:** Due to the lack of LCSs for dissolved metals, fortified laboratory blanks were used to assess the accuracy for these analytes. In several cases, samples used for matrix spikes for were from unknown sources and therefore, could not be used to evaluate the accuracy of this sampling event's data. This is explained further in the following report.

- **Completeness** is calculated by the number of valid (not rejected) data per number of planned data, expressed as a percentage. The completeness goal for this project was 90%. **This goal**

was met as 96.6% (171 out of 177 results) of the planned data were analyzed and deemed valid.

Qualified Data Summary

- Chloride was detected in the field blank and two results were flagged **"UJ"** to indicate the true value may be less than the reported value.
- Sodium was detected in the field blank and one result was flagged **"UJ"** to indicate the true value may be less than the reported value.
- Total Dissolved Solids (TDS) were detected in the field blank and two results were flagged **"UJ"** to indicate the true value may be less than the reported value.
- Dissolved zinc was detected in the field blank and three results were flagged **"UJ"** to indicate the true value may be less than the reported value.
- Dissolved copper was out of control limits for field duplicate samples and four results were flagged **"J"** to indicate the results were estimated and may be variable.
- Dissolved gold was out of control limits for a matrix spike pair. Four results were flagged **"UJ"** to indicate the detection limit value was estimated.
- Dissolved iron was out of control limits for a matrix spike pair. Two results were flagged **"J-"** to indicate the true value may be less than the reported value, and two results were flagged **"R"** to indicate the data were rejected.
- Dissolved silver was out of control limits for a matrix spike pair. Four results were flagged **"R"** to indicate the data were rejected.

Conclusion

With the exception of the rejected results, the data collected in October 2009 for the ASARCO East Helena Post RI/FS Long Term Monitoring Program are deemed acceptable and can be used for the purposes they were intended, providing qualified data are used with caution. **Of the measured results, 86.4% (153 out of 177 results) can be used without qualification.**

Data Validation Report by: Linda L. Tangen

Client Review: Jon Nickel

DATA VALIDATION REPORT

1. INTRODUCTION

- This validation applies to analyses for five groundwater and quality control samples collected on October 14, 2009 for the ASARCO East Helena Post RI/FS Long-Term Monitoring Program (ASARCO 2002 and 2007). Samples were analyzed by Energy Laboratories in Helena, Montana (ELI-Hel) under work order H09100179. One field blank and one field duplicate sample was included with these samples.

- Validation procedures used are generally consistent with:
  - _X_ EPA Contract Laboratory Program (CLP) National Functional Guidelines for Inorganics Data Review (EPA 2004)
  - _X_ Work Plan – Interim Measures Work Plan Addendum (ASARCO 2002)
  - _X_ Post RI/FS Long-Term Monitoring Program (ASARCO 2007)
  - ____ Other

- Overall level of validation:
  - ____ CLP
  - _X_ Standard – Field and laboratory quality control (QC) samples are reviewed; and samples associated with QC violations are flagged.
  - ____ Visual

2. DELIVERABLES

- All laboratory document deliverables were present and accurate as specified in the CLP-Statement of Work (EPA 2001), and/or the project contract.
  - _X_ Yes
  - ____ No

- All documentation of field procedures was provided as required.
  - _X_ Yes
  - ____ No

3. FIELD PROCEDURES

- Samples were collected from all project-required sites.
  - ____ Yes
  - _X_ No - see notes

  Notes: Samples were not collected at sites 2540 Wylie and 109 Gail because the wells were shut down for the winter. These omissions were not subtracted from the project's completeness.

- Field parameters were measured in accordance with the project work plan.
  - _X_ Yes
  - ____ No

- Field instruments were calibrated daily and before measurements were collected.
  _X_ Yes
  ____ No

- Chains of Custodies (COCs) were properly filled out and signed by the field personnel.
  _X_ Yes
  ____ No

- Data entry into field books, on COCs, and on sample labels were accurate and complete.
  _X_ Yes
  ____ No

4. FIELD BLANKS

Blanks: Please note that the highest blank value associated with any particular analyte is the blank value used for the flagging process.

Deionized water (DI), trip, rinsate, or any other field blanks have been carried out at the proper frequency (one rinsate blank and one DI blank per event).
_X_ Yes
____ No

Reported results on the field blanks were less than the Project Detection Limit Goals (PDLGs) or reporting limit.
____ Yes
_X_ No - see notes

Notes: Several field blank detections were greater than the PDLG. The results associated with these detections were flagged **"UJ"** to indicate the true value may be less than the reported value. Following is a summary of these detections.

Blank Type	Sample Code	Sample Date	Parameter	PDLG (mg/L)	Result (mg/L)	5 X Result (mg/L)	Flags
Field Blank	HER-1009-304	10/14/09	Bicarbonate	1	1	5	0 (1)
			Chloride	1	2	10	2
			Copper	0.001	0.016	0.080	0 (2)
			Specific Conductivity (umhos/cm)	10	19	95	0 (1)
			Sodium	5	3	15	1
			Total Dissolved Solids	10	111	555	2
			Total Alkalinity	1	1	5	0 (1)
			Zinc	0.02	0.06	0.30	3

*Notes:
1) Associated results were greater than five times the blank value.
1) Associated results were already flagged for a field duplicate exceedance.

5. FIELD DUPLICATES

Field duplicates have been collected at the proper frequency (one field duplicate per event).

_X_ Yes
____ No

Field duplicate relative percent differences (RPDs) were within the required control limits (RPD of 20% or less). If the sample or duplicate result is less or equal to five times the PDLG, the RPD criteria are not used. In these cases, the difference between the sample and the duplicate results must be within ± the PDLG.

____ Yes
_X_ No – see notes

Notes: One field duplicate result was not in control limits. The results associated with this exceedance were qualified **"J"** to indicate the reported value was estimated and may be variable. Associated samples are those that are in the same sample delivery group and of the same matrix as the field duplicate sample. Following is a list of the field duplicate exceedances.

Site	Sample & Dup Code	Sample Date	Parameter	Orig Result (mg/L)	Dup Result (mg/L)	PDLG (mg/L)	RPD or Diff (mg/L)	Flags
401 Gail	EHR-1009-300 & EHR-1009-301	10/14/09	Copper	0.003	<0.001	0.001	0.002 Diff	4

6. LABORATORY PROCEDURES

- **Laboratory procedures followed**
  _X_ CLP-Statement of Work (EPA 2001)
  ____ SW-846 (EPA 1986)
  _X_ Methods for Chemical Analysis of Water and Wastes (EPA 1983)

- **Holding times met**
  _X_ Yes
  ____ No

- **Consistency with project requirements**
  Analyses were carried out as required by the project work plan (ASARCO 2002 and 2007).
  _X_ Yes
  ____ No

  Project specified methods were used.
  _X_ Yes
  ____ No

7. DETECTION LIMITS

- Reporting detection limits met PDLGs.

  _X_ Yes
  ____ No

8. LABORATORY BLANKS

Please note that the highest blank value associated with any particular analyte is the blank value used for the flagging process.

- Method blanks were prepared and analyzed at the required frequency (one per batch or one per 20 samples, whichever is greater.

  _X_ Yes
  ____ No

- All the analytes in the blank were less than the PDLG.

  _X_ Yes
  ____ No

9. LABORATORY MATRIX SPIKES

- A Matrix Spike (MS) sample (pre-digestion) was analyzed at the proper frequency (one per batch and/or matrix).

  ____ Yes
  _X_ No – see notes

  Notes: Samples from unknown sources were used as matrix spikes for analytical batches B_R137708 and B_R13777 (metal analyses). LCS and continuing calibration recoveries were used to evaluate the accuracy for parameters associated with these MS samples. Qualification of results is not required by the work plan (Hydrometrics 2002 and 2007).

- MS recoveries were within the required control limits (75-125%).

  ____ Yes
  _X_ No – see notes

  Notes: Several MS/MS Duplicate (MSD) pairs had low recoveries and in some cases, the recoveries were excessively low (<30%). Results associated with recoveries that were greater than 30% and less than 75%, were qualified **"UJ"** (all data were non-detected results) to indicate the detection limit value was estimated. Results that were associated with recoveries that were less than 30% were rejected (**"R"**) (for non-detected results) or qualified **"J-"** (for detected results) to indicate the reported value was estimated low. Associated results are those of a similar matrix and run in the same analytical batch as the matrix spike sample. On the following page is a summary of the matrix spike exceedances.

Matrix Spike Exceedances

MS Sample Code	Sample Batch	Analysis Batch	Analysis Date	Parameter	% Recovery	# of Flags
H09100179-001B MS	H09100179	B_R137645	10/16/2009	Gold	59	0 (1)
				Iron	18	4 (2)
				Silver	24	4 (3)
H09100179-001B MSD	H09100179	B_R137645	10/16/2009	Gold	51	4 (4)
				Iron	19	0 (1)
				Silver	27	0 (1)

***Notes:**

1) Results were already flagged for the associate MS or MSD.
2) The non-detected results (2) were flagged "R" (rejected) and detected values (2) were flagged "J-."
3) All values (non-detects) were flagged "R"
(rejected).
4) All values (non-detects) were flagged "UJ."

10. LABORATORY DUPLICATES

- Laboratory duplicate samples were analyzed at the proper frequency (one per batch or one per 20 samples, whichever is greater).

  _X_ Yes
  ____ No

- RPDs were within the required control limits (RPD of 20% or less). If the sample or duplicate result is less or equal to five times the PDLG, the RPD criteria are not used. In these cases, the difference between the sample and the duplicate results must be within ± the PDLG.

  _X_ Yes
  ____ No

11. LABORATORY CONTROL STANDARDS (LCS)

Laboratory Fortified Blanks (LFBs) were used in lieu of LCS' for metal analyses. This is acceptable for the purpose of the project.

- The reference material used for the LCS or LFB was of the correct matrix.

  _X_ Yes
  ____ No

- LCS' or LFBs were prepared and analyzed at the proper frequency (one per batch or one per 20 samples, whichever is greater).

  _X_ Yes
  ____ No

- LCS recoveries were within the required control limits (80-120% or certified range).
  _X_ Yes
  ____ No

12. INTERPARAMETER COMPARISON

_X_ Lab pH vs. Field pH
_X_ Lab Specific Conductivity (SC) vs. Field SC
_X_ Total Dissolved Solids (TDS) vs. Field SC

Lab pH vs. Field pH: Field and lab pH pairs were compared using laboratory duplicate criteria (refer to section 10). These comparisons were less than or equal to 14.8 RPD and therefore acceptable for the purposes of the project.

Lab SC vs. Field SC: Field and lab SC pairs were compared using laboratory duplicate criteria (refer to section 10). These comparisons were less than or equal to 16.6 RPD and therefore acceptable for the purposes of the project.

TDS vs. Lab SC: The ratio of TDS to lab SC results should lie between 0.55 and 0.75. This ratio is intended to be a check on the accuracy of the TDS and lab SC measurements. In natural waters with high sulfate, the ratio may be much higher and the ratio is less accurate in dilute waters. TDS/SC ratios for this sampling event were 0.66 and 0.73, which were in line with historical data.

13. HISTORICAL COMPARISON SUMMARY

Data for this sampling event were compared with the previous five years of sampling events. All of this sampling event's results were less than three standard deviations from the historical mean.

14. DATA QUALITY OBJECTIVES (DQOS)

- The data quality goal was met for precision (90% of the field and laboratory duplicates were within control limits).
  _X_ Yes –see the following table
  ____ No

Precision Objectives

QC Type	Total Results	# of Results Out of Control Limits	# of Results Within Control Limits	% Within Control Limits
Field Duplicates	33	1	32	97.0%
Lab Duplicates	80	0	80	100.0%
Overall	**113**	**1**	**112**	**99.1%**

- The data quality goal was met for accuracy (90% of the LCS and matrix spike results were within control limits).
  _X_ Yes – see the following table
  ____ No

Accuracy Objectives

QC Type	Total Results	# of Results Out of Control Limits	# of Results Within Control Limits	% Within Control Limits
LCS' and LFBs	40	0	40	100.0%
Matrix Spikes	42	6	36	85.7%
Overall	**82**	**6**	**76**	**92.7%**

- DQO target for completeness was met (the number of valid results divided by the number of possible results is 90% or above).
  _X_ Yes – see the following table
  ____ No

Completeness

# of Planned Measurements	Actual # of Measurements	# of Rejected Measurements	# of Valid Measurements	Completeness
177	**177**	**6**	**171**	**96.6%**

- Samples were qualified for QC exceedances and deficiencies.
  _X_ Yes – see the following table
  ____ No

Qualification of Samples

# of Measurements	# of Qualified Measurements	# Not Qualified	% Not Qualified
177	**24**	**153**	**86.4%**

15. CONCLUSION

With the exception of the rejected results, the data collected in October 2009 for the ASARCO East Helena Post RI/FS Long Term Monitoring Program are deemed acceptable and can be used for the purposes they were intended, providing qualified data are used with caution.

Data Validation Report by: Linda L. Tangen

Client Review by: Jon Nickel

REFERENCES

ASARCO 2002. *Interim Measures Work Plan Addendum, East Helena Facility.* ASARCO Consulting Inc. Revised May.

ASARCO 2007. *Post RI/FS Long-Term Monitoring Program.* ASARCO LLC. April.

EPA 1983. *Methods for Chemical Analysis of Water and Wastes.* United States Environmental Protection Agency. March.

EPA 1986. *Test Method for Evaluating Solid Waste: Physical/Chemical Methods 3rd Ed. 4 Vols.* United States Environmental Protection Agency. November.

EPA 2001. *USEPA Contract Laboratory Program Statement of Work for Inorganic Analysis.* United States Environmental Protection Agency. Document Number ILM05.2. December.

EPA 2004. *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review.* United States Environmental Protection Agency. Document Number OSWER 9240.1-45. EPA 540-R-04-004. October.

APPENDIX 1

TABLES

TABLE 1.

DATA VALIDATION CODES AND DEFINITIONS

CODE	DEFINITION
A	Anomalous data. (Not an EPA code.)
J	The associated numerical value is an estimated quantity because quality control criteria were not met. A bias was not determined.
J-	The associated numerical value is estimated with a low bias because quality control criteria were not met.
J+	The associated numerical value is estimated with a high bias because quality control criteria were not met.
UJ	The true value may be less than the reported value or the detection limit value was estimated because quality control criteria were not met or the detection limit value This qualifier is usually associated with either non-detected values or detected values that are linked to blank contaminates.
R	Quality control indicates that the data are unusable (compound may or may not be present).

Table 2. Summary of Qualified Data
Asarco East Helena Private Wells
October 2009

Station Name / Field Sample ID / Parameter	Samp Date		Value	Unit	Flag	QC Type-Exceedance*
203 Gail						
EHR-1009-303	**10/14/2009**					
Chloride (Cl)			4	mg/L	UJ	Field Blank - Result (2mg/L)> PDLG
Copper (Cu) DIS			0.013	mg/L	J	Field Dup - 0.002 mg/L Diff
Gold (Au) DIS		<	0.01	mg/L	UJ	Matrix Spike - 51% Recovery
Iron (Fe) DIS		<	0.02	mg/L	R	Matrix Spike - 18% Recovery
Silver (Ag) DIS		<	0.005	mg/L	R	Matrix Spike - 24% Recovery
Sodium (Na) DIS			13	mg/L	UJ	Field Blank - Result (3mg/L) > PDLG
TDS (Measured at 180 C)			190	mg/L	UJ	Field Blank - Result (111 mg/L) > PDLG
2540 Wylie Dr						
EHR-1009-302	**10/14/2009**					
Chloride (Cl)			7	mg/L	UJ	Field Blank - Result (2mg/L)> PDLG
Copper (Cu) DIS		<	0.001	mg/L	J	Field Dup - 0.002 mg/L Diff
Gold (Au) DIS		<	0.01	mg/L	UJ	Matrix Spike - 51% Recovery
Iron (Fe) DIS		<	0.02	mg/L	R	Matrix Spike - 18% Recovery
Silver (Ag) DIS		<	0.005	mg/L	R	Matrix Spike - 24% Recovery
TDS (Measured at 180 C)			341	mg/L	UJ	Field Blank - Result (111 mg/L) > PDLG
Zinc (Zn) DIS			0.03	mg/L	UJ	Field Blank - Result (0.30 mg/L) > PDLG
401 Gail						
EHR-1009-300	**10/14/2009**					
Copper (Cu) DIS			0.003	mg/L	J	Field Dup - 0.002 mg/L Diff
Gold (Au) DIS		<	0.01	mg/L	UJ	Matrix Spike - 51% Recovery
Iron (Fe) DIS			0.05	mg/L	J-	Matrix Spike - 18% Recovery
Silver (Ag) DIS		<	0.005	mg/L	R	Matrix Spike - 24% Recovery
Zinc (Zn) DIS			0.04	mg/L	UJ	Field Blank - Result (0.30 mg/L) > PDLG
EHR-1009-301	**10/14/2009**					
Copper (Cu) DIS		<	0.001	mg/L	J	Field Dup - 0.002 mg/L Diff
Gold (Au) DIS		<	0.01	mg/L	UJ	Matrix Spike - 51% Recovery
Iron (Fe) DIS			0.04	mg/L	J-	Matrix Spike - 18% Recovery
Silver (Ag) DIS		<	0.005	mg/L	R	Matrix Spike - 24% Recovery
Zinc (Zn) DIS			0.04	mg/L	UJ	Field Blank - Result (0.30 mg/L) > PDLG

***Notes: PDLG = Project Detection Limit Goal; Diff = Difference.**

APPENDIX 2

DATABASE

ANALYSES SUMMARY REPORT

ASARCO East Helena Private Wells - October 2009

Database: ASARCO, East Helena Plant

Table of Contents by Station Type

Page	Station Type	Station Name
1	Domestic Wells	203Gail
1	Domestic Wells	401Gail
1	Domestic Wells	2540 Wylie
3	Field Quality Control	FieldBlank

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

Run Time: 11/25/2009 1:19:11 PM

C:\EnviroDataDB\Databases\V5_B_DB\EastHelena.mdb

ANALYSES SUMMARY REPORT

ASARCO East Helena Private Wells - October 2009

Database: ASARCO, East Helena Plant

Table of Contents By Lab Sample ID

Page	Lab Sample ID	Sample ID	Sample Date	Station Name
1	H09100179-001	EHR-1009-300	10/14/2009	401Gail
1	H09100179-002	EHR-1009-301	10/14/2009	401Gail
1	H09100179-003	EHR-1009-302	10/14/2009	2540 Wylie
1	H09100179-004	EHR-1009-303	10/14/2009	203Gail
3	H09100179-005	EHR-1009-304	10/14/2009	FieldBlank

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

Run Time: 11/25/2009 1:19:11 PM

C:\EnviroDataDB\Databases\V5_B_DB\EastHelena.mdb

ANALYSES SUMMARY REPORT

ASARCO East Helena Private Wells - October 2009

Database: ASARCO, East Helena Plant

Table of Contents by Sample ID

Page	Sample ID	Lab Sample ID	Sample Date	Station Name
1	EHR-1009-300	H09100179-001	10/14/2009	401Gail
1	EHR-1009-301	H09100179-002	10/14/2009	401Gail
1	EHR-1009-302	H09100179-003	10/14/2009	2540 Wylie
1	EHR-1009-303	H09100179-004	10/14/2009	203Gail
3	EHR-1009-304	H09100179-005	10/14/2009	FieldBlank

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

Run Time: 11/25/2009 1:19:11 PM

C:\EnviroDataDB\Databases\V5_B_DB\EastHelena.mdb

ANALYSES SUMMARY REPORT

ASARCO East Helena Private Wells - October 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	203Gall	2540 Wylie	401Gall	401Gall
Water	SAMPLE DATE	10/14/2009	10/14/2009	10/14/2009	10/14/2009
	SAMPLE TIME	10:45	10:20	08:10	08:20
	LAB	ELI	ELI	ELI	ELI
	LAB NUMBER	H09100179-004	H09100179-003	H09100179-001	H09100179-002
	SAMPLE NUMBER	EHR-1009-303	EHR-1009-302	EHR-1009-300	EHR-1009-301
	TYPE	Domestic Wells	Domestic Wells	Domestic Wells	Domestic Wells
	GROUP	Private Wells	Private Wells	Private Wells	Private Wells
	DESCRIPTION				
	REMARKS				Field Duplicate
Common Ions (mg/L): ppm unless noted					
	Bicarbonate (HCO3)	92	140	150	150
	Calcium (Ca) (DIS)	31	58	102	102
	Chloride (Cl)	4 UJ	7 UJ	27	27
	Magnesium (Mg) (DIS)	7	13	22	22
	Potassium (K) (DIS)	3	5	6	6
	Sodium (Na) (DIS)	13 UJ	17	25	25
	Sulfate (SO4)	53	110	240	240
	Total Alkalinity As CACO3	76	110	120	120
Metals (mg/L): ppm unless noted					
	Aluminum (Al) (DIS)	<0.1	<0.1	<0.1	<0.1
	Antimony (Sb) (DIS)	<0.003	<0.003	<0.003	<0.003
	Arsenic (As) (DIS)	<0.002	<0.002	0.003	0.003
	Barium (Ba) (DIS)	<0.1	<0.1	<0.1	<0.1
	Beryllium (Be) (DIS)	<0.001	<0.001	<0.001	<0.001
	Cadmium (Cd) (DIS)	<0.001	<0.001	<0.001	<0.001
	Chromium (Cr) (DIS)	<0.001	0.001	<0.001	0.001
	Cobalt (Co) (DIS)	<0.01	<0.01	<0.01	<0.01
	Copper (Cu) (DIS)	0.013 J	<0.001 J	0.003 J	<0.001 J
	Gold (Au) (DIS)	<0.01 UJ	<0.01 UJ	<0.01 UJ	<0.01 UJ
	Iron (Fe) (DIS)	<0.02 R	<0.02 R	0.05 J-	0.04 J-
	Lead (Pb) (DIS)	<0.005	<0.005	<0.005	<0.005
	Manganese (Mn) (DIS)	<0.01	<0.01	0.02	0.02
	Mercury (Hg) (DIS)	<0.001	<0.001	<0.001	<0.001
	Nickel (Ni) (DIS)	<0.01	<0.01	<0.01	<0.01
	Selenium (Se) (DIS)	<0.001	0.004	0.027	0.028
	Silver (Ag) (DIS)	<0.005 R	<0.005 R	<0.005 R	<0.005 R
	Tellurium (Te) (DIS)	<0.1	<0.1	<0.1	<0.1
	Thallium (Tl) (DIS)	<0.001	<0.001	<0.001	<0.001
	Vanadium (V) (DIS)	<0.01	<0.01	<0.01	<0.01
	Zinc (Zn) (DIS)	<0.02	0.03 UJ	0.04 UJ	0.04 UJ
Physical/Fld-Lab: ppm unless noted					
	Oxygen (O) (DIS) (Fld)	6.52	6.14	6.09	
	pH	7.4	7.4	7.4	7.3
	pH (Fld)	6.72	6.72	6.38	
	SC (umhos/cm at 25 C) (Fld)	243	404	682	
	SC (umhos/cm at 25 C)	287	477	783	782

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

Run Time: 11/25/2009 1:19:11 PM

C:\EnviroDataDB\Databases\V5_B_DB\EastHelena.mdb

ANALYSES SUMMARY REPORT

ASARCO East Helena Private Wells - October 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	203Gall	2540 Wylie	401Gall	401Gall
Water	SAMPLE DATE	10/14/2009	10/14/2009	10/14/2009	10/14/2009
	SAMPLE TIME	10:45	10:20	08:10	08:20
	LAB	ELI	ELI	ELI	ELI
	LAB NUMBER	H09100179-004	H09100179-003	H09100179-001	H09100179-002
	SAMPLE NUMBER	EHR-1009-303	EHR-1009-302	EHR-1009-300	EHR-1009-301
	TYPE	Domestic Wells	Domestic Wells	Domestic Wells	Domestic Wells
	GROUP	Private Wells	Private Wells	Private Wells	Private Wells
	DESCRIPTION				
	REMARKS				Field Duplicate
Physical/Fld-Lab: ppm unless noted					
	Total Suspended Solids	<10	<10	<10	10
	TDS (Measured at 180 C)	190 UJ	341 UJ	568	572
	Water Temperature (C) (Fld)	10.3	10.4	11.8	

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

Run Time: 11/25/2009 1:19:11 PM

C:\EnviroDataDB\Databases\V5_B_DB\EastHelena.mdb

ANALYSES SUMMARY REPORT

ASARCO East Helena Private Wells - October 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	FieldBlank
Water	SAMPLE DATE	10/14/2009
	SAMPLE TIME	11:30
	LAB	ELI
	LAB NUMBER	H09100179-005
	SAMPLE NUMBER	EHR-1009-304
	TYPE	Field QC
	GROUP	Private Wells
	DESCRIPTION	
	REMARKS	Blank

Common Ions (mg/L): ppm unless noted	
Bicarbonate (HCO3)	1
Calcium (Ca) (DIS)	<1
Chloride (Cl)	2
Magnesium (Mg) (DIS)	<1
Potassium (K) (DIS)	<1
Sodium (Na) (DIS)	3
Sulfate (SO4)	<1
Total Alkalinity As CACO3	1

Metals (mg/L): ppm unless noted	
Aluminum (Al) (DIS)	<0.1
Antimony (Sb) (DIS)	<0.003
Arsenic (As) (DIS)	<0.002
Barium (Ba) (DIS)	<0.1
Beryllium (Be) (DIS)	<0.001
Cadmium (Cd) (DIS)	<0.001
Chromium (Cr) (DIS)	<0.001
Cobalt (Co) (DIS)	<0.01
Copper (Cu) (DIS)	0.016
Gold (Au) (DIS)	<0.01
Iron (Fe) (DIS)	<0.02
Lead (Pb) (DIS)	<0.005
Manganese (Mn) (DIS)	<0.01
Mercury (Hg) (DIS)	<0.001
Nickel (Ni) (DIS)	<0.01
Selenium (Se) (DIS)	<0.001
Silver (Ag) (DIS)	<0.005
Tellurium (Te) (DIS)	<0.1
Thallium (Tl) (DIS)	<0.001
Vanadium (V) (DIS)	<0.01
Zinc (Zn) (DIS)	0.06

Physical/Fld-Lab: ppm unless noted	
pH	6.3
SC (umhos/cm at 25 C)	19
Total Suspended Solids	<10
TDS (Measured at 180 C)	111

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

Run Time: 11/25/2009 1:19:11 PM

C:\EnviroDataDB\Databases\V5_B_DB\EastHelena.mdb

APPENDIX 3

FIELD NOTES

OCTOBER 14, 2009
MONTHLY LONG-TERM RI/FS MONITORING
RESIDENTIAL WELLS

FIELD STANDARDIZATION OF HORIBA

	STANDARD VALUE	METER READING
pH	4.00 SU	4.00 SU
CONDUCTIVITY	4480 umhos/cm	4480 umhos/cm
SALINITY	0.23%	0.23%

[JENSEN]
401 GAIL STREET
EHR-1009-300 ORIGINAL SAMPLE
EHR-1009-301 DUPLICATE SAMPLE
PAUL JENSEN PRESENT WHILE COLLECTING
SAMPLES AFTER 5 MINUTE PURGE

pH	6.38 SU
CONDUCTIVITY	682 umhos/cm
D.O.	6.09 mg/l
TEMP	11.8°C

[SIMAC] IRRIGATION WATER
2540 WYLIE AVENUE
IRRIGATION SYSTEM WINTERIZED
NO SAMPLE COLLECTED

[SIMAC] DRINKING WATER
2540 WYLIE
SAMPLE COLLECTED FROM EAST FACING
SPIGOT ATTACHED TO HOUSE

pH	6.72 SU
CONDUCTIVITY	404 umhos/cm
D.O.	6.14 mg/l
TEMP	10.4°C

EHR-1009-302

[FOLEY]
203 GAIL STREET
EHR-1009-303
HOUSE STILL VACANT BUT POWER
RESTORED TO PUMP.

pH	6.72 SU
CONDUCTIVITY	243 umhos/cm
D.O	6.52 mg/l
TEMP	10.3°C

[NORDSTROM]
109 GAIL STREET
IRRIGATION SYSTEM WINTERIZED,
NO SAMPLE COLLECTED

FIELD BLANK
EHR-1009-304

APPENDIX 4

CHAIN OF CUSTODIES

ENERGY LABORATORIES

Chain of Custody and Analytical Request Record

Page 1 of 1

PLEASE PRINT- Provide as much information as possible.

Company Name:	Project Name, PWS, Permit, Etc.	Sample Origin	EPA/State Compliance:
ASARCO LLC	LONG-TERM RI/FS RESIDENTIAL WELLS - OCTOBER 2009	State: MT	Yes ☐ No ☐

Report Mail Address:	Contact Name:	Phone/Fax:	Email:	Sampler: (Please Print)
P.O. BOX 1230 EAST HELENA, MT 59635	JON NICKEL	(406) 227-4529		NICKEL

Invoice Address:	Invoice Contact & Phone:	Purchase Order:	Quote/Bottle Order:

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

- ☐ DW
- ☐ GSA
- ☐ POTW/WWTP
- ☐ State: _____
- ☐ Other: _____
- ☐ A2LA
- ☐ EDD/EDT (Electronic Data) Format: _____
- ☐ LEVEL IV
- ☐ NELAC

Number of Containers
Sample Type: A W S V B O
Air Water Soils/Solids
Vegetation Bioassay Other

ANALYSIS REQUESTED

Contact ELI prior to RUSH sample submittal for charges and scheduling – See Instruction Page

Comments:

Shipped by: hand
Cooler ID(s):
Receipt Temp 9.5 °C
On Ice: Yes (No)
Custody Seal Y (N)
Intact Y N
Signature Match Y N

SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	PHYSICAL PARAMETERS	COMMON IONS	METALS							SEE ATTACHED	Normal Turnaround (TAT)	RUSH		LABORATORY USE ONLY
EHR-1009-300 RAW	10/14/09	8:10	GW	X	X								X	X			H09100179-001
EHR-1009-300 METAL		8:10				X											
EHR-1009-301 RAW		8:20		X	X												
EHR-1009-301 METAL		8:20				X											
EHR-1009-302 RAW		10:20		X	X												
EHR-1009-302 METAL		10:20				X											
EHR-1009-303 RAW		10:45		X	X												
EHR-1009-303 METAL		10:45				X											
EHR-1009-304 RAW		11:30		X	X												
EHR-1009-304 METAL		11:30				X											

Custody Record MUST be Signed

Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
JON NICKEL	10/14/09 / 1430	[signature]			
Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
Sample Disposal: Return to Client: _____		Lab Disposal: _____	Received by Laboratory: Roxanne Julias	Date/Time: 10-14-09 14:30	Signature: [signature]

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.
This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.
Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

TABLE 3. SEMI-ANNUAL/ANNUAL RESIDENTIAL/CAMU MONITORING PROGRAMS – GROUNDWATER AND SURFACE WATER PARAMETER LIST

Parameter	Analytical Technique	Analytical Method	Project Detection Limit (mg/L)
Physical Parameters			
PH ✓	PH Meter	SM 4500H-B	
Specific Conductivity ✓	SC Meter	SM 2510 B	
TDS ✓	Gravimetric	SM 2540C	10
TSS ✓	Gravimetric	SM 2540D	10
Common Ions			
Alkalinity ✓	Titrimetric	SM 2320 B	1
Bicarbonate ✓	Titrimetric	SM 2320 B	1
Sulfate ✓	Turbidimetric	SM 4500SO4 E	1
Chloride ✓	Colorimetric	SM 4500 CL C	1
Calcium	ICP	200.7	5 ✓
Magnesium	ICP	200.7	5 ✓
Sodium	ICP	200.7	5
Potassium	ICP	200.7	5 ✓
Arsenic and Metals (Groundwater –Dissolved. Surface Water Dissolved and Total)			
Arsenic	ICP/ICP-MS	200.7/200.8	0.002 ✓
Cadmium	ICP/ICP-MS	200.7/200.8	0.001 ✓
Copper	ICP/ICP-MS	200.7/200.8	0.001 ✓
Iron	ICP/ICP-MS	200.7/200.8	0.02 ✓
Manganese	ICP/ICP-MS	200.7/200.8	0.01 ✓
Lead	ICP/ICP-MS	200.7/200.8	0.005 ✓
Selenium	ICP/ICP-MS	200.7/200.8	0.001 ✓
Zinc	ICP/ICP-MS	200.7/200.8	0.02 ✓
Supplemental Trace Metals (Groundwater –Dissolved. Surface water Dissolved and Total)			
Aluminum	ICP/ICP-MS	200.7/200.8	0.1 ✓
Antimony	ICP/ICP-MS	200.7/200.8	0.003 ✓
Barium	ICP/ICP-MS	200.7/200.8	0.1 ✓
Beryllium	ICP/ICP-MS	200.7/200.8	0.001 ✓
Chromium	ICP/ICP-MS	200.7/200.8	0.001 ✓
Cobalt	ICP/ICP-MS	200.7/200.8	0.01
Gold	ICP/ICP-MS	200.7/200.8	0.01
Mercury	ICP/ICP-MS	200.8/E245.1	0.001
Nickel	ICP/ICP-MS	200.7/200.8	0.01
Silver	ICP/ICP-MS	200.7/200.8	0.005
Tellurium	ICP/ICP-MS	200.7/200.8	0.1
Thallium	ICP/ICP-MS	200.7/200.8	0.001
Vanadium	ICP/ICP-MS	200.7/200.8	0.01
Field Parameters			
SWL	Electric Tape	HF-SOP-10	0.01 ft
Temperature	PH Meter	HF-SOP-20	NA
Dissolved Oxygen (DO)	DO Meter	HF-SOP-22	NA
PH	pH Meter	HF-SOP-20	NA
Specific Conductivity (SC)	SC Meter	HF-SOP-79	NA

APPENDIX 5

LABORATORY REPORT

ENERGY LABORATORIES, INC. * 3161 E Lyndale (59604) * PO Box 5688 * Helena, MT 59601
* 406.442.0711 * FAX 406.442.0712 * helena@energylab.com

ANALYTICAL SUMMARY REPORT

October 29, 2009

Asarco LLC
PO Box 1230
East Helena, MT 59635

Workorder No.: H09100179 Quote ID: H376 - Monthly Residential Wells

Project Name: RI/FS Residential Long-Term October 2009

Energy Laboratories Inc received the following 5 samples for Asarco LLC on 10/14/2009 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H09100179-001	EHR-1009-300	10/14/09 8:10	10/14/09	Groundwater	Metals by ICP/ICPMS, Dissolved Alkalinity Conductivity Anions by Ion Chromatography pH Solids, Total Dissolved Solids, Total Suspended
H09100179-002	EHR-1009-301	10/14/09 8:20	10/14/09	Groundwater	Same As Above
H09100179-003	EHR-1009-302	10/14/09 10:20	10/14/09	Groundwater	Same As Above
H09100179-004	EHR-1009-303	10/14/09 10:45	10/14/09	Groundwater	Same As Above
H09100179-005	EHR-1009-304	10/14/09 11:30	10/14/09	Groundwater	Same As Above

BRANCH LABORATORY LOCATIONS
eli-b - Energy Laboratories, Inc. - Billings, MT, EPA # MT00005
eli-c - Energy Laboratories, Inc. - Casper, WY, EPA# WY00002
eli-g - Energy Laboratories, Inc. - Gillette, WY, EPA# WY00006
eli-h - Energy Laboratories, Inc. - Helena, MT, EPA# MT00945
eli-r - Energy Laboratories, Inc. - Rapid City, SD, EPA# SD00012
eli-t - Energy Laboratories, Inc. - College Station, TX, EPA# TX01520

SUBCONTRACTING ANALYSIS
Subcontracting of sample analyses to an outside laboratory may be required. If so, ENERGY LABORATORIES, INC. will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories are indicated within the Laboratory Analytical Report.

SAMPLE TEMPERATURE COMPLIANCE: 4°C (±2°C)
Temperature of samples received may not be considered properly preserved by accepted standards. Samples that are hand delivered immediately after collection shall be considered acceptable if there is evidence that the chilling process has begun.

ELI appreciates the opportunity to provide you with this analytical service. For additional information, including certifications, and analytical services visit our web page www.energylab.com.

Report Approved By: Jonathan D. Hager

Digitally signed by Jonathan D. Hager
DN: cn=Jonathan D. Hager, o=Energy Laboratory-Helena, ou=Assistant Lab Manager, email=jhager@energylab.com, c=US
Date: 2009.11.06 18:35:18 -07'00'

ENERGY LABORATORIES, INC. * 3161 E Lyndale (59604) * PO Box 5688 * Helena, MT 59601
* 406.442.0711 * FAX 406.442.0712 * helena@energylab.com

LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-1009-300
Project: RI/FS Residential Long-Term October 2009
Matrix: Groundwater

Lab ID: H09100179-001
Collection Date: 10/14/09 08:10
DateReceived: 10/14/09
Report Date: 10/29/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
pH	7.4	s.u.		0.1		A4500-H B	10/16/09 14:23 / hm			PH2_091016A	8	091016A-PH-W
Conductivity	783	umhos/cm		1		A2510 B	10/16/09 14:10 / hm			COND_091016A	11	091016A-COND-PROBE W
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	10/16/09 13:53 / JG			-124 (14410200)_091016B	6	7131
Solids, Total Dissolved TDS @ 180 C	568	mg/L		10		A2540 C	10/16/09 14:15 / JG			124 (14410200)_091016A	10	7133
INORGANICS												
Alkalinity, Total as CaCO3	120	mg/L		1		A2320 B	10/20/09 20:22 / hm			MAN-TECH_091021A	32	R57626
Bicarbonate as HCO3	150	mg/L		1		A2320 B	10/20/09 20:22 / hm			MAN-TECH_091021A	32	R57626
Chloride	27	mg/L		1		E300.0	10/20/09 20:47 / hm			IC101-H_091020A	23	R57532
Sulfate	240	mg/L		1		E300.0	10/20/09 20:47 / hm			IC101-H_091020A	23	R57532
METALS, DISSOLVED												
Aluminum	ND	mg/L		0.1		E200.8	10/20/09 00:26 / eli-b			SUB-B137708	26	B_R137708
Antimony	ND	mg/L		0.003		E200.8	10/20/09 00:26 / eli-b			SUB-B137708	26	B_R137708
Arsenic	0.003	mg/L		0.002		E200.8	10/20/09 00:26 / eli-b			SUB-B137708	26	B_R137708
Barium	ND	mg/L		0.1		E200.7	10/16/09 17:39 / eli-b			SUB-B137645	49	B_R137645
Beryllium	ND	mg/L		0.001		E200.7	10/16/09 17:39 / eli-b			SUB-B137645	49	B_R137645
Cadmium	ND	mg/L		0.001		E200.7	10/16/09 17:39 / eli-b			SUB-B137645	49	B_R137645
Calcium	102	mg/L		1		E200.7	10/16/09 17:39 / eli-b			SUB-B137645	49	B_R137645
Chromium	ND	mg/L		0.001		E200.8	10/20/09 00:26 / eli-b			SUB-B137708	26	B_R137708
Cobalt	ND	mg/L		0.01		E200.7	10/16/09 17:39 / eli-b			SUB-B137645	49	B_R137645
Copper	0.003	mg/L		0.001		E200.8	10/20/09 00:26 / eli-b			SUB-B137708	26	B_R137708
Gold	ND	mg/L		0.01		E200.7	10/16/09 17:39 / eli-b			SUB-B137645	49	B_R137645
Iron	0.05	mg/L		0.02		E200.7	11/02/09 12:07 / eli-b			SUB-B138393	1	B_R138393
Lead	ND	mg/L		0.005		E200.8	10/20/09 00:26 / eli-b			SUB-B137708	26	B_R137708
Magnesium	22	mg/L		1		E200.7	10/16/09 17:39 / eli-b			SUB-B137645	49	B_R137645
Manganese	0.02	mg/L		0.01		E200.8	10/20/09 00:26 / eli-b			SUB-B137708	26	B_R137708
Mercury	ND	mg/L		0.001		E200.8	10/20/09 00:26 / eli-b			SUB-B137708	26	B_R137708
Nickel	ND	mg/L		0.01		E200.7	10/16/09 17:39 / eli-b			SUB-B137645	49	B_R137645
Potassium	6	mg/L		1		E200.7	10/16/09 17:39 / eli-b			SUB-B137645	49	B_R137645
Selenium	0.027	mg/L		0.001		E200.8	10/20/09 00:26 / eli-b			SUB-B137708	26	B_R137708
Silver	ND	mg/L		0.005		E200.7	10/16/09 17:39 / eli-b			SUB-B137645	49	B_R137645
Sodium	25	mg/L		1		E200.7	10/16/09 17:39 / eli-b			SUB-B137645	49	B_R137645
Tellurium	ND	mg/L		0.1		E200.7	10/16/09 17:39 / eli-b			SUB-B137645	49	B_R137645

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 3161 E Lyndale (59604) * PO Box 5688 * Helena, MT 59601
* 406.442.0711 * FAX 406.442.0712 * helena@energylab.com

LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-1009-300
Project: RI/FS Residential Long-Term October 2009
Matrix: Groundwater

Lab ID: H09100179-001
Collection Date: 10/14/09 08:10
DateReceived: 10/14/09
Report Date: 10/29/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
METALS, DISSOLVED												
Thallium	ND	mg/L		0.001		E200.8	10/20/09 00:26 / eli-b			SUB-B137708	26	B_R137708
Vanadium	ND	mg/L		0.01		E200.7	10/16/09 17:39 / eli-b			SUB-B137645	49	B_R137645
Zinc	0.04	mg/L		0.02		E200.8	10/20/09 00:26 / eli-b			SUB-B137708	26	B_R137708

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 3161 E Lyndale (59604) * PO Box 5688 * Helena, MT 59601
* 406.442.0711 * FAX 406.442.0712 * helena@energylab.com

LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-1009-301
Project: RI/FS Residential Long-Term October 2009
Matrix: Groundwater

Lab ID: H09100179-002
Collection Date: 10/14/09 08:20
DateReceived: 10/14/09
Report Date: 10/29/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
pH	7.3	s.u.		0.1		A4500-H B	10/16/09 14:24 / hm			PH2_091016A	9	091016A-PH-W
Conductivity	782	umhos/cm		1		A2510 B	10/16/09 14:12 / hm			COND_091016A	12	091016A-COND-PROBE W
Solids, Total Suspended TSS @ 105 C	10	mg/L		10		A2540 D	10/16/09 13:54 / JG			-124 (14410200)_091016B	7	7131
Solids, Total Dissolved TDS @ 180 C	572	mg/L		10		A2540 C	10/16/09 14:15 / JG			124 (14410200)_091016A	11	7133
INORGANICS												
Alkalinity, Total as CaCO3	120	mg/L		1		A2320 B	10/20/09 20:43 / hm			MAN-TECH_091021A	38	R57626
Bicarbonate as HCO3	150	mg/L		1		A2320 B	10/20/09 20:43 / hm			MAN-TECH_091021A	38	R57626
Chloride	27	mg/L		1		E300.0	10/20/09 21:03 / hm			IC101-H_091020A	24	R57532
Sulfate	240	mg/L		1		E300.0	10/20/09 21:03 / hm			IC101-H_091020A	24	R57532
METALS, DISSOLVED												
Aluminum	ND	mg/L		0.1		E200.8	10/20/09 00:30 / eli-b			SUB-B137708	27	B_R137708
Antimony	ND	mg/L		0.003		E200.8	10/20/09 00:30 / eli-b			SUB-B137708	27	B_R137708
Arsenic	0.003	mg/L		0.002		E200.8	10/20/09 00:30 / eli-b			SUB-B137708	27	B_R137708
Barium	ND	mg/L		0.1		E200.7	10/16/09 17:51 / eli-b			SUB-B137645	50	B_R137645
Beryllium	ND	mg/L		0.001		E200.7	10/16/09 17:51 / eli-b			SUB-B137645	50	B_R137645
Cadmium	ND	mg/L		0.001		E200.7	10/16/09 17:51 / eli-b			SUB-B137645	50	B_R137645
Calcium	102	mg/L		1		E200.7	10/16/09 17:51 / eli-b			SUB-B137645	50	B_R137645
Chromium	0.001	mg/L		0.001		E200.8	10/20/09 17:48 / eli-b			SUB-B137777	9	B_R137777
Cobalt	ND	mg/L		0.01		E200.7	10/16/09 17:51 / eli-b			SUB-B137645	50	B_R137645
Copper	ND	mg/L		0.001		E200.7	10/16/09 17:51 / eli-b			SUB-B137645	50	B_R137645
Gold	ND	mg/L		0.01		E200.7	10/16/09 17:51 / eli-b			SUB-B137645	50	B_R137645
Iron	0.04	mg/L		0.02		E200.7	10/16/09 17:51 / eli-b			SUB-B137645	50	B_R137645
Lead	ND	mg/L		0.005		E200.8	10/20/09 00:30 / eli-b			SUB-B137708	27	B_R137708
Magnesium	22	mg/L		1		E200.7	10/16/09 17:51 / eli-b			SUB-B137645	50	B_R137645
Manganese	0.02	mg/L		0.01		E200.7	10/16/09 17:51 / eli-b			SUB-B137645	50	B_R137645
Mercury	ND	mg/L		0.001		E200.8	10/20/09 00:30 / eli-b			SUB-B137708	27	B_R137708
Nickel	ND	mg/L		0.01		E200.7	10/16/09 17:51 / eli-b			SUB-B137645	50	B_R137645
Potassium	6	mg/L		1		E200.7	10/16/09 17:51 / eli-b			SUB-B137645	50	B_R137645
Selenium	0.028	mg/L		0.001		E200.8	10/20/09 00:30 / eli-b			SUB-B137708	27	B_R137708
Silver	ND	mg/L		0.005		E200.7	10/16/09 17:51 / eli-b			SUB-B137645	50	B_R137645
Sodium	25	mg/L		1		E200.7	10/16/09 17:51 / eli-b			SUB-B137645	50	B_R137645
Tellurium	ND	mg/L		0.1		E200.7	10/16/09 17:51 / eli-b			SUB-B137645	50	B_R137645

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-1009-301
Project: RI/FS Residential Long-Term October 2009
Matrix: Groundwater

Lab ID: H09100179-002
Collection Date: 10/14/09 08:20
DateReceived: 10/14/09
Report Date: 10/29/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
METALS, DISSOLVED												
Thallium	ND	mg/L		0.001		E200.8	10/20/09 00:30 / eli-b			SUB-B137708	27	B_R137708
Vanadium	ND	mg/L		0.01		E200.7	10/16/09 17:51 / eli-b			SUB-B137645	50	B_R137645
Zinc	0.04	mg/L		0.02		E200.8	10/20/09 00:30 / eli-b			SUB-B137708	27	B_R137708

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-1009-302
Project: RI/FS Residential Long-Term October 2009
Matrix: Groundwater

Lab ID: H09100179-003
Collection Date: 10/14/09 10:20
DateReceived: 10/14/09
Report Date: 10/29/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
pH	7.4	s.u.		0.1		A4500-H B	10/16/09 14:25 / hm			PH2_091016A	10	091016A-PH-W
Conductivity	477	umhos/cm		1		A2510 B	10/16/09 14:14 / hm			COND_091016A	13	091016A-COND-PROBE W
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	10/16/09 13:54 / JG			-124 (14410200)_091016B	9	7131
Solids, Total Dissolved TDS @ 180 C	341	mg/L		10		A2540 C	10/16/09 14:16 / JG			124 (14410200)_091016A	14	7133
INORGANICS												
Alkalinity, Total as CaCO3	110	mg/L		1		A2320 B	10/20/09 20:49 / hm			MAN-TECH_091021A	40	R57626
Bicarbonate as HCO3	140	mg/L		1		A2320 B	10/20/09 20:49 / hm			MAN-TECH_091021A	40	R57626
Chloride	7	mg/L		1		E300.0	10/20/09 21:20 / hm			IC101-H_091020A	25	R57532
Sulfate	110	mg/L		1		E300.0	10/20/09 21:20 / hm			IC101-H_091020A	25	R57532
METALS, DISSOLVED												
Aluminum	ND	mg/L		0.1		E200.8	10/20/09 00:50 / eli-b			SUB-B137708	28	B_R137708
Antimony	ND	mg/L		0.003		E200.8	10/20/09 00:50 / eli-b			SUB-B137708	28	B_R137708
Arsenic	ND	mg/L		0.002		E200.8	10/20/09 00:50 / eli-b			SUB-B137708	28	B_R137708
Barium	ND	mg/L		0.1		E200.7	10/16/09 17:55 / eli-b			SUB-B137645	51	B_R137645
Beryllium	ND	mg/L		0.001		E200.7	10/16/09 17:55 / eli-b			SUB-B137645	51	B_R137645
Cadmium	ND	mg/L		0.001		E200.7	10/16/09 17:55 / eli-b			SUB-B137645	51	B_R137645
Calcium	58	mg/L		1		E200.7	10/16/09 17:55 / eli-b			SUB-B137645	51	B_R137645
Chromium	0.001	mg/L		0.001		E200.8	10/20/09 17:52 / eli-b			SUB-B137777	10	B_R137777
Cobalt	ND	mg/L		0.01		E200.7	10/16/09 17:55 / eli-b			SUB-B137645	51	B_R137645
Copper	ND	mg/L		0.001		E200.8	10/20/09 17:52 / eli-b			SUB-B137777	10	B_R137777
Gold	ND	mg/L		0.01		E200.7	10/16/09 17:55 / eli-b			SUB-B137645	51	B_R137645
Iron	ND	mg/L		0.02		E200.7	10/16/09 17:55 / eli-b			SUB-B137645	51	B_R137645
Lead	ND	mg/L		0.005		E200.8	10/20/09 00:50 / eli-b			SUB-B137708	28	B_R137708
Magnesium	13	mg/L		1		E200.7	10/16/09 17:55 / eli-b			SUB-B137645	51	B_R137645
Manganese	ND	mg/L		0.01		E200.7	10/16/09 17:55 / eli-b			SUB-B137645	51	B_R137645
Mercury	ND	mg/L		0.001		E200.8	10/20/09 00:50 / eli-b			SUB-B137708	28	B_R137708
Nickel	ND	mg/L		0.01		E200.7	10/16/09 17:55 / eli-b			SUB-B137645	51	B_R137645
Potassium	5	mg/L		1		E200.7	10/16/09 17:55 / eli-b			SUB-B137645	51	B_R137645
Selenium	0.004	mg/L		0.001		E200.8	10/20/09 00:50 / eli-b			SUB-B137708	28	B_R137708
Silver	ND	mg/L		0.005		E200.7	10/16/09 17:55 / eli-b			SUB-B137645	51	B_R137645
Sodium	17	mg/L		1		E200.7	10/16/09 17:55 / eli-b			SUB-B137645	51	B_R137645
Tellurium	ND	mg/L		0.1		E200.7	10/16/09 17:55 / eli-b			SUB-B137645	51	B_R137645

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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-1009-302
Project: RI/FS Residential Long-Term October 2009
Matrix: Groundwater

Lab ID: H09100179-003
Collection Date: 10/14/09 10:20
DateReceived: 10/14/09
Report Date: 10/29/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
METALS, DISSOLVED												
Thallium	ND	mg/L		0.001		E200.8	10/20/09 00:50 / eli-b			SUB-B137708	28	B_R137708
Vanadium	ND	mg/L		0.01		E200.7	10/16/09 17:55 / eli-b			SUB-B137645	51	B_R137645
Zinc	0.03	mg/L		0.02		E200.8	10/20/09 00:50 / eli-b			SUB-B137708	28	B_R137708

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-1009-303
Project: RI/FS Residential Long-Term October 2009
Matrix: Groundwater

Lab ID: H09100179-004
Collection Date: 10/14/09 10:45
DateReceived: 10/14/09
Report Date: 10/29/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
pH	7.4	s.u.		0.1		A4500-H B	10/16/09 14:26 / hm			PH2_091016A	11	091016A-PH-W
Conductivity	287	umhos/cm		1		A2510 B	10/16/09 14:24 / hm			COND_091016A	15	091016A-COND-PROBE W
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	10/16/09 13:55 / JG			124 (14410200)_091016B	10	7131
Solids, Total Dissolved TDS @ 180 C	190	mg/L		10		A2540 C	10/16/09 14:16 / JG			124 (14410200)_091016A	15	7133
INORGANICS												
Alkalinity, Total as CaCO3	76	mg/L		1		A2320 B	10/20/09 20:54 / hm			MAN-TECH_091021A	42	R57626
Bicarbonate as HCO3	92	mg/L		1		A2320 B	10/20/09 20:54 / hm			MAN-TECH_091021A	42	R57626
Chloride	4	mg/L		1		E300.0	10/20/09 22:09 / hm			IC101-H_091020A	28	R57532
Sulfate	53	mg/L		1		E300.0	10/20/09 22:09 / hm			IC101-H_091020A	28	R57532
METALS, DISSOLVED												
Aluminum	ND	mg/L		0.1		E200.8	10/20/09 00:54 / eli-b			SUB-B137708	29	B_R137708
Antimony	ND	mg/L		0.003		E200.8	10/20/09 00:54 / eli-b			SUB-B137708	29	B_R137708
Arsenic	ND	mg/L		0.002		E200.8	10/20/09 00:54 / eli-b			SUB-B137708	29	B_R137708
Barium	ND	mg/L		0.1		E200.7	10/16/09 18:08 / eli-b			SUB-B137645	52	B_R137645
Beryllium	ND	mg/L		0.001		E200.7	10/16/09 18:08 / eli-b			SUB-B137645	52	B_R137645
Cadmium	ND	mg/L		0.001		E200.7	10/16/09 18:08 / eli-b			SUB-B137645	52	B_R137645
Calcium	31	mg/L		1		E200.7	10/16/09 18:08 / eli-b			SUB-B137645	52	B_R137645
Chromium	ND	mg/L		0.001		E200.8	10/20/09 00:54 / eli-b			SUB-B137708	29	B_R137708
Cobalt	ND	mg/L		0.01		E200.7	10/16/09 18:08 / eli-b			SUB-B137645	52	B_R137645
Copper	0.013	mg/L		0.001		E200.7	10/16/09 18:08 / eli-b			SUB-B137645	52	B_R137645
Gold	ND	mg/L		0.01		E200.7	10/16/09 18:08 / eli-b			SUB-B137645	52	B_R137645
Iron	ND	mg/L		0.02		E200.7	10/16/09 18:08 / eli-b			SUB-B137645	52	B_R137645
Lead	ND	mg/L		0.005		E200.8	10/20/09 00:54 / eli-b			SUB-B137708	29	B_R137708
Magnesium	7	mg/L		1		E200.7	10/16/09 18:08 / eli-b			SUB-B137645	52	B_R137645
Manganese	ND	mg/L		0.01		E200.7	10/16/09 18:08 / eli-b			SUB-B137645	52	B_R137645
Mercury	ND	mg/L		0.001		E200.8	10/20/09 00:54 / eli-b			SUB-B137708	29	B_R137708
Nickel	ND	mg/L		0.01		E200.7	10/16/09 18:08 / eli-b			SUB-B137645	52	B_R137645
Potassium	3	mg/L		1		E200.7	10/16/09 18:08 / eli-b			SUB-B137645	52	B_R137645
Selenium	ND	mg/L		0.001		E200.8	10/20/09 00:54 / eli-b			SUB-B137708	29	B_R137708
Silver	ND	mg/L		0.005		E200.7	10/16/09 18:08 / eli-b			SUB-B137645	52	B_R137645
Sodium	13	mg/L		1		E200.7	10/16/09 18:08 / eli-b			SUB-B137645	52	B_R137645
Tellurium	ND	mg/L		0.1		E200.7	10/16/09 18:08 / eli-b			SUB-B137645	52	B_R137645

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-1009-303
Project: RI/FS Residential Long-Term October 2009
Matrix: Groundwater

Lab ID: H09100179-004
Collection Date: 10/14/09 10:45
DateReceived: 10/14/09
Report Date: 10/29/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
METALS, DISSOLVED												
Thallium	ND	mg/L		0.001		E200.8	10/20/09 00:54 / eli-b			SUB-B137708	29	B_R137708
Vanadium	ND	mg/L		0.01		E200.7	10/16/09 18:08 / eli-b			SUB-B137645	52	B_R137645
Zinc	ND	mg/L		0.02		E200.8	10/20/09 00:54 / eli-b			SUB-B137708	29	B_R137708

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-1009-304
Project: RI/FS Residential Long-Term October 2009
Matrix: Groundwater

Lab ID: H09100179-005
Collection Date: 10/14/09 11:30
DateReceived: 10/14/09
Report Date: 10/29/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
pH	6.3	s.u.		0.1		A4500-H B	10/16/09 14:30 / hm			PH2_091016A	12	091016A-PH-W
Conductivity	19	umhos/cm		1		A2510 B	10/16/09 14:26 / hm			COND_091016A	16	091016A-COND-PROBE W
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	10/16/09 13:55 / JG			124 (14410200)_091016B	11	7131
Solids, Total Dissolved TDS @ 180 C	111	mg/L		10		A2540 C	10/19/09 14:45 / hm	10/19/09 14:34	A2540 C	124 (14410200)_091019A	3	7152
INORGANICS												
Alkalinity, Total as CaCO3	1	mg/L		1		A2320 B	10/20/09 20:59 / hm			MAN-TECH_091021A	44	R57626
Bicarbonate as HCO3	1	mg/L		1		A2320 B	10/20/09 20:59 / hm			MAN-TECH_091021A	44	R57626
Chloride	2	mg/L		1		E300.0	10/20/09 22:25 / hm			IC101-H_091020A	29	R57532
Sulfate	ND	mg/L		1		E300.0	10/20/09 22:25 / hm			IC101-H_091020A	29	R57532
METALS, DISSOLVED												
Aluminum	ND	mg/L		0.1		E200.8	10/20/09 00:58 / eli-b			SUB-B137708	30	B_R137708
Antimony	ND	mg/L		0.003		E200.8	10/20/09 00:58 / eli-b			SUB-B137708	30	B_R137708
Arsenic	ND	mg/L		0.002		E200.8	10/20/09 00:58 / eli-b			SUB-B137708	30	B_R137708
Barium	ND	mg/L		0.1		E200.7	10/16/09 18:12 / eli-b			SUB-B137645	53	B_R137645
Beryllium	ND	mg/L		0.001		E200.7	10/16/09 18:12 / eli-b			SUB-B137645	53	B_R137645
Cadmium	ND	mg/L		0.001		E200.7	10/16/09 18:12 / eli-b			SUB-B137645	53	B_R137645
Calcium	ND	mg/L		1		E200.7	10/16/09 18:12 / eli-b			SUB-B137645	53	B_R137645
Chromium	ND	mg/L		0.001		E200.8	10/20/09 00:58 / eli-b			SUB-B137708	30	B_R137708
Cobalt	ND	mg/L		0.01		E200.7	10/16/09 18:12 / eli-b			SUB-B137645	53	B_R137645
Copper	0.016	mg/L		0.001		E200.7	10/16/09 18:12 / eli-b			SUB-B137645	53	B_R137645
Gold	ND	mg/L		0.01		E200.7	10/16/09 18:12 / eli-b			SUB-B137645	53	B_R137645
Iron	ND	mg/L		0.02		E200.7	10/16/09 18:12 / eli-b			SUB-B137645	53	B_R137645
Lead	ND	mg/L		0.005		E200.8	10/20/09 00:58 / eli-b			SUB-B137708	30	B_R137708
Magnesium	ND	mg/L		1		E200.7	10/16/09 18:12 / eli-b			SUB-B137645	53	B_R137645
Manganese	ND	mg/L		0.01		E200.7	10/16/09 18:12 / eli-b			SUB-B137645	53	B_R137645
Mercury	ND	mg/L		0.001		E200.8	10/20/09 00:58 / eli-b			SUB-B137708	30	B_R137708
Nickel	ND	mg/L		0.01		E200.7	10/16/09 18:12 / eli-b			SUB-B137645	53	B_R137645
Potassium	ND	mg/L		1		E200.7	10/16/09 18:12 / eli-b			SUB-B137645	53	B_R137645
Selenium	ND	mg/L		0.001		E200.8	10/20/09 00:58 / eli-b			SUB-B137708	30	B_R137708
Silver	ND	mg/L		0.005		E200.7	10/16/09 18:12 / eli-b			SUB-B137645	53	B_R137645
Sodium	3	mg/L		1		E200.7	10/16/09 18:12 / eli-b			SUB-B137645	53	B_R137645
Tellurium	ND	mg/L		0.1		E200.7	10/16/09 18:12 / eli-b			SUB-B137645	53	B_R137645

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Client Sample ID: EHR-1009-304
Project: RI/FS Residential Long-Term October 2009
Matrix: Groundwater

Lab ID: H09100179-005
Collection Date: 10/14/09 11:30
DateReceived: 10/14/09
Report Date: 10/29/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
METALS, DISSOLVED												
Thallium	ND	mg/L		0.001		E200.8	10/20/09 00:58 / eli-b			SUB-B137708	30	B_R137708
Vanadium	ND	mg/L		0.01		E200.7	10/16/09 18:12 / eli-b			SUB-B137645	53	B_R137645
Zinc	0.06	mg/L		0.02		E200.8	10/20/09 00:58 / eli-b			SUB-B137708	30	B_R137708

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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Client: Asarco LLC
Work Order: H09100179
Project: RI/FS Residential Long-Term October 2009

ANALYTICAL QC SUMMARY REPORT

Date: *29-Oct-09*

BatchID: 091016A-COND-PROBE

Run ID :Run Order: **COND_091016A: 1** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV1_091016A** Method: **A2510 B**
Analysis Date: **10/16/09 13:48** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	719	1.0	717.5		**100**	90	110				

Associated samples: **H09100179-001; H09100179-002; H09100179-003; H09100179-004; H09100179-005**

Run ID :Run Order: **COND_091016A: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS1_091016A** Method: **A2510 B**
Analysis Date: **10/16/09 13:50** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	1400	1.0	1412		**99**	90	110				

Associated samples: **H09100179-001; H09100179-002; H09100179-003; H09100179-004; H09100179-005**

Run ID :Run Order: **COND_091016A: 14** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV1_091016A** Method: **A2510 B**
Analysis Date: **10/16/09 14:23** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	726	1.0	718		**101**	90	110				

Associated samples: **H09100179-004; H09100179-005**

Run ID :Run Order: **COND_091016A: 17** SampType: **Sample Duplicate** Sample ID: **H09100179-005ADUP** Method: **A2510 B**
Analysis Date: **10/16/09 14:27** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	18.6	1.0						18.76	**0.9**	10	

Associated samples: **H09100179-001; H09100179-002; H09100179-003; H09100179-004; H09100179-005**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco LLC
Work Order: H09100179
Project: RI/FS Residential Long-Term October 2009

ANALYTICAL QC SUMMARY REPORT

BatchID: 091016A-PH-W

Date: 29-Oct-09

Run ID :Run Order: **PH2_091016A: 1** SampType: **Laboratory Control Sample** Sample ID: **LCS1_091016A** Method: **A4500-H B**

Analysis Date: **10/16/09 14:03** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.03	0.10	7		**100**	99	101				

Associated samples: **H09100179-001; H09100179-002; H09100179-003; H09100179-004; H09100179-005**

Run ID :Run Order: **PH2_091016A: 13** SampType: **Sample Duplicate** Sample ID: **H09100179-005ADUP** Method: **A4500-H B**

Analysis Date: **10/16/09 14:31** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	6.26	0.10						6.3	**0.6**	2	

Associated samples: **H09100179-001; H09100179-002; H09100179-003; H09100179-004; H09100179-005**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco LLC
Work Order: H09100179
Project: RI/FS Residential Long-Term October 2009

ANALYTICAL QC SUMMARY REPORT

Date: *29-Oct-09*

BatchID: 7131

Run ID :Run Order: **ACCU-124 (14410200)_091016B: 1** SampType: **Method Blank** Sample ID: **MB-7131** Method: **A2540 D**
Analysis Date: **10/16/09 13:52** Units: **mg/L** **Prep Info:** Prep Date: **10/16/2009** Prep Method: **A2540 D**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	ND	1									

Associated samples: **H09100179-001; H09100179-002; H09100179-003; H09100179-004; H09100179-005**

Run ID :Run Order: **ACCU-124 (14410200)_091016B: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS-7131** Method: **A2540 D**
Analysis Date: **10/16/09 13:52** Units: **mg/L** **Prep Info:** Prep Date: **10/16/2009** Prep Method: **A2540 D**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	1740	10	2000		87	70	130				

Associated samples: **H09100179-001; H09100179-002; H09100179-003; H09100179-004; H09100179-005**

Run ID :Run Order: **ACCU-124 (14410200)_091016B: 8** SampType: **Sample Duplicate** Sample ID: **H09100179-002ADUP** Method: **A2540 D**
Analysis Date: **10/16/09 13:54** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	10.0	10						10	0	10	

Associated samples: **H09100179-001; H09100179-002; H09100179-003; H09100179-004; H09100179-005**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco LLC
Work Order: H09100179
Project: RI/FS Residential Long-Term October 2009

ANALYTICAL QC SUMMARY REPORT

BatchID: 7133

Date: 29-Oct-09

Run ID :Run Order: **ACCU-124 (14410200)_091016A: 1** SampType: **Method Blank** Sample ID: **MB-7133** Method: **A2540 C**
Analysis Date: **10/16/09 14:12** Units: **mg/L** **Prep Info:** Prep Date: **10/16/2009** Prep Method: **A2540 C**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	6	1									

Associated samples: **H09100179-001; H09100179-002; H09100179-003; H09100179-004**

Run ID :Run Order: **ACCU-124 (14410200)_091016A: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS-7133** Method: **A2540 C**
Analysis Date: **10/16/09 14:12** Units: **mg/L** **Prep Info:** Prep Date: **10/16/2009** Prep Method: **A2540 C**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	998	10	1000	6	99	90	110				

Associated samples: **H09100179-001; H09100179-002; H09100179-003; H09100179-004**

Run ID :Run Order: **ACCU-124 (14410200)_091016A: 12** SampType: **Sample Matrix Spike** Sample ID: **H09100179-002AMS** Method: **A2540 C**
Analysis Date: **10/16/09 14:15** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2600	10	2000	572	101	80	120				

Associated samples: **H09100179-001; H09100179-002; H09100179-003; H09100179-004**

Run ID :Run Order: **ACCU-124 (14410200)_091016A: 13** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09100179-002AMSD** Method: **A2540 C**
Analysis Date: **10/16/09 14:16** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2590	10	2000	572	101	80	120	2598	0.4	10	

Associated samples: **H09100179-001; H09100179-002; H09100179-003; H09100179-004**

Run ID :Run Order: **ACCU-124 (14410200)_091016A: 17** SampType: **Sample Duplicate** Sample ID: **H09100179-005ADUP** Method: **A2540 C**
Analysis Date: **10/16/09 14:29** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	122	10						116	5	20	

Associated samples: **H09100179-001; H09100179-002; H09100179-003; H09100179-004**

Qualifiers:
ND - Not Detected at the Reporting Limit
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco LLC
Work Order: H09100179
Project: RI/FS Residential Long-Term October 2009

ANALYTICAL QC SUMMARY REPORT

BatchID: 7152

Date: 29-Oct-09

Run ID :Run Order: **ACCU-124 (14410200)_091019A: 1** SampType: **Method Blank** Sample ID: **MB-7152** Method: **A2540 C**
Analysis Date: **10/19/09 14:46** Units: **mg/L** **Prep Info:** Prep Date: **10/19/2009** Prep Method: **A2540 C**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	6	1									

Associated samples: **H09100179-005**

Run ID :Run Order: **ACCU-124 (14410200)_091019A: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS-7152** Method: **A2540 C**
Analysis Date: **10/19/09 14:46** Units: **mg/L** **Prep Info:** Prep Date: **10/19/2009** Prep Method: **A2540 C**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	984	10	1000	6	98	90	110				

Associated samples: **H09100179-005**

Run ID :Run Order: **ACCU-124 (14410200)_091019A: 4** SampType: **Sample Duplicate** Sample ID: **H09100179-005ADUP** Method: **A2540 C**
Analysis Date: **10/19/09 14:46** Units: **mg/L** **Prep Info:** Prep Date: **10/19/2009** Prep Method: **A2540 C**

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	113	10						111	1.8	20	

Associated samples: **H09100179-005**

Run ID :Run Order: **ACCU-124 (14410200)_091019A: 9** SampType: **Sample Matrix Spike** Sample ID: **H09100204-001AMS** Method: **A2540 C**
Analysis Date: **10/19/09 15:36** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2120	10	2000	214	95	80	120				

Associated samples: **H09100179-005**

Run ID :Run Order: **ACCU-124 (14410200)_091019A: 10** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09100204-001AMSD** Method: **A2540 C**
Analysis Date: **10/19/09 15:36** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2180	10	2000	214	98	80	120	2116	3.1	10	

Associated samples: **H09100179-005**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco LLC
Work Order: H09100179
Project: RI/FS Residential Long-Term October 2009

ANALYTICAL QC SUMMARY REPORT

Date: 29-Oct-09

BatchID: B_R137645

Run ID :Run Order: **SUB-B137645: 3** SampType: **Continuing Calibration Verification Standard** Sample ID: **ICV** Method: **E200.7**

Analysis Date: **10/16/09 12:55** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 16	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	2.46	0.10	2.5		98	95	105				
Beryllium	1.24	0.010	1.25		99	95	105				
Cadmium	2.49	0.010	2.5		99	95	105				
Calcium	24.4	1.0	25		98	95	105				
Cobalt	2.50	0.020	2.5		100	95	105				
Copper	2.47	0.010	2.5		99	95	105				
Gold	2.47	0.0043	2.5		99	95	105				
Iron	2.52	0.030	2.5		101	95	105				
Magnesium	24.7	1.0	25		99	95	105				
Manganese	2.49	0.010	2.5		100	95	105				
Nickel	2.52	0.050	2.5		101	95	105				
Potassium	23.9	1.0	25		96	95	105				
Silver	0.497	0.010	0.5		99	95	105				
Sodium	24.6	1.0	25		98	95	105				
Tellurium	2.59	0.10	2.5		104	95	105				
Vanadium	2.48	0.10	2.5		99	95	105				

Associated samples: **H09100179-001; H09100179-002; H09100179-003; H09100179-004; H09100179-005**

Run ID :Run Order: **SUB-B137645: 4** SampType: **Method Blank** Sample ID: **MB-SPDIS091016A** Method: **E200.7**

Analysis Date: **10/16/09 13:45** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 16	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.0005	0.0001									
Beryllium	0.0004	9E-05									
Cadmium	ND	0.0009									
Calcium	0.01	0.009									
Cobalt	0.002	0.001									
Copper	ND	0.0009									
Gold	ND	0.004									
Iron	ND	0.002									
Magnesium	ND	0.01									
Manganese	ND	0.0003									
Nickel	ND	0.002									
Potassium	ND	0.01									

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco LLC
Work Order: H09100179
Project: RI/FS Residential Long-Term October 2009

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R137645

Date: 29-Oct-09

Run ID :Run Order: **SUB-B137645: 4** SampType: **Method Blank** Sample ID: **MB-SPDIS091016A** Method: **E200.7**
Analysis Date: **10/16/09 13:45** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 16	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	0.002	0.002									
Sodium	ND	0.03									
Tellurium	0.02	0.02									
Vanadium	ND	0.003									

Associated samples: H09100179-001; H09100179-002; H09100179-003; H09100179-004; H09100179-005

Run ID :Run Order: **SUB-B137645: 5** SampType: **Laboratory Fortified Blank** Sample ID: **LFB-SPDIS091016A** Method: **E200.7**
Analysis Date: **10/16/09 13:49** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 16	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.990	0.10	1	0.00051	99	85	115				
Beryllium	0.501	0.010	0.5	0.00036	100	85	115				
Cadmium	0.503	0.010	0.5		101	85	115				
Calcium	49.2	1.0	50	0.01326	98	85	115				
Cobalt	1.00	0.020	1	0.00165	100	85	115				
Copper	0.991	0.010	1		99	85	115				
Gold	0.980	0.0045	1		98	85	115				
Iron	4.99	0.030	5		100	85	115				
Magnesium	49.4	1.0	50		99	85	115				
Manganese	4.95	0.010	5		99	85	115				
Nickel	1.02	0.050	1		102	85	115				
Potassium	50.2	1.0	50		100	85	115				
Silver	0.493	0.010	0.5	0.00177	98	85	115				
Sodium	51.8	1.0	50		104	85	115				
Tellurium	0.997	0.10	1	0.02007	98	85	115				
Vanadium	1.01	0.10	1		101	85	115				

Associated samples: H09100179-001; H09100179-002; H09100179-003; H09100179-004; H09100179-005

Run ID :Run Order: **SUB-B137645: 6** SampType: **Sample Matrix Spike** Sample ID: **B09101323-001BMS2** Method: **E200.7**
Analysis Date: **10/16/09 18:40** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 16	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	1.99	0.10	2	0.02596	98	70	130				
Beryllium	0.969	0.0010	1		97	70	130				

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco LLC
Work Order: H09100179
Project: RI/FS Residential Long-Term October 2009

ANALYTICAL QC SUMMARY REPORT

Date: *29-Oct-09*

BatchID: B_R137645

Run ID :Run Order: **SUB-B137645: 6** SampType: **Sample Matrix Spike** Sample ID: **B09101323-001BMS2** Method: **E200.7**

Analysis Date: **10/16/09 18:40** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 16	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.980	0.0016	1		98	70	130				
Calcium	125	1.0	100	30.38	95	70	130				
Cobalt	1.96	0.010	2		98	70	130				
Copper	1.87	0.010	2		94	70	130				
Gold	1.90	0.010	2		95	70	130				
Iron	9.69	0.030	10	0.06922	96	70	130				
Magnesium	103	1.0	100	6.83	96	70	130				
Manganese	9.70	0.010	10	0.0485	96	70	130				
Nickel	1.95	0.010	2		97	70	130				
Potassium	98.9	1.4	100	2.718	96	70	130				
Silver	0.586	0.0050	1		59	70	130				S
Sodium	109	1.0	100	11.82	97	70	130				
Tellurium	1.95	0.041	2		98	70	130				
Vanadium	1.95	0.10	2		98	70	130				

Associated samples: **H09100179-001; H09100179-002; H09100179-003; H09100179-004; H09100179-005**

Run ID :Run Order: **SUB-B137645: 7** SampType: **Sample Matrix Spike Duplicate** Sample ID: **B09101323-001BMSD2** Method: **E200.7**

Analysis Date: **10/16/09 18:44** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 16	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	1.95	0.10	2	0.02596	96	70	130	1.99	2	20	
Beryllium	0.957	0.0010	1		96	70	130	0.9692	1.3	20	
Cadmium	0.977	0.0016	1		98	70	130	0.9801	0.3	20	
Calcium	124	1.0	100	30.38	93	70	130	125	1.2	20	
Cobalt	1.95	0.010	2		98	70	130	1.957	0.2	20	
Copper	1.87	0.010	2		93	70	130	1.873	0.3	20	
Gold	1.91	0.010	2		96	70	130	1.895	0.9	20	
Iron	9.69	0.030	10	0.06922	96	70	130	9.692	0	20	
Magnesium	101	1.0	100	6.83	94	70	130	103	2.3	20	
Manganese	9.61	0.010	10	0.0485	96	70	130	9.698	0.9	20	
Nickel	1.95	0.010	2		97	70	130	1.949	0.1	20	
Potassium	103	1.4	100	2.718	100	70	130	98.94	3.8	20	
Silver	0.669	0.0050	1		67	70	130	0.5863	13	20	S
Sodium	109	1.0	100	11.82	97	70	130	109	0	20	

Qualifiers: ND - Not Detected at the Reporting Limit
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco LLC
Work Order: H09100179
Project: RI/FS Residential Long-Term October 2009

ANALYTICAL QC SUMMARY REPORT

Date: 29-Oct-09

BatchID: B_R137645

Run ID :Run Order: **SUB-B137645: 7** SampType: **Sample Matrix Spike Duplicate** Sample ID: **B09101323-001BMSD2** Method: **E200.7**

Analysis Date: **10/16/09 18:44** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 16	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Tellurium	1.97	0.041	2		99	70	130	1.955	0.9	20	
Vanadium	1.95	0.10	2		97	70	130	1.951	0.1	20	

Associated samples: H09100179-001; H09100179-002; H09100179-003; H09100179-004; H09100179-005

Run ID :Run Order: **SUB-B137645: 39** SampType: **Sample Matrix Spike** Sample ID: **H09100179-001B** Method: **E200.7**

Analysis Date: **10/16/09 17:43** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 16	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	1.05	0.10	1	0.05569	99	70	130				
Beryllium	0.492	0.0010	0.5		98	70	130				
Cadmium	0.493	0.0010	0.5		99	70	130				
Calcium	146	1.0	50	101.9	89	70	130				
Cobalt	0.990	0.010	1		99	70	130				
Copper	0.968	0.010	1	0.0239	94	70	130				
Gold	0.589	0.010	1		59	70	130				S
Iron	4.96	0.030	5	5.87	-18	70	130				S
Magnesium	70.1	1.0	50	22.13	96	70	130				
Manganese	4.94	0.010	5	0.06297	98	70	130				
Nickel	0.990	0.010	1	0.00494	98	70	130				
Potassium	56.9	1.0	50	6.11	101	70	130				
Silver	0.120	0.0050	0.5		24	70	130				S
Sodium	74.1	1.0	50	24.67	99	70	130				
Tellurium	0.992	0.021	1		99	70	130				
Vanadium	0.996	0.10	1		100	70	130				

Associated samples: H09100179-001; H09100179-002; H09100179-003; H09100179-004; H09100179-005

Run ID :Run Order: **SUB-B137645: 40** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09100179-001B** Method: **E200.7**

Analysis Date: **10/16/09 17:47** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 16	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	1.05	0.10	1	0.05569	99	70	130	1.049	0.2	20	
Beryllium	0.489	0.0010	0.5		98	70	130	0.4923	0.7	20	
Cadmium	0.490	0.0010	0.5		98	70	130	0.4934	0.7	20	
Calcium	147	1.0	50	101.9	91	70	130	146.3	0.7	20	

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco LLC
Work Order: H09100179
Project: RI/FS Residential Long-Term October 2009

ANALYTICAL QC SUMMARY REPORT

Date: 29-Oct-09

BatchID: B_R137645

Run ID :Run Order: **SUB-B137645: 40** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09100179-001B** Method: **E200.7**

Analysis Date: **10/16/09 17:47** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 16	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cobalt	0.981	0.010	1		98	70	130	0.9898	0.9	20	
Copper	0.958	0.010	1	0.0239	93	70	130	0.9682	1.1	20	
Gold	0.512	0.010	1		51	70	130	0.5892	14	20	S
Iron	4.94	0.030	5	5.87	-19	70	130	4.965	0.5	20	S
Magnesium	71.5	1.0	50	22.13	99	70	130	70.14	1.9	20	
Manganese	4.93	0.010	5	0.06297	97	70	130	4.939	0.1	20	
Nickel	0.983	0.010	1	0.00494	98	70	130	0.9898	0.7	20	
Potassium	56.8	1.0	50	6.11	101	70	130	56.86	0.2	20	
Silver	0.136	0.0050	0.5		27	70	130	0.1195	13	20	S
Sodium	73.2	1.0	50	24.67	97	70	130	74.06	1.1	20	
Tellurium	0.981	0.021	1		98	70	130	0.9919	1.1	20	
Vanadium	0.992	0.10	1		99	70	130	0.996	0.4	20	

Associated samples: H09100179-001; H09100179-002; H09100179-003; H09100179-004; H09100179-005

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
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Client: Asarco LLC
Work Order: H09100179
Project: RI/FS Residential Long-Term October 2009

ANALYTICAL QC SUMMARY REPORT

Date: *29-Oct-09*

BatchID: B_R137708

Run ID :Run Order: **SUB-B137708: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090929B, 090310A** Method: **E200.8**

Analysis Date: **10/19/09 19:38** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 11	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.234	0.10	0.25		94	90	110				
Antimony	0.0462	0.050	0.05		92	90	110				
Arsenic	0.0490	0.0050	0.05		98	90	110				
Chromium	0.0488	0.010	0.05		98	90	110				
Copper	0.0506	0.010	0.05		101	90	110				
Lead	0.0490	0.010	0.05		98	90	110				
Manganese	0.230	0.010	0.25		92	90	110				
Mercury	0.00194	0.0010	0.002		97	90	110				
Selenium	0.0501	0.0050	0.05		100	90	110				
Thallium	0.0493	0.10	0.05		99	90	110				
Zinc	0.0508	0.010	0.05		102	90	110				

Associated samples: **H09100179-001; H09100179-002; H09100179-003; H09100179-004; H09100179-005**

Run ID :Run Order: **SUB-B137708: 12** SampType: **Method Blank** Sample ID: **LRB** Method: **E200.8**

Analysis Date: **10/19/09 13:19** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 11	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	ND	0.0001									
Antimony	ND	5E-05									
Arsenic	4E-05	3E-05									
Chromium	ND	0.0002									
Copper	ND	8E-05									
Lead	ND	8E-06									
Manganese	ND	2E-05									
Mercury	ND	8E-06									
Selenium	ND	0.0002									
Thallium	ND	8E-06									
Zinc	0.0009	0.0001									

Associated samples: **H09100179-001; H09100179-002; H09100179-003; H09100179-004; H09100179-005**

Qualifiers: ND - Not Detected at the Reporting Limit
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A - Analyte concentration greater than three times the spike amount

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Client: Asarco LLC
Work Order: H09100179
Project: RI/FS Residential Long-Term October 2009

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R137708

Date: *29-Oct-09*

Run ID :Run Order: **SUB-B137708: 13** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**
Analysis Date: **10/19/09 13:23** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 11	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0497	0.10	0.05		99	85	115				
Antimony	0.0503	0.050	0.05		101	85	115				
Arsenic	0.0502	0.0050	0.05	0.00004	100	85	115				
Chromium	0.0518	0.010	0.05		103	85	115				
Copper	0.0539	0.010	0.05		108	85	115				
Lead	0.0516	0.010	0.05		103	85	115				
Manganese	0.0518	0.010	0.05		104	85	115				
Mercury	0.00100	0.0010	0.001		100	85	115				
Selenium	0.0496	0.0050	0.05		99	85	115				
Thallium	0.0512	0.10	0.05		102	85	115				
Zinc	0.0526	0.010	0.05	0.00092	103	85	115				

Associated samples: **H09100179-001; H09100179-002; H09100179-003; H09100179-004; H09100179-005**

Run ID :Run Order: **SUB-B137708: 14** SampType: **Sample Matrix Spike** Sample ID: **B09101320-008BMS** Method: **E200.8**
Analysis Date: **10/20/09 01:22** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 11	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0504	0.10	0.05	0.00135	98	70	130				
Antimony	0.0487	0.0050	0.05		97	70	130				
Arsenic	0.0488	0.0050	0.05		98	70	130				
Chromium	0.0494	0.010	0.05		99	70	130				
Copper	0.0528	0.010	0.05	0.0001	105	70	130				
Lead	0.0494	0.010	0.05	0.00007	99	70	130				
Manganese	0.0499	0.010	0.05	0.00025	99	70	130				
Mercury	0.00103	0.0010	0.001		103	70	130				
Selenium	0.0506	0.0050	0.05		101	70	130				
Thallium	0.0493	0.0050	0.05		99	70	130				
Zinc	0.0521	0.010	0.05	0.00092	102	70	130				

Associated samples: **H09100179-001; H09100179-002; H09100179-003; H09100179-004; H09100179-005**

Qualifiers:
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R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco LLC
Work Order: H09100179
Project: RI/FS Residential Long-Term October 2009

ANALYTICAL QC SUMMARY REPORT

Date: *29-Oct-09*

BatchID: B_R137708

Run ID :Run Order: **SUB-B137708: 15** SampType: **Sample Matrix Spike Duplicate** Sample ID: **B09101320-008BMSD** Method: **E200.8**

Analysis Date: **10/20/09 01:26** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 11	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0490	0.10	0.05	0.00135	95	70	130	0.05041		20	
Antimony	0.0485	0.0050	0.05		97	70	130	0.04871	0.4	20	
Arsenic	0.0486	0.0050	0.05		97	70	130	0.04878	0.3	20	
Chromium	0.0495	0.010	0.05		99	70	130	0.04942	0.3	20	
Copper	0.0525	0.010	0.05	0.0001	105	70	130	0.05275	0.6	20	
Lead	0.0488	0.010	0.05	0.00007	98	70	130	0.04943	1.2	20	
Manganese	0.0498	0.010	0.05	0.00025	99	70	130	0.04987	0.2	20	
Mercury	0.00102	0.0010	0.001		102	70	130	0.00103	0.6	20	
Selenium	0.0499	0.0050	0.05		100	70	130	0.05062	1.4	20	
Thallium	0.0483	0.0050	0.05		97	70	130	0.04927	2	20	
Zinc	0.0518	0.010	0.05	0.00092	102	70	130	0.05212	0.6	20	

Associated samples: H09100179-001; H09100179-002; H09100179-003; H09100179-004; H09100179-005

Run ID :Run Order: **SUB-B137708: 17** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090929B, 090310A** Method: **E200.8**

Analysis Date: **10/19/09 11:50** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 11	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.236	0.10	0.25		94	90	110				
Antimony	0.0460	0.050	0.05		92	90	110				
Arsenic	0.0496	0.0050	0.05		99	90	110				
Chromium	0.0496	0.010	0.05		99	90	110				
Copper	0.0513	0.010	0.05		103	90	110				
Lead	0.0501	0.010	0.05		100	90	110				
Manganese	0.239	0.010	0.25		96	90	110				
Mercury	0.00183	0.0010	0.002		92	90	110				
Selenium	0.0500	0.0050	0.05		100	90	110				
Thallium	0.0504	0.10	0.05		101	90	110				
Zinc	0.0508	0.010	0.05		102	90	110				

Associated samples: H09100179-001; H09100179-002; H09100179-003; H09100179-004; H09100179-005

Qualifiers:
ND - Not Detected at the Reporting Limit
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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ANALYTICAL QC SUMMARY REPORT

Date: *29-Oct-09*

BatchID: B_R137708

Run ID :Run Order: **SUB-B137708: 21** SampType: **Sample Matrix Spike** Sample ID: **B09101196-005AMS** Method: **E200.8**

Analysis Date: **10/19/09 18:01** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 11	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0499	0.10	0.05	0.00053	99	70	130				
Antimony	0.0502	0.0030	0.05		100	70	130				
Arsenic	0.0519	0.0010	0.05	0.00046	103	70	130				
Chromium	0.0498	0.010	0.05	0.0022	95	70	130				
Copper	0.0530	0.010	0.05	0.00268	101	70	130				
Lead	0.0510	0.0010	0.05		102	70	130				
Manganese	0.0476	0.010	0.05		95	70	130				
Mercury	0.000970	0.00020	0.001		97	70	130				
Selenium	0.0560	0.0050	0.05	0.00294	106	70	130				
Thallium	0.0510	0.0010	0.05	0.00004	102	70	130				
Zinc	0.0540	0.010	0.05	0.00434	99	70	130				

Associated samples: **H09100179-001; H09100179-002; H09100179-003; H09100179-004; H09100179-005**

Run ID :Run Order: **SUB-B137708: 22** SampType: **Sample Matrix Spike Duplicate** Sample ID: **B09101196-005AMSD** Method: **E200.8**

Analysis Date: **10/19/09 18:05** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 11	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0516	0.10	0.05	0.00053	102	70	130	0.04988		20	
Antimony	0.0513	0.0030	0.05		103	70	130	0.05021	2.2	20	
Arsenic	0.0531	0.0010	0.05	0.00046	105	70	130	0.05188	2.3	20	
Chromium	0.0514	0.010	0.05	0.0022	98	70	130	0.04976	3.2	20	
Copper	0.0549	0.010	0.05	0.00268	104	70	130	0.05298	3.6	20	
Lead	0.0519	0.0010	0.05		104	70	130	0.05104	1.7	20	
Manganese	0.0493	0.010	0.05		99	70	130	0.04757	3.5	20	
Mercury	0.00100	0.00020	0.001		100	70	130	0.00097	3.4	20	
Selenium	0.0570	0.0050	0.05	0.00294	108	70	130	0.05601	1.8	20	
Thallium	0.0519	0.0010	0.05	0.00004	104	70	130	0.051	1.8	20	
Zinc	0.0566	0.010	0.05	0.00434	104	70	130	0.05398	4.7	20	

Associated samples: **H09100179-001; H09100179-002; H09100179-003; H09100179-004; H09100179-005**

Qualifiers:
ND - Not Detected at the Reporting Limit
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N - Analyte concentration was not sufficiently high to calculate RPD
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Project: RI/FS Residential Long-Term October 2009

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R137708

Date: *29-Oct-09*

Run ID :Run Order: **SUB-B137708: 31** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090929B, 090310A** Method: **E200.8**

Analysis Date: **10/19/09 11:13** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 11	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.236	0.10	0.25		94	90	110				
Antimony	0.0462	0.050	0.05		92	90	110				
Arsenic	0.0494	0.0050	0.05		99	90	110				
Chromium	0.0496	0.010	0.05		99	90	110				
Copper	0.0513	0.010	0.05		103	90	110				
Lead	0.0499	0.010	0.05		100	90	110				
Manganese	0.236	0.010	0.25		95	90	110				
Mercury	0.00193	0.0010	0.002		96	90	110				
Selenium	0.0500	0.0050	0.05		100	90	110				
Thallium	0.0504	0.10	0.05		101	90	110				
Zinc	0.0508	0.010	0.05		102	90	110				

Associated samples: **H09100179-001; H09100179-002; H09100179-003; H09100179-004; H09100179-005**

Run ID :Run Order: **SUB-B137708: 32** SampType: **Sample Matrix Spike** Sample ID: **B09101300-001CMS** Method: **E200.8**

Analysis Date: **10/20/09 00:02** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 11	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0499	0.10	0.05	0.00189	96	70	130				
Antimony	0.0505	0.0050	0.05		101	70	130				
Arsenic	0.0503	0.0050	0.05	0.00022	100	70	130				
Chromium	0.0492	0.010	0.05	0.00052	97	70	130				
Copper	0.0522	0.010	0.05	0.00262	99	70	130				
Lead	0.0504	0.010	0.05	0.00029	100	70	130				
Manganese	0.0972	0.010	0.05	0.05835	78	70	130				
Mercury	0.00109	0.0010	0.001		109	70	130				
Selenium	0.0507	0.0050	0.05	0.00047	100	70	130				
Thallium	0.0493	0.0050	0.05	0.00002	99	70	130				
Zinc	0.105	0.010	0.05	0.06387	83	70	130				

Associated samples: **H09100179-001; H09100179-002; H09100179-003; H09100179-004; H09100179-005**

Qualifiers:
ND - Not Detected at the Reporting Limit
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R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

ENERGY LABORATORIES, INC. * 3161 E Lyndale (59604) * PO Box 5688 * Helena, MT 59601
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Client: Asarco LLC
Work Order: H09100179
Project: RI/FS Residential Long-Term October 2009

ANALYTICAL QC SUMMARY REPORT

Date: *29-Oct-09*

BatchID: B_R137708

Run ID :Run Order: **SUB-B137708: 33** SampType: **Sample Matrix Spike Duplicate** Sample ID: **B09101300-001CMSD** Method: **E200.8**

Analysis Date: **10/20/09 00:06** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 11	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0507	0.10	0.05	0.00189	98	70	130	0.04992		20	
Antimony	0.0499	0.0050	0.05		100	70	130	0.05046	1.2	20	
Arsenic	0.0507	0.0050	0.05	0.00022	101	70	130	0.05033	0.7	20	
Chromium	0.0488	0.010	0.05	0.00052	96	70	130	0.04924	1	20	
Copper	0.0513	0.010	0.05	0.00262	97	70	130	0.05224	1.9	20	
Lead	0.0497	0.010	0.05	0.00029	99	70	130	0.05037	1.3	20	
Manganese	0.0960	0.010	0.05	0.05835	75	70	130	0.09722	1.3	20	
Mercury	0.00105	0.0010	0.001		105	70	130	0.00109	3.7	20	
Selenium	0.0520	0.0050	0.05	0.00047	103	70	130	0.0507	2.6	20	
Thallium	0.0488	0.0050	0.05	0.00002	98	70	130	0.04931	1.1	20	
Zinc	0.102	0.010	0.05	0.06387	77	70	130	0.1052	2.9	20	

Associated samples: **H09100179-001; H09100179-002; H09100179-003; H09100179-004; H09100179-005**

Run ID :Run Order: **SUB-B137708: 34** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090929B, 090310A** Method: **E200.8**

Analysis Date: **10/20/09 03:28** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 11	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.228	0.10	0.25		91	90	110				
Antimony	0.0463	0.050	0.05		93	90	110				
Arsenic	0.0491	0.0050	0.05		98	90	110				
Chromium	0.0498	0.010	0.05		100	90	110				
Copper	0.0517	0.010	0.05		103	90	110				
Lead	0.0486	0.010	0.05		97	90	110				
Manganese	0.227	0.010	0.25		91	90	110				
Mercury	0.00196	0.0010	0.002		98	90	110				
Selenium	0.0506	0.0050	0.05		101	90	110				
Thallium	0.0488	0.10	0.05		98	90	110				
Zinc	0.0510	0.010	0.05		102	90	110				

Associated samples: **H09100179-001; H09100179-002; H09100179-003; H09100179-004; H09100179-005**

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco LLC
Work Order: H09100179
Project: RI/FS Residential Long-Term October 2009

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R137777

Date: 29-Oct-09

Run ID :Run Order: **SUB-B137777: 2** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090929B, 090310A** Method: **E200.8**

Analysis Date: **10/20/09 12:28** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.0513	0.010	0.05		**102**	90	110				
Copper	0.0517	0.010	0.05		**103**	90	110				

Associated samples: **H09100179-002; H09100179-003**

Run ID :Run Order: **SUB-B137777: 3** SampType: **Method Blank** Sample ID: **LRB** Method: **E200.8**

Analysis Date: **10/20/09 13:04** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	0.0002									
Copper	ND	8E-05									

Associated samples: **H09100179-002; H09100179-003**

Run ID :Run Order: **SUB-B137777: 4** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**

Analysis Date: **10/20/09 13:08** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.0521	0.010	0.05		**104**	85	115				
Copper	0.0533	0.010	0.05		**107**	85	115				

Associated samples: **H09100179-002; H09100179-003**

Run ID :Run Order: **SUB-B137777: 5** SampType: **Sample Matrix Spike** Sample ID: **B09101326-005BMS** Method: **E200.8**

Analysis Date: **10/20/09 15:52** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.0518	0.010	0.05	0.00077	**102**	70	130				
Copper	0.0508	0.010	0.05	0.00083	**100**	70	130				

Associated samples: **H09100179-002; H09100179-003**

Run ID :Run Order: **SUB-B137777: 6** SampType: **Sample Matrix Spike Duplicate** Sample ID: **B09101326-005BMSD** Method: **E200.8**

Analysis Date: **10/20/09 15:56** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.0514	0.010	0.05	0.00077	**101**	70	130	0.05176	**0.8**	20	

Qualifiers: ND - Not Detected at the Reporting Limit
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R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco LLC
Work Order: H09100179
Project: RI/FS Residential Long-Term October 2009

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R137777

Date: 29-Oct-09

Run ID :Run Order: **SUB-B137777: 6** SampType: **Sample Matrix Spike Duplicate** Sample ID: **B09101326-005BMSD** Method: **E200.8**
Analysis Date: **10/20/09 15:56** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	0.0505	0.010	0.05	0.00083	99	70	130	0.05076	0.6	20	

Associated samples: **H09100179-002; H09100179-003**

Run ID :Run Order: **SUB-B137777: 12** SampType: **Sample Matrix Spike** Sample ID: **B09101349-002BMS** Method: **E200.8**
Analysis Date: **10/20/09 18:52** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.0477	0.010	0.05	0.00045	95	70	130				
Copper	0.0482	0.010	0.05	0.00101	94	70	130				

Associated samples: **H09100179-002; H09100179-003**

Run ID :Run Order: **SUB-B137777: 13** SampType: **Sample Matrix Spike Duplicate** Sample ID: **B09101349-002BMSD** Method: **E200.8**
Analysis Date: **10/20/09 18:56** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.0482	0.010	0.05	0.00045	96	70	130	0.04774	1	20	
Copper	0.0490	0.010	0.05	0.00101	96	70	130	0.04817	1.6	20	

Associated samples: **H09100179-002; H09100179-003**

Run ID :Run Order: **SUB-B137777: 14** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090929B, 090310A** Method: **E200.8**
Analysis Date: **10/20/09 21:44** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.0520	0.010	0.05		104	90	110				
Copper	0.0519	0.010	0.05		104	90	110				

Associated samples: **H09100179-002; H09100179-003**

Run ID :Run Order: **SUB-B137777: 15** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090929B, 090310A** Method: **E200.8**
Analysis Date: **10/21/09 06:25** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.0515	0.010	0.05		103	90	110				
Copper	0.0523	0.010	0.05		105	90	110				

Qualifiers: ND - Not Detected at the Reporting Limit
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R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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ANALYTICAL QC SUMMARY REPORT

BatchID: B_R137777

Date: *29-Oct-09*

Run ID :Run Order: **SUB-B137777: 15** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090929B, 090310A** Method: **E200.8**

Analysis Date: **10/21/09 06:25** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H09100179-002; H09100179-003**

Qualifiers:
ND - Not Detected at the Reporting Limit
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N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco LLC
Work Order: H09100179
Project: RI/FS Residential Long-Term October 2009

ANALYTICAL QC SUMMARY REPORT

Date: 29-Oct-09

BatchID: B_R138393

Run ID :Run Order: **SUB-B138393: 2** SampType: **Continuing Calibration Verification Standard** Sample ID: **ICV** Method: **E200.7**
Analysis Date: **11/02/09 11:29** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	2.50	0.030	2.5		100	95	105				

Associated samples: **H09100179-001**

Run ID :Run Order: **SUB-B138393: 3** SampType: **Method Blank** Sample ID: **MB-TJADIS091102A** Method: **E200.7**
Analysis Date: **11/02/09 11:55** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	ND	0.003									

Associated samples: **H09100179-001**

Run ID :Run Order: **SUB-B138393: 4** SampType: **Laboratory Fortified Blank** Sample ID: **LFB-TJADIS091102A** Method: **E200.7**
Analysis Date: **11/02/09 11:59** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	4.87	0.030	5		97	85	115				

Associated samples: **H09100179-001**

Run ID :Run Order: **SUB-B138393: 5** SampType: **Sample Matrix Spike** Sample ID: **B09102271-002BMS2** Method: **E200.7**
Analysis Date: **11/02/09 12:30** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10.3	0.030	10	0.656	96	70	130				

Associated samples: **H09100179-001**

Run ID :Run Order: **SUB-B138393: 6** SampType: **Sample Matrix Spike Duplicate** Sample ID: **B09102271-002BMSD2** Method: **E200.7**
Analysis Date: **11/02/09 12:41** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10.3	0.030	10	0.656	97	70	130	10.29	0.4	20	

Associated samples: **H09100179-001**

Qualifiers:
ND - Not Detected at the Reporting Limit
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Client: Asarco LLC
Work Order: H09100179
Project: RI/FS Residential Long-Term October 2009

ANALYTICAL QC SUMMARY REPORT

BatchID: R57532

Date: *29-Oct-09*

Run ID :Run Order: **IC101-H_091020A: 12** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV** Method: **E300.0**
Analysis Date: **10/20/09 17:46** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	24	1.0	25		97	90	110				
Sulfate	51	1.0	50		101	90	110				

Associated samples: H09100179-001; H09100179-002; H09100179-003; H09100179-004; H09100179-005

Run ID :Run Order: **IC101-H_091020A: 13** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV** Method: **E300.0**
Analysis Date: **10/20/09 18:03** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.6	1.0	2.5		103	90	110				
Sulfate	9.7	1.0	10		97	90	110				

Associated samples: H09100179-001; H09100179-002; H09100179-003; H09100179-004; H09100179-005

Run ID :Run Order: **IC101-H_091020A: 14** SampType: **Laboratory Control Sample** Sample ID: **LCS** Method: **E300.0**
Analysis Date: **10/20/09 18:19** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	87	1.0	87.47		100	90	110				
Sulfate	28	1.0	28.53		98	90	110				

Associated samples: H09100179-001; H09100179-002; H09100179-003; H09100179-004; H09100179-005

Run ID :Run Order: **IC101-H_091020A: 15** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E300.0**
Analysis Date: **10/20/09 18:35** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	4.7	1.0	5		94	90	110				
Sulfate	9.7	1.0	10		97	90	110				

Associated samples: H09100179-001; H09100179-002; H09100179-003; H09100179-004; H09100179-005

Run ID :Run Order: **IC101-H_091020A: 16** SampType: **Method Blank** Sample ID: **MBLK** Method: **E300.0**
Analysis Date: **10/20/09 18:52** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.05									
Sulfate	ND	0.1									

Qualifiers: ND - Not Detected at the Reporting Limit
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A - Analyte concentration greater than three times the spike amount

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Client: Asarco LLC
Work Order: H09100179
Project: RI/FS Residential Long-Term October 2009

ANALYTICAL QC SUMMARY REPORT

BatchID: R57532

Date: 29-Oct-09

Run ID :Run Order: **IC101-H_091020A: 16** SampType: **Method Blank** Sample ID: **MBLK** Method: **E300.0**
Analysis Date: **10/20/09 18:52** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: **H09100179-001; H09100179-002; H09100179-003; H09100179-004; H09100179-005**

Run ID :Run Order: **IC101-H_091020A: 26** SampType: **Sample Matrix Spike** Sample ID: **H09100179-003A MS** Method: **E300.0**
Analysis Date: **10/20/09 21:36** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	31	1.0	25	6.525	99	90	110				
Sulfate	170	1.0	50	114.1	103	90	110				

Associated samples: **H09100179-001; H09100179-002; H09100179-003; H09100179-004; H09100179-005**

Run ID :Run Order: **IC101-H_091020A: 27** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09100179-003A MSD** Method: **E300.0**
Analysis Date: **10/20/09 21:53** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	31	1.0	25	6.525	99	90	110	31.32	0.1	20	
Sulfate	170	1.0	50	114.1	104	90	110	165.4	0.2	20	

Associated samples: **H09100179-001; H09100179-002; H09100179-003; H09100179-004; H09100179-005**

Qualifiers:
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R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco LLC
Work Order: H09100179
Project: RI/FS Residential Long-Term October 2009

ANALYTICAL QC SUMMARY REPORT

BatchID: R57626

Date: *29-Oct-09*

Run ID :Run Order: **MAN-TECH_091021A: 2** SampType: **Method Blank** Sample ID: **MBLK** Method: **A2320 B**
Analysis Date: **10/20/09 18:32** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	ND	0.9									

Associated samples: **H09100179-001; H09100179-002; H09100179-003; H09100179-004; H09100179-005**

Run ID :Run Order: **MAN-TECH_091021A: 4** SampType: **Laboratory Control Sample** Sample ID: **LCS** Method: **A2320 B**
Analysis Date: **10/20/09 18:39** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	560	4.0	600		94	90	110				

Associated samples: **H09100179-001; H09100179-002; H09100179-003; H09100179-004; H09100179-005**

Run ID :Run Order: **MAN-TECH_091021A: 34** SampType: **Sample Matrix Spike** Sample ID: **H09100179-001AMS** Method: **A2320 B**
Analysis Date: **10/20/09 20:29** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	730	4.0	600	120	102	90	110				

Associated samples: **H09100179-001; H09100179-002; H09100179-003; H09100179-004; H09100179-005**

Run ID :Run Order: **MAN-TECH_091021A: 36** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09100179-001AMSD** Method: **A2320 B**
Analysis Date: **10/20/09 20:37** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	750	4.0	600	120	105	90	110	732.2	2.7	20	

Associated samples: **H09100179-001; H09100179-002; H09100179-003; H09100179-004; H09100179-005**

Qualifiers:
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

Energy Laboratories Inc
Workorder Receipt Checklist

@H09100179@
H09100179

Asarco LLC

Login completed by: Wanda Johnson
Reviewed by: Wanda Johnson
Reviewed Date: 10/29/2009 12:58:00 PM

Date and Time Received: 10/14/2009 2:30 PM
Received by: wjj
Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature:	9.5°C		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Contact and Corrective Action Comments:

None

VALIDATION SUMMARY

ASARCO EAST HELENA INTERIM MEASURES

RCRA CONSENT DECREE

GROUNDWATER AND CAMU WELLS

QUARTERLY SAMPLING EVENT

INORGANIC ANALYSES

AUGUST AND SEPTEMBER 2009

ENERGY LABORATORY WORK ORDERS:
H09080170, H09080188, H09080217, H09080236, H09080255, H09080296, H09080316, H09080347, H09090136 & H09090235

Prepared for:
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Prepared by:
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November 2009

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GLOSSARY OF TERMS

BFS ..... Blind Field Standard

CAMU ..... Corrective Action Management Unit

CLP..... Contract Laboratory Program

COC..... Chain of Custody

DI..... Deionized Water

DIS..... Dissolved

ELI-Hel ..... Energy Laboratories, Inc., Helena, Montana

EPA..... U.S. Environmental Protection Agency

LCS..... Laboratory Control Sample

MB..... Method Blank

MS ..... Matrix Spike

NA ..... Not Applicable

PDLG..... Project Detection Limit Goal

RI/FS..... Remedial Investigation/Feasibility Study

QC ..... Quality Control

RPD ..... Relative Percent Difference

RL..... Reporting Limit

SC..... Specific Conductivity

SOW ..... Statement of Work

SWL..... Static Water Level

TDS ..... Total Dissolved Solids

TOT ..... Total Dissolved Solids

TRC ..... Total Recoverable

WO ..... Work Order

SUMMARY

Quarterly monitoring water samples were collected from August 8 though September 16, 2009 for the ASARCO East Helena Resource and Conservation Recovery Act (RCRA) Consent Decree order. These samples included groundwater and Corrective Action Management Unit (CAMU) well water. Inorganic constituents for these samples were validated using U.S. Environmental Protection Agency (EPA) guidelines for data validation (EPA 2002) and the project work plan (ASARCO 2002 and ASARCO 2009). Samples were analyzed by Energy Laboratories, Inc. (ELI-Hel) in Helena, Montana, under work orders: H09080170, H09080188, H09080217, H09080236, H09080255, H09080296, H09080316, H09080347, H09090136, and H09090235.

The validated database is located in Appendix 2. Field notes, chain of custody forms, and laboratory reports are located in Appendices 3, 4, and 5, respectively.

Data quality objectives for this project are as follows:

- **Precision** is determined by the number of field and laboratory duplicate sample results within quality control (QC) limits. This is quantitatively reported as the number of duplicate results within QC limits per total number of duplicate results, expressed as a percentage.

  For this sampling event, 99.3% (134 out of 135 results) of the field duplicate and 100% (293 out of 293 results) of the laboratory duplicate results were within control limits. Overall precision was calculated at 99.8% (427 out of 428 results).

- **Accuracy** is determined by the matrix spike (MS), and laboratory control sample (LCS) results within QC control limits. This is quantitatively reported as the number of MS, and LCS results within QC limits per total number, expressed as a percentage.

  For this sampling event 100% (128 out of 128) of the LCS, and 96.7% (234 out of 242 results) of the MS results. Overall accuracy was calculated at 97.8% (362 out of 370 results).

- **Completeness** is determined by the number of valid data per number of planned data. This is quantitatively reported as a percentage. The completeness goal for this project is 90%.

For this sampling event, the completeness goal of 90% was met. Due to one rejected result, the completeness for sample collection and analysis was calculated at 99.9% (1841 valid out of 1842 planned data).

The following data were qualified for QC exceedances:

- Due to one field duplicate exceedance and inter-parameter comparisons, one total dissolved solids (TDS) result was rejected (flagged **"R"**).
- Due to eight field blank detections, 11 dissolved aluminum, 11 chloride, two dissolved selenium, eight sodium, one specific conductivity, and three TDS results were flagged **"UJ"** to indicate the value is estimated and may be biased high.
- Due to a method blank exceedance, one dissolved aluminum result was flagged **"UJ"** to indicate the value is estimated and may be biased high.
- Due to four MS exceedances, two dissolved gold, nine dissolved silver, and seven sulfate results were flagged **"J-"** to indicate the values were estimated and may be biased low.

Conclusion

In conclusion, with the exception of the rejected result, **the data collected in August and September 2009 for the ASARCO RCRA Consent Decree sampling event are deemed acceptable and can be used for the purposes they were intended. Of the measured results, 97.0% (1786 out of 1842 results) can be used without qualification**.

Data Validation Report by: Linda L. Tangen

Client Review: Jon Nickel

DATA VALIDATION REPORT

1. INTRODUCTION

- This validation applies to inorganic analytes from 111 groundwater and CAMU well samples collected for the ASARCO East Helena RCRA Consent Decree project. These samples were collected from August 12 through September 16, 2009 and included 11 field duplicates, 11 rinsate, and 11 deionized (DI) blanks. In addition to the samples collected during this event, one well was read for the static water level only.

- Validation procedures used are generally consistent with:
  - _X_ EPA Contract Laboratory Program (CLP) National Functional Guidelines for Inorganics Data Review (EPA 2002)
  - _X_ Work Plan – RCRA Consent Decree – Monitoring Plan (ASARCO 2009)
  - ____ Other

- Overall level of validation:
  - ___ CLP
  - _X_ Standard – Field and laboratory quality control (QC) samples are reviewed; and samples associated with QC violations are flagged.
  - ___ Visual

2. DELIVERABLES

- All laboratory document deliverables were present as specified in the CLP-Statement of Work (SOW) (EPA 2001), and/or the project contract.
  - _X_Yes
  - ___No

- All documentation of field procedures was provided as required.
  - _X_Yes
  - ___No

- All data entry was consistent, accurate, and complete
  - ___Yes
  - _X_ No – see notes

  Notes: The following items were noted:

  - The site code for sample AEH-0908-147 was incorrectly entered on the field form as EH-63 instead of a DI Blank. Corrective action was taken and this sample was labeled correctly in the validated database.
  - The collection date for samples AEH-0908-193 through AEH-0908-197 was incorrectly recorded by the laboratory as 9/9/09 instead of 9/10/09. Corrective action was taken and the sample dates were corrected in the validated database.

- Two sample containers were labeled as AEH-0908-128 but with different times. Corrective action was taken and the laboratory was instructed by the field technician to label one of the samples AEH-0908-129.
- The TDS matrix spike (MS) results were not reported for work order H09090136. Corrective action was taken and the laboratory revised the laboratory report to include these results.
- Sample dates and times were not recorded on the sample containers for AEH-0908-175 and AEH-0908-176. The laboratory used the dates and times from the COC.
- The reporting limit for dissolved selenium was incorrectly reported as 0.005 mg/L instead of 0.001 mg/L. Corrective action was taken and the laboratory revised work order H09080170 with the correct selenium reporting limit.
- The reporting limit for dissolved iron was incorrectly reported as 0.03 mg/L instead of 0.02 mg/L. Corrective action was taken and the laboratory revised work order H09080170 with the correct iron reporting limit.

3. FIELD PROCEDURES

- All project-required sites were visited.

  _X_ Yes – see notes
  ____ No

  Notes: A new well site EH-137 was added for this sampling event

- All project-required samples were collected.

  ____Yes
  _X_ No - see notes

  Notes: A sample was not collected at site MW-7 because the well was dry.

- Field parameters were measured in accordance with the project work plan.

  _X_ Yes
  ____ No

- Field instruments were calibrated daily and before measurements were collected.

  _X_ Yes
  ____ No

- Chains of Custodies (COCs) were properly filled out and signed by the field personnel.

  ___Yes
  _X_ No – see notes on the following page

COC Notes: The following items were noted.

- Samples AEH-0908-100 through AEH-0908-115 were submitted to the laboratory with the wrong parameter list attached to the COC. Corrective action was taken and the laboratory was instructed by the project manager to revise the work order associated with these samples (H09080170), to include the omitted analyses.
- Sample AEH-0908-162 was not recorded on the COC for work order H09080296. Corrective action was taken and the laboratory was instructed by the field technician to add this sample to the COC.

- Samples were properly preserved.

  _X_ Yes
  _X_ No – see notes

  Notes: The following items were noted:

  - The cooler temperature for samples collected 8/18/09 was 6.8 °C (required temperature is 2-6 °C). Since the samples were delivered directly from the field, it was determined that the target analytes were not adversely affected.
  - The cooler temperature for samples collected 8/27/09 was 1.1 °C. Although this temperature was below the recommended 2.0 °C, the samples did not show signs of being frozen and therefore, were not adversely affected.

4. FIELD BLANKS

Please note that the highest blank value associated with any particular analyte is the blank value used for the flagging process.

- DI (deionized water), trip, rinsate, or any other field blanks have been carried out at the proper frequency (one rinsate blank and one DI blank per 20 samples).

  _X_ Yes
  ____ No

- Reported results for field blanks were less than the Project Detection Limit Goals (PDLGs).

  ____Yes
  _X_ No - see notes

  Notes: Associated samples (samples collected the same day as the blank) with detected results less than five times the blank value were flagged **"UJ"** to indicate the value is estimated and may be biased high. Table 3 in Appendix 1 lists the field blank detections.

5. FIELD DUPLICATES

- Field duplicates were collected at the proper frequency (one field duplicate per 20 samples).

  _X_ Yes
  ____ No

- Field duplicate relative percent differences (RPDs) were within the required control limits (RPD of 20% or less). If the sample or duplicate result is less than or equal to five times the PDLG, the RPD criteria are not used. In these cases, the difference between the sample and the duplicate results must be within ± the PDLG.

  ____Yes
  _X_ No – see notes

  Notes: One Total Dissolved Solids (TDS) result associated with an excessive field duplicate RPD exceedance was rejected (flagged **"R"**). To support the decision to reject this datum, the result was compared to the associated lab and field specific conductivity results. The comparisons showed that the datum was not in line with the SC results. Following is a summary of the field duplicate exceedance.

Site	Sample/Dup Code	Sample Date	Parameter	Orig Result (mg/L)	Dup Result (mg/L)	PDLG (mg/L)	RPD or Diff (mg/L)	Flags
EH-124	AEH-0908-110 & AEH-0908-111	8/13/09	TDS	320	156	10	68.9 RPD	1*

***Note:** Due to the excessive RPD and inter-parameter comparisons, the duplicate result was flagged "R" to indicate it was rejected.

6. BLIND FIELD STANDARD (BFS)

- Standards were submitted to the laboratory at the proper frequency (one standard per event).

  ____ Yes
  _X_ No – Not required for quarterly sample events.

- The reference material used was of the correct matrix.

  ____ Yes
  ____ No
  _X_ NA – Not Applicable

- Standard recoveries were within the required control limits (80-120% or certified range).

  ____ Yes
  ____ No
  _X_ NA

7. LABORATORY PROCEDURES

- **Laboratory procedures followed**
  - _X_ CLP-SOW (EPA 2001)
  - _X_ SW-846 (EPA 1986)
  - _X_ Methods for Chemical Analysis of Water and Wastes (EPA 1983)
  - ____ XRF Standard Operating Procedures
  - ____ Other

- **Holding times met**
  - _X_ Yes
  - ____ No

- **Consistency with project requirements**

  Analyses were carried out as requested.
  - _X_ Yes
  - ____ No

  Project specified methods were used.
  - _X_ Yes
  - ____ No

8. DETECTION LIMITS

- Reporting levels (RLs) were less than or equal to the PDLGs.
  - _X_ Yes
  - ____ No

9. LABORATORY BLANKS

Please note that the highest blank value associated with any particular analyte is the blank value used for the flagging process.

- **Method blanks**

  Method blanks (MB) were prepared and analyzed at the required frequency (one per batch or one per 20 samples, whichever is greater).
  - ____ Yes
  - _X_ No – see notes

  Notes: The table on the following page lists the MB frequency violations. Samples are not flagged for these violations.

Method Blank Frequency Violations

Reason For Not Meeting Required Frequency	Parameter	Analytical Batch	Assoc. Sample Batch (Lab Code Prefix)	Assoc. Samples (Lab Code Suffix)
One MB per 22 Samples	Total Suspended Solids (TSS)	090819A-SLDS-TSS-W	H09080217	6-7
One MB per 31 Samples	Arsenic (Dis)	B_R134750	H09080236	2-13
One MB per 31 Samples	Selenium (Dis)	B_R134750	H09080236	3-13
One MB per 24 Samples	Total Dissolved Solids (TDS)	090825A-SLDS-TDS-W	H09080255	8-11
One MB per 24 Samples	TSS	090825A-SLDS-TSS-W	H09080255	8-11
One MB per 31 Samples	Chloride & Sulfate	R56049	H09080188	5-15

All the analytes in the blank were less than the PDLG (and/or reporting limits).
____Yes
_X_ No – see notes

Notes: One result associated with a method blank detection was flagged **"UJ"** to indicate the value is estimated and may be biased high. Following is a summary of the method blank detection.

Blank Sample Code	Sample Batch	Analysis Batch	Analysis Date	Parameter	PDLG (mg/L)	Result (mg/L)	5 X Result (mg/L)	# of Flags
MB B_R135363	H09080170	B_R135363	9/2/09	Aluminum (Dis)	0.001	0.001	0.005	1

10. LABORATORY MATRIX SPIKES

- A matrix spike (MS) sample (pre-digestion) was analyzed at the proper frequency (one per batch and/or matrix).

  ____Yes
  _X_ No – see notes

  Notes: The following table lists the MS frequency violations. Samples are not flagged for these violations.

Reason For Not Meeting Required Frequency	Parameter	Analytical Batch	Assoc. Sample Batch (Lab Code Prefix)	Assoc. Samples (Lab Code Suffix)
Parent Sample Conc > 4X the Spike Conc	Arsenic	B_R135260	H09080296	1-12
Parent Sample Conc > 4X the Spike Conc	Arsenic	B_R135260	H09080316	1-7
Parent Sample Conc > 4X the Spike Conc	Arsenic	B_R135964	H09090136	1-6
MS from Unknown Source	Aluminum, Cadmium, Calcium, Iron, Lead, Magnesium, Manganese, Potassium, Selenium, Sodium, Tin	B_R134593 & B_R134631	H09080170	1-16
MS from Unknown Source	Arsenic & Selenium	B_R134969	H09080255	1-11
MS from Unknown Source	Arsenic	B_R135419 & B_R135664	H09080347	1-4
MS from Unknown Source	Selenium	B_R135419 & B_R135664	H09080347	1-3
Parent Sample Conc > 4X the Spike Conc	Arsenic	B_R135481	H09080347	5-11
Parent Sample Conc > 4X the Spike Conc	Selenium	B_R135481	H09080347	4-11

- MS recoveries were within the required control limits (75-125% for inorganic and within the laboratory's QC limits for organic analyses).

  ____Yes

  _X_ No – see notes

  Notes: Samples are not normally qualified due to matrix spike results alone. Professional judgment is used to determine whether the matrix spike recovery exceedance is associated with the matrix spike sample, the sample used for the matrix spike, or with the entire analytical batch. For this sampling event, affected sample results were flagged **"J-"** to indicate the value was estimated with a possible negative bias. The following table lists the MS exceedances.

MS Sample Code	Sample Batch	Analytical Batch	Analysis Date	Parameter	% Recovery	# of Flags	Bias
H09080170-001A MS	H09080170	R56049	8/18/2009	Sulfate	71	7	Neg
H09080170-001A MSD	H09080170	R56049	8/18/2009	Sulfate	72	0 *	
H09090235-001B MS	H09090235	B_R136324	9/21/2009	Silver (Ag)	52	0 *	
H09090235-001B MSD	H09090235	B_R136324	9/21/2009	Silver (Ag)	43	8	Neg
H09090235-011B MS	H09090235	B_R136324	9/21/2009	Silver (Ag)	46	0 *	
H09090235-011B MSD	H09090235	B_R136324	9/21/2009	Silver (Ag)	45	1	Neg
H09090235-013B MS	H09090235	B_R136371	9/22/2009	Gold (Au)	46	2	Neg
H09090235-013B MSD	H09090235	B_R136371	9/22/2009	Gold (Au)	47	0 *	

Note: Results were already flagged for the associated MS or MSD recovery exceedance.

11. LABORATORY DUPLICATES

- Laboratory duplicate samples were analyzed at the proper frequency (one per batch or one per 20 samples, whichever is greater).

  _X_Yes

  ____ No

- The laboratory duplicate RPDs were within the required control limits (RPD of 20% or less). If the sample or duplicate result is less than or equal to five times the PDLG, the RPD criteria are not used. In these cases, the difference between the sample and the duplicate results must be within ± the PDLG.

  _X_Yes

  ____ No

12. LABORATORY CONTROL STANDARDS

- The reference material used for the laboratory control sample (LCS) was of the correct matrix.

  _X_Yes

  ____ No

- LCS' were prepared and analyzed at the proper frequency (one per batch or one per 20 samples, whichever is greater).

  ____Yes

  _X_ No – see notes

  Notes: The following table lists the LCS frequency violations. Samples are not flagged for these violations.

Reason For Not Meeting Required Frequency	Parameter	Analytical Batch	Assoc. Sample Batch (Lab Code Prefix)	Assoc. Samples (Lab Code Suffix)
One LCS per 22 Samples	Total Suspended Solids	090819A-SLDS-TSS-W	H09080217	6-7
One LCS per 31 Samples	Arsenic	B_R134750	H09080236	2-13
One LCS per 31 Samples	Selenium	B_R134750	H09080236	3-13
One LCS per 24 Samples	TDS	090825A-SLDS-TDS-W	H09080255	8-11
One LCS per 24 Samples	TSS	090825A-SLDS-TSS-W	H09080255	8-11
One LCS per 31 Samples	Chloride & Sulfate	R56049	H09080188	5-15

- LCS recoveries were within the required control limits.

  _X_Yes

  ____ No

13. INTERPARAMETER COMPARISON

_X_Lab pH vs. Field pH.

_X_Lab Specific Conductivity (SC) vs. Field SC

_X_Total Dissolved Solids (TDS) vs. Lab SC

____Total vs. Dissolved Metals

RPDs were used to compare associated measurements. If the RPD was greater than 20, the measurements were then compared to other analytes and/or historical data to determine if they were valid or anomalies. Following is a summary of these comparisons.

Lab pH vs. Field pH: All field and lab pH comparisons were in order (pairs had RPDs less than 20). The RPDs for pH pairs ranged from 1.6% to 16.7%, with an average RPD of 6.2%.

Lab SC vs. Field SC: All field and lab SC comparisons were in order (pairs had RPDs less than 20). The RPDs for SC pairs ranged from 0% to 14.8%, with an average RPD of 3.3%.

TDS vs. Lab SC: The ratio of TDS to lab SC should lie between 0.55 and 0.75. In natural waters with high sulfate, the ratio may be much higher. This ratio is intended to be a check on the accuracy of the TDS and lab SC measurements. (It should be noted that these measurements are less accurate in dilute waters.) For this sampling event, the ratios were in line with historical data. The TDS/SC ratios ranged from 0.61 to 0.92, with an average ratio of 0.69.

Note: *This ratio range did not include sample AEH-0908-111 (field duplicate for EH-124). The TDS/Lab SC ratio for this sample was 0.32. The TDS value was rejected due to the excessively low TDS/SC ratio and high duplicate RPD. Refer to Section 5 for details.*

14. Historical Comparison Summary

Data for the August and September 2009 sampling event were compared with sampling events from the past five years (2004 to the present sampling event). Results that were greater than three standard deviations from the historical mean, are listed in Table 4, Appendix 1. Note that a majority of listed sites had limited historical data or the detection limits for this sampling event were lower than the previous sampling events.

15. Data Quality Objectives

Project data quality objectives

Data quality objectives for this project are met when QC sample results are within the required control limits. The evaluation of field and laboratory QC samples gives a quantitative measure of precision and accuracy.

- **Precision** is determined by field and laboratory duplicate sample results that are within control limits. Following is a summary of the precision for this sampling event.

QC Type	Total Results	# of Results Out of Control Limits	# of Results Within Control Limits	% Within Control Limits
Field Duplicates	135	1	134	99.3%
Lab Duplicates	293	0	293	100.0%
Overall	**428**	**1**	**427**	**99.8%**

- **Accuracy** is determined by MS sample and LCS results that are within control limits. Following is a summary of the accuracy for this sampling event.

QC Type	Total Results	# of Results Out of Control Limits	# of Results Within Control Limits	% Within Control Limits
LCS	128	0	128	100.0%
Matrix Spikes	242	8	234	96.7%
Overall	**370**	**8**	**362**	**97.8%**

- **Completeness** is calculated by the number of valid (not rejected) data per number of planned data, expressed as a percentage. **The completeness goal for the ASARCO Post-RI/FS project is 90%. This goal was met for the August and September 2009 sampling event.** Following is a detailed summary of the completeness for this sampling event.

# of Planned Measurements	Actual # of Measurements	# of Rejected or Anomalous Measurements	# of Valid Measurements	Completeness
1842	**1842**	**1***	**1841**	**99.9%**

***Note:** One TDS measurement was rejected. Refer to Section 5.

- **Completeness** can also be calculated by the number of non-qualified data per number of measurements. Following is a summary of non-qualified data completeness.

# of Measurements	# of Qualified Measurements	# Not Qualified	% Not Qualified
1842	**56**	**1786**	**97.0%**

- **In conclusion**, with the exception of the rejected datum, samples collected in August and September 2009 for the ASARCO East Helena Plant RCRA Consent Decree sampling event are deemed acceptable and can be used for the purposes they were intended.

Data Validation Report by: Linda L. Tangen

Client Review by: Jon Nickel

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EPA 2004. *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review.* United States Environmental Protection Agency. OSWER 9240.1-45. EPA 540-R-04-004. October.

Tangen 2009. *Validation Summary, ASARCO East Helena Interim Measures, East Helena Residential Groundwater, Inorganic Analyses, May 2009.* Linda L. Tangen. June

APPENDIX 1

TABLES

TABLE 1.

DATA VALIDATION CODES AND DEFINITIONS

CODE	DEFINITION
A	Anomalous data. (Not an EPA code.)
J	The associated numerical value is an estimated quantity because quality control criteria were not met. A bias was not determined.
J-	The associated numerical value is estimated with a low bias because quality control criteria were not met.
J+	The associated numerical value is estimated with a high bias because quality control criteria were not met.
UJ	The true value may be less than the reported value because quality control criteria were not met. This qualifier is usually associated with either non-detected values or detected values that are linked to blank contaminates.
R	Quality control indicates that the data are unusable (compound may or may not be present).

Table 2. Summary of Qualified Data

Asarco East Helena Plant - RCRA Consent Decree

August and September 2009

Station Name / Field Sample ID / Parameter	Samp Date	Value	Unit	Flag	QC Type-Exceedance*
DH-69					
AEH-0908-164	**8/25/2009**				
Selenium (Se) DIS		0.002	mg/L	UJ	DI Blank - Result (0.004 mg/L) > PDLG
AEH-0908-165	**8/25/2009**				
Selenium (Se) DIS		0.001	mg/L	UJ	DI Blank - Result (0.004 mg/L) > PDLG
EH-114					
AEH-0908-128	**8/14/2009**				
Aluminum (Al) DIS		0.003	mg/L	UJ	Rinsate - Result (0.005 mg/L) > PDLG
EH-116					
AEH-0908-127	**8/14/2009**				
Aluminum (Al) DIS		0.005	mg/L	UJ	Rinsate - Result (0.005 mg/L) > PDLG
EH-117					
AEH-0908-125	**8/14/2009**				
Aluminum (Al) DIS		0.006	mg/L	UJ	Rinsate - Result (0.005 mg/L) > PDLG
EH-118					
AEH-0908-124	**8/14/2009**				
Aluminum (Al) DIS		0.02	mg/L	UJ	Rinsate - Result (0.005 mg/L) > PDLG
EH-119					
AEH-0908-123	**8/14/2009**				
Aluminum (Al) DIS		0.001	mg/L	UJ	Rinsate - Result (0.005 mg/L) > PDLG
EH-120					
AEH-0908-121	**8/14/2009**				
Aluminum (Al) DIS		0.002	mg/L	UJ	Rinsate - Result (0.005 mg/L) > PDLG
EH-123					
AEH-0908-109	**8/13/2009**				
Chloride (Cl)		17	mg/L	UJ	DI Blank - Value (5 mg/L) > PDLG
Sodium (Na) DIS		39	mg/L	UJ	DI Blank - Result (11 mg/L) > PDLG
EH-124					
AEH-0908-110	**8/13/2009**				

***Notes: PDLG = Project Detection Limit Goal; Diff = Difference.**

Table 2. Summary of Qualified Data

Asarco East Helena Plant - RCRA Consent Decree

August and September 2009

Station Name / Field Sample ID / Parameter	Samp Date	Value	Unit	Flag	QC Type-Exceedance*
EH-124					
Chloride (Cl)		12	mg/L	UJ	DI Blank - Value (5 mg/L) > PDLG
Sodium (Na) DIS		36	mg/L	UJ	DI Blank - Result (11 mg/L) > PDLG
AEH-0908-111	**8/13/2009**				
Chloride (Cl)		12	mg/L	UJ	DI Blank - Value (5 mg/L) > PDLG
Sodium (Na) DIS		35	mg/L	UJ	DI Blank - Result (11 mg/L) > PDLG
TDS (Measured at 180 C)		156	mg/L	R	Field Dup - 68.9 RPD & Inter-Param Comp
EH-126					
AEH-0908-118	**8/14/2009**				
Aluminum (Al) DIS		0.002	mg/L	UJ	Rinsate - Result (0.005 mg/L) > PDLG
EH-127					
AEH-0908-102	**8/12/2009**				
Aluminum (Al) DIS		0.002	mg/L	UJ	Rinsate - Result (0.003 mg/L) > PDLG
Chloride (Cl)		3	mg/L	UJ	DI Blank - Value (1 mg/L) > PDLG
Sulfate (SO4)		41	mg/L	J-	Matrix Spike - 71% Recovery
AEH-0908-103	**8/12/2009**				
Chloride (Cl)		3	mg/L	UJ	DI Blank - Value (1 mg/L) > PDLG
Sulfate (SO4)		41	mg/L	J-	Matrix Spike - 71% Recovery
EH-128					
AEH-0908-129	**8/14/2009**				
Aluminum (Al) DIS		0.005	mg/L	UJ	Rinsate - Result (0.005 mg/L) > PDLG
EH-129					
AEH-0908-114	**8/13/2009**				
Chloride (Cl)		6	mg/L	UJ	DI Blank - Value (5 mg/L) > PDLG
Sodium (Na) DIS		25	mg/L	UJ	DI Blank - Result (11 mg/L) > PDLG
EH-130					
AEH-0908-100	**8/12/2009**				
Aluminum (Al) DIS		0.007	mg/L	UJ	Rinsate - Result (0.003 mg/L) > PDLG
Sulfate (SO4)		77	mg/L	J-	Matrix Spike - 71% Recovery
EH-131					

***Notes: PDLG = Project Detection Limit Goal; Diff = Difference.**

Table 2. Summary of Qualified Data

Asarco East Helena Plant - RCRA Consent Decree

August and September 2009

Station Name / Field Sample ID / Parameter	Samp Date	Value	Unit	Flag	QC Type-Exceedance*
EH-131					
AEH-0908-106	**8/13/2009**				
Chloride (Cl)		4	mg/L	UJ	DI Blank - Value (5 mg/L) > PDLG
Sodium (Na) DIS		14	mg/L	UJ	DI Blank - Result (11 mg/L) > PDLG
Sulfate (SO4)		46	mg/L	J-	Matrix Spike - 71% Recovery
TDS (Measured at 180 C)		171	mg/L	UJ	DI Blank - Result (44 mg/L) > PDLG
EH-132					
AEH-0908-130	**8/14/2009**				
Aluminum (Al) DIS		0.009	mg/L	UJ	Rinsate - Result (0.005 mg/L) > PDLG
EH-134					
AEH-0908-113	**8/13/2009**				
Chloride (Cl)		4	mg/L	UJ	DI Blank - Value (5 mg/L) > PDLG
Sodium (Na) DIS		20	mg/L	UJ	DI Blank - Result (11 mg/L) > PDLG
EH-135					
AEH-0908-104	**8/12/2009**				
Chloride (Cl)		4	mg/L	UJ	DI Blank - Value (1 mg/L) > PDLG
Sulfate (SO4)		49	mg/L	J-	Matrix Spike - 71% Recovery
EH-136					
AEH-0908-107	**8/13/2009**				
Chloride (Cl)		3	mg/L	UJ	DI Blank - Value (5 mg/L) > PDLG
SC (umhos/cm at 25 C)		221	umhos/cm	UJ	DI Blank - Result (50 umhos/cm) > PDLG
Sodium (Na) DIS		12	mg/L	UJ	DI Blank - Result (11 mg/L) > PDLG
Sulfate (SO4)		37	mg/L	J-	Matrix Spike - 71% Recovery
TDS (Measured at 180 C)		148	mg/L	UJ	DI Blank - Result (44 mg/L) > PDLG
EH-137					
AEH-0908-108	**8/13/2009**				
Chloride (Cl)		4	mg/L	UJ	DI Blank - Value (5 mg/L) > PDLG
Sodium (Na) DIS		14	mg/L	UJ	DI Blank - Result (11 mg/L) > PDLG
Sulfate (SO4)		50	mg/L	J-	Matrix Spike - 71% Recovery
TDS (Measured at 180 C)		173	mg/L	UJ	DI Blank - Result (44 mg/L) > PDLG

***Notes: PDLG = Project Detection Limit Goal; Diff = Difference.**

Table 2. Summary of Qualified Data
Asarco East Helena Plant - RCRA Consent Decree
August and September 2009

Station Name / Field Sample ID / Parameter	Samp Date		Value	Unit	Flag	QC Type-Exceedance*
MW-1						
AEH-0908-199	**9/16/2009**					
Silver (Ag) DIS		<	0.005	mg/L	J-	Matrix Spike - 43% Recovery
AEH-0908-200	**9/16/2009**					
Silver (Ag) DIS		<	0.005	mg/L	J-	Matrix Spike - 43% Recovery
MW-10						
AEH-0908-208	**9/16/2009**					
Silver (Ag) DIS		<	0.005	mg/L	J-	Matrix Spike - 45% Recovery
MW-11						
AEH-0908-210	**9/16/2009**					
Gold (Au) DIS		<	0.01	mg/L	J-	Matrix Spike - 46% Recovery
MW-2						
AEH-0908-201	**9/16/2009**					
Silver (Ag) DIS		<	0.005	mg/L	J-	Matrix Spike - 43% Recovery
MW-3						
AEH-0908-203	**9/16/2009**					
Silver (Ag) DIS		<	0.005	mg/L	J-	Matrix Spike - 43% Recovery
MW-4						
AEH-0908-198	**9/16/2009**					
Silver (Ag) DIS		<	0.005	mg/L	J-	Matrix Spike - 43% Recovery
MW-5						
AEH-0908-206	**9/16/2009**					
Silver (Ag) DIS		<	0.005	mg/L	J-	Matrix Spike - 43% Recovery
MW-6						
AEH-0908-211	**9/16/2009**					
Gold (Au) DIS		<	0.01	mg/L	J-	Matrix Spike - 46% Recovery
MW-8						
AEH-0908-207	**9/16/2009**					
Silver (Ag) DIS		<	0.005	mg/L	J-	Matrix Spike - 43% Recovery

***Notes: PDLG = Project Detection Limit Goal; Diff = Difference.**

Table 2. Summary of Qualified Data

Asarco East Helena Plant - RCRA Consent Decree

August and September 2009

Station Name / Field Sample ID / Parameter	Samp Date		Value	Unit	Flag	QC Type-Exceedance*
MW-9						
AEH-0908-205	**9/16/2009**					
Silver (Ag) DIS		<	0.005	mg/L	J-	Matrix Spike - 43% Recovery
RINSATE						
AEH-0908-101	**8/12/2009**					
Aluminum (Al) DIS			0.003	mg/L	UJ	Method Blank - Result (0.001 mg/L) > PDLG

***Notes: PDLG = Project Detection Limit Goal; Diff = Difference.**

Table 3. Summary of Field Blank Detections
ASARCO East Helena RCRA Consent Decree
August September 2009

Blank Type	Sample Code	Sample Date	Parameter	PDLG (mg/L)	Result (mg/L)	5 X Result (mg/L)	Flags
DI BLANK	AEH-0908-105	8/12/2009	Bicarbonate (HCO3)	1	2	10	0 (1)
			Chloride (Cl)	1	1	5	3
			SC (umhos/cm at 25 C)	10	19	95	0 (1)
			TDS (Measured at 180 C)	10	30	150	0 (1)
			Total Alkalinity As CACO3	1	2	10	0 (1)
DI BLANK	AEH-0908-115	8/13/2009	Bicarbonate (HCO3)	1	12	60	0 (1)
			Chloride (Cl)	1	5	25	8
			SC (umhos/cm at 25 C)	10	50	250	1
			Sodium (Na) Dis	5	11	55	8
			TDS (Measured at 180 C)	10	44	220	3
			Total Alkalinity As CACO3	1	10	50	0 (1)
DI BLANK	AEH-0908-126	8/14/2009	TDS (Measured at 180 C)	10	13	65	0 (2)
DI BLANK	AEH-0908-169	8/25/2009	Selenium (Se) Dis	0.001	0.004	0.020	2
DI BLANK	AEH-0908-178	8/26/2009	TDS (Measured at 180 C)	10	26	130	0 (1)
DI BLANK	AEH-0908-188	8/27/2009	TDS (Measured at 180 C)	10	21	105	0 (2)
DI BLANK	AEH-0908-202	9/16/2009	Bicarbonate (HCO3)	1	2	10	0 (1)
			Total Alkalinity As CACO3	1	2	10	0 (1)
RINSATE	AEH-0908-101	8/12/2009	Aluminum (Al) Dis	0.001	0.003	0.015	2
			Bicarbonate (HCO3)	1	2	10	0 (1)
			TDS (Measured at 180 C)	10	21	105	0 (2)
			Total Alkalinity As CACO3	1	2	10	0 (1)
RINSATE	AEH-0908-112	8/13/2009	Bicarbonate (HCO3)	1	7	35	0 (1)
			Chloride (Cl)	1	4	20	0 (2)
			SC (umhos/cm at 25 C)	10	41	205	0 (1)
			Sodium (Na) Dis	5	9	45	0 (2)
			TDS (Measured at 180 C)	10	44	220	0 (2)
			Total Alkalinity As CACO3	1	6	30	0 (1)
RINSATE	AEH-0908-122	8/14/2009	Aluminum (Al) Dis	0.001	0.005	0.025	9
			TDS (Measured at 180 C)	10	29	145	0 (1)
RINSATE	AEH-0908-135	8/18/2009	TDS (Measured at 180 C)	10	23	115	0 (1)
RINSATE	AEH-0908-190	8/27/2009	TDS (Measured at 180 C)	10	36	180	0 (1)
RINSATE	AEH-0908-204	9/16/2009	Bicarbonate (HCO3)	1	2	10	0 (1)
			Total Alkalinity As CACO3	1	2	10	0 (1)

Notes:

1) Associated results were either, greater than five times the blank value for less than the reporting limit.

2) Results were preferentially flagged for associated Rinsate or DI blank detections.

Table 4. Historical Comparisons Summary~

ASARCO East Helena Plant RCRA Consent Decree

August and September 2009

~Where this sampling event's data and historical mean difference is greater than three times the historical standard devation.

Station	This Sampling Event's Data			----------Historical Data----------					Comparison To Historical Data		
Parameter	Sample Date	Value	Cnt	Min	Max	Mean	Std Dev	# of Std Dev*	High or Low	Elev DL**
All units are in ppm unless noted otherwise.										
DH-8	**8/25/2009**	**AEH-0908-168**								
Total Suspended Solids		28	14	10	14	10.3571	1.0818	5.44	Highest	
DH-9	**8/25/2009**	**AEH-0908-163**								
Total Suspended Solids		118	3	10	19	16.0000	5.1962	6.54	Highest	
EH-120	**8/14/2009**	**AEH-0908-120**								
Aluminum (Al)	DIS	< 0.001	3	0.1	0.1	0.1000	0.0000	1330	Lowest	
EH-121	**8/18/2009**	**AEH-0908-136**								
SC (umhos/cm at 25 C) (Fld)		267	5	289	293	290.6000	1.8166	4.33	Lowest	
EH-123	**8/13/2009**	**AEH-0908-109**								
Depth To Water Level (ft)		34.95	3	42.59	44.1	43.5800	0.8577	3.35	Lowest	
Manganese (Mn)	DIS	< 0.005	2	0.01	0.01	0.0100	0.0000	845	Lowest	
pH (Fld)		7.1	3	7.27	7.28	7.2733	0.0059	9.86	Lowest	
EH-124	**8/13/2009**	**AEH-0908-110**								
Manganese (Mn)	DIS	< 0.005	2	0.01	0.01	0.0100	0.0000	845	Lowest	
Water Temperature (C) (Fld)		11.31	2	10.8	10.8	10.8000	0.0024	70.6	Highest	
EH-135	**8/12/2009**	**AEH-0908-104**								
Lead (Pb)	DIS	< 0.005	2	0.01	0.01	0.0100	0.0000	845	Lowest	
pH (Fld)		6.83	2	6.95	6.97	6.9600	0.0142	3.05	Lowest	
EH-57A	**8/14/2009**	**AEH-0908-116**								
Aluminum (Al)	DIS	< 0.001	3	0.1	0.1	0.1000	0.0000	1330	Lowest	
MW-10	**9/16/2009**	**AEH-0908-208**								
Chromium (Cr)	DIS	0.003	8	0.001	0.001	0.0010	0.0000	4900	Highest	
MW-3	**9/16/2009**	**AEH-0908-203**								

Notes:

* # of Std Dev (from historical mean) = Value and historical mean difference divided by the historical standard deviation.

**Elev DL = An elevated reporting limit was used for the sample's value. The true value may be less than the reporting limit and therefore the value and historical average difference may not be greater than three times the standard deviation; and/or the sample's value may not be the highest historical concentration.,

Table 4. Historical Comparisons Summary~

ASARCO East Helena Plant RCRA Consent Decree

August and September 2009

~Where this sampling event's data and historical mean difference is greater than three times the historical standard devation.

Station	This Sampling Event's Data		----------Historical Data----------					Comparison To Historical Data		
Parameter	Sample Date	Value	Cnt	Min	Max	Mean	Std Dev	# of Std Dev*	High or Low	Elev DL**
All units are in ppm unless noted otherwise.										
MW-3	**9/16/2009**	**AEH-0908-203**								
Manganese (Mn)	DIS	0.02	19	0.03	0.03	0.0300	0.0000	652	Lowest	
Oxygen (O) (DIS) (Fld)		3.08	19	0.06	0.95	0.3653	0.2564	3.53	Highest	
MW-4	**9/16/2009**	**AEH-0908-198**								
Selenium (Se)	DIS	0.001	7	0.005	0.006	0.0051	0.0004	3.65	Lowest	
MW-5	**9/16/2009**	**AEH-0908-206**								
Selenium (Se)	DIS	0.001	7	0.005	0.005	0.0050	0.0000	1770	Lowest	
MW-8	**9/16/2009**	**AEH-0908-207**								
Selenium (Se)	DIS	0.001	7	0.005	0.005	0.0050	0.0000	1770	Lowest	
MW-9	**9/16/2009**	**AEH-0908-205**								
Selenium (Se)	DIS	0.001	7	0.005	0.005	0.0050	0.0000	1770	Lowest	

Notes:

* # of Std Dev (from historical mean) = Value and historical mean difference divided by the historical standard deviation.

**Elev DL = An elevated reporting limit was used for the sample's value. The true value may be less than the reporting limit and therefore the value and historical average difference may not be greater than three times the standard deviation; and/or the sample's value may not be the highest historical concentration.,

APPENDIX 2

DATABASE

ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - August and September 2009

Database: ASARCO, East Helena Plant

Table of Contents by Station Type

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1	Groundwater	DH-1
4	Groundwater	DH-7
5	Groundwater	DH-8
5	Groundwater	DH-9
1	Groundwater	DH-11
1	Groundwater	DH-50
2	Groundwater	DH-52
2	Groundwater	DH-55
2	Groundwater	DH-56
3	Groundwater	DH-58
3	Groundwater	DH-59
3	Groundwater	DH-65
4	Groundwater	DH-69
4	Groundwater	DH-71
17	Groundwater	EH-51
18	Groundwater	EH-52
18	Groundwater	EH-53
18	Groundwater	EH-54
19	Groundwater	EH-57A
19	Groundwater	EH-58
19	Groundwater	EH-59
20	Groundwater	EH-60
20	Groundwater	EH-61
20	Groundwater	EH-62
21	Groundwater	EH-63
21	Groundwater	EH-64
21	Groundwater	EH-65
22	Groundwater	EH-66
22	Groundwater	EH-67
22	Groundwater	EH-68
23	Groundwater	EH-69
5	Groundwater	EH-100
6	Groundwater	EH-101
6	Groundwater	EH-102
6	Groundwater	EH-103
7	Groundwater	EH-104
7	Groundwater	EH-106
7	Groundwater	EH-107
8	Groundwater	EH-109
8	Groundwater	EH-110
8	Groundwater	EH-111
9	Groundwater	EH-112
9	Groundwater	EH-113

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

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ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - August and September 2009

Database: ASARCO, East Helena Plant

Table of Contents by Station Type

Page	Station Type	Station Name
9	Groundwater	EH-114
10	Groundwater	EH-115
10	Groundwater	EH-116
10	Groundwater	EH-117
11	Groundwater	EH-118
11	Groundwater	EH-119
11	Groundwater	EH-120
12	Groundwater	EH-121
12	Groundwater	EH-122
12	Groundwater	EH-123
13	Groundwater	EH-124
13	Groundwater	EH-125
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14	Groundwater	EH-127
14	Groundwater	EH-128
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23	Groundwater	MW-1
25	Groundwater	MW-2
25	Groundwater	MW-3
27	Groundwater	MW-4
27	Groundwater	MW-5
27	Groundwater	MW-6
29	Groundwater	MW-7
29	Groundwater	MW-8
29	Groundwater	MW-9
23	Groundwater	MW-10
25	Groundwater	MW-11
31	Quality Control	DI BLANK
33	Quality Control	RINSATE

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - August and September 2009

Database: ASARCO, East Helena Plant

Table of Contents By Lab Sample ID

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29	AEH-0908-209	AEH-0908-209	9/16/2009	MW-7
15	H09080170-001	AEH-0908-100	8/12/2009	EH-130
33	H09080170-002	AEH-0908-101	8/12/2009	RINSATE
14	H09080170-003	AEH-0908-102	8/12/2009	EH-127
14	H09080170-004	AEH-0908-103	8/12/2009	EH-127
16	H09080170-005	AEH-0908-104	8/12/2009	EH-135
31	H09080170-006	AEH-0908-105	8/12/2009	DI BLANK
15	H09080170-007	AEH-0908-106	8/13/2009	EH-131
17	H09080170-008	AEH-0908-107	8/13/2009	EH-136
17	H09080170-009	AEH-0908-108	8/13/2009	EH-137
12	H09080170-010	AEH-0908-109	8/13/2009	EH-123
13	H09080170-011	AEH-0908-110	8/13/2009	EH-124
13	H09080170-012	AEH-0908-111	8/13/2009	EH-124
33	H09080170-013	AEH-0908-112	8/13/2009	RINSATE
16	H09080170-014	AEH-0908-113	8/13/2009	EH-134
14	H09080170-015	AEH-0908-114	8/13/2009	EH-129
31	H09080170-016	AEH-0908-115	8/13/2009	DI BLANK
19	H09080188-001	AEH-0908-116	8/14/2009	EH-57A
16	H09080188-002	AEH-0908-117	8/14/2009	EH-133
13	H09080188-003	AEH-0908-118	8/14/2009	EH-126
13	H09080188-004	AEH-0908-119	8/14/2009	EH-125
11	H09080188-005	AEH-0908-120	8/14/2009	EH-120
11	H09080188-006	AEH-0908-121	8/14/2009	EH-120
33	H09080188-007	AEH-0908-122	8/14/2009	RINSATE
11	H09080188-008	AEH-0908-123	8/14/2009	EH-119
11	H09080188-009	AEH-0908-124	8/14/2009	EH-118
10	H09080188-010	AEH-0908-125	8/14/2009	EH-117
31	H09080188-011	AEH-0908-126	8/14/2009	DI BLANK
10	H09080188-012	AEH-0908-127	8/14/2009	EH-116
9	H09080188-013	AEH-0908-128	8/14/2009	EH-114
14	H09080188-014	AEH-0908-129	8/14/2009	EH-128
15	H09080188-015	AEH-0908-130	8/14/2009	EH-132
12	H09080217-001	AEH-0908-131	8/18/2009	EH-122
22	H09080217-002	AEH-0908-132	8/18/2009	EH-67
22	H09080217-003	AEH-0908-133	8/18/2009	EH-66
22	H09080217-004	AEH-0908-134	8/18/2009	EH-66
33	H09080217-005	AEH-0908-135	8/18/2009	RINSATE
12	H09080217-006	AEH-0908-136	8/18/2009	EH-121
31	H09080217-007	AEH-0908-137	8/18/2009	DI BLANK
22	H09080236-001	AEH-0908-138	8/19/2009	EH-68
23	H09080236-002	AEH-0908-139	8/19/2009	EH-69
6	H09080236-003	AEH-0908-140	8/19/2009	EH-102
18	H09080236-004	AEH-0908-141	8/19/2009	EH-52

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

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ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - August and September 2009

Database: ASARCO, East Helena Plant

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Page	Lab Sample ID	Sample ID	Sample Date	Station Name
33	H09080236-005	AEH-0908-142	8/19/2009	RINSATE
19	H09080236-006	AEH-0908-143	8/19/2009	EH-58
19	H09080236-007	AEH-0908-144	8/19/2009	EH-58
18	H09080236-008	AEH-0908-145	8/19/2009	EH-54
20	H09080236-009	AEH-0908-146	8/19/2009	EH-62
31	H09080236-010	AEH-0908-147	8/19/2009	DI BLANK
18	H09080236-011	AEH-0908-148	8/19/2009	EH-53
9	H09080236-012	AEH-0908-149	8/19/2009	EH-113
21	H09080236-013	AEH-0908-150	8/19/2009	EH-63
21	H09080255-001	AEH-0908-151	8/20/2009	EH-64
4	H09080255-002	AEH-0908-152	8/20/2009	DH-7
1	H09080255-003	AEH-0908-153	8/20/2009	DH-11
1	H09080255-004	AEH-0908-154	8/20/2009	DH-11
1	H09080255-005	AEH-0908-155	8/20/2009	DH-1
6	H09080255-006	AEH-0908-156	8/20/2009	EH-101
6	H09080255-007	AEH-0908-157	8/20/2009	EH-103
31	H09080255-008	AEH-0908-158	8/20/2009	DI BLANK
20	H09080255-009	AEH-0908-159	8/20/2009	EH-61
33	H09080255-010	AEH-0908-160	8/20/2009	RINSATE
7	H09080255-011	AEH-0908-161	8/20/2009	EH-107
5	H09080296-001	AEH-0908-163	8/25/2009	DH-9
4	H09080296-002	AEH-0908-164	8/25/2009	DH-69
4	H09080296-003	AEH-0908-165	8/25/2009	DH-69
2	H09080296-004	AEH-0908-166	8/25/2009	DH-52
34	H09080296-005	AEH-0908-167	8/25/2009	RINSATE
5	H09080296-006	AEH-0908-168	8/25/2009	DH-8
32	H09080296-007	AEH-0908-169	8/25/2009	DI BLANK
1	H09080296-008	AEH-0908-170	8/25/2009	DH-50
3	H09080296-009	AEH-0908-171	8/25/2009	DH-59
4	H09080296-010	AEH-0908-172	8/25/2009	DH-71
17	H09080296-011	AEH-0908-173	8/25/2009	EH-51
3	H09080296-012	AEH-0908-162	8/25/2009	DH-58
19	H09080316-001	AEH-0908-174	8/26/2009	EH-59
20	H09080316-002	AEH-0908-175	8/26/2009	EH-60
20	H09080316-003	AEH-0908-176	8/26/2009	EH-60
21	H09080316-004	AEH-0908-177	8/26/2009	EH-65
32	H09080316-005	AEH-0908-178	8/26/2009	DI BLANK
34	H09080316-006	AEH-0908-179	8/26/2009	RINSATE
5	H09080316-007	AEH-0908-180	8/26/2009	EH-100
7	H09080347-001	AEH-0908-181	8/27/2009	EH-104
7	H09080347-002	AEH-0908-182	8/27/2009	EH-106
7	H09080347-003	AEH-0908-183	8/27/2009	EH-106
8	H09080347-004	AEH-0908-184	8/27/2009	EH-109

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

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Database: ASARCO, East Helena Plant

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9	H09080347-007	AEH-0908-187	8/27/2009	EH-112
32	H09080347-008	AEH-0908-188	8/27/2009	DI BLANK
9	H09080347-009	AEH-0908-189	8/27/2009	EH-114
34	H09080347-010	AEH-0908-190	8/27/2009	RINSATE
10	H09080347-011	AEH-0908-191	8/27/2009	EH-115
2	H09090136-001	AEH-0908-192	9/10/2009	DH-55
2	H09090136-002	AEH-0908-193	9/10/2009	DH-55
3	H09090136-003	AEH-0908-194	9/10/2009	DH-65
34	H09090136-004	AEH-0908-195	9/10/2009	RINSATE
2	H09090136-005	AEH-0908-196	9/10/2009	DH-56
32	H09090136-006	AEH-0908-197	9/10/2009	DI BLANK
27	H09090235-001	AEH-0908-198	9/16/2009	MW-4
23	H09090235-002	AEH-0908-199	9/16/2009	MW-1
23	H09090235-003	AEH-0908-200	9/16/2009	MW-1
25	H09090235-004	AEH-0908-201	9/16/2009	MW-2
32	H09090235-005	AEH-0908-202	9/16/2009	DI BLANK
25	H09090235-006	AEH-0908-203	9/16/2009	MW-3
34	H09090235-007	AEH-0908-204	9/16/2009	RINSATE
29	H09090235-008	AEH-0908-205	9/16/2009	MW-9
27	H09090235-009	AEH-0908-206	9/16/2009	MW-5
29	H09090235-010	AEH-0908-207	9/16/2009	MW-8
23	H09090235-011	AEH-0908-208	9/16/2009	MW-10
25	H09090235-012	AEH-0908-210	9/16/2009	MW-11
27	H09090235-013	AEH-0908-211	9/16/2009	MW-6

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

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Database: ASARCO, East Helena Plant

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33	AEH-0908-101	H09080170-002	8/12/2009	RINSATE
14	AEH-0908-102	H09080170-003	8/12/2009	EH-127
14	AEH-0908-103	H09080170-004	8/12/2009	EH-127
16	AEH-0908-104	H09080170-005	8/12/2009	EH-135
31	AEH-0908-105	H09080170-006	8/12/2009	DI BLANK
15	AEH-0908-106	H09080170-007	8/13/2009	EH-131
17	AEH-0908-107	H09080170-008	8/13/2009	EH-136
17	AEH-0908-108	H09080170-009	8/13/2009	EH-137
12	AEH-0908-109	H09080170-010	8/13/2009	EH-123
13	AEH-0908-110	H09080170-011	8/13/2009	EH-124
13	AEH-0908-111	H09080170-012	8/13/2009	EH-124
33	AEH-0908-112	H09080170-013	8/13/2009	RINSATE
16	AEH-0908-113	H09080170-014	8/13/2009	EH-134
14	AEH-0908-114	H09080170-015	8/13/2009	EH-129
31	AEH-0908-115	H09080170-016	8/13/2009	DI BLANK
19	AEH-0908-116	H09080188-001	8/14/2009	EH-57A
16	AEH-0908-117	H09080188-002	8/14/2009	EH-133
13	AEH-0908-118	H09080188-003	8/14/2009	EH-126
13	AEH-0908-119	H09080188-004	8/14/2009	EH-125
11	AEH-0908-120	H09080188-005	8/14/2009	EH-120
11	AEH-0908-121	H09080188-006	8/14/2009	EH-120
33	AEH-0908-122	H09080188-007	8/14/2009	RINSATE
11	AEH-0908-123	H09080188-008	8/14/2009	EH-119
11	AEH-0908-124	H09080188-009	8/14/2009	EH-118
10	AEH-0908-125	H09080188-010	8/14/2009	EH-117
31	AEH-0908-126	H09080188-011	8/14/2009	DI BLANK
10	AEH-0908-127	H09080188-012	8/14/2009	EH-116
9	AEH-0908-128	H09080188-013	8/14/2009	EH-114
14	AEH-0908-129	H09080188-014	8/14/2009	EH-128
15	AEH-0908-130	H09080188-015	8/14/2009	EH-132
12	AEH-0908-131	H09080217-001	8/18/2009	EH-122
22	AEH-0908-132	H09080217-002	8/18/2009	EH-67
22	AEH-0908-133	H09080217-003	8/18/2009	EH-66
22	AEH-0908-134	H09080217-004	8/18/2009	EH-66
33	AEH-0908-135	H09080217-005	8/18/2009	RINSATE
12	AEH-0908-136	H09080217-006	8/18/2009	EH-121
31	AEH-0908-137	H09080217-007	8/18/2009	DI BLANK
22	AEH-0908-138	H09080236-001	8/19/2009	EH-68
23	AEH-0908-139	H09080236-002	8/19/2009	EH-69
6	AEH-0908-140	H09080236-003	8/19/2009	EH-102
18	AEH-0908-141	H09080236-004	8/19/2009	EH-52
33	AEH-0908-142	H09080236-005	8/19/2009	RINSATE

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

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ASARCO East Helena Plant - Consent Decree - August and September 2009

Database: ASARCO, East Helena Plant

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19	AEH-0908-144	H09080236-007	8/19/2009	EH-58
18	AEH-0908-145	H09080236-008	8/19/2009	EH-54
20	AEH-0908-146	H09080236-009	8/19/2009	EH-62
31	AEH-0908-147	H09080236-010	8/19/2009	DI BLANK
18	AEH-0908-148	H09080236-011	8/19/2009	EH-53
9	AEH-0908-149	H09080236-012	8/19/2009	EH-113
21	AEH-0908-150	H09080236-013	8/19/2009	EH-63
21	AEH-0908-151	H09080255-001	8/20/2009	EH-64
4	AEH-0908-152	H09080255-002	8/20/2009	DH-7
1	AEH-0908-153	H09080255-003	8/20/2009	DH-11
1	AEH-0908-154	H09080255-004	8/20/2009	DH-11
1	AEH-0908-155	H09080255-005	8/20/2009	DH-1
6	AEH-0908-156	H09080255-006	8/20/2009	EH-101
6	AEH-0908-157	H09080255-007	8/20/2009	EH-103
31	AEH-0908-158	H09080255-008	8/20/2009	DI BLANK
20	AEH-0908-159	H09080255-009	8/20/2009	EH-61
33	AEH-0908-160	H09080255-010	8/20/2009	RINSATE
7	AEH-0908-161	H09080255-011	8/20/2009	EH-107
3	AEH-0908-162	H09080296-012	8/25/2009	DH-58
5	AEH-0908-163	H09080296-001	8/25/2009	DH-9
4	AEH-0908-164	H09080296-002	8/25/2009	DH-69
4	AEH-0908-165	H09080296-003	8/25/2009	DH-69
2	AEH-0908-166	H09080296-004	8/25/2009	DH-52
34	AEH-0908-167	H09080296-005	8/25/2009	RINSATE
5	AEH-0908-168	H09080296-006	8/25/2009	DH-8
32	AEH-0908-169	H09080296-007	8/25/2009	DI BLANK
1	AEH-0908-170	H09080296-008	8/25/2009	DH-50
3	AEH-0908-171	H09080296-009	8/25/2009	DH-59
4	AEH-0908-172	H09080296-010	8/25/2009	DH-71
17	AEH-0908-173	H09080296-011	8/25/2009	EH-51
19	AEH-0908-174	H09080316-001	8/26/2009	EH-59
20	AEH-0908-175	H09080316-002	8/26/2009	EH-60
20	AEH-0908-176	H09080316-003	8/26/2009	EH-60
21	AEH-0908-177	H09080316-004	8/26/2009	EH-65
32	AEH-0908-178	H09080316-005	8/26/2009	DI BLANK
34	AEH-0908-179	H09080316-006	8/26/2009	RINSATE
5	AEH-0908-180	H09080316-007	8/26/2009	EH-100
7	AEH-0908-181	H09080347-001	8/27/2009	EH-104
7	AEH-0908-182	H09080347-002	8/27/2009	EH-106
7	AEH-0908-183	H09080347-003	8/27/2009	EH-106
8	AEH-0908-184	H09080347-004	8/27/2009	EH-109
8	AEH-0908-185	H09080347-005	8/27/2009	EH-110

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

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ASARCO East Helena Plant - Consent Decree - August and September 2009

Database: ASARCO, East Helena Plant

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8	AEH-0908-186	H09080347-006	8/27/2009	EH-111
9	AEH-0908-187	H09080347-007	8/27/2009	EH-112
32	AEH-0908-188	H09080347-008	8/27/2009	DI BLANK
9	AEH-0908-189	H09080347-009	8/27/2009	EH-114
34	AEH-0908-190	H09080347-010	8/27/2009	RINSATE
10	AEH-0908-191	H09080347-011	8/27/2009	EH-115
2	AEH-0908-192	H09090136-001	9/10/2009	DH-55
2	AEH-0908-193	H09090136-002	9/10/2009	DH-55
3	AEH-0908-194	H09090136-003	9/10/2009	DH-65
34	AEH-0908-195	H09090136-004	9/10/2009	RINSATE
2	AEH-0908-196	H09090136-005	9/10/2009	DH-56
32	AEH-0908-197	H09090136-006	9/10/2009	DI BLANK
27	AEH-0908-198	H09090235-001	9/16/2009	MW-4
23	AEH-0908-199	H09090235-002	9/16/2009	MW-1
23	AEH-0908-200	H09090235-003	9/16/2009	MW-1
25	AEH-0908-201	H09090235-004	9/16/2009	MW-2
32	AEH-0908-202	H09090235-005	9/16/2009	DI BLANK
25	AEH-0908-203	H09090235-006	9/16/2009	MW-3
34	AEH-0908-204	H09090235-007	9/16/2009	RINSATE
29	AEH-0908-205	H09090235-008	9/16/2009	MW-9
27	AEH-0908-206	H09090235-009	9/16/2009	MW-5
29	AEH-0908-207	H09090235-010	9/16/2009	MW-8
23	AEH-0908-208	H09090235-011	9/16/2009	MW-10
29	AEH-0908-209	AEH-0908-209	9/16/2009	MW-7
25	AEH-0908-210	H09090235-012	9/16/2009	MW-11
27	AEH-0908-211	H09090235-013	9/16/2009	MW-6

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

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ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - August and September 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	DH-1	DH-11	DH-11	DH-50
Water	SAMPLE DATE	8/20/2009	8/20/2009	8/20/2009	8/25/2009
	SAMPLE TIME	11:21	10:10	10:20	13:50
	LAB	ELI	ELI	ELI	ELI
	LAB NUMBER	H09080255-005	H09080255-003	H09080255-004	H09080296-008
	SAMPLE NUMBER	AEH-0908-155	AEH-0908-153	AEH-0908-154	AEH-0908-170
	TYPE	Groundwater	Groundwater	Groundwater	Groundwater
	GROUP	RI	RI	RI	RI
	DESCRIPTION				
	REMARKS			Field Duplicate	
Metals (mg/L): ppm unless noted					
	Arsenic (As) (DIS)	<0.005	<0.005	<0.005	0.262
	Selenium (Se) (DIS)	0.012	0.003	0.003	0.077
Physical/Fld-Lab: ppm unless noted					
	Oxygen (O) (DIS) (Fld)	7.1	0.02		3.04
	pH	7.8	7.4	7.4	6.8
	Depth To Water Level (ft)	30.28	14.04		19.6
	pH (Fld)	7.39	6.96		6.52
	SC (umhos/cm at 25 C) (Fld)	482	490		1540
	SC (umhos/cm at 25 C)	519	519	522	1530
	Total Suspended Solids	<10	<10	<10	<10
	TDS (Measured at 180 C)	337	328	332	1110
	Water Temperature (C) (Fld)	12.33	9.68		11.46

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - August and September 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	DH-52	DH-55	DH-55	DH-56
Water	SAMPLE DATE	8/25/2009	9/10/2009	9/10/2009	9/10/2009
	SAMPLE TIME	11:00	11:00	11:10	12:10
	LAB	ELI	ELI	ELI	ELI
	LAB NUMBER	H09080296-004	H09090136-001	H09090136-002	H09090136-005
	SAMPLE NUMBER	AEH-0908-166	AEH-0908-192	AEH-0908-193	AEH-0908-196
	TYPE	Groundwater	Groundwater	Groundwater	Groundwater
	GROUP	RI	RI	RI	RI
	DESCRIPTION				
	REMARKS			Field Duplicate	
Metals (mg/L): ppm unless noted					
	Arsenic (As) (DIS)	1.21	0.951	0.953	1.1
	Selenium (Se) (DIS)	0.044	0.17	0.171	0.514
Physical/Fld-Lab: ppm unless noted					
	Oxygen (O) (DIS) (Fld)	0.01	1.53		1.56
	pH	7.6	8	8	7.6
	Depth To Water Level (ft)	5.33	79.54		76.54
	pH (Fld)	7.42	7.27		7.34
	SC (umhos/cm at 25 C) (Fld)	999	1341		2910
	SC (umhos/cm at 25 C)	996	1270	1250	2760
	Total Suspended Solids	<10	<10	<10	<10
	TDS (Measured at 180 C)	673	862	853	1970
	Water Temperature (C) (Fld)	11.39	10.6		10.7

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - August and September 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	DH-58	DH-59	DH-65
Water	SAMPLE DATE	8/25/2009	8/25/2009	9/10/2009
	SAMPLE TIME	09:35	14:25	11:45
	LAB	ELI	ELI	ELI
	LAB NUMBER	H09080296-012	H09080296-009	H09090136-003
	SAMPLE NUMBER	AEH-0908-162	AEH-0908-171	AEH-0908-194
	TYPE	Groundwater	Groundwater	Groundwater
	GROUP	RI	RI	RI
	DESCRIPTION			
	REMARKS			
Metals (mg/L): ppm unless noted				
	Arsenic (As) (DIS)	1.84	10.2	0.853
	Selenium (Se) (DIS)	0.024	0.03	0.042
Physical/Fld-Lab: ppm unless noted				
	Oxygen (O) (DIS) (Fld)	3.81	0.16	4.54
	pH	7	6.7	7.9
	Depth To Water Level (ft)	14.73	15.1	61.29
	pH (Fld)	6.63	6.38	7.52
	SC (umhos/cm at 25 C) (Fld)	797	662	882
	SC (umhos/cm at 25 C)	766	612	824
	Total Suspended Solids	<10	10	12
	TDS (Measured at 180 C)	527	415	561
	Water Temperature (C) (Fld)	12.85	10.73	10.32

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - August and September 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	DH-69	DH-69	DH-7	DH-71
Water	SAMPLE DATE	8/25/2009	8/25/2009	8/20/2009	8/25/2009
	SAMPLE TIME	10:15	10:20	09:30	14:40
	LAB	ELI	ELI	ELI	ELI
	LAB NUMBER	H09080296-002	H09080296-003	H09080255-002	H09080296-010
	SAMPLE NUMBER	AEH-0908-164	AEH-0908-165	AEH-0908-152	AEH-0908-172
	TYPE	Groundwater	Groundwater	Groundwater	Groundwater
	GROUP	RI	RI	RI	RI
	DESCRIPTION				
	REMARKS		Field Duplicate		
Metals (mg/L): ppm unless noted					
	Arsenic (As) (DIS)	0.217	0.214	<0.005	2.98
	Selenium (Se) (DIS)	0.002 UJ	0.001 UJ	0.002	0.104
Physical/Fld-Lab: ppm unless noted					
	Oxygen (O) (DIS) (Fld)	0.03		1.28	0.94
	pH	7.3	7.3	7.1	6.9
	Depth To Water Level (ft)	32.7		20.72	29.75
	pH (Fld)	7.04		6.64	6.55
	SC (umhos/cm at 25 C) (Fld)	609		299	1126
	SC (umhos/cm at 25 C)	539	538	328	1140
	Total Suspended Solids	70	68	<10	132
	TDS (Measured at 180 C)	365	382	212	810
	Water Temperature (C) (Fld)	10.55		9.25	11.51

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - August and September 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	DH-8	DH-9	EH-100
Water	SAMPLE DATE	8/25/2009	8/25/2009	8/26/2009
	SAMPLE TIME	12:30	10:00	12:00
	LAB	ELI	ELI	ELI
	LAB NUMBER	H09080296-006	H09080296-001	H09080316-007
	SAMPLE NUMBER	AEH-0908-168	AEH-0908-163	AEH-0908-180
	TYPE	Groundwater	Groundwater	Groundwater
	GROUP	RI	RI	RI
	DESCRIPTION			
	REMARKS			
Metals (mg/L): ppm unless noted				
	Arsenic (As) (DIS)	0.102	0.606	4.25
	Selenium (Se) (DIS)	4.64	0.031	0.778
Physical/Fld-Lab: ppm unless noted				
	Oxygen (O) (DIS) (Fld)	5.19	4.16	0.35
	pH	7.1	7.1	6.4
	Depth To Water Level (ft)	38.25	9.22	20.1
	pH (Fld)	6.96	6.99	6.1
	SC (umhos/cm at 25 C) (Fld)	5172	1397	1609
	SC (umhos/cm at 25 C)	4870	1360	1590
	Total Suspended Solids	28	118	<10
	TDS (Measured at 180 C)	4490	1030	1170
	Water Temperature (C) (Fld)	11.89	13.23	12.06

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - August and September 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	EH-101	EH-102	EH-103
Water	SAMPLE DATE	8/20/2009	8/19/2009	8/20/2009
	SAMPLE TIME	12:40	10:50	13:30
	LAB	ELI	ELI	ELI
	LAB NUMBER	H09080255-006	H09080236-003	H09080255-007
	SAMPLE NUMBER	AEH-0908-156	AEH-0908-140	AEH-0908-157
	TYPE	Groundwater	Groundwater	Groundwater
	GROUP	RI	RI	RI
	DESCRIPTION			
	REMARKS			
Metals (mg/L): ppm unless noted				
	Arsenic (As) (DIS)	<0.005	<0.005	0.006
	Selenium (Se) (DIS)	0.051	0.024	0.196
Physical/Fld-Lab: ppm unless noted				
	Oxygen (O) (DIS) (Fld)	3.13	4.12	0.02
	pH	7.2	7.2	7
	Depth To Water Level (ft)	12.53	8.78	18.74
	pH (Fld)	6.83	6.71	6.62
	SC (umhos/cm at 25 C) (Fld)	642	494	1653
	SC (umhos/cm at 25 C)	688	526	1740
	Total Suspended Solids	<10	<10	<10
	TDS (Measured at 180 C)	441	340	1350
	Water Temperature (C) (Fld)	11.28	9.17	12.41

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - August and September 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	EH-104	EH-106	EH-106	EH-107
Water	SAMPLE DATE	8/27/2009	8/27/2009	8/27/2009	8/20/2009
	SAMPLE TIME	08:40	09:10	09:20	15:15
	LAB	ELI	ELI	ELI	ELI
	LAB NUMBER	H09080347-001	H09080347-002	H09080347-003	H09080255-011
	SAMPLE NUMBER	AEH-0908-181	AEH-0908-182	AEH-0908-183	AEH-0908-161
	TYPE	Groundwater	Groundwater	Groundwater	Groundwater
	GROUP	RI	RI	RI	RI
	DESCRIPTION				
	REMARKS			Field Duplicate	
Metals (mg/L): ppm unless noted					
	Arsenic (As) (DIS)	<0.005	10.5	10.6	0.008
	Selenium (Se) (DIS)	0.017	0.393	0.376	0.243
Physical/Fld-Lab: ppm unless noted					
	Oxygen (O) (DIS) (Fld)	10.47	0.79		0.01
	pH	7.5	6.4	6.4	6.9
	Depth To Water Level (ft)	20.74	19.51		16.75
	pH (Fld)	7.03	6.14		6.51
	SC (umhos/cm at 25 C) (Fld)	688	1456		1903
	SC (umhos/cm at 25 C)	700	1450	1460	1980
	Total Suspended Solids	<10	63	62	<10
	TDS (Measured at 180 C)	465	1020	1020	1590
	Water Temperature (C) (Fld)	10.6	11.6		12.52

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - August and September 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	EH-109	EH-110	EH-111
Water	SAMPLE DATE	8/27/2009	8/27/2009	8/27/2009
	SAMPLE TIME	10:00	10:25	10:50
	LAB	ELI	ELI	ELI
	LAB NUMBER	H09080347-004	H09080347-005	H09080347-006
	SAMPLE NUMBER	AEH-0908-184	AEH-0908-185	AEH-0908-186
	TYPE	Groundwater	Groundwater	Groundwater
	GROUP	RI	RI	RI
	DESCRIPTION			
	REMARKS			
Metals (mg/L): ppm unless noted				
	Arsenic (As) (DIS)	10	0.009	3.17
	Selenium (Se) (DIS)	0.015	0.505	0.05
Physical/Fld-Lab: ppm unless noted				
	Oxygen (O) (DIS) (Fld)	0.58	0.52	0.48
	pH	6.8	7	6.6
	Depth To Water Level (ft)	17.42	13.9	19.85
	pH (Fld)	6.48	6.64	6.36
	SC (umhos/cm at 25 C) (Fld)	1312	2507	1475
	SC (umhos/cm at 25 C)	1310	2480	1480
	Total Suspended Solids	<10	<10	<10
	TDS (Measured at 180 C)	906	2040	1040
	Water Temperature (C) (Fld)	12.3	12	11.4

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - August and September 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	EH-112	EH-113	EH-114	EH-114
Water	SAMPLE DATE	8/27/2009	8/19/2009	8/14/2009	8/27/2009
	SAMPLE TIME	12:15	15:50	14:15	12:45
	LAB	ELI	ELI	ELI	ELI
	LAB NUMBER	H09080347-007	H09080236-012	H09080188-013	H09080347-009
	SAMPLE NUMBER	AEH-0908-187	AEH-0908-149	AEH-0908-128	AEH-0908-189
	TYPE	Groundwater	Groundwater	Groundwater	Groundwater
	GROUP	RI	RI	RI	RI
	DESCRIPTION				
	REMARKS				
Common Ions (mg/L): ppm unless noted					
	Bicarbonate (HCO3)			220	
	Calcium (Ca) (DIS)			128	
	Chloride (Cl)			48	
	Magnesium (Mg) (DIS)			32	
	Potassium (K) (DIS)			7	
	Sodium (Na) (DIS)			107	
	Sulfate (SO4)			450	
	Total Alkalinity As CACO3			180	
Metals (mg/L): ppm unless noted					
	Aluminum (Al) (DIS)			0.003 UJ	
	Arsenic (As) (DIS)	0.006	<0.005	<0.005	<0.005
	Cadmium (Cd) (DIS)			<0.001	
	Iron (Fe) (DIS)			<0.02	
	Lead (Pb) (DIS)			<0.005	
	Manganese (Mn) (DIS)			<0.01	
	Selenium (Se) (DIS)	0.043	0.111	0.175	0.195
	Tin (Sn) (DIS)			<0.1	
Physical/Fld-Lab: ppm unless noted					
	Oxygen (O) (DIS) (Fld)	6.34	7.32	2.08	3.82
	pH	6.6	7	6.8	6.7
	Depth To Water Level (ft)	20.12	21.46	24.71	22.23
	pH (Fld)	6.27	6.62	6.4	6.4
	SC (umhos/cm at 25 C) (Fld)	1423	1383	1287	1130
	SC (umhos/cm at 25 C)	1410	1450	1250	1130
	Total Suspended Solids	<10	<10	<10	<10
	TDS (Measured at 180 C)	1020	1040	928	808
	Water Temperature (C) (Fld)	11.9	11.2	11.04	11.4

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - August and September 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	EH-115	EH-116	EH-117
Water	SAMPLE DATE	8/27/2009	8/14/2009	8/14/2009
	SAMPLE TIME	13:30	13:50	13:20
	LAB	ELI	ELI	ELI
	LAB NUMBER	H09080347-011	H09080188-012	H09080188-010
	SAMPLE NUMBER	AEH-0908-191	AEH-0908-127	AEH-0908-125
	TYPE	Groundwater	Groundwater	Groundwater
	GROUP	RI	RI	RI
	DESCRIPTION			
	REMARKS			
Common Ions (mg/L): ppm unless noted				
	Bicarbonate (HCO3)		180	210
	Calcium (Ca) (DIS)		88	150
	Chloride (Cl)		57	74
	Magnesium (Mg) (DIS)		20	33
	Potassium (K) (DIS)		7	7
	Sodium (Na) (DIS)		218	181
	Sulfate (SO4)		530	620
	Total Alkalinity As CACO3		150	170
Metals (mg/L): ppm unless noted				
	Aluminum (Al) (DIS)		0.005 UJ	0.006 UJ
	Arsenic (As) (DIS)	<0.005	0.006	0.007
	Cadmium (Cd) (DIS)		<0.001	<0.001
	Iron (Fe) (DIS)		<0.02	<0.02
	Lead (Pb) (DIS)		<0.005	<0.005
	Manganese (Mn) (DIS)		<0.01	<0.01
	Selenium (Se) (DIS)	0.024	0.213	0.174
	Tin (Sn) (DIS)		<0.1	<0.1
Physical/Fld-Lab: ppm unless noted				
	Oxygen (O) (DIS) (Fld)	5.05	0.75	1.01
	pH	7.2	6.8	7.1
	Depth To Water Level (ft)	21.9	23.87	22.76
	pH (Fld)	6.79	6.27	6.43
	SC (umhos/cm at 25 C) (Fld)	535	1492	1690
	SC (umhos/cm at 25 C)	527	1480	1660
	Total Suspended Solids	10	<10	32
	TDS (Measured at 180 C)	338	1040	1240
	Water Temperature (C) (Fld)	11.4	11.22	11.47

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - August and September 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	EH-118	EH-119	EH-120	EH-120
Water	SAMPLE DATE	8/14/2009	8/14/2009	8/14/2009	8/14/2009
	SAMPLE TIME	12:50	11:35	10:55	11:05
	LAB	ELI	ELI	ELI	ELI
	LAB NUMBER	H09080188-009	H09080188-008	H09080188-005	H09080188-006
	SAMPLE NUMBER	AEH-0908-124	AEH-0908-123	AEH-0908-120	AEH-0908-121
	TYPE	Groundwater	Groundwater	Groundwater	Groundwater
	GROUP	RI	RI	RI	RI
	DESCRIPTION				
	REMARKS				Field Duplicate
Common Ions (mg/L): ppm unless noted					
	Bicarbonate (HCO3)	170	210	160	160
	Calcium (Ca) (DIS)	57	84	245	246
	Chloride (Cl)	17	43	68	68
	Magnesium (Mg) (DIS)	17	27	52	53
	Potassium (K) (DIS)	4	5	7	7
	Sodium (Na) (DIS)	24	88	118	118
	Sulfate (SO4)	99	270	850	850
	Total Alkalinity As CACO3	140	170	130	130
Metals (mg/L): ppm unless noted					
	Aluminum (Al) (DIS)	0.02 UJ	0.001 UJ	<0.001	0.002 UJ
	Arsenic (As) (DIS)	<0.005	<0.005	0.007	0.007
	Cadmium (Cd) (DIS)	<0.001	<0.001	<0.001	<0.001
	Iron (Fe) (DIS)	<0.02	<0.02	<0.02	<0.02
	Lead (Pb) (DIS)	<0.005	<0.005	<0.005	<0.005
	Manganese (Mn) (DIS)	<0.01	<0.01	<0.01	<0.01
	Selenium (Se) (DIS)	0.027	0.194	0.13	0.136
	Tin (Sn) (DIS)	<0.1	<0.1	<0.1	<0.1
Physical/Fld-Lab: ppm unless noted					
	Oxygen (O) (DIS) (Fld)	8.34	6.61	0.93	
	pH	7.7	7.6	7.2	7.1
	Depth To Water Level (ft)	29.14	27.27	24.42	
	pH (Fld)	6.81	6.81	6.42	
	SC (umhos/cm at 25 C) (Fld)	533	997	1872	
	SC (umhos/cm at 25 C)	537	992	1830	1830
	Total Suspended Solids	67	<10	<10	<10
	TDS (Measured at 180 C)	357	687	1490	1540
	Water Temperature (C) (Fld)	11.13	10.84	11.1	

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - August and September 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	EH-121	EH-122	EH-123
Water	SAMPLE DATE	8/18/2009	8/18/2009	8/13/2009
	SAMPLE TIME	15:45	14:15	12:45
	LAB	ELI	ELI	ELI
	LAB NUMBER	H09080217-006	H09080217-001	H09080170-010
	SAMPLE NUMBER	AEH-0908-136	AEH-0908-131	AEH-0908-109
	TYPE	Groundwater	Groundwater	Groundwater
	GROUP	RI	RI	RI
	DESCRIPTION			
	REMARKS			
Common Ions (mg/L): ppm unless noted				
	Bicarbonate (HCO3)			220
	Calcium (Ca) (DIS)			60
	Chloride (Cl)			17 UJ
	Magnesium (Mg) (DIS)			18
	Potassium (K) (DIS)			7
	Sodium (Na) (DIS)			39 UJ
	Sulfate (SO4)			110
	Total Alkalinity As CACO3			180
Metals (mg/L): ppm unless noted				
	Aluminum (Al) (DIS)			<0.001
	Arsenic (As) (DIS)	<0.005	<0.005	0.006
	Cadmium (Cd) (DIS)			<0.001
	Iron (Fe) (DIS)			<0.02
	Lead (Pb) (DIS)			<0.001
	Manganese (Mn) (DIS)			<0.005
	Selenium (Se) (DIS)	<0.001	<0.001	<0.001
	Tin (Sn) (DIS)			<0.1
Physical/Fld-Lab: ppm unless noted				
	Oxygen (O) (DIS) (Fld)	3.87	6.23	8.68
	pH	7.1	7.1	7.4
	Depth To Water Level (ft)	23.62	20.29	34.95
	pH (Fld)	6.75	6.68	7.1
	SC (umhos/cm at 25 C) (Fld)	267	254	603
	SC (umhos/cm at 25 C)	275	264	590
	Total Suspended Solids	<10	<10	<10
	TDS (Measured at 180 C)	183	171	396
	Water Temperature (C) (Fld)	10.13	10	12.44

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - August and September 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	EH-124	EH-124	EH-125	EH-126
Water	SAMPLE DATE	8/13/2009	8/13/2009	8/14/2009	8/14/2009
	SAMPLE TIME	13:35	13:45	10:15	09:35
	LAB	ELI	ELI	ELI	ELI
	LAB NUMBER	H09080170-011	H09080170-012	H09080188-004	H09080188-003
	SAMPLE NUMBER	AEH-0908-110	AEH-0908-111	AEH-0908-119	AEH-0908-118
	TYPE	Groundwater	Groundwater	Groundwater	Groundwater
	GROUP	RI	RI	RI	RI
	DESCRIPTION				
	REMARKS		Field Duplicate		
Common Ions (mg/L): ppm unless noted					
	Bicarbonate (HCO3)	190	190	150	200
	Calcium (Ca) (DIS)	49	48	89	59
	Chloride (Cl)	12 UJ	12 UJ	29	18
	Magnesium (Mg) (DIS)	13	13	23	25
	Potassium (K) (DIS)	5	5	5	4
	Sodium (Na) (DIS)	36 UJ	35 UJ	82	28
	Sulfate (SO4)	80	80	330	120
	Total Alkalinity As CACO3	150	150	120	160
Metals (mg/L): ppm unless noted					
	Aluminum (Al) (DIS)	<0.001	<0.001	<0.001	0.002 UJ
	Arsenic (As) (DIS)	<0.005	<0.005	<0.005	<0.005
	Cadmium (Cd) (DIS)	<0.001	<0.001	<0.001	<0.001
	Iron (Fe) (DIS)	<0.02	<0.02	<0.02	<0.02
	Lead (Pb) (DIS)	<0.001	<0.001	<0.005	<0.005
	Manganese (Mn) (DIS)	<0.005	<0.005	<0.01	<0.01
	Selenium (Se) (DIS)	<0.001	<0.001	0.06	0.032
	Tin (Sn) (DIS)	<0.1	<0.1	<0.1	<0.1
Physical/Fld-Lab: ppm unless noted					
	Oxygen (O) (DIS) (Fld)	10.06		4.21	8.67
	pH	7.7	7.6	7.5	7.9
	Depth To Water Level (ft)	30.84		28.21	44.96
	pH (Fld)	7.23		6.64	7.14
	SC (umhos/cm at 25 C) (Fld)	494		975	602
	SC (umhos/cm at 25 C)	482	485	961	606
	Total Suspended Solids	<10	<10	<10	<10
	TDS (Measured at 180 C)	320	156 R	692	409
	Water Temperature (C) (Fld)	11.31		10.8	11.05

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - August and September 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	EH-127	EH-127	EH-128	EH-129
Water	SAMPLE DATE	8/12/2009	8/12/2009	8/14/2009	8/13/2009
	SAMPLE TIME	15:30	15:40	14:45	15:10
	LAB	ELI	ELI	ELI	ELI
	LAB NUMBER	H09080170-003	H09080170-004	H09080188-014	H09080170-015
	SAMPLE NUMBER	AEH-0908-102	AEH-0908-103	AEH-0908-129	AEH-0908-114
	TYPE	Groundwater	Groundwater	Groundwater	Groundwater
	GROUP	RI	RI	RI	RI
	DESCRIPTION				
	REMARKS		Field Duplicate		
Common Ions (mg/L): ppm unless noted					
	Bicarbonate (HCO3)	84	89	130	170
	Calcium (Ca) (DIS)	25	25	31	39
	Chloride (Cl)	3 UJ	3 UJ	3	6 UJ
	Magnesium (Mg) (DIS)	6	6	10	13
	Potassium (K) (DIS)	2	2	3	6
	Sodium (Na) (DIS)	13	13	10	25 UJ
	Sulfate (SO4)	41 J-	41 J-	31	58
	Total Alkalinity As CACO3	69	73	110	140
Metals (mg/L): ppm unless noted					
	Aluminum (Al) (DIS)	0.002 UJ	<0.001	0.005 UJ	0.002
	Arsenic (As) (DIS)	<0.005	<0.005	0.042	0.006
	Cadmium (Cd) (DIS)	<0.001	<0.001	<0.001	<0.001
	Iron (Fe) (DIS)	<0.02	<0.02	<0.02	<0.02
	Lead (Pb) (DIS)	<0.005	<0.005	<0.005	<0.001
	Manganese (Mn) (DIS)	<0.01	<0.01	<0.01	<0.005
	Selenium (Se) (DIS)	<0.001	<0.001	0.001	<0.001
	Tin (Sn) (DIS)	<0.1	<0.1	<0.1	<0.1
Physical/Fld-Lab: ppm unless noted					
	Oxygen (O) (DIS) (Fld)	6.23		9.19	8.73
	pH	7.1	7.2	8	7.6
	Depth To Water Level (ft)	22.53		37.44	44.68
	pH (Fld)	6.73		7.15	7.18
	SC (umhos/cm at 25 C) (Fld)	236		285	404
	SC (umhos/cm at 25 C)	233	230	283	400
	Total Suspended Solids	<10	<10	<10	<10
	TDS (Measured at 180 C)	156	159	214	277
	Water Temperature (C) (Fld)	7.68		14.01	13.25

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - August and September 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	EH-130	EH-131	EH-132
Water	SAMPLE DATE	8/12/2009	8/13/2009	8/14/2009
	SAMPLE TIME	14:25	09:50	15:40
	LAB	ELI	ELI	ELI
	LAB NUMBER	H09080170-001	H09080170-007	H09080188-015
	SAMPLE NUMBER	AEH-0908-100	AEH-0908-106	AEH-0908-130
	TYPE	Groundwater	Groundwater	Groundwater
	GROUP	RI	RI	RI
	DESCRIPTION			
	REMARKS			
Common Ions (mg/L): ppm unless noted				
	Bicarbonate (HCO3)	110	91	110
	Calcium (Ca) (DIS)	34	27	22
	Chloride (Cl)	6	4 UJ	3
	Magnesium (Mg) (DIS)	8	6	7
	Potassium (K) (DIS)	3	2	6
	Sodium (Na) (DIS)	27	14 UJ	18
	Sulfate (SO4)	77 J-	46 J-	39
	Total Alkalinity As CACO3	88	75	86
Metals (mg/L): ppm unless noted				
	Aluminum (Al) (DIS)	0.007 UJ	0.003	0.009 UJ
	Arsenic (As) (DIS)	<0.005	<0.005	0.028
	Cadmium (Cd) (DIS)	<0.001	<0.001	<0.001
	Iron (Fe) (DIS)	<0.02	<0.02	<0.02
	Lead (Pb) (DIS)	<0.005	<0.005	<0.005
	Manganese (Mn) (DIS)	<0.01	<0.01	<0.01
	Selenium (Se) (DIS)	0.006	<0.001	<0.001
	Tin (Sn) (DIS)	<0.1	<0.1	<0.1
Physical/Fld-Lab: ppm unless noted				
	Oxygen (O) (DIS) (Fld)	4.57	9.19	7.53
	pH	7.2	7.2	7.8
	Depth To Water Level (ft)	37.2	25.99	47.33
	pH (Fld)	6.68	7.06	7.33
	SC (umhos/cm at 25 C) (Fld)	355	256	267
	SC (umhos/cm at 25 C)	349	251	263
	Total Suspended Solids	<10	<10	16
	TDS (Measured at 180 C)	231	171 UJ	204
	Water Temperature (C) (Fld)	11.03	8.47	13.98

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - August and September 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	EH-133	EH-134	EH-135
Water	SAMPLE DATE	8/14/2009	8/13/2009	8/12/2009
	SAMPLE TIME	08:55	14:30	16:15
	LAB	ELI	ELI	ELI
	LAB NUMBER	H09080188-002	H09080170-014	H09080170-005
	SAMPLE NUMBER	AEH-0908-117	AEH-0908-113	AEH-0908-104
	TYPE	Groundwater	Groundwater	Groundwater
	GROUP	RI	RI	RI
	DESCRIPTION			
	REMARKS			
Common Ions (mg/L): ppm unless noted				
	Bicarbonate (HCO3)	140	150	91
	Calcium (Ca) (DIS)	32	35	28
	Chloride (Cl)	3	4 UJ	4 UJ
	Magnesium (Mg) (DIS)	10	11	7
	Potassium (K) (DIS)	5	5	2
	Sodium (Na) (DIS)	17	20 UJ	15
	Sulfate (SO4)	38	43	49 J-
	Total Alkalinity As CACO3	120	130	75
Metals (mg/L): ppm unless noted				
	Aluminum (Al) (DIS)	<0.001	0.007	<0.001
	Arsenic (As) (DIS)	0.007	<0.005	<0.005
	Cadmium (Cd) (DIS)	<0.001	<0.001	<0.001
	Iron (Fe) (DIS)	<0.02	<0.02	<0.02
	Lead (Pb) (DIS)	<0.005	<0.001	<0.005
	Manganese (Mn) (DIS)	<0.01	<0.005	<0.01
	Selenium (Se) (DIS)	<0.001	<0.001	<0.001
	Tin (Sn) (DIS)	<0.1	<0.1	<0.1
Physical/Fld-Lab: ppm unless noted				
	Oxygen (O) (DIS) (Fld)	9.73	9.21	6.99
	pH	8	7.7	7.2
	Depth To Water Level (ft)	45.26	44.35	21.42
	pH (Fld)	7.34	7.21	6.83
	SC (umhos/cm at 25 C) (Fld)	323	346	262
	SC (umhos/cm at 25 C)	325	339	256
	Total Suspended Solids	<10	<10	<10
	TDS (Measured at 180 C)	230	238	173
	Water Temperature (C) (Fld)	12.86	14.39	9.8

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - August and September 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	EH-136	EH-137	EH-51
Water	SAMPLE DATE	8/13/2009	8/13/2009	8/25/2009
	SAMPLE TIME	10:45	11:35	15:45
	LAB	ELI	ELI	ELI
	LAB NUMBER	H09080170-008	H09080170-009	H09080296-011
	SAMPLE NUMBER	AEH-0908-107	AEH-0908-108	AEH-0908-173
	TYPE	Groundwater	Groundwater	Groundwater
	GROUP	RI	RI	RI
	DESCRIPTION		New Well	
	REMARKS			
Common Ions (mg/L): ppm unless noted				
	Bicarbonate (HCO3)	83	90	
	Calcium (Ca) (DIS)	23	29	
	Chloride (Cl)	3 UJ	4 UJ	
	Magnesium (Mg) (DIS)	6	7	
	Potassium (K) (DIS)	2	2	
	Sodium (Na) (DIS)	12 UJ	14 UJ	
	Sulfate (SO4)	37 J-	50 J-	
	Total Alkalinity As CACO3	68	74	
Metals (mg/L): ppm unless noted				
	Aluminum (Al) (DIS)	<0.001	0.001	
	Arsenic (As) (DIS)	<0.005	<0.005	0.322
	Cadmium (Cd) (DIS)	<0.001	<0.001	
	Iron (Fe) (DIS)	<0.02	<0.02	
	Lead (Pb) (DIS)	<0.005	<0.005	
	Manganese (Mn) (DIS)	<0.01	<0.01	
	Selenium (Se) (DIS)	<0.001	<0.001	0.138
	Tin (Sn) (DIS)	<0.1	<0.1	
Physical/Fld-Lab: ppm unless noted				
	Oxygen (O) (DIS) (Fld)	8.07	1.11	4.99
	pH	7.2	7.3	7.1
	Depth To Water Level (ft)	21.56	28.56	11.95
	pH (Fld)	6.85	6.89	6.84
	SC (umhos/cm at 25 C) (Fld)	224	265	1242
	SC (umhos/cm at 25 C)	221 UJ	264	1220
	Total Suspended Solids	<10	<10	<10
	TDS (Measured at 180 C)	148 UJ	173 UJ	860
	Water Temperature (C) (Fld)	8.25	9.39	11.16

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - August and September 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	EH-52	EH-53	EH-54
Water	SAMPLE DATE	8/19/2009	8/19/2009	8/19/2009
	SAMPLE TIME	11:15	15:20	13:25
	LAB	ELI	ELI	ELI
	LAB NUMBER	H09080236-004	H09080236-011	H09080236-008
	SAMPLE NUMBER	AEH-0908-141	AEH-0908-148	AEH-0908-145
	TYPE	Groundwater	Groundwater	Groundwater
	GROUP	RI	RI	RI
	DESCRIPTION			
	REMARKS			
Metals (mg/L): ppm unless noted				
	Arsenic (As) (DIS)	0.366	<0.005	0.022
	Selenium (Se) (DIS)	0.024	0.083	<0.001
Physical/Fld-Lab: ppm unless noted				
	Oxygen (O) (DIS) (Fld)	1.93	8	1.49
	pH	7.1	6.9	7
	Depth To Water Level (ft)	7.16	22.41	7.55
	pH (Fld)	6.73	6.57	6.6
	SC (umhos/cm at 25 C) (Fld)	539	1451	254
	SC (umhos/cm at 25 C)	571	1520	274
	Total Suspended Solids	<10	<10	<10
	TDS (Measured at 180 C)	372	1110	179
	Water Temperature (C) (Fld)	13.22	11.26	12.33

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - August and September 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	EH-57A	EH-58	EH-58	EH-59
Water	SAMPLE DATE	8/14/2009	8/19/2009	8/19/2009	8/26/2009
	SAMPLE TIME	07:45	12:10	12:20	09:00
	LAB	ELI	ELI	ELI	ELI
	LAB NUMBER	H09080188-001	H09080236-006	H09080236-007	H09080316-001
	SAMPLE NUMBER	AEH-0908-116	AEH-0908-143	AEH-0908-144	AEH-0908-174
	TYPE	Groundwater	Groundwater	Groundwater	Groundwater
	GROUP	RI	RI	RI	RI
	DESCRIPTION				
	REMARKS			Field Duplicate	
Common Ions (mg/L): ppm unless noted					
	Bicarbonate (HCO3)	210			
	Calcium (Ca) (DIS)	61			
	Chloride (Cl)	23			
	Magnesium (Mg) (DIS)	21			
	Potassium (K) (DIS)	3			
	Sodium (Na) (DIS)	28			
	Sulfate (SO4)	94			
	Total Alkalinity As CACO3	170			
Metals (mg/L): ppm unless noted					
	Aluminum (Al) (DIS)	<0.001			
	Arsenic (As) (DIS)	<0.005	<0.005	<0.005	0.025
	Cadmium (Cd) (DIS)	<0.001			
	Iron (Fe) (DIS)	<0.02			
	Lead (Pb) (DIS)	<0.005			
	Manganese (Mn) (DIS)	<0.01			
	Selenium (Se) (DIS)	0.006	0.001	0.001	0.001
	Tin (Sn) (DIS)	<0.1			
Physical/Fld-Lab: ppm unless noted					
	Oxygen (O) (DIS) (Fld)	7.84	7.05		1.69
	pH	7.6	7.1	7	7.2
	Depth To Water Level (ft)	27.35	15.55		7.69
	pH (Fld)	6.84	6.66		6.09
	SC (umhos/cm at 25 C) (Fld)	581	292		306
	SC (umhos/cm at 25 C)	587	310	315	310
	Total Suspended Solids	<10	<10	<10	<10
	TDS (Measured at 180 C)	378	200	201	206
	Water Temperature (C) (Fld)	10.99	10.21		11.71

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - August and September 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	EH-60	EH-60	EH-61	EH-62
Water	SAMPLE DATE	8/26/2009	8/26/2009	8/20/2009	8/19/2009
	SAMPLE TIME	09:45	09:50	14:20	14:30
	LAB	ELI	ELI	ELI	ELI
	LAB NUMBER	H09080316-002	H09080316-003	H09080255-009	H09080236-009
	SAMPLE NUMBER	AEH-0908-175	AEH-0908-176	AEH-0908-159	AEH-0908-146
	TYPE	Groundwater	Groundwater	Groundwater	Groundwater
	GROUP	RI	RI	RI	RI
	DESCRIPTION				
	REMARKS		Field Duplicate		
Metals (mg/L): ppm unless noted					
	Arsenic (As) (DIS)	6.2	6.21	0.005	<0.005
	Selenium (Se) (DIS)	0.009	0.009	0.152	0.005
Physical/Fld-Lab: ppm unless noted					
	Oxygen (O) (DIS) (Fld)	0.93		0.01	6.83
	pH	6.8	6.8	7	7.3
	Depth To Water Level (ft)	16.56		18.08	21.75
	pH (Fld)	6.39		6.61	6.92
	SC (umhos/cm at 25 C) (Fld)	1432		1731	382
	SC (umhos/cm at 25 C)	1420	1410	1810	405
	Total Suspended Solids	<10	<10	<10	<10
	TDS (Measured at 180 C)	966	967	1380	262
	Water Temperature (C) (Fld)	11.67		12.19	10.98

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - August and September 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	EH-63	EH-64	EH-65
Water	SAMPLE DATE	8/19/2009	8/20/2009	8/26/2009
	SAMPLE TIME	16:15	08:50	10:15
	LAB	ELI	ELI	ELI
	LAB NUMBER	H09080236-013	H09080255-001	H09080316-004
	SAMPLE NUMBER	AEH-0908-150	AEH-0908-151	AEH-0908-177
	TYPE	Groundwater	Groundwater	Groundwater
	GROUP	RI	RI	RI
	DESCRIPTION			
	REMARKS			
Metals (mg/L): ppm unless noted				
	Arsenic (As) (DIS)	<0.005	<0.005	0.09
	Selenium (Se) (DIS)	0.006	0.066	0.036
Physical/Fld-Lab: ppm unless noted				
	Oxygen (O) (DIS) (Fld)	7.04	7.78	2.78
	pH	7.2	7.2	6.7
	Depth To Water Level (ft)	17.34	23.16	19.34
	pH (Fld)	6.82	6.62	6.45
	SC (umhos/cm at 25 C) (Fld)	351	755	1510
	SC (umhos/cm at 25 C)	355	811	1500
	Total Suspended Solids	<10	<10	<10
	TDS (Measured at 180 C)	229	540	1070
	Water Temperature (C) (Fld)	11.09	11.24	11.56

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - August and September 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	EH-66	EH-66	EH-67	EH-68
Water	SAMPLE DATE	8/18/2009	8/18/2009	8/18/2009	8/19/2009
	SAMPLE TIME	15:05	15:15	14:40	09:35
	LAB	ELI	ELI	ELI	ELI
	LAB NUMBER	H09080217-003	H09080217-004	H09080217-002	H09080236-001
	SAMPLE NUMBER	AEH-0908-133	AEH-0908-134	AEH-0908-132	AEH-0908-138
	TYPE	Groundwater	Groundwater	Groundwater	Groundwater
	GROUP	RI	RI	RI	RI
	DESCRIPTION				
	REMARKS		Field Duplicate		
Metals (mg/L): ppm unless noted					
	Arsenic (As) (DIS)	<0.005	<0.005	<0.005	<0.005
	Selenium (Se) (DIS)	0.001	0.001	<0.001	<0.001
Physical/Fld-Lab: ppm unless noted					
	Oxygen (O) (DIS) (Fld)	12.25		10.48	1.73
	pH	7.4	7.4	7.1	7.1
	Depth To Water Level (ft)	22.37		21.21	8.58
	pH (Fld)	7.13		6.7	6.54
	SC (umhos/cm at 25 C) (Fld)	437		214	473
	SC (umhos/cm at 25 C)	428	429	213	502
	Total Suspended Solids	23	18	<10	<10
	TDS (Measured at 180 C)	291	289	152	306
	Water Temperature (C) (Fld)	10.08		9.9	12.96

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - August and September 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	EH-69	MW-1	MW-1	MW-10
Water	SAMPLE DATE	8/19/2009	9/16/2009	9/16/2009	9/16/2009
	SAMPLE TIME	10:00	09:45	09:55	14:40
	LAB	ELI	ELI	ELI	ELI
	LAB NUMBER	H09080236-002	H09090235-002	H09090235-003	H09090235-011
	SAMPLE NUMBER	AEH-0908-139	AEH-0908-199	AEH-0908-200	AEH-0908-208
	TYPE	Groundwater	Groundwater	Groundwater	Groundwater
	GROUP	RI	RI	RI	RI
	DESCRIPTION				
	REMARKS			Field Duplicate	
Common Ions (mg/L): ppm unless noted					
	Bicarbonate (HCO3)		140	140	300
	Calcium (Ca) (DIS)		45	44	96
	Chloride (Cl)		12	12	25
	Magnesium (Mg) (DIS)		9	9	24
	Potassium (K) (DIS)		5	5	7
	Sodium (Na) (DIS)		25	24	35
	Sulfate (SO4)		81	81	170
	Total Alkalinity As CACO3		120	110	250
Metals (mg/L): ppm unless noted					
	Aluminum (Al) (DIS)		<0.1	<0.1	<0.1
	Antimony (Sb) (DIS)		<0.003	<0.003	<0.003
	Arsenic (As) (DIS)	<0.005	0.004	0.004	0.01
	Barium (Ba) (DIS)		<0.1	<0.1	<0.1
	Beryllium (Be) (DIS)		<0.001	<0.001	<0.001
	Cadmium (Cd) (DIS)		<0.001	<0.001	<0.001
	Chromium (Cr) (DIS)		<0.001	<0.001	0.003
	Cobalt (Co) (DIS)		<0.01	<0.01	<0.01
	Copper (Cu) (DIS)		<0.001	<0.001	<0.001
	Gold (Au) (DIS)		<0.01	<0.01	<0.01
	Iron (Fe) (DIS)		<0.02	<0.02	<0.02
	Lead (Pb) (DIS)		<0.005	<0.005	<0.005
	Manganese (Mn) (DIS)		<0.01	<0.01	<0.01
	Mercury (Hg) (DIS)		<0.001	<0.001	<0.001
	Nickel (Ni) (DIS)		<0.01	<0.01	<0.01
	Selenium (Se) (DIS)	0.01	0.002	0.002	0.003
	Silver (Ag) (DIS)		<0.005 J-	<0.005 J-	<0.005 J-
	Tellurium (Te) (DIS)		<0.1	<0.1	<0.1
	Thallium (Tl) (DIS)		<0.001	<0.001	<0.001
	Vanadium (V) (DIS)		<0.01	<0.01	<0.01
	Zinc (Zn) (DIS)		<0.01	<0.01	<0.01
Physical/Fld-Lab: ppm unless noted					
	Oxygen (O) (DIS) (Fld)	5.8	8.04		7.04
	pH	7	7.5	7.5	7.5
	Depth To Water Level (ft)	18.37	50.83		38.36
	pH (Fld)	6.57	7.07		7.1
	SC (umhos/cm at 25 C) (Fld)	495	438		799
	SC (umhos/cm at 25 C)	524	429	430	815

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - August and September 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	EH-69	MW-1	MW-1	MW-10
Water	SAMPLE DATE	8/19/2009	9/16/2009	9/16/2009	9/16/2009
	SAMPLE TIME	10:00	09:45	09:55	14:40
	LAB	ELI	ELI	ELI	ELI
	LAB NUMBER	H09080236-002	H09090235-002	H09090235-003	H09090235-011
	SAMPLE NUMBER	AEH-0908-139	AEH-0908-199	AEH-0908-200	AEH-0908-208
	TYPE	Groundwater	Groundwater	Groundwater	Groundwater
	GROUP	RI	RI	RI	RI
	DESCRIPTION				
	REMARKS			Field Duplicate	
Physical/Fld-Lab: ppm unless noted					
	Total Suspended Solids	12	<10	<10	23
	TDS (Measured at 180 C)	352	304	296	563
	Water Temperature (C) (Fld)	10.51	10.57		15.35

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - August and September 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	MW-11	MW-2	MW-3
Water	SAMPLE DATE	9/16/2009	9/16/2009	9/16/2009
	SAMPLE TIME	15:50	10:35	11:05
	LAB	ELI	ELI	ELI
	LAB NUMBER	H09090235-012	H09090235-004	H09090235-006
	SAMPLE NUMBER	AEH-0908-210	AEH-0908-201	AEH-0908-203
	TYPE	Groundwater	Groundwater	Groundwater
	GROUP	RI	RI	RI
	DESCRIPTION			
	REMARKS			
Common Ions (mg/L): ppm unless noted				
	Bicarbonate (HCO3)	140	280	300
	Calcium (Ca) (DIS)	47	63	72
	Chloride (Cl)	27	6	9
	Magnesium (Mg) (DIS)	11	14	16
	Potassium (K) (DIS)	10	5	6
	Sodium (Na) (DIS)	53	19	22
	Sulfate (SO4)	160	31	53
	Total Alkalinity As CACO3	110	230	250
Metals (mg/L): ppm unless noted				
	Aluminum (Al) (DIS)	<0.1	<0.1	<0.1
	Antimony (Sb) (DIS)	<0.003	<0.003	<0.003
	Arsenic (As) (DIS)	0.017	0.012	0.01
	Barium (Ba) (DIS)	<0.1	<0.1	<0.1
	Beryllium (Be) (DIS)	<0.001	<0.001	<0.001
	Cadmium (Cd) (DIS)	<0.001	<0.001	<0.001
	Chromium (Cr) (DIS)	<0.001	<0.001	<0.001
	Cobalt (Co) (DIS)	<0.01	<0.01	<0.01
	Copper (Cu) (DIS)	<0.001	<0.001	0.002
	Gold (Au) (DIS)	<0.01 J-	<0.01	<0.01
	Iron (Fe) (DIS)	<0.02	<0.02	<0.02
	Lead (Pb) (DIS)	<0.005	<0.005	<0.005
	Manganese (Mn) (DIS)	<0.01	0.23	0.02
	Mercury (Hg) (DIS)	<0.001	<0.001	<0.001
	Nickel (Ni) (DIS)	<0.01	<0.01	<0.01
	Selenium (Se) (DIS)	0.004	<0.001	0.005
	Silver (Ag) (DIS)	<0.005	<0.005 J-	<0.005 J-
	Tellurium (Te) (DIS)	<0.1	<0.1	<0.1
	Thallium (Tl) (DIS)	<0.001	<0.001	<0.001
	Vanadium (V) (DIS)	<0.01	<0.01	<0.01
	Zinc (Zn) (DIS)	<0.01	<0.01	<0.01
Physical/Fld-Lab: ppm unless noted				
	Oxygen (O) (DIS) (Fld)	11.06	0.72	3.08
	pH	7.8	7.3	7.1
	Depth To Water Level (ft)	62.64	33.86	29.55
	pH (Fld)	7.42	6.82	6.8
	SC (umhos/cm at 25 C) (Fld)	643	502	586
	SC (umhos/cm at 25 C)	632	493	574

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - August and September 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	MW-11	MW-2	MW-3
Water	SAMPLE DATE	9/16/2009	9/16/2009	9/16/2009
	SAMPLE TIME	15:50	10:35	11:05
	LAB	ELI	ELI	ELI
	LAB NUMBER	H09090235-012	H09090235-004	H09090235-006
	SAMPLE NUMBER	AEH-0908-210	AEH-0908-201	AEH-0908-203
	TYPE	Groundwater	Groundwater	Groundwater
	GROUP	RI	RI	RI
	DESCRIPTION			
	REMARKS			
Physical/Fld-Lab: ppm unless noted				
	Total Suspended Solids	<10	<10	<10
	TDS (Measured at 180 C)	444	314	372
	Water Temperature (C) (Fld)	11.49	10.27	10.13

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - August and September 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	MW-4	MW-5	MW-6
Water	SAMPLE DATE	9/16/2009	9/16/2009	9/16/2009
	SAMPLE TIME	09:00	12:15	16:20
	LAB	ELI	ELI	ELI
	LAB NUMBER	H09090235-001	H09090235-009	H09090235-013
	SAMPLE NUMBER	AEH-0908-198	AEH-0908-206	AEH-0908-211
	TYPE	Groundwater	Groundwater	Groundwater
	GROUP	RI	RI	RI
	DESCRIPTION			
	REMARKS			
Common Ions (mg/L): ppm unless noted				
	Bicarbonate (HCO3)	200	170	280
	Calcium (Ca) (DIS)	53	37	94
	Chloride (Cl)	8	6	22
	Magnesium (Mg) (DIS)	11	8	20
	Potassium (K) (DIS)	6	4	5
	Sodium (Na) (DIS)	26	20	25
	Sulfate (SO4)	71	33	150
	Total Alkalinity As CACO3	170	140	230
Metals (mg/L): ppm unless noted				
	Aluminum (Al) (DIS)	<0.1	<0.1	<0.1
	Antimony (Sb) (DIS)	<0.003	<0.003	<0.003
	Arsenic (As) (DIS)	0.003	0.005	0.053
	Barium (Ba) (DIS)	<0.1	<0.1	0.1
	Beryllium (Be) (DIS)	<0.001	<0.001	<0.001
	Cadmium (Cd) (DIS)	<0.001	<0.001	<0.001
	Chromium (Cr) (DIS)	<0.001	<0.001	0.003
	Cobalt (Co) (DIS)	<0.01	<0.01	<0.01
	Copper (Cu) (DIS)	<0.001	<0.001	<0.001
	Gold (Au) (DIS)	<0.01	<0.01	<0.01 J-
	Iron (Fe) (DIS)	<0.02	<0.02	0.06
	Lead (Pb) (DIS)	<0.005	<0.005	<0.005
	Manganese (Mn) (DIS)	<0.01	<0.01	3.54
	Mercury (Hg) (DIS)	<0.001	<0.001	<0.001
	Nickel (Ni) (DIS)	<0.01	<0.01	<0.01
	Selenium (Se) (DIS)	0.001	0.001	0.004
	Silver (Ag) (DIS)	<0.005 J-	<0.005 J-	<0.005
	Tellurium (Te) (DIS)	<0.1	<0.1	<0.1
	Thallium (Tl) (DIS)	<0.001	<0.001	<0.001
	Vanadium (V) (DIS)	<0.01	<0.01	<0.01
	Zinc (Zn) (DIS)	<0.01	<0.01	<0.01
Physical/Fld-Lab: ppm unless noted				
	Oxygen (O) (DIS) (Fld)	7.79	7.34	0.75
	pH	7.5	7.6	7.4
	Depth To Water Level (ft)	45.31	52.11	25.74
	pH (Fld)	6.83	7.22	6.92
	SC (umhos/cm at 25 C) (Fld)	549	363	780
	SC (umhos/cm at 25 C)	475	355	752

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - August and September 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	MW-4	MW-5	MW-6
Water	SAMPLE DATE	9/16/2009	9/16/2009	9/16/2009
	SAMPLE TIME	09:00	12:15	16:20
	LAB	ELI	ELI	ELI
	LAB NUMBER	H09090235-001	H09090235-009	H09090235-013
	SAMPLE NUMBER	AEH-0908-198	AEH-0908-206	AEH-0908-211
	TYPE	Groundwater	Groundwater	Groundwater
	GROUP	RI	RI	RI
	DESCRIPTION			
	REMARKS			
Physical/Fld-Lab: ppm unless noted				
	Total Suspended Solids	<10	<10	<10
	TDS (Measured at 180 C)	333	237	499
	Water Temperature (C) (Fld)	11.92	11.28	10.6

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - August and September 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	MW-7	MW-8	MW-9
Water	SAMPLE DATE	9/16/2009	9/16/2009	9/16/2009
	SAMPLE TIME	00:00	14:00	11:40
	LAB	Hydrometrics	ELI	ELI
	LAB NUMBER	AEH-0908-209	H09090235-010	H09090235-008
	SAMPLE NUMBER	AEH-0908-209	AEH-0908-207	AEH-0908-205
	TYPE	Groundwater	Groundwater	Groundwater
	GROUP	RI	RI	RI
	DESCRIPTION	No Sample - Dry		
	REMARKS	No Sample		
Common Ions (mg/L): ppm unless noted				
	Bicarbonate (HCO3)		190	180
	Calcium (Ca) (DIS)		51	45
	Chloride (Cl)		9	8
	Magnesium (Mg) (DIS)		10	9
	Potassium (K) (DIS)		6	5
	Sodium (Na) (DIS)		22	23
	Sulfate (SO4)		69	54
	Total Alkalinity As CACO3		150	150
Metals (mg/L): ppm unless noted				
	Aluminum (Al) (DIS)		<0.1	<0.1
	Antimony (Sb) (DIS)		<0.003	<0.003
	Arsenic (As) (DIS)		0.007	0.006
	Barium (Ba) (DIS)		<0.1	<0.1
	Beryllium (Be) (DIS)		<0.001	<0.001
	Cadmium (Cd) (DIS)		<0.001	<0.001
	Chromium (Cr) (DIS)		0.001	<0.001
	Cobalt (Co) (DIS)		<0.01	<0.01
	Copper (Cu) (DIS)		<0.001	<0.001
	Gold (Au) (DIS)		<0.01	<0.01
	Iron (Fe) (DIS)		<0.02	<0.02
	Lead (Pb) (DIS)		<0.005	<0.005
	Manganese (Mn) (DIS)		<0.01	<0.01
	Mercury (Hg) (DIS)		<0.001	<0.001
	Nickel (Ni) (DIS)		<0.01	<0.01
	Selenium (Se) (DIS)		0.001	0.001
	Silver (Ag) (DIS)		<0.005 J-	<0.005 J-
	Tellurium (Te) (DIS)		<0.1	<0.1
	Thallium (Tl) (DIS)		<0.001	<0.001
	Vanadium (V) (DIS)		<0.01	<0.01
	Zinc (Zn) (DIS)		<0.01	<0.01
Physical/Fld-Lab: ppm unless noted				
	Oxygen (O) (DIS) (Fld)		8.15	7.19
	pH		7.5	7.6
	Depth To Water Level (ft)	57.68	50.73	57.29
	pH (Fld)		7.19	6.94
	SC (umhos/cm at 25 C) (Fld)		459	487
	SC (umhos/cm at 25 C)		459	420

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - August and September 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	MW-8	MW-9
Water	SAMPLE DATE	9/16/2009	9/16/2009
	SAMPLE TIME	14:00	11:40
	LAB	ELI	ELI
	LAB NUMBER	H09090235-010	H09090235-008
	SAMPLE NUMBER	AEH-0908-207	AEH-0908-205
	TYPE	Groundwater	Groundwater
	GROUP	RI	RI
	DESCRIPTION		
	REMARKS		
Physical/Fld-Lab: ppm unless noted			
	Total Suspended Solids	<10	28
	TDS (Measured at 180 C)	315	282
	Water Temperature (C) (Fld)	11.24	11.3

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - August and September 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	DI BLANK	DI BLANK	DI BLANK	DI BLANK	DI BLANK	DI BLANK
Water	SAMPLE DATE	8/12/2009	8/13/2009	8/14/2009	8/18/2009	8/19/2009	8/20/2009
	SAMPLE TIME	16:30	15:30	13:30	16:00	14:45	13:45
	LAB	ELI	ELI	ELI	ELI	ELI	ELI
	LAB NUMBER	H09080170-006	H09080170-016	H09080188-011	H09080217-007	H09080236-010	H09080255-008
	SAMPLE NUMBER	AEH-0908-105	AEH-0908-115	AEH-0908-126	AEH-0908-137	AEH-0908-147	AEH-0908-158
	TYPE	QC	QC	QC	QC	QC	QC
	GROUP	RI	RI	RI	RI	RI	RI
	DESCRIPTION						
	REMARKS	Blank	Blank	Blank	Blank	Blank	Blank
Common Ions (mg/L): ppm unless noted							
	Bicarbonate (HCO3)	2	12	<1			
	Calcium (Ca) (DIS)	<1	<1	<1			
	Chloride (Cl)	1	5	<1			
	Magnesium (Mg) (DIS)	<1	<1	<1			
	Potassium (K) (DIS)	<1	<1	<1			
	Sodium (Na) (DIS)	3	11	<1			
	Sulfate (SO4)	<1	<1	<1			
	Total Alkalinity As CACO3	2	10	<1			
Metals (mg/L): ppm unless noted							
	Aluminum (Al) (DIS)	<0.001	<0.001	<0.001			
	Arsenic (As) (DIS)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	Cadmium (Cd) (DIS)	<0.001	<0.001	<0.001			
	Iron (Fe) (DIS)	<0.02	<0.02	<0.02			
	Lead (Pb) (DIS)	<0.005	<0.001	<0.005			
	Manganese (Mn) (DIS)	<0.01	<0.005	<0.01			
	Selenium (Se) (DIS)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Tin (Sn) (DIS)	<0.1	<0.1	<0.1			
Physical/Fld-Lab: ppm unless noted							
	pH	5.5	5.7	5.4	5.8	5.7	5.8
	SC (umhos/cm at 25 C)	19	50	4	2	1	2
	Total Suspended Solids	<10	<10	<10	<10	<10	<10
	TDS (Measured at 180 C)	30	44	13	<10	<10	<10

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - August and September 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	DI BLANK	DI BLANK	DI BLANK	DI BLANK	DI BLANK
Water	SAMPLE DATE	8/25/2009	8/26/2009	8/27/2009	9/10/2009	9/16/2009
	SAMPLE TIME	12:40	10:25	12:30	12:55	10:45
	LAB	ELI	ELI	ELI	ELI	ELI
	LAB NUMBER	H09080296-007	H09080316-005	H09080347-008	H09090136-006	H09090235-005
	SAMPLE NUMBER	AEH-0908-169	AEH-0908-178	AEH-0908-188	AEH-0908-197	AEH-0908-202
	TYPE	QC	QC	QC	QC	QC
	GROUP	RI	RI	RI	RI	RI
	DESCRIPTION					
	REMARKS	Blank	Blank	Blank	Blank	Blank
Common Ions (mg/L): ppm unless noted						
	Bicarbonate (HCO3)					2
	Calcium (Ca) (DIS)					<1
	Chloride (Cl)					<1
	Magnesium (Mg) (DIS)					<1
	Potassium (K) (DIS)					<1
	Sodium (Na) (DIS)					<1
	Sulfate (SO4)					<1
	Total Alkalinity As CACO3					2
Metals (mg/L): ppm unless noted						
	Aluminum (Al) (DIS)					<0.1
	Antimony (Sb) (DIS)					<0.003
	Arsenic (As) (DIS)	<0.005	<0.005	<0.005	<0.005	<0.002
	Barium (Ba) (DIS)					<0.1
	Beryllium (Be) (DIS)					<0.001
	Cadmium (Cd) (DIS)					<0.001
	Chromium (Cr) (DIS)					<0.001
	Cobalt (Co) (DIS)					<0.01
	Copper (Cu) (DIS)					<0.001
	Gold (Au) (DIS)					<0.01
	Iron (Fe) (DIS)					<0.02
	Lead (Pb) (DIS)					<0.005
	Manganese (Mn) (DIS)					<0.01
	Mercury (Hg) (DIS)					<0.001
	Nickel (Ni) (DIS)					<0.01
	Selenium (Se) (DIS)	0.004	<0.001	<0.001	<0.001	<0.001
	Silver (Ag) (DIS)					<0.005
	Tellurium (Te) (DIS)					<0.1
	Thallium (Tl) (DIS)					<0.001
	Vanadium (V) (DIS)					<0.01
	Zinc (Zn) (DIS)					<0.01
Physical/Fld-Lab: ppm unless noted						
	pH	5.7	5.3	5.6	5.7	5.8
	SC (umhos/cm at 25 C)	2	3	2	2	2
	Total Suspended Solids	<10	<10	<10	<10	<10
	TDS (Measured at 180 C)	<10	26	21	<10	<10

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - August and September 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	RINSATE	RINSATE	RINSATE	RINSATE	RINSATE	RINSATE
Water	SAMPLE DATE	8/12/2009	8/13/2009	8/14/2009	8/18/2009	8/19/2009	8/20/2009
	SAMPLE TIME	15:00	14:00	11:15	15:25	11:40	14:30
	LAB	ELI	ELI	ELI	ELI	ELI	ELI
	LAB NUMBER	H09080170-002	H09080170-013	H09080188-007	H09080217-005	H09080236-005	H09080255-010
	SAMPLE NUMBER	AEH-0908-101	AEH-0908-112	AEH-0908-122	AEH-0908-135	AEH-0908-142	AEH-0908-160
	TYPE	QC	QC	QC	QC	QC	QC
	GROUP	RI	RI	RI	RI	RI	RI
	DESCRIPTION						
	REMARKS	Blank	Blank	Blank	Blank	Blank	Blank
Common Ions (mg/L): ppm unless noted							
	Bicarbonate (HCO3)	2	7	<1			
	Calcium (Ca) (DIS)	<1	<1	<1			
	Chloride (Cl)	<1	4	<1			
	Magnesium (Mg) (DIS)	<1	<1	<1			
	Potassium (K) (DIS)	<1	<1	<1			
	Sodium (Na) (DIS)	<1	9	<1			
	Sulfate (SO4)	<1	<1	<1			
	Total Alkalinity As CACO3	2	6	<1			
Metals (mg/L): ppm unless noted							
	Aluminum (Al) (DIS)	0.003 UJ	<0.001	0.005			
	Arsenic (As) (DIS)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	Cadmium (Cd) (DIS)	<0.001	<0.001	<0.001			
	Iron (Fe) (DIS)	<0.02	<0.02	<0.02			
	Lead (Pb) (DIS)	<0.005	<0.001	<0.005			
	Manganese (Mn) (DIS)	<0.01	<0.005	<0.01			
	Selenium (Se) (DIS)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Tin (Sn) (DIS)	<0.1	<0.1	<0.1			
Physical/Fld-Lab: ppm unless noted							
	pH	5.2	5.6	5.4	5.4	5.8	5.9
	SC (umhos/cm at 25 C)	6	41	8	7	3	2
	Total Suspended Solids	<10	<10	<10	<10	<10	<10
	TDS (Measured at 180 C)	21	44	29	23	<10	<10

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ANALYSES SUMMARY REPORT

ASARCO East Helena Plant - Consent Decree - August and September 2009

Database: ASARCO, East Helena Plant

Sample Matrix	STATION	RINSATE	RINSATE	RINSATE	RINSATE	RINSATE
Water	SAMPLE DATE	8/25/2009	8/26/2009	8/27/2009	9/10/2009	9/16/2009
	SAMPLE TIME	12:00	10:30	13:05	12:00	11:20
	LAB	ELI	ELI	ELI	ELI	ELI
	LAB NUMBER	H09080296-005	H09080316-006	H09080347-010	H09090136-004	H09090235-007
	SAMPLE NUMBER	AEH-0908-167	AEH-0908-179	AEH-0908-190	AEH-0908-195	AEH-0908-204
	TYPE	QC	QC	QC	QC	QC
	GROUP	RI	RI	RI	RI	RI
	DESCRIPTION					
	REMARKS	Blank	Blank	Blank	Blank	Blank
Common Ions (mg/L): ppm unless noted						
	Bicarbonate (HCO3)					2
	Calcium (Ca) (DIS)					<1
	Chloride (Cl)					<1
	Magnesium (Mg) (DIS)					<1
	Potassium (K) (DIS)					<1
	Sodium (Na) (DIS)					<1
	Sulfate (SO4)					<1
	Total Alkalinity As CACO3					2
Metals (mg/L): ppm unless noted						
	Aluminum (Al) (DIS)					<0.1
	Antimony (Sb) (DIS)					<0.003
	Arsenic (As) (DIS)	<0.005	<0.005	<0.005	<0.005	<0.002
	Barium (Ba) (DIS)					<0.1
	Beryllium (Be) (DIS)					<0.001
	Cadmium (Cd) (DIS)					<0.001
	Chromium (Cr) (DIS)					<0.001
	Cobalt (Co) (DIS)					<0.01
	Copper (Cu) (DIS)					<0.001
	Gold (Au) (DIS)					<0.01
	Iron (Fe) (DIS)					<0.02
	Lead (Pb) (DIS)					<0.005
	Manganese (Mn) (DIS)					<0.01
	Mercury (Hg) (DIS)					<0.001
	Nickel (Ni) (DIS)					<0.01
	Selenium (Se) (DIS)	<0.001	<0.001	<0.001	<0.001	<0.001
	Silver (Ag) (DIS)					<0.005
	Tellurium (Te) (DIS)					<0.1
	Thallium (Tl) (DIS)					<0.001
	Vanadium (V) (DIS)					<0.01
	Zinc (Zn) (DIS)					<0.01
Physical/Fld-Lab: ppm unless noted						
	pH	5.8	5.6	5	5.7	5.7
	SC (umhos/cm at 25 C)	2	2	7	2	2
	Total Suspended Solids	<10	<10	<10	<10	<10
	TDS (Measured at 180 C)	<10	<10	36	<10	<10

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

APPENDIX 3

FIELD NOTES

Site	Sample Code	Date	Time	SWL	TD
EH-130	AEH-0908-100	8-12-09	14:25	37.20	80.5
Rinsate Blank	AEH-0908-101	8-12-09	15:00	—	—
EH-127	AEH-0908-102	8-12-09	15:30	22.53	73
EH-127 Duplicate	AEH-0908-103	8-12-09	15:40	—	—
EH-135	AEH-0908-104	8-12-09	16:15	21.46	~~67.7~~ 68

Well No. EH-130

pH 6.68	Bottle/Pres.	Analysis	Odor None
SC 355	1-250/F/HNO_3	D-Metals	Vol- 21
Temp 11.03	1-500/UF/Raw	Comm	GPM 0.75
DO 4.57			Color None

Purge & Sample 2" Sub Pump 12-Volt Names GB/JC

Rinsate Blank - Culligan DI water Run through pump then sampled.

Well No. EH-127

pH 6.73	Bottle/Pres.	Analysis	Odor None
SC 236	1-250/F/HNO_3	D-Metals	Vol- 25
Temp 7.68	1-500/UF/Raw	Comm	GPM 1
DO 6.73			Color None

Purge & Sample 2" Sub Pump 12-Volt Names GB JC

Duplicate Same As Above

Well No. EH-135

pH 6.83	Bottle/Pres.	Analysis	Odor None
SC 262	1-250/F/HNO_3	D-Metals	Vol- 25
Temp 9.80	1-500/UF/Raw	Comm	GPM 1.2
DO 6.99			Color None

Purge & Sample 2" Sub Pump 12-Volt Names GB, JC

Site	Sample #	Date	Time	SWL	TD
~~EH-131~~ DI Blank	AEH-0908-105	8-12-09	16:30	~~25.99~~	—
EH-131	AEH-0908-106	8-13-09	09:50	25.99	87
EH-136	AEH-0908-107	8-13-09	10:45	21.56	78.5
EH-137	AEH-0908-108	8-13-09	11:35	28.56	87.5
EH-123	AEH-0908-109	8-13-09	12:45	34.95	60

DI Blank taken directly from Culligan

Well No. EH-131
pH 7.06
SC 256
Temp 8.47
DO 9.19
Bottle/Pres. 1-250/F/HNO_3 1-500/UF/Raw
Analysis D-Metals Comm
Odor None
Vol- 30
GPM 1
Color None
Purge & Sample 2" Sub Pump 12-Volt Names GB/JC

Well No. EH-136
pH 6.85
SC 224
Temp 8.25
DO 8.07
Bottle/Pres. 1-250/F/HNO_3 1-500/UF/Raw
Analysis D-Metals Comm
Odor
Vol- 28
GPM 0.8
Color None
Purge & Sample 2" Sub Pump 12-Volt Names GB/JC

Well No. EH-137
pH 6.89
SC 265
Temp 9.39
DO 11.11
Bottle/Pres. 1-250/F/HNO_3 1-500/UF/Raw
Analysis D-Metals Comm
Odor None
Vol- 29
GPM 1
Color Clear
Purge & Sample 2" Sub Pump 12-Volt Names GB/JC

Well No. EH-123
pH 7.10
SC 603
Temp 12.44
DO 8.68
Bottle/Pres. 1-250/F/HNO_3 1-500/UF/Raw
Analysis D-Metals Comm
Odor None
Vol- 12
GPM 0.8
Color Clear
Purge & Sample 2" Sub Pump 12-Volt Names GB/JC

Site	Sample #	Date	Time	SWL	TD
EH-124	AEH-0908 110	8/13/09	13:35	30.84	76
EH-124 Duplicate	AEH-0908-111	8/13/09	13:45	—	
Rinsate Blank	AEH-0908-112	8/13/09	14:00	—	
EH-134	AEH-0908 113	8/13/09	14:30	44.35	66.7
EH-129	AEH-0908 114	8/13/09	15:10	44.68	92.8

Well No. EH-124
pH 7.23
SC 494
Temp 11.31
DO 10.06

Bottle/Pres.
1-250/F/HNO_3
1-500/UF/Raw

Analysis
D-Metals
Comm

Odor None
Vol- 22
GPM 0.8
Color Clear

Purge & Sample 2" Sub Pump 12-Volt Names GB/JC

EH-124 Duplicate: Same As Above

Rinsate Blank: Purged 4 gal Culligan DI water then sampled.

Well No. EH-134
pH 7.21
SC 346
Temp 14.39
DO 9.21

Bottle/Pres.
1-250/F/HNO_3
1-500/UF/Raw

Analysis
D-Metals
Comm

Odor None
Vol- 12
GPM 0.5
Color Clear

Purge & Sample 2" Sub Pump 12-Volt Names GB/JC

Well No. EH-129
pH 7.18
SC 404
Temp 13.25
DO 8.73

Bottle/Pres.
1-250/F/HNO_3
1-500/UF/Raw

Analysis
D-Metals
Comm

Odor None
Vol- 24
GPM 1.2
Color Clear

Purge & Sample 2" Sub Pump 12-Volt Names GB/JC

site	Sample #	Date	Time	SWL	TD
DI Blank	AEH-0908-115	8/13/09	15:30 ~~15:10~~	—	—
EH-57A	AEH-0908-116	8-14-09	07:45	27.35	46
EH-133	AEH-0908-117	8-14-09	08:55	45.26	98
EH-126	AEH-0908-118	8-14-09	09:35	44.96	75
EH-125	AEH-0908-119	8-14-09	10:15	28.21	71

DI Blank Sample taken directly from Culligan DI Carboy

Well No. EH-57A

pH 6.84
SC .581
Temp 10.99
DO 7.84

Bottle/Pres.	Analysis
1-250/F/HNO_3	D-Metals
1-500/UF/Raw	Comm

Odor None
Vol- 36
GPM 1.2
Color None

Purge & Sample 2" Sub Pump 12-Volt Names GB/JC

Well No. EH-133

pH 7.34
SC 323
Temp 12.86
DO 9.73

Bottle/Pres.	Analysis
1-250/F/HNO_3	D-Metals
1-500/UF/Raw	Comm

Odor None
Vol- 26
GPM 0.8
Color Clear

Purge & Sample 2" Sub Pump 12-Volt Names GB/JC

Well No. EH-126

pH 7.14
SC 602
Temp 11.05
DO 8.67

Bottle/Pres.	Analysis
1-250/F/HNO_3	D-Metals
1-500/UF/Raw	Comm

Odor None
Vol- 15
GPM 0.8
Color Clear

Purge & Sample 2" Sub Pump 12-Volt Names GB/JC

Well No. EH-125

pH 6.64
SC 975
Temp 10.80
DO 4.21

Bottle/Pres.	Analysis
1-250/F/HNO_3	D-Metals
1-500/UF/Raw	Comm

Odor None
Vol- 21
GPM 1
Color Clear

Purge & Sample 2" Sub Pump 12-Volt Names GB/JC

Site	Sample #	Date	Time	SWL	TD
Elt-120	AElt-0908-120	8-14-09	10:55	24.42	68
Elt-120 Duplicate	AElt-0908-121	8-14-09	11:05	—	~~68~~
Rinsate Blank	AElt-0908-122	8-14-09	1115	—	
Elt-119	AElt-0908-123	8-14-09	~~11:15~~ 11:35	27.27	71
Elt-118	AElt-0908-124	8-14-09	12:50	29.14	52

Well No. Elt-120

pH 6.42	Bottle/Pres.	Analysis	Odor None
SC 1872	1-250/F/HNO_3	D-Metals	Vol- 2l
Temp 11.10	1-500/UF/Raw	Comm	GPM 1
DO 0.93			Color Clear

Purge & Sample 2" Sub Pump 12-Volt Names GB, JLC

Elt-120 Duplicate - Same as above

Rinsate Blank: Purged & gal gallon DI water then sampled.

Well No. Elt-119

pH 6.81	Bottle/Pres.	Analysis	Odor None
SC 997	1-250/F/HNO_3	D-Metals	Vol- 2l
Temp 10.84	1-500/UF/Raw	Comm	GPM 1
DO 6.61			Color Clear

Purge & Sample 2" Sub Pump 12-Volt Names GB JC

Well No. Elt-118

pH 6.81	Bottle/Pres.	Analysis	Odor None
SC 533	1-250/F/HNO_3	D-Metals	Vol- 1l
Temp 11.13	1-500/UF/Raw	Comm	GPM 1
DO 8.34			Color None

Purge & Sample 2" Sub Pump 12-Volt Names _____

Site	Sample #	Date	Time	SWL	TD
EH-117	AEH-0908-125	8-14-09	13:20	22.76	93
DI Blank	AEH-~~X~~ GB 0908-126	8-14-09	13:30	—	—
~~DI Blank~~					
EH-116	AEH-0908-127	8-14-09	13:50	23.87	50
EH-114	AEH-0908-128	8-14-09	14:15	24.71	57
EH-128	AEH-0908-129	8-14-09	14:45	37.44	47

Well No. EH-117

pH 6.43	Bottle/Pres.	Analysis	Odor None
SC 1690	1-250/F/HNO_3	D-Metals	Vol- 10
Temp 11.47	1-500/UF/Raw	Comm	GPM 1.0
DO 1.01			Color Clear
Purge & Sample	2" Sub Pump	12-Volt	Names GB, JC

DI Blank is Sample taken directly from collection carboy

Well No. EH-116

pH 6.27	Bottle/Pres.	Analysis	Odor None
SC 1492	1-250/F/HNO_3	D-Metals	Vol- 13
Temp 11.22	1-500/UF/Raw	Comm	GPM 1
DO 0.75			Color Clear
Purge & Sample	2" Sub Pump	12-Volt	Names GB/JC

Well No. EH-114

pH 6.40	Bottle/Pres.	Analysis	Odor None
SC 1287	1-250/F/HNO_3	D-Metals	Vol- 1.6
Temp 11.04	1-500/UF/Raw	Comm	GPM 1.2
DO 2.08			Color Clear
Purge & Sample	2" Sub Pump	12-Volt	Names GB/JC

Well No. EH-128

pH ____	Bottle/Pres.	Analysis	Odor ____
SC ____	1-250/F/HNO_3	D-Metals	Vol- 5
Temp ____	1-500/UF/Raw	Comm	GPM ____
DO ____			Color ____
Purge & Sample	2" Sub Pump	12-Volt	Names ____

Site	Sample #	Date	Time	SWL	TD
EH-132	AEH-0908-130	8-14-09	15:40	47.33	82.5
EH-122	AEH-0908-131	8-18-09	14:15	20.29	68
EH-67	AEH-0908-132	8-18-09	14:40	21.21	37
EH-66	AEH-0908-133	8-18-09	15:05	22.37	40
EH-66 Duplicate	AEH-0908-134	8-18-09	15:15	—	—

Well No. EH-132

pH 7.33
SC 267
Temp 13.98
DO 7.53

Bottle/Pres.	Analysis
1-250/F/HNO_3	D-Metals
1-500/UF/Raw	Comm

Odor None
Vol- 17
GPM 0.60
Color None

Purge & Sample | 2" Sub Pump | 12-Volt | Names GB/JC

Well No. EH-122

pH 6.68
SC 254
Temp 16.00
DO 6.23

Bottle/Pres.	Analysis
1-250/F/HNO_3	D-Metals
1-500/UF/Raw	Comm

Odor None
Vol- 23
GPM 1.23
Color None

Purge & Sample | 2" Sub Pump | 12-Volt | Names GB/BM

Well No. EH-67

pH 6.70
SC 214
Temp 9.90
DO 10.48

Bottle/Pres.	Analysis
1-250/F/HNO_3	D-Metals
1-500/UF/Raw	Comm

Odor None
Vol- 8
GPM 1
Color None

Purge & Sample | 2" Sub Pump | 12-Volt | Names GB/BM

Well No. EH-66

pH 7.13
SC 437
Temp 10.08
DO 12.25

Bottle/Pres.	Analysis
1-250/F/HNO_3	D-Metals
1-500/UF/Raw	Comm

Odor None
Vol- 4
GPM 1
Color None

Purge & Sample | 2" Sub Pump | 12-Volt | Names GB/BM

EH-66 Duplicate
Same as above

Site	[redacted]	[redacted]	Time	[redacted]	[redacted]
EH-132	AEH-0908-130	8-14-09	15:40	47.33	82.5
EH-122	AEH-0908-131	8-18-09	14:15	20.29	68
EH-67	AEH-0908-132	8-18-09	14:40	21.21	37
EH-66	AEH-0908-133	8-18-09	15:05	22.37	40
EH-66 Duplicate	AEH-0908-134	8-18-09	15:15	—	—

[redacted]

Well No. EH-132
pH 7.33
SC 267
Temp 13.98
DO 7.53

Bottle/Pres.	Analysis	
1-250/F/HNO_3	D-Metals	Odor None
1-500/UF/Raw	Comm	Vol- 17
		GPM 0.60
		Color None

Purge & Sample | 2" Sub Pump | 12-Volt | Names GB/JC

Well No. EH-122
pH 6.68
SC 254
Temp 10.00
DO 6.23

Bottle/Pres.	Analysis	
1-250/F/HNO_3	D-Metals	Odor None
1-500/UF/Raw	Comm	Vol- 23
		GPM 1.23
		Color None

Purge & Sample | 2" Sub Pump | 12-Volt | Names GB/BM

Well No. EH-67
pH 6.70
SC 214
Temp 9.90
DO 10.48

Bottle/Pres.	Analysis	
1-250/F/HNO_3	D-Metals	Odor None
1-500/UF/Raw	Comm	Vol- 8
		GPM 1
		Color None

Purge & Sample | 2" Sub Pump | 12-Volt | Names GB/BM

Well No. EH-66
pH 7.13
SC 437
Temp 10.08
DO 12.25

Bottle/Pres.	Analysis	
1-250/F/HNO_3	D-Metals	Odor None
1-500/UF/Raw	Comm	Vol- 4
		GPM 1
		Color None

Purge & Sample | 2" Sub Pump | 12-Volt | Names GB/BM

EH-66 Duplicate
Same as above

Site	Sample #	Date	Time	SWL	TD
Rinsate Blank	AEH-0908-135	8-18-09	15:25	—	—
EH-121	AEH-0908-136	8-18-09	1545	23.62	72
DI Blank	AEH-0908-137	8-18-09	16:00	—	—
EH-68	AEH-0908-138	~~8-18-09~~ 8-19-09	09:35	8.58	27
EH-69	AEH-0908-139	~~8-18-09~~ 8-19-09	10:00	18.37	35

Rinsate Blank: Purge & pour DI water through sampler

Well No. EH-121

	Bottle/Pres.	Analysis	
pH 6.75	1-250/F/HNO_3	D-Metals	Odor NONE
SC 267	1-500/UF/Raw	Comm	Vol- 24
Temp 10.13			GPM 1.2
DO 3.87			Color NONE

Purge & Sample 2" Sub Pump 12-Volt Names CB/BM

DI Blank: Sample taken from Culligan DI Carboy

Well No. EH-68

	Bottle/Pres.	Analysis	
pH 6.54	1-250/F/HNO_3	D-Metals	Odor NONE
SC 473	1-500/UF/Raw	Comm	Vol- 10
Temp 12.96			GPM 1
DO 1.73			Color NONE

Purge & Sample 2" Sub Pump 12-Volt Names CB/BM

Well No. EH-69

	Bottle/Pres.	Analysis	
pH 6.57	1-250/F/HNO_3	D-Metals	Odor NONE
SC 495	1-500/UF/Raw	Comm	Vol- 10
Temp 10.51			GPM 1
DO 5.80			Color NONE

Purge & Sample 2" Sub Pump 12-Volt Names CB/BM

Bce

Site	Sample #	Date	Time	SWL	TD
EH-102	AEH-0908-140	8-19-09	~~14:50~~ 10:50	8.78	35
EH-52	AEH-0908-141	8-19-09	11:15	7.16	63
Rinsate ~~EH-58~~ Blank	AEH-0908-142	8-19-09	11:40	—	—
EH-58	AEH-0908-143	8-19-09	12:10	15.55	36
EH-58 Duplicate	AEH-0908-144	8-19-09	12:20	—	—

Well No. EH-102

pH 6.71	Bottle/Pres.	Analysis	Odor None
SC 494	1-250/F/HNO_3	D-Metals	Vol- 50
Temp 9.17	1-500/UF/Raw	Comm	GPM 1.5
DO 4.12			Color None
Purge & Sample	2" Sub Pump	12-Volt	Names GB/BM

Well No. EH-52

pH 6.73	Bottle/Pres.	Analysis	Odor None
SC 539	1-250/F/HNO_3	D-Metals	Vol- 12
Temp 13.22	1-500/UF/Raw	Comm	GPM 1
DO 1.93			Color None
Purge & Sample	2" Sub Pump	12-Volt	Names GB/BM

Rinsate Blank: Purge 4 gal then Sample

Well No. EH-58

pH 6.66	Bottle/Pres.	Analysis	Odor None
SC 292	1-250/F/HNO_3	D-Metals	Vol- 40
Temp 10.21	1-500/UF/Raw	Comm	GPM 1.5
DO 7.05			Color None
Purge & Sample	2" Sub Pump	12-Volt	Names GB BM

EH-58 Duplicate: As Above

Site	Sample #	Date	Time	SWL	TD
EH-54	AEH-0908-145	8-19-09	13:25	7.55	18
EH-62	AEH-0908-146	8-19-09	14:30	21.75	51
DI Blank	AEH-0908 147	8-19-09	14:45	—	
EH-53	AEH-0908-148	8-19-09	15:20	22.41	34
EH-113	AEH-0908-149	8-19-09	15:50	21.46	46

Well No. EH-54

pH 6.60	Bottle/Pres.	Analysis	Odor None
SC 254	1-250/F/HNO_3	D-Metals	Vol- 24
Temp 12.33	1-500/UF/Raw	Comm	GPM 1
DO 1.49			Color none
Purge & Sample	2" Sub Pump	12-Volt	Names CB/BM

Well No. EH-62

pH 6.92	Bottle/Pres.	Analysis	Odor None
SC 382	1-250/F/HNO_3	D-Metals	Vol- 56
Temp 10.98	1-500/UF/Raw	Comm	GPM 1.2
DO 6.83			Color None
Purge & Sample	2" Sub Pump	12-Volt	Names CB/BM

DI Blank: Sample taken from Culligan DI Carboy

Well No. EH-53

pH 6.57	Bottle/Pres.	Analysis	Odor None
SC 1451	1-250/F/HNO_3	D-Metals	Vol- 26
Temp 11.26	1-500/UF/Raw	Comm	GPM 1
DO 8.00			Color None
Purge & Sample	2" Sub Pump	12-Volt	Names CB/BM

Well No. EH-113

pH 6.62	Bottle/Pres.	Analysis	Odor None
SC 1383	1-250/F/HNO_3	D-Metals	Vol- 12
Temp 11.20	1-500/UF/Raw	Comm	GPM 1.2
DO 7.32			Color None
Purge & Sample	2" Sub Pump	12-Volt	Names CB/BM

Site	Sample #	Date	Time	SWL	TD
EH-63	AEH-0908-150	8-19-09	16:15	17.34	35
EH-64	AEH-0908-151	~~8-19-09~~ 8-20-09	08:50	23.16	37
DH-7	AEH-0908-152	8-20-09	09:30	20.72	30
DH-11	AEH-0908-153	8-20-09	10:10	14.04	31
DH-11 Duplicate	AEH-0908-154	8-20-09	10:20	—	

Well No. EH-63

pH 6.82	Bottle/Pres.	Analysis	Odor None
SC 351	1-250/F/HNO_3	D-Metals	Vol- 9
Temp 11.09	1-500/UF/Raw	Comm	GPM 1
DO 7.04			Color None
Purge & Sample	2" Sub Pump	12-Volt	Names GB/BM

Well No. EH-64

pH 6.62	Bottle/Pres.	Analysis	Odor None
SC 755	1-250/F/HNO_3	D-Metals	Vol- 7
Temp 11.24	1-500/UF/Raw	Comm	GPM 1
DO 7.78			Color None
Purge & Sample	2" Sub Pump	12-Volt	Names GB/BM

Well No. DH-7

pH 6.64	Bottle/Pres.	Analysis	Odor None
SC 299	1-250/F/HNO_3	D-Metals	Vol- 18
Temp 9.25	1-500/UF/Raw	Comm	GPM 1.2
DO 1.28			Color None
Purge & Sample	2" Sub Pump	12-Volt	Names GB & BM

Well No. DH-11

pH 6.96	Bottle/Pres.	Analysis	Odor None
SC 490	1-250/F/HNO_3	D-Metals	Vol- 33
Temp 4.68	1-500/UF/Raw	Comm	GPM 1.5
DO 0.02			Color None
Purge & Sample	2" Sub Pump	12-Volt	Names GB & BM

DH-11 Duplicate
Same As Above

Site	Sample #	Date	Time	SWL	TD
DH-1	AEH-0908-155	8-20-09	11:21	30.28	52
EH-101	AEH-0908-156	8-20-09	12:40	12.53	46
EH-103	AEH-0908-157	8-20-09	13:30	18.74	77
DI Blank	AEH-0908-158	8-20-09	13:45	—	
EH-61	AEH-0908-159	8-20-09	14:20	18.08	45

(84)

Well No. DH-1

	Bottle/Pres.	Analysis	
pH 7.39			Odor None
SC 482	1-250/F/HNO_3	D-Metals	Vol- 42
Temp 12.33	1-500/UF/Raw	Comm	GPM 1
DO 7.10			Color None

Purge & Sample 2" Sub Pump 12-Volt Names _____

Well No. EH-101

	Bottle/Pres.	Analysis	
pH 6.83			Odor None
SC 642	1-250/F/HNO_3	D-Metals	Vol- 65
Temp 11.28	1-500/UF/Raw	Comm	GPM 1.2
DO 3.13			Color None

Purge & Sample 2" Sub Pump 12-Volt Names CB BM

Well No. EH-103

	Bottle/Pres.	Analysis	
pH 6.62			Odor None
SC 1653	1-250/F/HNO_3	D-Metals	Vol- 28
Temp 12.41	1-500/UF/Raw	Comm	GPM 1.5
DO 0.02			Color None

Purge & Sample 2" Sub Pump 12-Volt Names CB BM

DI Blank: Sample taken from Culligan DI carboy.

Well No. EH-61

	Bottle/Pres.	Analysis	
pH 6.61			Odor None
SC 1731	1-250/F/HNO_3	D-Metals	Vol- 52
Temp 12.19	1-500/UF/Raw	Comm	GPM 1.6
DO 0.01			Color None

Purge & Sample 2" Sub Pump 12-Volt Names CB/BM

(85)

Site	Sample #	Date	Time	SWL	TD
Rinsate Blank	AEH-0908-160	8-20-09	14:30	—	—
EH-107	AEH-0908-161	8-20-09	15:15	16.75	82
DH-58	AEH-0908-162	8/25/09	0935	14.73	27
DH-9	AEH-0908-163	8/25/09	1000	9.22	11.5

Culligan DI water

Rinsate Blank: Purge 4 gal then collect sample

Well No. EH-107

pH 6.51
SC 1903
Temp 12.52
DO 0.01

Bottle/Pres.
1-250/F/HNO_3
1-500/UF/Raw

Analysis
D-Metals
Comm

Odor YES??
Vol- 32
GPM 1.2
Color None

Purge & Sample 2" Sub Pump 12-Volt Names GB/BM

Well No. DH-58

pH 6.63
SC 767
Temp 12.85
DO 3.81

Bottle/Pres.
1-250/F/HNO_3
1-500/UF/Raw

Analysis
D-Metals
Comm

Odor None
Vol- 7.5
GPM 1.5
Color None

Purge & Sample 2" Sub Pump 12-Volt Names BL, JC

Well No. DH-9

pH 6.99
SC 1397
Temp 13.23
DO 4.16

Bottle/Pres.
1-250/F/HNO_3
1-500/UF/Raw

Analysis
D-Metals
Comm

Odor None
Vol- ~~Vol~~ 3.5
GPM Vol
Color Brown

Purge & Sample 2" Sub Pump 12-Volt Names BL, JC

Site	Sample Code #	Date	Time	SWL	TD
DH-69	AEH-0908-164	8/25/09	1015	32.70'	43'
DH-69 Dup	AEH-0908-165	8/25/09	1020	—	—
DH-52	AEH-0908-166	8/25/09	1100	5.33'	23'
Rinsate Blank	AEH-0908-167	8/25/09	1200	—	—
DH-8	AEH-0908-168	8/25/09	1230	38.25'	51'
DI Blank	AEH-0908-169	8/25/09	1240	—	—

Well No. DH-69

pH 7.04 | Bottle/Pres. | Analysis | Odor Yes
SC 609 | 1-250/F/HNO_3 | D-Metals | Vol- 5.0
Temp 10.55 | 1-500/UF/Raw | Comm | GPM 1.0
DO 0.03 | | | Color yellow

Purge & Sample | 2" Sub Pump | 12-Volt | Names RL JC

DH-69 Dup

Well No. DH-52

pH 7.47 | Bottle/Pres. | Analysis | Odor None
SC 999 | 1-250/F/HNO_3 | D-Metals | Vol- 10.0
Temp 11.39 | 1-500/UF/Raw | Comm | GPM 1.0
DO 0.01 | | | Color None

Purge & Sample | 2" Sub Pump | 12-Volt | Names RL JC

Rinsate Blank

Well No. DH-8

pH 6.96 | Bottle/Pres. | Analysis | Odor None
SC 5172 | 1-250/F/HNO_3 | D-Metals | Vol- 25
Temp 11.89 | 1-500/UF/Raw | Comm | GPM 1.0
DO 5.19 | | | Color None

Purge & Sample | 2" Sub Pump | 12-Volt | Names RL, JC

DI Blank

Site	Sample Code #	Date	Time	SWL	TD
EH-50	AEH-0908-170	8/25/04	1350	19.60'	44'
DH-59	AEH-0908-171	8/25/04	1425	15.10'	~~30'~~ 26.16' RL 8/25
DH-71	AEH-0908-172	8/25/04	1440	29.75'	36'
EH-51	AEH-0908-173	8/25/04	1545	11.95'	31'

Well No. EH-60

pH 6.52
SC 1540
Temp 11.46
DO 3.04

Bottle/Pres.	Analysis
1-250/F/HNO_3	D-Metals
1-500/UF/Raw	Comm

Odor Yes Petro
Vol- 47
GPM 1.0
Color None

Purge & Sample 2" Sub Pump 12-Volt Names RL, JC

Well No. DH-59

pH 6.38
SC 662
Temp 10.73
DO 0.16

Bottle/Pres.	Analysis
1-250/F/HNO_3	D-Metals
1-500/UF/Raw	Comm

Odor None
Vol- 5.0
GPM 1.2
Color None

Purge & Sample 2" Sub Pump 12-Volt Names RL, JC

Well No. DH-71

pH 6.55
SC 1126
Temp 11.51
DO 0.94

Bottle/Pres.	Analysis
1-250/F/HNO_3	D-Metals
1-500/UF/Raw	Comm

Odor None
Vol- 4.00
GPM 0.8
Color Pale Yellow

Purge & Sample 2" Sub Pump 12-Volt Names RL, JC

Well No. EH-51

pH 6.84
SC 1242
Temp 11.16
DO 4.94

Bottle/Pres.	Analysis
1-250/F/HNO_3	D-Metals
1-500/UF/Raw	Comm

Odor None
Vol- 42
GPM 1.5
Color None

Purge & Sample 2" Sub Pump 12-Volt Names RL, JC

Site	Sample Code #	Date	time	SWL	TD
EH-59	AEH 0908 174	8/26/09	09:00	7.69'	18'
EH-60	AEH 0908 175	8/26/09	09:45	~~18.56'~~ 16.56'	~~29.0'~~ 29.0'
EH-60 Duplicate	AEH 0908 176	8/26/09	09:50	—	—
EH-65	AEH 0908 177	8/26/09	10:15	19.34'	35'

Well No. EH-59

	Bottle/Pres.	Analysis	
pH	1-250/F/HNO_3	D-Metals	Odor none
SC 306	1-500/UF/Raw	Comm	Vol- 21
Temp 11.71			GPM 1.4
DO 1.69			Color none

Purge & Sample 2" Sub Pump 12-Volt Names JC, JD

Well No. EH-60

	Bottle/Pres.	Analysis	
pH 6.39	1-250/F/HNO_3	D-Metals	Odor none
SC 1432	1-500/UF/Raw	Comm	Vol- 24
Temp 11.67			GPM 1.1
DO .93			Color none

Purge & Sample 2" Sub Pump 12-Volt Names JC, JD

Well No. EH-60 — Duplicate See above

	Bottle/Pres.	Analysis	
pH 6.39	1-250/F/HNO_3	D-Metals	Odor
SC 1432	1-500/UF/Raw	Comm	Vol-
Temp 11.67			GPM
DO .93			Color

~~Purge & Sample~~ 2" Sub Pump 12-Volt Names JC, JD

Well No. EH-65

	Bottle/Pres.	Analysis	
pH 6.45	1-250/F/HNO_3	D-Metals	Odor none
SC 1510	1-500/UF/Raw	Comm	Vol- ~~[illegible]~~ 8.3
Temp 11.56			GPM 0.9
DO 2.78			Color none

Purge & Sample 2" Sub Pump 12-Volt Names JC, JD

Site	Sample Code #	Date	Time	SWL	TD
DI Blank	AEH 0908 178	8/26/09	10:25	—	—
~~EH-100~~ Rinsate Blank	AEH 0908 179	8/26/09	10:30	—	—
~~Rinsate Blank~~ EH-100	AEH 0908 180	8/26/09	12:00	20.1'	61'
EH-104	AEH- 0908 181	8/27/09	0840	20.74'	52

Well No. DI Blank

pH	Bottle/Pres.	Analysis	Odor
SC	1-250/F/HNO_3	D-Metals	Vol-
Temp	1-500/UF/Raw	Comm	GPM
DO			Color
Purge & Sample	2" Sub Pump	12-Volt	Names

Well No. Rinsate Blank

pH	Bottle/Pres.	Analysis	Odor
SC	1-250/F/HNO_3	D-Metals	Vol
Temp	1-500/UF/Raw	Comm	GPM
DO			Color
Purge & Sample	2" Sub Pump	12-Volt	Names JC, JD

Well No. EH-100

pH 6.10	Bottle/Pres.	Analysis	Odor None
SC 1609	1-250/F/HNO_3	D-Metals	Vol- 82
Temp 12.06	1-500/UF/Raw	Comm	GPM 1.0
DO .35			Color None
Purge & Sample	2" Sub Pump	12-Volt	Names JC, JD

Well No. EH-104

pH 7.03	Bottle/Pres.	Analysis	Odor Rank
SC 688 uS/cm	1-250/F/HNO_3	D-Metals	Vol- 15
Temp 10.16°C	1-500/UF/Raw	Comm	GPM 1.
DO 10.47			Color CLEAR
Purge & Sample	2" Sub Pump	12-Volt	Names RL, JL

Site	Sample Code#	Date	Time	SWL'	TD'
EH-106	AEH-	8/27/09	0910	19.51'	50'
	0908-				
	182				
EH-106 Dup	AEH-	8/27/09	0920	—	—
	0908-				
	183				
EH-109	AEH-	8/27/09	1000	17.42'	71'
	0908-				
	184				
EH-110	AEH-	8/27/09	1025	13.90'	59'
	0908				
	185				
EH-111	AEH-	8/27/09	1050	19.85'	54'
	0908-				
	186				

Well No. EH-106

pH 6.14	Bottle/Pres.	Analysis	Odor STRONG PETROLEUM ODOR
SC 1456	1-250/F/HNO_3	D-Metals	Vol- 15
Temp 11.6	1-500/UF/Raw	Comm	GPM 1.0
DO 0.79			Color CLEAR
Purge & Sample	2" Sub Pump	12-Volt	Names RL, JL

EH-106 Dup

Well No. EH-109

pH 6.48	Bottle/Pres.	Analysis	Odor PETRO. ODOR
SC 1312	1-250/F/HNO_3	D-Metals	Vol- 30
Temp 12.3	1-500/UF/Raw	Comm	GPM 1.2
DO 0.58			Color CLEAR
Purge & Sample	2" Sub Pump	12-Volt	Names RL, JL

Well No. EH-110

pH 6.69	Bottle/Pres.	Analysis	Odor SLIGHT
SC 2509	1-250/F/HNO_3	D-Metals	Vol- 34
Temp 12.0	1-500/UF/Raw	Comm	GPM 1.2
DO 0.52			Color CLEAR
Purge & Sample	2" Sub Pump	12-Volt	Names RL, JL

Well No. EH-111

pH 6.36	Bottle/Pres.	Analysis	Odor SLIGHT PETRO.
SC 1475	1-250/F/HNO_3	D-Metals	Vol- 5.5
Temp 11.4	1-500/UF/Raw	Comm	GPM 1.2
DO 0.48			Color CLEAR
Purge & Sample	2" Sub Pump	12-Volt	Names RL, JL

Site	Sample Code#	Date	Time	SWL'	TD'
EH-112	AEH-0908-187	8/27/09	1215	20.12'	52'
DI Blank	AEH-0908-188	8/27/09	1230	—	—
EH-114	AEH-0908-189	8/27/09	1245	22.23'	57'
Rinsate Blank	AEH-0908-190	8/27/09	1305	—	—
EH-115	AEH-0908-191	8/27/09	1330	21.40'	53'

Well No. EH-112

pH 6.27	Bottle/Pres.	Analysis	Odor SLIGHT
SC ~~6.34~~ 1423	1-250/F/HNO_3	D-Metals	Vol- 15
Temp 11.9	1-500/UF/Raw	Comm	GPM 1.0
DO 6.34			Color CLEAR

Purge & Sample 2" Sub Pump 12-Volt Names RL, JL

AEH-0908-188
DI Blank

Well No. EH-114

pH 6.40	Bottle/Pres.	Analysis	Odor SLIGHT
SC 1130	1-250/F/HNO_3	D-Metals	Vol- 18
Temp 11.4	1-500/UF/Raw	Comm	GPM 1.2
DO 3.82			Color CLEAR

Purge & Sample 2" Sub Pump 12-Volt Names RL, JL

AEH-0908-190
Rinsate Blank

Well No. EH-115

pH 6.79	Bottle/Pres.	Analysis	Odor SLIGHT
SC 535	1-250/F/HNO_3	D-Metals	Vol- 15
Temp 11.4	1-500/UF/Raw	Comm	GPM 1.0
DO 5.05			Color CLEAR

Purge & Sample 2" Sub Pump 12-Volt Names RL, JL

Site	Sample Code	Date	Time	SWL	TD
~~BE-55~~					
DH-55	AEH-0908-192	9/10/09	1100	79.54	96
DH-55 Dup	AEH-0908-193	9/10/09	1110	—	—
Duplicate					
DH-65	AEH-0908-194	9/10/09	~~1135~~ RL 9/10 1145	61.29'	73'
Rinsate Blank	AEH-0908-195	9/10/09	1200	—	—
DH-56	AEH-0908-196	9/10/09	1210	76.54'	88'
DI Blank	AEH-0908-197	9/10/09	1225	—	—

Well No. DH-55

pH 7.27 | SC 1341 | Temp 10.6 | DO 1.53

Bottle/Pres. 1-250/F/HNO_3 1-500/UF/Raw

Analysis D-Metals Comm

Odor None | Vol- 9.0 | GPM 1.0 | Color None

Purge & Sample 2" Sub Pump Grundfos ~~12-Volt~~ Names VC, RL

AEH-0908-193 Dup DH-55

Well No. DH-65

pH 7.52 | SC 882 | Temp 10.3 | DO 4.54

Bottle/Pres. 1-250/F/HNO_3 1-500/UF/Raw

Analysis D-Metals Comm

Odor None | Vol- 10 | GPM .75 | Color None

Purge & Sample 2" Sub Pump Grundfos ~~12-Volt~~ Names RL, JC

Rinsate Blank AEH-0908-195

Well No. DH-56

pH 7.34 | SC 2910 | Temp 10.7 | DO 1.56

Bottle/Pres. 1-250/F/HNO_3 1-500/UF/Raw

Analysis D-Metals Comm

Odor None | Vol- 20. | GPM .75 | Color None

Purge & Sample 2" Sub Pump Grundfos ~~12-Volt~~ Names RL, JC

DI Blank AEH-0908-197

Site	Sample Code	Date	Time	SWL	TD
MW-4	AEH-0908-198	9/16/09	0900	45.31	74'
MW-1	AEH-0908-199	9/16/09	0945	50.83	70'
MW-1 Dup	AEH-0908-200	9/16/09	0955	—	
MW-2	AEH-0908-201	9/16/09	1035	33.96	68'
DI Blank	AEH-0908-202	9/16/09	1045	—	

Well No. MW-4

pH 6.83
SC 549
Temp 11.92°C
DO 7.79

Bottle/Pres.
1-250/F/HNO_3
1-500/UF/Raw

Analysis
D-Metals
Comm

Odor NONE
Vol- 28.4
GPM 0.6
Color CLEAR

Purge & Sample 2" Sub Pump (12-Volt) Names JLC, AJ

Well No. MW-1

pH 7.07
SC 438
Temp 10.57
DO 8.04

Bottle/Pres.
1-250/F/HNO_3
1-500/UF/Raw

Analysis
D-Metals
Comm

Odor NONE
Vol- 10
GPM 0.75
Color CLEAR

Purge & Sample 2" Sub Pump (12-Volt) Names JLC, AJ

MW-1 Duplicate AEH-0908-200

Well No. MW-2

pH 6.82
SC 502
Temp 10.27
DO 0.72

Bottle/Pres.
1-250/F/HNO_3
1-500/UF/Raw

Analysis
D-Metals
Comm

Odor NONE
Vol- 18
GPM 0.75
Color CLEAR

Purge & Sample 2" Sub Pump (12-Volt) Names JLC, AJ

DI Blank AEH-0908-202

Site	Sample Code	Date	Time	SWL	TD
MW-3	AEH-0908-Z03	9/16/09	1105	29.55	52
Rinsate Blank	AEH-0908-Z04	9/16/09	1120	—	—
MW-9	AEH-0908-Z05	9/16/09	1140	57.29	72.77
MW-5	AEH-0908-Z06	9/16/09	1215	52.11	74

Well No. MW-3

pH 6.80	Bottle/Pres.	Analysis	Odor NONE
SC 5860	1-250/F/HNO_3	D-Metals	Vol- 12
Temp 10.13	1-500/UF/Raw	Comm	GPM 0.80
DO 3.58			Color CLEAR

Purge & Sample 2" Sub Pump (12-Volt) Names JLC, AJ

Rinsate Blank
AEH-0908-Z04

Well No. MW-9

pH 6.94	Bottle/Pres.	Analysis	Odor NONE
SC 487	1-250/F/HNO_3	D-Metals	Vol- 8
Temp 11.30	1-500/UF/Raw	Comm	GPM 0.75
DO 7.19			Color CLEAR

Purge & Sample 2" Sub Pump (12-Volt) Names JLC, AJ

Well No. MW-5

pH 7.22	Bottle/Pres.	Analysis	Odor NONE
SC 363	1-250/F/HNO_3	D-Metals	Vol- 12
Temp 11.28	1-500/UF/Raw	Comm	GPM 0.75
DO 7.34			Color CLEAR

Purge & Sample 2" Sub Pump 12-Volt Names JLC, AJ

Site	Sample Code	Date	Time	SWL	TD
MW-8	AEH-0908-207	9/16/09	1400	50.73	66.65
MW-10	AEH-0908-208	9/16/09	1440	38.36	64.86
MW-7	AEH-0908-209	9/16/09	N/A	57.68	62
MW-11	AEH-0908-210	9/16/09	1550	62.64	72.52

Insufficient water to sample

Well No. MW-8

pH 7.19	Bottle/Pres.	Analysis	Odor NONE
SC 459	1-250/F/HNO_3	D-Metals	Vol- 16.5
Temp 11.24	1-500/UF/Raw	Comm	GPM 0.75
DO 8.15			Color CLEAR

Purge & Sample 2" Sub Pump (12-Volt) Names JLC, AJ

Well No. MW-10

pH 7.10	Bottle/Pres.	Analysis	Odor NONE
SC 799	1-250/F/HNO_3	D-Metals	Vol- 22
Temp 15.35	1-500/UF/Raw	Comm	GPM 0.9
DO 7.04			Color CLEAR

Purge & Sample 2" Sub Pump (12-Volt) Names AJ, JC

Well No. MW-7

pH ~~7.42~~	Bottle/Pres.	Analysis	Odor ____
SC ~~643~~	1-250/F/HNO_3	D-Metals	Vol- ____
Temp ____	1-500/UF/Raw	Comm	GPM ____
DO ____			Color ____

Purge & Sample 2" Sub Pump (12-Volt) Names ____

Well No. MW-11

pH 7.42	Bottle/Pres.	Analysis	Odor NONE
SC 643	1-250/F/HNO_3	D-Metals	Vol- 7.0
Temp 11.49	1-500/UF/Raw	Comm	GPM 0.5
DO 11.02			Color CLEAR

Purge & Sample 2" Sub Pump (12-Volt) Names AJ, JC

Site	Sample Code	Date	Time	SWL	ID
MW-6	AEH-0908-Z11	9/16/09	1620	25.74	43

Well No. MW-6

pH 6.92
SC 780
Temp 10.60
DO 0.15

Bottle/Pres.	Analysis
1-250/F/HNO_3	D-Metals
1-500/UF/Raw	Comm

Odor PETROLEUM
Vol- 13.0
GPM 1.0
Color CLEAR

Purge & Sample 2" Sub Pump 12-Volt Names JC, AJ

APPENDIX 4

CHAIN OF CUSTODIES

Hydrometrics, Inc.

CHAIN OF CUSTODY RECORD

3020 Bozeman Avenue • Helena, Montana 59601 • (406) 443-4150

PROJ. NO.: 1056

PROJECT NAME: Asarco E. HLN Quarterly Monitoring

SAMPLERS: (Signature)

DATE	TIME	COMP	GRAB	SAMPLE NUMBER	NO. OF CONTAINERS	Commons UF/RAW	Nutrients UF/H_2SO_4	Diss. Metal F/HNO_3	CN UF/NaOH	Total Metals UF/HNO_3	Total Recoverable Metals UF/HNO_3	BTEX	TPH						REMARKS
8-12-09	14:25		X	AEH-0908-100	2	X		X								H0908017-001			See Table 6A
	15:00			-101														003	Attached
	15:30			-102														003	
	15:40			-103														004	
	16:15			-104														005	
	16:30			-105														006	
8-13-09	09:50			-106														007	
	10:45			-107														008	
	11:35			-108														009	
	12:45			-109														010	
	13:35			-110														011	
	13:45			-111														012	
	14:00			-112														013	
	14:30			-113														014	
	15:10			-114														015	

Relinquished (Signature)	Date/Time	Received by: (Signature)	Lab	P.O. #	Shipped via: Bus, Fed Ex, UPS
	8-13-09 15:50				Other ____ Air Bill # ____
Relinquished (Signature)	Date/Time	Received by: (Signature)	Remarks: temp 4.7 on ice		
Relinquished (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Enclosed: ☐ Parameter sheet w/detection limits ☐ QA/QC standard mixing instructions ☐ Cover letter ☐ Other ____	

Split Samples: ☐ Accepted ☐ Declined ____ Signature

HFORM 1 5/99 [redacted]

Return results & electronic copy to: [redacted] QA[redacted] Der[redacted] add[redacted] at to[redacted] pag[redacted]

Hydrometrics, Inc.

~~2727 Airport Road~~ • Helena, Montana 59601 • (406) 443-4150

CHAIN OF CUSTODY RECORD
3020 Bozeman Ave.

PROJ. NO.	PROJECT NAME
1054	Agnes E. HLN Quarterly Monitoring

SAMPLERS: *(Signature)*

DATE	TIME	COMP	GRAB	SAMPLE NUMBER	NO. OF CONTAINERS	Commons UF/RAW	Nutrients UF/H_2SO_4	Diss. Metal F/HNO_3	CN UF/NaOH	Total Metals UF/HNO_3	Total Recoverable Metals UF/HNO_3	BTEX	TPH								REMARKS
8-13-09	15:30		X	AEH-0908-115	2	X		X									1-0908	0170	-016		See Table 6A Attached

Relinquished *(Signature)*	Date/Time	Received by: *(Signature)*	Lab	P.O. #	Shipped via: Bus, Fed Ex, UPS Other____ Air Bill #____
	8-13-09 15:50				
Relinquished (Signature)	Date/Time	Received by: *(Signature)*	Remarks temp 4.7 on ice		
Relinquished (Signature)	Date/Time	Received for Laboratory by: *(Signature)*	Date/Time	Enclosed: ☐ Parameter sheet w/detection limits ☐ QA/QC standard mixing instructions ☐ Cover letter ☐ Other____	

Split Samples:
[] Accepted [] Declined _____ Signature

HFORM-1-5/99

Return results & electronic copy to:
~~Computer Dept. at~~ address at top of page

TABLE 6A. REVISED SAMPLING ANALYTICAL PARAMETERS FOR THE LAMPING FIELD MONITORING WELLS QUARTERLY MONITORING PROGRAM – AUGUST 2009

Physical Parameters			
pH	PH Meter	SM 4500H-B	
Specific Conductivity	SC Meter	SM 2510 B	
TDS	Gravimetric	SM 2540C	10
TSS	Gravimetric	SM 2540D	10
Common Ions			
Alkalinity	Titrimetric	SM 2320 B	1
Bicarbonate	Titrimetric	SM 2320 B	1
Sulfate	Turbidimetric	SM 4500SO4 E	1
Chloride	Colorimetric	SM 4500 CL C	1
Calcium	ICP	200.7	5
Magnesium	ICP	200.7	5
Sodium	ICP	200.7	5
Potassium	ICP	200.7	5
Arsenic and Metals (Dissolved)			
Arsenic	ICP/ICP-MS	200.7/200.8	0.005
Selenium	ICP/ICP-MS	200.7/200.8	0.001
Cadmium	ICP/ICP-MS	200.7/200.8	0.001
Aluminum	ICP/ICP-MS	200.7/200.8	0.001
Iron	ICP/ICP-MS	200.7/200.8	0.02
Manganese	ICP/ICP-MS	200.7/200.8	0.01
Tin	ICP/ICP-MS	200.7/200.8	0.1
Lead	ICP/ICP-MS	200.7/200.8	0.005
Field Parameters			
SWL	Electric Tape	HF-SOP-10	0.01 ft
Temperature	PH Meter	HF-SOP-20	NA
Dissolved Oxygen (DO)	DO Meter	HF-SOP-22	NA
PH	pH Meter	HF-SOP-20	NA
Specific Conductivity (SC)	SC Meter	HF-SOP-79	NA

Hydrometrics, Inc.®

CHAIN OF CUSTODY RECORD

~~2727 Airport Road~~ 3020 Bozeman Ave. • Helena, Montana 59601 • (406) 443-4150

PROJ. NO.: 1054

PROJECT NAME: Asarco E. HLN Quarterly Monitoring

SAMPLERS: (Signature)

DATE	TIME	COMP	GRAB	SAMPLE NUMBER	NO. OF CONTAINERS	Commons UF/RAW	Nutrients UF/H_2SO_4	Diss. Metal F/HNO_3	CN UF/NaOH	Total Metals UF/HNO_3	Total Recoverable Metals UF/HNO_3	BTEX	TPH							REMARKS
8-14-09	0745	~~X~~	X	AEH-0908-116	2	X		X								H090801 88-004				Table 6A
	0855			117																Attached
	0935			118																
	1015			119																
	1055			120																
	1105			121																
	1115			122																
	1135			123																
	1250			124																
	1320			125																
	1330			126																
	1350			127																
	1415			128																
	1445			129																
	1540			130																

Relinquished (Signature)	Date/Time	Received by: (Signature)	Lab	P.O. #	Shipped via: Bus, Fed Ex, UPS Other Air Bill #
	8-14-09 16:01				

Relinquished (Signature)	Date/Time	Received by: (Signature)	Remarks
			Temp 3.2

Relinquished (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Enclosed: ☐ Parameter sheet w/detection limits ☐ QA/QC standard mixing instructions ☐ Cover letter ☐ Other

Split Samples:
[] Accepted [] Declined _____ Signature

HFORM-1-5/99

Return results & electronic copy to:
~~Computer Dept. at~~ address at top of page

Received 8-20-09

TABLE 6A. REVISED SAMPLING ANALYTICAL PARAMETERS FOR THE LAMPING FIELD MONITORING WELLS QUARTERLY MONITORING PROGRAM – AUGUST 2009

Physical Parameters			
pH	PH Meter	SM 4500H-B	
Specific Conductivity	SC Meter	SM 2510 B	
TDS	Gravimetric	SM 2540C	10
TSS	Gravimetric	SM 2540D	10
Common Ions			
Alkalinity	Titrimetric	SM 2320 B	1
Bicarbonate	Titrimetric	SM 2320 B	1
Sulfate	Turbidimetric	SM 4500SO4 E	1
Chloride	Colorimetric	SM 4500 CL C	1
Calcium	ICP	200.7	5
Magnesium	ICP	200.7	5
Sodium	ICP	200.7	5
Potassium	ICP	200.7	5
Arsenic and Metals (Dissolved)			
Arsenic	ICP/ICP-MS	200.7/200.8	0.005
Selenium	ICP/ICP-MS	200.7/200.8	0.001
Cadmium	ICP/ICP-MS	200.7/200.8	0.001
Aluminum	ICP/ICP-MS	200.7/200.8	0.001
Iron	ICP/ICP-MS	200.7/200.8	0.02
Manganese	ICP/ICP-MS	200.7/200.8	0.01
Tin	ICP/ICP-MS	200.7/200.8	0.1
Lead	ICP/ICP-MS	200.7/200.8	0.005
Field Parameters			
SWL	Electric Tape	HF-SOP-10	0.01 ft
Temperature	PH Meter	HF-SOP-20	NA
Dissolved Oxygen (DO)	DO Meter	HF-SOP-22	NA
PH	pH Meter	HF-SOP-20	NA
Specific Conductivity (SC)	SC Meter	HF-SOP-79	NA

TABLE 6A. REVISED SAMPLING ANALYTICAL PARAMETERS FOR THE LAMPING FIELD MONITORING WELLS QUARTERLY MONITORING PROGRAM – AUGUST 2009

Physical Parameters			
pH	PH Meter	SM 4500H-B	
Specific Conductivity	SC Meter	SM 2510 B	
TDS	Gravimetric	SM 2540C	10
TSS	Gravimetric	SM 2540D	10
Common Ions			
Alkalinity	Titrimetric	SM 2320 B	1
Bicarbonate	Titrimetric	SM 2320 B	1
Sulfate	Turbidimetric	SM 4500SO4 E	1
Chloride	Colorimetric	SM 4500 CL C	1
Calcium	ICP	200.7	5
Magnesium	ICP	200.7	5
Sodium	ICP	200.7	5
Potassium	ICP	200.7	5
Arsenic and Metals (Dissolved)			
Arsenic	ICP ICP-MS	200.7 200.8	0.005
Selenium	ICP ICP-MS	200.7 200.8	0.001
Field Parameters			
SWL	Electric Tape	HF-SOP-10	0.01 ft
Temperature	PH Meter	HF-SOP-20	NA
Dissolved Oxygen (DO)	DO Meter	HF-SOP-22	NA
PH	pH Meter	HF-SOP-20	NA
Specific Conductivity (SC)	SC Meter	HF-SOP-79	NA

Hydrometrics, Inc.®

CHAIN OF CUSTODY RECORD

~~2797 Airport Road~~ 3020 Bozeman Ave. • Helena, Montana 59601 • (406) 443-4150

PROJ. NO.: 1054

PROJECT NAME: Asarco E. Helena Quarterly Monitoring

SAMPLERS: (Signature)

DATE	TIME	COMP	GRAB	SAMPLE NUMBER	NO. OF CONTAINERS	Commons UF/RAW	Nutrients UF/H_2SO_4	Diss. Metal F/HNO_3	CN UF/NaOH	Total Metals UF/HNO_3	Total Recoverable Metals UF/HNO_3	BTEX	TPH							REMARKS
8-18-09	14:15		X	AEH-0908-131	2	X		X								H0908021	7-001			See Table 6
	14:40			-132															002	Attached
	15:05			-133															003	
	15:15			-134															004	
	15:25			-135															005	
	15:45			-136															006	
	16:00			-137															007	

Relinquished (Signature)	Date/Time	Received by: (Signature)	Lab	P.O. #	Shipped via: Bus, Fed Ex, UPS Other Air Bill #
	8-18-09 16:15				

Relinquished (Signature)	Date/Time	Received by: (Signature)	Remarks
			temp 4.8

Relinquished (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Enclosed: ☐ Parameter sheet w/detection limits ☐ QA/QC standard mixing instructions ☐ Cover letter ☐ Other
		Amanda Jackson	8/18/09 16:15	

Split Samples: [] Accepted [] Declined _____ Signature

[redacted] HF[redacted]M-1-5/00 [redacted]

Return results & electronic copy to: [redacted]

TABLE 6. SAMPLING ANALYTICAL PARAMETERS FOR THE QUARTERLY MONITORING WELL SAMPLE PROGRAM - 2009

Parameter	Analytical Technique	Analytical Method	Project Detection Limit (ppm)
Physical Parameters			
PH	PH Meter	SM 4500H-B	
Specific Conductivity	SC Meter	SM 2510 B	
TDS	Gravimetric	SM 2540C	10
TSS	Gravimetric	SM 2540D	10
Arsenic and Metals (Dissolved)			
Arsenic	ICP ICP-MS	200.7 200.8	0.005
Selenium	ICP ICP-MS	200.7 200.8	0.001
Field Parameters			
SWL	Electric Tape	HF-SOP-10	0.01 ft
Temperature	PH Meter	HF-SOP-20	NA
Dissolved Oxygen (DO)	DO Meter	HF-SOP-22	NA
PH	pH Meter	HF-SOP-20	NA
Specific Conductivity (SC)	SC Meter	HF-SOP-79	NA

Hydrometrics, Inc.

CHAIN OF CUSTODY RECORD

~~6727 Airport Road~~ 3020 Bozeman Ave. • Helena, Montana 59601 • (406) 443-4150

PROJ. NO.: 1054

PROJECT NAME: Asarco E. Helena Quarterly Monitoring

SAMPLERS: (Signature)

DATE	TIME	COMP	GRAB	SAMPLE NUMBER	NO. OF CONTAINERS	Commons UF/RAW	Nutrients UF/H_2SO_4	Diss. Metal F/HNO_3	CN UF/NaOH	Total Metals UF/HNO_3	Total Recoverable Metals UF/HNO_3	BTEX	TPH								REMARKS
8-19-09	09:35		X	AEH-0908-138	2	X		X									1109080236-00				See Table 6
	10:00			-139																	
	10:50			-140																	
	11:15			-141																	
	11:40			-142																	
	12:10			-143																	
	12:20			-144																	
	13:25			-145																	
	14:30			-146																	
	14:45			-147																	
	15:20			-148																	
	15:50			-149																	
	16:15			-150																	

Relinquished (Signature)	Date/Time	Received by: (Signature)	Lab	P.O. #	Shipped via: Bus, Fed Ex, UPS Other Air Bill #
	8-19-09 16:50				

Relinquished (Signature)	Date/Time	Received by: (Signature)	Remarks
			Temp 2.9

Relinquished (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Enclosed: ☐ Parameter sheet w/detection limits ☐ QA/QC standard mixing instructions ☐ Cover letter ☐ Other
		Amanda Hallen	8/19/09 16:40	

Split Samples:
[] Accepted [] Declined _____ Signature

HFORM-1-5/99

Return results & electronic copy to:
~~Computer Dept.~~ at address at top of page

H09080236

TABLE 6. SAMPLING ANALYTICAL PARAMETERS FOR THE QUARTERLY MONITORING WELL SAMPLE PROGRAM - 2009

Parameter	Analytical Technique	Analytical Method	Project Detection Limit (ppm)
Physical Parameters			
PH	PH Meter	SM 4500H-B	
Specific Conductivity	SC Meter	SM 2510 B	
TDS	Gravimetric	SM 2540C	10
TSS	Gravimetric	SM 2540D	10
Arsenic and Metals (Dissolved)			
Arsenic	ICP ICP-MS	200.7 200.8	0.005
Selenium	ICP ICP-MS	200.7 200.8	0.001
Field Parameters			
SWL	Electric Tape	HF-SOP-10	0.01 ft
Temperature	PH Meter	HF-SOP-20	NA
Dissolved Oxygen (DO)	DO Meter	HF-SOP-22	NA
PH	pH Meter	HF-SOP-20	NA
Specific Conductivity (SC)	SC Meter	HF-SOP-79	NA

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CHAIN OF CUSTODY RECORD

~~2727 Airport Road~~ 3020 Bozeman Ave. • Helena, Montana 59601 • (406) 443-4150

PROJ. NO.: 1054

PROJECT NAME: Asarco E. Helena Quarterly Monitoring

SAMPLERS: (Signature)

DATE	TIME	COMP	GRAB	SAMPLE NUMBER	NO. OF CONTAINERS	Commons UF/RAW	Nutrients UF/H_2SO_4	Diss. Metal F/HNO_3	CN UF/NaOH	Total Metals UF/HNO_3	Total Recoverable Metals UF/HNO_3	BTEX	TPH							REMARKS
8/2009	08:50		X	AEH-0808-151	2	X		X									H0908025S-001			See Table 6
	09:30			-152													-002			
	10:10			-153													-003			
	10:20			-154													-004			
	11:21			-155													-005			
	12:40			-156													-006			
	13:30			-157													-007			
	13:45			-158													-008			
	14:20			-159													-009			
	14:30			-160													-010			
	15:15			-161													-011			

Relinquished (Signature)	Date/Time	Received by: (Signature)	Lab	P.O. #	Shipped via: Bus, Fed Ex, UPS
Bill Murray	8/20/09 1525				Other ____ Air Bill # ____

Relinquished (Signature)	Date/Time	Received by: (Signature)	Remarks
			temp 3.3

Relinquished (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time
		Amanda Blackburn	8/20/09 15:25

Enclosed: ☐ Parameter sheet w/ detection limits ☐ QA/QC standard mixing instructions ☐ Cover letter ☐ Other ____

Split Samples: [] Accepted [] Declined ____ Signature

HFORM-1-5/99

Return results & electronic copy to:
Computer Dept. at address at top of page

H09080336
2500
AB 8/20/09

TABLE 6. SAMPLING ANALYTICAL PARAMETERS FOR THE QUARTERLY MONITORING WELL SAMPLE PROGRAM - 2009

Parameter	Analytical Technique	Analytical Method	Project Detection Limit (ppm)
[illegible]			
PH	PH Meter	SM 4500H-B	
Specific Conductivity	SC Meter	SM 2510 B	
TDS	Gravimetric	SM 2540C	10
TSS	Gravimetric	SM 2540D	10
[illegible]			
[illegible]			
Arsenic	ICP ICP-MS	200.7 200.8	0.005
Selenium	ICP ICP-MS	200.7 200.8	0.001
[illegible]			
SWL	Electric Tape	HF-SOP-10	0.01 ft
Temperature	PH Meter	HF-SOP-20	NA
Dissolved Oxygen (DO)	DO Meter	HF-SOP-22	NA
PH	pH Meter	HF-SOP-20	NA
Specific Conductivity (SC)	SC Meter	HF-SOP-79	NA

Hydrometrics, Inc.®

CHAIN OF CUSTODY RECORD

~~2727 Airport Road~~ 3020 Bozeman Ave. • Helena, Montana 59601 • (406) 443-4150

PROJ. NO.: 1054

PROJECT NAME: ASARCO E. Helena

SAMPLERS: (Signature) [signature]

DATE	TIME	COMP	GRAB	SAMPLE NUMBER	NO. OF CONTAINERS	Commons UF/RAW	Nutrients UF/H_2SO_4	Diss. Metal F/HNO_3	CN UF/NaOH	Total Metals UF/HNO_3	Total Recoverable Metals UF/HNO_3	BTEX	TPH								REMARKS
8/25/09	1000		X	AEH-0908-163	2	X		X								H0908	0296-001				use
	1015			164													002				Table G
	1020			165													003				
	1100			166													004				
	1200			167													005				
	1230			168													006				
	1240			169													007				
	1350			170													008				
	1425			171													009				
	1440			172													010				
	1545			173													011				
8-25-09	0935			AEH-0908-162	1												012				per R. Layne

Relinquished (Signature)	Date/Time	Received by: (Signature)	Lab	P.O. #	Shipped via: Bus, Fed Ex, UPS
[signature]	8/25/09 1600	[signature]	Energy Labs	☒ Bill ASARCO	Other Hand delivered Air Bill #
Relinquished (Signature)	Date/Time	Received by: (Signature)	Remarks: temp 4.3 on ice, hand del		
Relinquished (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Enclosed: ☒ Parameter sheet w/detection limits ☐ QA/QC standard mixing instructions ☐ Cover letter ☐ Other	

Split Samples: [] Accepted [] Declined _____ Signature

HFORM-1-5/99

Return results & electronic copy to:
~~Computer Dept. at~~ address at top of page

TABLE 6. SAMPLING ANALYTICAL PARAMETERS FOR THE QUARTERLY MONITORING WELL SAMPLE PROGRAM - 2009

Parameter	Analytical Technique	Analytical Method	Project Detection Limit (ppm)
Physical Parameters			
PH	PH Meter	SM 4500H-B	
Specific Conductivity	SC Meter	SM 2510 B	10
TDS	Gravimetric	SM 2540C	10
TSS	Gravimetric	SM 2540D	
Arsenic and Metals (Dissolved)			
Arsenic	ICP ICP-MS	200.7 200.8	0.005
Selenium	ICP ICP-MS	200.7 200.8	0.001
Field Parameters			
SWL	Electric Tape	HF-SOP-10	0.01 ft
Temperature	PH Meter	HF-SOP-20	NA
Dissolved Oxygen (DO)	DO Meter	HF-SOP-22	NA
PH	pH Meter	HF-SOP-20	NA
Specific Conductivity (SC)	SC Meter	HF-SOP-79	NA

Hydrometrics, Inc.®

CHAIN OF CUSTODY RECORD

~~2727 Airport Road~~ 3020 Bozeman Ave • Helena, Montana 59601 • (406) 443-4150

PROJ. NO.: 1054

PROJECT NAME: E Helena Quarterly Sampling

SAMPLERS: (Signature)

DATE	TIME	COMP	GRAB	SAMPLE NUMBER	NO. OF CONTAINERS	Commons UF/RAW	Nutrients UF/H_2SO_4	Diss. Metal F/HNO_3 *	CN UF/NaOH	Total Metals UF/HNO_3 *	Total Recoverable Metals UF/HNO_3	BTEX	TPH								REMARKS
8/26/09	0900		X	AEH-0908-174	2	X		X									H090803166-001				
	0945		X	AEH-0908-175	2	X		X													002
	0950		X	AEH-0908-176	2	X		X													003
	1015		X	AEH-0908-177	2	X		X													004
	1025		X	AEH-0908-178	2	X		X													005
	1030		X	AEH-0908-179	2	X		X													006
	1200		X	AEH-0908-180	2	X		X													007

Relinquished (Signature)	Date/Time	Received by: (Signature)	Lab	P.O. #	Shipped via: Bus, Fed Ex, UPS Other Air Bill #
	1228 8/26/09				

Relinquished (Signature)	Date/Time	Received by: (Signature)	Remarks
	8-26-09 12:20		* See Table 6 Parameter List temp 5.3 on ice hand del

Relinquished (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Enclosed: ☐ Parameter sheet w/detection limits ☐ QA/QC standard mixing instructions ☐ Cover letter ☐ Other

Split Samples:
[] Accepted [] Declined _____ Signature

HFORM-1-5/99

Return results & electronic copy to:
~~Computer Dept. at~~ address at top of page

TABLE 6. SAMPLING ANALYTICAL PARAMETERS FOR THE QUARTERLY MONITORING WELL SAMPLE PROGRAM - 2009

Parameter	Analytical Technique	Analytical Method	Project Detection Limit (ppm)
Physical Parameters			
PH	PH Meter	SM 4500H-B	
Specific Conductivity	SC Meter	SM 2510 B	10
TDS	Gravimetric	SM 2540C	10
TSS	Gravimetric	SM 2540D	
Arsenic and Metals (Dissolved)			
Arsenic	ICP ICP-MS	200.7 200.8	0.005
Selenium	ICP ICP-MS	200.7 200.8	0.001
Field Parameters			
SWL	Electric Tape	HF-SOP-10	0.01 ft
Temperature	PH Meter	HF-SOP-20	NA
Dissolved Oxygen (DO)	DO Meter	HF-SOP-22	NA
PH	pH Meter	HF-SOP-20	NA
Specific Conductivity (SC)	SC Meter	HF-SOP-79	NA

Hydrometrics, Inc.

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CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME
1054	ASARCO E. Helena

SAMPLERS: (Signature) [illegible]

DATE	TIME	COMP	GRAB	SAMPLE NUMBER	NO. OF CONTAINERS	Commons UF/RAW	Nutrients UF/H_2SO_4	Diss. Metal F/HNO_3	CN UF/NaOH	Total Metals UF/HNO_3	Total Recoverable Metals UF/HNO_3	BTEX	TPH								REMARKS
8/27/09	0840		X	AEH-0908-181	2	X		X									H09	080347	001		[redacted]
	0910			182															002		Table 6
	0920			183															003		
	1000			184															004		
	1025			185															005		
	1050			186															006		
	1215			187															007		
	1230			188															008		
	1245			189															009		
	1305			190															010		
	1330			191															011		

Relinquished (Signature)	Date/Time	Received by: (Signature)	Lab	P.O. #	Shipped via: Bus, Fed Ex, UPS
[illegible]	8/27/09 1350				Other Hand delivered Air Bill #

Relinquished (Signature)	Date/Time	Received by: (Signature)	Remarks
	8/27/09 1450	[illegible]	1.1 temp on ice, [illegible]

Relinquished (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Enclosed: ☒ Parameter sheet w/detection limits ☐ QA/QC standard mixing instructions ☐ Cover letter ☐ Other

Split Samples:
[] Accepted [] Declined _____ Signature

HFORM-1-5/99

Return results & electronic copy to:
[redacted] ~~Computer Dept.~~ [redacted] address at top of page

H09080347

TABLE 6. SAMPLING ANALYTICAL PARAMETERS FOR THE QUARTERLY MONITORING WELL SAMPLE PROGRAM - 2009

Parameter	Analytical Technique	Analytical Method	Project Detection Limit (ppm)
Physical Parameters			
PH	PH Meter	SM 4500H-B	
Specific Conductivity	SC Meter	SM 2510 B	
TDS	Gravimetric	SM 2540C	10
TSS	Gravimetric	SM 2540D	10
Arsenic and Metals (Dissolved)			
Arsenic	ICP ICP-MS	200.7 200.8	0.005
Selenium	ICP ICP-MS	200.7 200.8	0.001
Field Parameters			
SWL	Electric Tape	HF-SOP-10	0.01 ft
Temperature	PH Meter	HF-SOP-20	NA
Dissolved Oxygen (DO)	DO Meter	HF-SOP-22	NA
PH	pH Meter	HF-SOP-20	NA
Specific Conductivity (SC)	SC Meter	HF-SOP-79	NA

Hydrometrics, Inc.

CHAIN OF CUSTODY RECORD

~~2727 Airport Road~~ 3020 Bozeman Ave • Helena, Montana 59601 • (406) 443-4150

PROJ. NO.: 1054

PROJECT NAME: ASARCO E. Helena

SAMPLERS: (Signature) [signature]

DATE	TIME	COMP	GRAB	SAMPLE NUMBER	NO. OF CONTAINERS	Commons UF/RAW	Nutrients UF/H_2SO_4	Diss. Metal F/HNO_3	CN UF/NaOH	Total Metals UF/HNO_3	Total Recoverable Metals UF/HNO_3	BTEX	TPH							REMARKS
9/10/09	1100		X	AEH-0408-192	2	X		X									H0909013	6-001		Use Table
	1110			193														002		6
	1145			194														003		
	1200			195														004		
	1210			196														005		
	1255			197														006		

Relinquished (Signature)	Date/Time	Received by: (Signature)	Lab	P.O. #	Shipped via: Bus, Fed Ex, UPS
[signature]	9/10/09 12:51			Bill ASARCO	Other ____ Air Bill # ____

Relinquished (Signature)	Date/Time	Received by: (Signature)	Remarks
			temp 3.6 C

Relinquished (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Enclosed:
		[signature]	9/10/09 12:51	☑ Parameter sheet w/detection limits ☐ QA/QC standard mixing instructions ☐ Cover letter ☐ Other ____

HFORM-1-5/99

Return results & electronic copy to: ~~Computer Dept. at~~ address at top of page

Split Samples: [] Accepted [] Declined ____ Signature

TABLE 6. SAMPLING ANALYTICAL PARAMETERS FOR THE QUARTERLY MONITORING WELL SAMPLE PROGRAM - 2009

Parameter	Analytical Technique	Analytical Method	Project Detection Limit (ppm)
Physical Parameters			
PH	PH Meter	SM 4500H-B	
Specific Conductivity	SC Meter	SM 2510 B	
TDS	Gravimetric	SM 2540C	10
TSS	Gravimetric	SM 2540D	10
Arsenic and Metals (Dissolved)			
Arsenic	ICP ICP-MS	200.7 200.8	0.005
Selenium	ICP ICP-MS	200.7 200.8	0.001
Field Parameters			
SWL	Electric Tape	HF-SOP-10	0.01 ft
Temperature	PH Meter	HF-SOP-20	NA
Dissolved Oxygen (DO)	DO Meter	HF-SOP-22	NA
PH	pH Meter	HF-SOP-20	NA
Specific Conductivity (SC)	SC Meter	HF-SOP-79	NA

CHAIN OF CUSTODY RECORD

Hydrometrics, Inc.

3020 Bozeman Avenue • Helena, Montana 59601 • (406) 443-4150

PROJ. NO. 1054

PROJECT NAME: Asarco E. Helena

SAMPLERS: (Signature)

DATE	TIME	COMP	GRAB	SAMPLE NUMBER	NO. OF CONTAINERS	Commons UF/RAW	Nutrients UF/H_2SO_4	Diss. Metal F/HNO_3	CN UF/NaOH	Total Metals UF/HNO_3	Total Recoverable Metals UF/HNO_3	BTEX	TPH	REMARKS
9/16/09	0900		X	AEH-0908-198	2	X		X						H09090259-001
	0945			AEH-0908-199										-002
	0955			AEH-0908-200										-003
	1035			AEH-0908-201										-004
	1045			AEH-0908-202										-005
	1105			AEH-0908-203										-006
	1120			AEH-0908-204										-007
	1140			AEH-0908-205										-008
	1215			AEH-0908-206										-009
	1400			AEH-0908-207										-010
	1440			AEH-0908-208										-011
	1550			AEH-0908-210										-012
	1620			AEH-0908-211										-013

Relinquished (Signature)	Date/Time	Received by: (Signature)	Lab	P.O. #	Shipped via: Bus, Fed Ex, UPS
	9-17-09 09:15				Other Air Bill #
Relinquished (Signature)	**Date/Time**	**Received by: (Signature)**	**Remarks** See attached parameter list.		
	9-17-09 9:30	Amanda Blackburn	Temp 4.1		
Relinquished (Signature)	**Date/Time**	**Received for Laboratory by: (Signature)**	**Date/Time**	**Enclosed:** ☒ Parameter sheet w/detection limits ☐ QA/QC standard mixing instructions ☒ Cover letter ☒ Other	

HFORM-1-5/99

Return results & electronic copy to:
QA/QC Dept. at address at top of page

Split Samples:
[] Accepted [] Declined
Signature

TABLE 3. SAMPLING ANALYTICAL PARAMETERS FOR ANNUAL RESIDENTIAL AND PWS WELL MONTORING PROGRAM, SEMI-ANNUAL LONG-TERM MONITORING PROGRAM, SURFACE WATER MONITORING PROGRAM, AND CAMU MONITORING PROGRAM

Parameter	Analytical Technique	Analytical Method	Project Detection Limit (mg/L)
Physical Parameters			
pH	PH Meter	SM 4500H-B	
Specific Conductivity	SC Meter	SM 2510 B	
TDS	Gravimetric	SM 2540C	10
TSS	Gravimetric	SM 2540D	10
Common Ions			
Alkalinity	Titrimetric	SM 2320 B	1
Bicarbonate	Titrimetric	SM 2320 B	1
Sulfate	Turbidimetric	SM 4500SO4 E	1
Chloride	Colorimetric	SM 4500 CL C	1
Calcium	ICP	200.7	5
Magnesium	ICP	200.7	5
Sodium	ICP	200.7	5
Potassium	ICP	200.7	5
Arsenic and Metals (Groundwater –Dissolved. Surface water Dissolved and Total)			
Arsenic	ICP/ICP-MS	200.7/200.8	0.002
Cadmium	ICP/ICP-MS	200.7/200.8	0.001
Copper	ICP/ICP-MS	200.7/200.8	0.001
Iron	ICP/ICP-MS	200.7/200.8	0.02
Manganese	ICP/ICP-MS	200.7/200.8	0.01
Lead	ICP/ICP-MS	200.7/200.8	0.005
Selenium	ICP/ICP-MS	200.7/200.8	0.001
Zinc	ICP/ICP-MS	200.7/200.8	0.02
Supplemental Trace Metals (Groundwater – Dissolved. Surface Water Dissolved and Total)			
Aluminum	ICP/ICP-MS	200.7/200.8	0.1
Antimony	ICP/ICP-MS	200.7/200.8	0.003
Barium	ICP/ICP-MS	200.7/200.8	0.1
Beryllium	ICP/ICP-MS	200.7/200.8	0.001
Chromium	ICP/ICP-MS	200.7/200.8	0.001
Cobalt	ICP/ICP-MS	200.7/200.8	0.01
Gold	ICP/ICP-MS	200.7/200.8	0.01
Mercury	ICP/ICP-MS	200.8/E245.1	0.001
Nickel	ICP/ICP-MS	200.7/200.8	0.01
Silver	ICP/ICP-MS	200.7/200.8	0.005
Tellurium	ICP/ICP-MS	200.7/200.8	0.1
Thallium	ICP/ICP-MS	200.7/200.8	0.001
Vanadium	ICP/ICP-MS	200.7/200.8	0.01
Field Parameters			
SWL	Electric Tape	HF-SOP-10	0.01 ft
Temperature	PH Meter	HF-SOP-20	NA
Dissolved Oxygen (DO)	DO Meter	HF-SOP-22	NA
PH	pH Meter	HF-SOP-20	NA
Specific Conductivity (SC)	SC Meter	HF-SOP-79	NA

APPENDIX 5

LABORATORY REPORT

ENERGY LABORATORIES, INC. * 3161 E Lyndale (59604) * PO Box 5688 * Helena, MT 59601
Toll Free 877.472.0711 * 406.442.0711 * FAX 406.442.0712 * helena@energylab.com

ANALYTICAL SUMMARY REPORT

August 26, 2009

Asarco Consulting
5219 N Shirley St
Ruston, WA 98407

Workorder No.: H09080170 Quote ID: H454 - Revised Quarterly Monitoring Program August 2009

Project Name: 1054 Asarco E HLN Quarterly Monitoring

Energy Laboratories Inc received the following 16 samples for Asarco Consulting on 8/13/2009 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H09080170-001	AEH-0908-100	08/12/09 14:25	08/13/09	Aqueous	Metals by ICP/ICPMS, Dissolved Alkalinity Anion - Cation Balance Conductivity Anions by Ion Chromatography pH Solids, Total Dissolved Solids, Total Suspended
H09080170-002	AEH-0908-101	08/12/09 15:00	08/13/09	Aqueous	Same As Above
H09080170-003	AEH-0908-102	08/12/09 15:30	08/13/09	Aqueous	Same As Above
H09080170-004	AEH-0908-103	08/12/09 15:40	08/13/09	Aqueous	Same As Above
H09080170-005	AEH-0908-104	08/12/09 16:15	08/13/09	Aqueous	Same As Above
H09080170-006	AEH-0908-105	08/12/09 16:30	08/13/09	Aqueous	Same As Above
H09080170-007	AEH-0908-106	08/13/09 9:50	08/13/09	Aqueous	Same As Above
H09080170-008	AEH-0908-107	08/13/09 10:45	08/13/09	Aqueous	Same As Above
H09080170-009	AEH-0908-108	08/13/09 11:35	08/13/09	Aqueous	Same As Above
H09080170-010	AEH-0908-109	08/13/09 12:45	08/13/09	Aqueous	Same As Above
H09080170-011	AEH-0908-110	08/13/09 13:35	08/13/09	Aqueous	Same As Above
H09080170-012	AEH-0908-111	08/13/09 13:45	08/13/09	Aqueous	Same As Above
H09080170-013	AEH-0908-112	08/13/09 14:00	08/13/09	Aqueous	Same As Above
H09080170-014	AEH-0908-113	08/13/09 14:30	08/13/09	Aqueous	Same As Above
H09080170-015	AEH-0908-114	08/13/09 15:10	08/13/09	Aqueous	Same As Above
H09080170-016	AEH-0908-115	08/13/09 15:30	08/13/09	Aqueous	Same As Above

BRANCH LABORATORY LOCATIONS
eli-b - Energy Laboratories, Inc. - Billings, MT, EPA # MT00005
eli-c - Energy Laboratories, Inc. - Casper, WY, EPA# WY00002
eli-g - Energy Laboratories, Inc. - Gillette, WY, EPA# WY00006
eli-h - Energy Laboratories, Inc. - Helena, MT, EPA# MT00945
eli-r - Energy Laboratories, Inc. - Rapid City, SD, EPA# SD00012
eli-t - Energy Laboratories, Inc. - College Station, TX, EPA# TX01520

SUBCONTRACTING ANALYSIS
Subcontracting of sample analyses to an outside laboratory may be required. If so, ENERGY LABORATORIES, INC. will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories are indicated within the Laboratory Analytical Report.

ENERGY LABORATORIES, INC. * 3161 E Lyndale (59604) * PO Box 5688 * Helena, MT 59601
Toll Free 877.472.0711 * 406.442.0711 * FAX 406.442.0712 * helena@energylab.com

ANALYTICAL SUMMARY REPORT

SAMPLE TEMPERATURE COMPLIANCE: 4°C (±2°C)
Temperature of samples received may not be considered properly preserved by accepted standards. Samples that are hand delivered immediately after collection shall be considered acceptable if there is evidence that the chilling process has begun.

ELI appreciates the opportunity to provide you with this analytical service. For additional information, including certifications, and analytical services visit our web page www.energylab.com.

Report Approved By: Jonathan D. Hager

Digitally signed by Jonathan D. Hager
DN: cn=Jonathan D. Hager, o=Energy Laboratory-Helena, ou=Assistant Lab Manager, email=jhager@energylab.com, c=US
Date: 2009.09.03 09:17:36 -06'00'

ENERGY LABORATORIES, INC. * 3161 E Lyndale (59604) * P.O. Box [redacted] * Helena, MT 59604
* 406.442.0711 * FAX 406.442.0712 * helena@energylab.com

LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-100
Project: 1054 Asarco E HLN Quarterly Monitoring
Matrix: Aqueous

Lab ID: H09080170-001
Collection Date: 08/12/09 14:25
DateReceived: 08/13/09
Report Date: 09/01/09 **Revised Date:** 11/05/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
pH	7.2	s.u.		0.1		A4500-H B	08/14/09 10:16 / JG			PH_090814A	2	090814A-PH-W
Conductivity	349	umhos/cm		1		A2510 B	08/14/09 10:04 / JG			COND_090814A	2	090814A-COND-PROBE W
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/17/09 14:25 / hm			SOLIDS_090817A	3	090817A-SLDS-TSS-W
Solids, Total Dissolved TDS @ 180 C	231	mg/L		10		A2540 C	08/17/09 13:58 / hm			SOLIDS_090817B	5	090817A-SLDS-TDS-W
INORGANICS												
Alkalinity, Total as CaCO3	88	mg/L		1		A2320 B	08/17/09 15:19 / JG			TITTR_090817A	10	090817A-ALK-W
Bicarbonate as HCO3	110	mg/L		1		A2320 B	08/17/09 15:19 / JG			TITTR_090817A	10	090817A-ALK-W
Chloride	6	mg/L		1		E300.0	08/18/09 21:09 / hm			IC101-H_090818A	37	R56049
Sulfate	77	mg/L		1		E300.0	08/18/09 21:09 / hm			IC101-H_090818A	37	R56049
METALS, DISSOLVED												
Aluminum	0.007	mg/L		0.001		E200.8	08/19/09 21:31 / dck			SUB-B134593	1	B_R134593
Arsenic	ND	mg/L		0.005		E200.8	08/19/09 21:31 / dck			SUB-B134593	1	B_R134593
Cadmium	ND	mg/L		0.001		E200.8	08/19/09 21:31 / dck			SUB-B134593	1	B_R134593
Calcium	34	mg/L		1		E200.7	08/19/09 12:41 / eli-b			SUB-B134631	1	B_R134631
Iron	ND	mg/L		0.02		E200.7	08/19/09 12:41 / eli-b			SUB-B134631	1	B_R134631
Lead	ND	mg/L		0.005		E200.8	08/19/09 21:31 / dck			SUB-B134593	1	B_R134593
Magnesium	8	mg/L		1		E200.7	08/19/09 12:41 / eli-b			SUB-B134631	1	B_R134631
Manganese	ND	mg/L		0.01		E200.7	08/19/09 12:41 / eli-b			SUB-B134631	1	B_R134631
Potassium	3	mg/L		1		E200.7	08/19/09 12:41 / eli-b			SUB-B134631	1	B_R134631
Selenium	0.006	mg/L		0.001		E200.8	08/19/09 21:31 / dck			SUB-B134593	1	B_R134593
Sodium	27	mg/L		1		E200.7	08/19/09 12:41 / eli-b			SUB-B134631	1	B_R134631
Tin	ND	mg/L		0.1		E200.7	08/19/09 12:41 / eli-b			SUB-B134631	1	B_R134631

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. * 3161 E Lyndale (59604) * PO Box 5688 * Helena, MT 59601
* 406.442.0711 * FAX 406.442.0712 * helena@energylab.com

LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-101
Project: 1054 Asarco E HLN Quarterly Monitoring
Matrix: Aqueous

Lab ID: H09080170-002
Collection Date: 08/12/09 15:00
DateReceived: 08/13/09
Report Date: 09/01/09 **Revised Date:** 11/05/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
pH	5.2	s.u.		0.1		A4500-H B	08/14/09 10:19 / JG			PH_090814A	3	090814A-PH-W
Conductivity	6	umhos/cm		1		A2510 B	08/14/09 10:06 / JG			COND_090814A	3	090814A-COND-PROBE W
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/17/09 14:26 / hm			SOLIDS_090817A	4	090817A-SLDS-TSS-W
Solids, Total Dissolved TDS @ 180 C	21	mg/L		10		A2540 C	08/18/09 12:40 / JG			SOLIDS_090818A	3	090818A-SLDS-TDS-W
INORGANICS												
Alkalinity, Total as CaCO3	2	mg/L		1		A2320 B	08/17/09 15:40 / JG			TITTR_090817A	13	090817A-ALK-W
Bicarbonate as HCO3	2	mg/L		1		A2320 B	08/17/09 15:40 / JG			TITTR_090817A	13	090817A-ALK-W
Chloride	ND	mg/L		1		E300.0	08/18/09 21:58 / hm			IC101-H_090818A	40	R56049
Sulfate	ND	mg/L		1		E300.0	08/18/09 21:58 / hm			IC101-H_090818A	40	R56049
METALS, DISSOLVED												
Aluminum	0.003	mg/L		0.001		E200.8	09/02/09 10:42 / dck			SUB-B135363	1	B_R135363
Arsenic	ND	mg/L		0.005		E200.8	08/19/09 21:35 / dck			SUB-B134593	2	B_R134593
Cadmium	ND	mg/L		0.001		E200.8	08/19/09 21:35 / dck			SUB-B134593	2	B_R134593
Calcium	ND	mg/L		1		E200.7	08/19/09 12:53 / eli-b			SUB-B134631	2	B_R134631
Iron	ND	mg/L		0.02		E200.7	08/19/09 12:53 / eli-b			SUB-B134631	2	B_R134631
Lead	ND	mg/L		0.005		E200.8	08/19/09 21:35 / dck			SUB-B134593	2	B_R134593
Magnesium	ND	mg/L		1		E200.7	08/19/09 12:53 / eli-b			SUB-B134631	2	B_R134631
Manganese	ND	mg/L		0.01		E200.7	08/19/09 12:53 / eli-b			SUB-B134631	2	B_R134631
Potassium	ND	mg/L		1		E200.7	08/19/09 12:53 / eli-b			SUB-B134631	2	B_R134631
Selenium	ND	mg/L		0.001		E200.8	08/19/09 21:35 / dck			SUB-B134593	2	B_R134593
Sodium	ND	mg/L		1		E200.7	08/19/09 12:53 / eli-b			SUB-B134631	2	B_R134631
Tin	ND	mg/L		0.1		E200.7	08/19/09 12:53 / eli-b			SUB-B134631	2	B_R134631

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-102
Project: 1054 Asarco E HLN Quarterly Monitoring
Matrix: Aqueous

Lab ID: H09080170-003
Collection Date: 08/12/09 15:30
DateReceived: 08/13/09
Report Date: 09/01/09 **Revised Date:** 11/05/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
pH	7.1	s.u.		0.1		A4500-H B	08/14/09 10:24 / JG			PH_090814A	4	090814A-PH-W
Conductivity	233	umhos/cm		1		A2510 B	08/14/09 10:09 / JG			COND_090814A	5	090814A-COND-PROBE W
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/17/09 14:26 / hm			SOLIDS_090817A	6	090817A-SLDS-TSS-W
Solids, Total Dissolved TDS @ 180 C	156	mg/L		10		A2540 C	08/17/09 14:03 / hm			SOLIDS_090817B	9	090817A-SLDS-TDS-W
INORGANICS												
Alkalinity, Total as CaCO3	69	mg/L		1		A2320 B	08/17/09 15:48 / JG			TITTR_090817A	14	090817A-ALK-W
Bicarbonate as HCO3	84	mg/L		1		A2320 B	08/17/09 15:48 / JG			TITTR_090817A	14	090817A-ALK-W
Chloride	3	mg/L		1		E300.0	08/18/09 22:15 / hm			IC101-H_090818A	41	R56049
Sulfate	41	mg/L		1		E300.0	08/18/09 22:15 / hm			IC101-H_090818A	41	R56049
METALS, DISSOLVED												
Aluminum	0.002	mg/L		0.001		E200.8	08/19/09 21:39 / dck			SUB-B134593	3	B_R134593
Arsenic	ND	mg/L		0.005		E200.8	08/19/09 21:39 / dck			SUB-B134593	3	B_R134593
Cadmium	ND	mg/L		0.001		E200.8	08/19/09 21:39 / dck			SUB-B134593	3	B_R134593
Calcium	25	mg/L		1		E200.7	08/19/09 12:57 / eli-b			SUB-B134631	3	B_R134631
Iron	ND	mg/L		0.02		E200.7	08/19/09 12:57 / eli-b			SUB-B134631	3	B_R134631
Lead	ND	mg/L		0.005		E200.8	08/19/09 21:39 / dck			SUB-B134593	3	B_R134593
Magnesium	6	mg/L		1		E200.7	08/19/09 12:57 / eli-b			SUB-B134631	3	B_R134631
Manganese	ND	mg/L		0.01		E200.7	08/19/09 12:57 / eli-b			SUB-B134631	3	B_R134631
Potassium	2	mg/L		1		E200.7	08/19/09 12:57 / eli-b			SUB-B134631	3	B_R134631
Selenium	ND	mg/L		0.001		E200.8	08/19/09 21:39 / dck			SUB-B134593	3	B_R134593
Sodium	13	mg/L		1		E200.7	08/19/09 12:57 / eli-b			SUB-B134631	3	B_R134631
Tin	ND	mg/L		0.1		E200.7	08/19/09 12:57 / eli-b			SUB-B134631	3	B_R134631

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-103
Project: 1054 Asarco E HLN Quarterly Monitoring
Matrix: Aqueous

Lab ID: H09080170-004
Collection Date: 08/12/09 15:40
DateReceived: 08/13/09
Report Date: 09/01/09 **Revised Date:** 11/05/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
pH	7.2	s.u.		0.1		A4500-H B	08/14/09 10:26 / JG			PH_090814A	5	090814A-PH-W
Conductivity	230	umhos/cm		1		A2510 B	08/14/09 10:12 / JG			COND_090814A	6	090814A-COND-PROBE W
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/17/09 14:27 / hm			SOLIDS_090817A	7	090817A-SLDS-TSS-W
Solids, Total Dissolved TDS @ 180 C	159	mg/L		10		A2540 C	08/17/09 14:04 / hm			SOLIDS_090817B	10	090817A-SLDS-TDS-W
INORGANICS												
Alkalinity, Total as CaCO3	73	mg/L		1		A2320 B	08/17/09 15:56 / JG			TITTR_090817A	15	090817A-ALK-W
Bicarbonate as HCO3	89	mg/L		1		A2320 B	08/17/09 15:56 / JG			TITTR_090817A	15	090817A-ALK-W
Chloride	3	mg/L		1		E300.0	08/18/09 22:31 / hm			IC101-H_090818A	42	R56049
Sulfate	41	mg/L		1		E300.0	08/18/09 22:31 / hm			IC101-H_090818A	42	R56049
METALS, DISSOLVED												
Aluminum	ND	mg/L		0.001		E200.8	08/19/09 21:43 / dck			SUB-B134593	4	B_R134593
Arsenic	ND	mg/L		0.005		E200.8	08/19/09 21:43 / dck			SUB-B134593	4	B_R134593
Cadmium	ND	mg/L		0.001		E200.8	08/19/09 21:43 / dck			SUB-B134593	4	B_R134593
Calcium	25	mg/L		1		E200.7	08/19/09 13:00 / eli-b			SUB-B134631	4	B_R134631
Iron	ND	mg/L		0.02		E200.7	08/19/09 13:00 / eli-b			SUB-B134631	4	B_R134631
Lead	ND	mg/L		0.005		E200.8	08/19/09 21:43 / dck			SUB-B134593	4	B_R134593
Magnesium	6	mg/L		1		E200.7	08/19/09 13:00 / eli-b			SUB-B134631	4	B_R134631
Manganese	ND	mg/L		0.01		E200.7	08/19/09 13:00 / eli-b			SUB-B134631	4	B_R134631
Potassium	2	mg/L		1		E200.7	08/19/09 13:00 / eli-b			SUB-B134631	4	B_R134631
Selenium	ND	mg/L		0.001		E200.8	08/19/09 21:43 / dck			SUB-B134593	4	B_R134593
Sodium	13	mg/L		1		E200.7	08/19/09 13:00 / eli-b			SUB-B134631	4	B_R134631
Tin	ND	mg/L		0.1		E200.7	08/19/09 13:00 / eli-b			SUB-B134631	4	B_R134631

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-104
Project: 1054 Asarco E HLN Quarterly Monitoring
Matrix: Aqueous

Lab ID: H09080170-005
Collection Date: 08/12/09 16:15
DateReceived: 08/13/09
Report Date: 09/01/09 **Revised Date:** 11/05/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
pH	7.2	s.u.		0.1		A4500-H B	08/14/09 10:29 / JG			PH_090814A	6	090814A-PH-W
Conductivity	256	umhos/cm		1		A2510 B	08/14/09 10:18 / JG			COND_090814A	7	090814A-COND-PROBE W
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/17/09 14:27 / hm			SOLIDS_090817A	8	090817A-SLDS-TSS-W
Solids, Total Dissolved TDS @ 180 C	173	mg/L		10		A2540 C	08/17/09 14:04 / hm			SOLIDS_090817B	11	090817A-SLDS-TDS-W
INORGANICS												
Alkalinity, Total as CaCO3	75	mg/L		1		A2320 B	08/19/09 10:23 / JG			TITTR_090819A	3	090819A-ALK-W
Bicarbonate as HCO3	91	mg/L		1		A2320 B	08/19/09 10:23 / JG			TITTR_090819A	3	090819A-ALK-W
Chloride	4	mg/L		1		E300.0	08/18/09 22:47 / hm			IC101-H_090818A	43	R56049
Sulfate	49	mg/L		1		E300.0	08/18/09 22:47 / hm			IC101-H_090818A	43	R56049
METALS, DISSOLVED												
Aluminum	ND	mg/L		0.001		E200.8	08/19/09 21:47 / dck			SUB-B134593	5	B_R134593
Arsenic	ND	mg/L		0.005		E200.8	08/19/09 21:47 / dck			SUB-B134593	5	B_R134593
Cadmium	ND	mg/L		0.001		E200.8	08/19/09 21:47 / dck			SUB-B134593	5	B_R134593
Calcium	28	mg/L		1		E200.7	08/19/09 13:04 / eli-b			SUB-B134631	5	B_R134631
Iron	ND	mg/L		0.02		E200.7	08/19/09 13:04 / eli-b			SUB-B134631	5	B_R134631
Lead	ND	mg/L		0.005		E200.8	08/19/09 21:47 / dck			SUB-B134593	5	B_R134593
Magnesium	7	mg/L		1		E200.7	08/19/09 13:04 / eli-b			SUB-B134631	5	B_R134631
Manganese	ND	mg/L		0.01		E200.7	08/19/09 13:04 / eli-b			SUB-B134631	5	B_R134631
Potassium	2	mg/L		1		E200.7	08/19/09 13:04 / eli-b			SUB-B134631	5	B_R134631
Selenium	ND	mg/L		0.001		E200.8	08/19/09 21:47 / dck			SUB-B134593	5	B_R134593
Sodium	15	mg/L		1		E200.7	08/19/09 13:04 / eli-b			SUB-B134631	5	B_R134631
Tin	ND	mg/L		0.1		E200.7	08/19/09 13:04 / eli-b			SUB-B134631	5	B_R134631

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-105
Project: 1054 Asarco E HLN Quarterly Monitoring
Matrix: Aqueous

Lab ID: H09080170-006
Collection Date: 08/12/09 16:30
DateReceived: 08/13/09
Report Date: 09/01/09 **Revised Date:** 11/05/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
pH	5.5	s.u.		0.1		A4500-H B	08/21/09 16:39 / kjw			PH_090821A	15	090821A-PH-W
Conductivity	19	umhos/cm		1		A2510 B	08/14/09 10:22 / JG			COND_090814A	9	090814A-COND-PROBE W
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/17/09 14:28 / hm			SOLIDS_090817A	9	090817A-SLDS-TSS-W
Solids, Total Dissolved TDS @ 180 C	30	mg/L		10		A2540 C	08/18/09 12:41 / JG			SOLIDS_090818A	4	090818A-SLDS-TDS-W
INORGANICS												
Alkalinity, Total as CaCO3	2	mg/L		1		A2320 B	08/19/09 10:26 / JG			TITTR_090819A	4	090819A-ALK-W
Bicarbonate as HCO3	2	mg/L		1		A2320 B	08/19/09 10:26 / JG			TITTR_090819A	4	090819A-ALK-W
Chloride	1	mg/L		1		E300.0	08/18/09 23:37 / hm			IC101-H_090818A	46	R56049
Sulfate	ND	mg/L		1		E300.0	08/18/09 23:37 / hm			IC101-H_090818A	46	R56049
METALS, DISSOLVED												
Aluminum	ND	mg/L		0.001		E200.8	08/19/09 21:51 / dck			SUB-B134593	6	B_R134593
Arsenic	ND	mg/L		0.005		E200.8	08/19/09 21:51 / dck			SUB-B134593	6	B_R134593
Cadmium	ND	mg/L		0.001		E200.8	08/19/09 21:51 / dck			SUB-B134593	6	B_R134593
Calcium	ND	mg/L		1		E200.7	08/19/09 13:08 / eli-b			SUB-B134631	6	B_R134631
Iron	ND	mg/L		0.02		E200.7	08/19/09 13:08 / eli-b			SUB-B134631	6	B_R134631
Lead	ND	mg/L		0.005		E200.8	08/19/09 21:51 / dck			SUB-B134593	6	B_R134593
Magnesium	ND	mg/L		1		E200.7	08/19/09 13:08 / eli-b			SUB-B134631	6	B_R134631
Manganese	ND	mg/L		0.01		E200.7	08/19/09 13:08 / eli-b			SUB-B134631	6	B_R134631
Potassium	ND	mg/L		1		E200.7	08/19/09 13:08 / eli-b			SUB-B134631	6	B_R134631
Selenium	ND	mg/L		0.001		E200.8	08/19/09 21:51 / dck			SUB-B134593	6	B_R134593
Sodium	3	mg/L		1		E200.7	08/19/09 13:08 / eli-b			SUB-B134631	6	B_R134631
Tin	ND	mg/L		0.1		E200.7	08/19/09 13:08 / eli-b			SUB-B134631	6	B_R134631

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-106
Project: 1054 Asarco E HLN Quarterly Monitoring
Matrix: Aqueous

Lab ID: H09080170-007
Collection Date: 08/13/09 09:50
DateReceived: 08/13/09
Report Date: 09/01/09 **Revised Date:** 11/05/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
pH	7.2	s.u.		0.1		A4500-H B	08/14/09 10:40 / JG			PH_090814A	9	090814A-PH-W
Conductivity	251	umhos/cm		1		A2510 B	08/14/09 10:23 / JG			COND_090814A	10	090814A-COND-PROBE W
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/17/09 14:29 / hm			SOLIDS_090817A	10	090817A-SLDS-TSS-W
Solids, Total Dissolved TDS @ 180 C	171	mg/L		10		A2540 C	08/17/09 14:05 / hm			SOLIDS_090817B	13	090817A-SLDS-TDS-W
INORGANICS												
Alkalinity, Total as CaCO3	75	mg/L		1		A2320 B	08/19/09 10:34 / JG			TITTR_090819A	5	090819A-ALK-W
Bicarbonate as HCO3	91	mg/L		1		A2320 B	08/19/09 10:34 / JG			TITTR_090819A	5	090819A-ALK-W
Chloride	4	mg/L		1		E300.0	08/18/09 23:53 / hm			IC101-H_090818A	47	R56049
Sulfate	46	mg/L		1		E300.0	08/18/09 23:53 / hm			IC101-H_090818A	47	R56049
METALS, DISSOLVED												
Aluminum	0.003	mg/L		0.001		E200.8	08/19/09 22:23 / dck			SUB-B134593	7	B_R134593
Arsenic	ND	mg/L		0.005		E200.8	08/19/09 22:23 / dck			SUB-B134593	7	B_R134593
Cadmium	ND	mg/L		0.001		E200.8	08/19/09 22:23 / dck			SUB-B134593	7	B_R134593
Calcium	27	mg/L		1		E200.7	08/19/09 13:12 / eli-b			SUB-B134631	7	B_R134631
Iron	ND	mg/L		0.02		E200.7	08/19/09 13:12 / eli-b			SUB-B134631	7	B_R134631
Lead	ND	mg/L		0.005		E200.8	08/19/09 22:23 / dck			SUB-B134593	7	B_R134593
Magnesium	6	mg/L		1		E200.7	08/19/09 13:12 / eli-b			SUB-B134631	7	B_R134631
Manganese	ND	mg/L		0.01		E200.7	08/19/09 13:12 / eli-b			SUB-B134631	7	B_R134631
Potassium	2	mg/L		1		E200.7	08/19/09 13:12 / eli-b			SUB-B134631	7	B_R134631
Selenium	ND	mg/L		0.001		E200.8	08/19/09 22:23 / dck			SUB-B134593	7	B_R134593
Sodium	14	mg/L		1		E200.7	08/19/09 13:12 / eli-b			SUB-B134631	7	B_R134631
Tin	ND	mg/L		0.1		E200.7	08/19/09 13:12 / eli-b			SUB-B134631	7	B_R134631

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-107
Project: 1054 Asarco E HLN Quarterly Monitoring
Matrix: Aqueous

Lab ID: H09080170-008
Collection Date: 08/13/09 10:45
DateReceived: 08/13/09
Report Date: 09/01/09 **Revised Date:** 11/05/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
pH	7.2	s.u.		0.1		A4500-H B	08/14/09 10:42 / JG			PH_090814A	10	090814A-PH-W
Conductivity	221	umhos/cm		1		A2510 B	08/14/09 10:26 / JG			COND_090814A	11	090814A-COND-PROBE W
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/17/09 14:29 / hm			SOLIDS_090817A	11	090817A-SLDS-TSS-W
Solids, Total Dissolved TDS @ 180 C	148	mg/L		10		A2540 C	08/17/09 14:06 / hm			SOLIDS_090817B	14	090817A-SLDS-TDS-W
INORGANICS												
Alkalinity, Total as CaCO3	68	mg/L		1		A2320 B	08/19/09 10:49 / JG			TITTR_090819A	7	090819A-ALK-W
Bicarbonate as HCO3	83	mg/L		1		A2320 B	08/19/09 10:49 / JG			TITTR_090819A	7	090819A-ALK-W
Chloride	3	mg/L		1		E300.0	08/19/09 00:09 / hm			IC101-H_090818A	48	R56049
Sulfate	37	mg/L		1		E300.0	08/19/09 00:09 / hm			IC101-H_090818A	48	R56049
METALS, DISSOLVED												
Aluminum	ND	mg/L		0.001		E200.8	08/19/09 22:27 / dck			SUB-B134593	8	B_R134593
Arsenic	ND	mg/L		0.005		E200.8	08/19/09 22:27 / dck			SUB-B134593	8	B_R134593
Cadmium	ND	mg/L		0.001		E200.8	08/19/09 22:27 / dck			SUB-B134593	8	B_R134593
Calcium	23	mg/L		1		E200.7	08/19/09 13:16 / eli-b			SUB-B134631	8	B_R134631
Iron	ND	mg/L		0.02		E200.7	08/19/09 13:16 / eli-b			SUB-B134631	8	B_R134631
Lead	ND	mg/L		0.005		E200.8	08/19/09 22:27 / dck			SUB-B134593	8	B_R134593
Magnesium	6	mg/L		1		E200.7	08/19/09 13:16 / eli-b			SUB-B134631	8	B_R134631
Manganese	ND	mg/L		0.01		E200.7	08/19/09 13:16 / eli-b			SUB-B134631	8	B_R134631
Potassium	2	mg/L		1		E200.7	08/19/09 13:16 / eli-b			SUB-B134631	8	B_R134631
Selenium	ND	mg/L		0.001		E200.8	08/19/09 22:27 / dck			SUB-B134593	8	B_R134593
Sodium	12	mg/L		1		E200.7	08/19/09 13:16 / eli-b			SUB-B134631	8	B_R134631
Tin	ND	mg/L		0.1		E200.7	08/19/09 13:16 / eli-b			SUB-B134631	8	B_R134631

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-108
Project: 1054 Asarco E HLN Quarterly Monitoring
Matrix: Aqueous

Lab ID: H09080170-009
Collection Date: 08/13/09 11:35
DateReceived: 08/13/09
Report Date: 09/01/09 **Revised Date:** 11/05/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
pH	7.3	s.u.		0.1		A4500-H B	08/14/09 10:47 / JG			PH_090814A : 11		090814A-PH-W
Conductivity	264	umhos/cm		1		A2510 B	08/14/09 10:30 / JG			COND_090814A : 12		090814A-COND-PROBE W
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/17/09 14:30 / hm			SOLIDS_090817A : 12		090817A-SLDS-TSS-W
Solids, Total Dissolved TDS @ 180 C	173	mg/L		10		A2540 C	08/17/09 14:07 / hm			SOLIDS_090817B : 15		090817A-SLDS-TDS-W
INORGANICS												
Alkalinity, Total as CaCO3	74	mg/L		1		A2320 B	08/19/09 10:55 / JG			TITTR_090819A : 8		090819A-ALK-W
Bicarbonate as HCO3	90	mg/L		1		A2320 B	08/19/09 10:55 / JG			TITTR_090819A : 8		090819A-ALK-W
Chloride	4	mg/L		1		E300.0	08/19/09 00:26 / hm			IC101-H_090818A : 49		R56049
Sulfate	50	mg/L		1		E300.0	08/19/09 00:26 / hm			IC101-H_090818A : 49		R56049
METALS, DISSOLVED												
Aluminum	0.001	mg/L		0.001		E200.8	08/19/09 22:31 / dck			SUB-B134593 : 9		B_R134593
Arsenic	ND	mg/L		0.005		E200.8	08/19/09 22:31 / dck			SUB-B134593 : 9		B_R134593
Cadmium	ND	mg/L		0.001		E200.8	08/19/09 22:31 / dck			SUB-B134593 : 9		B_R134593
Calcium	29	mg/L		1		E200.7	08/19/09 13:20 / eli-b			SUB-B134631 : 9		B_R134631
Iron	ND	mg/L		0.02		E200.7	08/19/09 13:20 / eli-b			SUB-B134631 : 9		B_R134631
Lead	ND	mg/L		0.005		E200.8	08/19/09 22:31 / dck			SUB-B134593 : 9		B_R134593
Magnesium	7	mg/L		1		E200.7	08/19/09 13:20 / eli-b			SUB-B134631 : 9		B_R134631
Manganese	ND	mg/L		0.01		E200.7	08/19/09 13:20 / eli-b			SUB-B134631 : 9		B_R134631
Potassium	2	mg/L		1		E200.7	08/19/09 13:20 / eli-b			SUB-B134631 : 9		B_R134631
Selenium	ND	mg/L		0.001		E200.8	08/19/09 22:31 / dck			SUB-B134593 : 9		B_R134593
Sodium	14	mg/L		1		E200.7	08/19/09 13:20 / eli-b			SUB-B134631 : 9		B_R134631
Tin	ND	mg/L		0.1		E200.7	08/19/09 13:20 / eli-b			SUB-B134631 : 9		B_R134631

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-109
Project: 1054 Asarco E HLN Quarterly Monitoring
Matrix: Aqueous

Lab ID: H09080170-010
Collection Date: 08/13/09 12:45
DateReceived: 08/13/09
Report Date: 09/01/09 **Revised Date:** 11/05/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
pH	7.4	s.u.		0.1		A4500-H B	08/14/09 10:49 / JG			PH_090814A	12	090814A-PH-W
Conductivity	590	umhos/cm		1		A2510 B	08/14/09 10:31 / JG			COND_090814A	13	090814A-COND-PROBE W
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/17/09 14:30 / hm			SOLIDS_090817A	13	090817A-SLDS-TSS-W
Solids, Total Dissolved TDS @ 180 C	396	mg/L		10		A2540 C	08/17/09 14:07 / hm			SOLIDS_090817B	16	090817A-SLDS-TDS-W
INORGANICS												
Alkalinity, Total as CaCO3	180	mg/L		1		A2320 B	08/19/09 11:02 / JG			TITTR_090819A	9	090819A-ALK-W
Bicarbonate as HCO3	220	mg/L		1		A2320 B	08/19/09 11:02 / JG			TITTR_090819A	9	090819A-ALK-W
Chloride	17	mg/L		1		E300.0	08/19/09 00:42 / hm			IC101-H_090818A	50	R56049
Sulfate	110	mg/L		1		E300.0	08/19/09 00:42 / hm			IC101-H_090818A	50	R56049
METALS, DISSOLVED												
Aluminum	ND	mg/L		0.001		E200.8	08/19/09 22:35 / dck			SUB-B134593	10	B_R134593
Arsenic	0.006	mg/L		0.005		E200.8	08/19/09 22:35 / dck			SUB-B134593	10	B_R134593
Cadmium	ND	mg/L		0.001		E200.8	08/19/09 22:35 / dck			SUB-B134593	10	B_R134593
Calcium	60	mg/L		1		E200.7	08/19/09 13:39 / eli-b			SUB-B134631	10	B_R134631
Iron	ND	mg/L		0.02		E200.7	08/19/09 13:39 / eli-b			SUB-B134631	10	B_R134631
Lead	ND	mg/L		0.001		E200.8	08/19/09 22:35 / dck			SUB-B134593	10	B_R134593
Magnesium	18	mg/L		1		E200.7	08/19/09 13:39 / eli-b			SUB-B134631	10	B_R134631
Manganese	ND	mg/L		0.005		E200.8	08/19/09 22:35 / dck			SUB-B134593	10	B_R134593
Potassium	7	mg/L		1		E200.7	08/19/09 13:39 / eli-b			SUB-B134631	10	B_R134631
Selenium	0.002	mg/L		0.001		E200.8	08/19/09 22:35 / dck			SUB-B134593	10	B_R134593
Sodium	39	mg/L		1		E200.7	08/19/09 13:39 / eli-b			SUB-B134631	10	B_R134631
Tin	ND	mg/L		0.1		E200.7	08/19/09 13:39 / eli-b			SUB-B134631	10	B_R134631

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-110
Project: 1054 Asarco E HLN Quarterly Monitoring
Matrix: Aqueous

Lab ID: H09080170-011
Collection Date: 08/13/09 13:35
DateReceived: 08/13/09
Report Date: 09/01/09 **Revised Date:** 11/05/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
pH	7.7	s.u.		0.1		A4500-H B	08/14/09 10:52 / JG			PH_090814A	14	090814A-PH-W
Conductivity	482	umhos/cm		1		A2510 B	08/14/09 10:36 / JG			COND_090814A	15	090814A-COND-PROBE W
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/17/09 14:30 / hm			SOLIDS_090817A	14	090817A-SLDS-TSS-W
Solids, Total Dissolved TDS @ 180 C	320	mg/L		10		A2540 C	08/17/09 14:09 / hm			SOLIDS_090817B	17	090817A-SLDS-TDS-W
INORGANICS												
Alkalinity, Total as CaCO3	150	mg/L		1		A2320 B	08/19/09 11:09 / JG			TITTR_090819A	10	090819A-ALK-W
Bicarbonate as HCO3	190	mg/L		1		A2320 B	08/19/09 11:09 / JG			TITTR_090819A	10	090819A-ALK-W
Chloride	12	mg/L		1		E300.0	08/19/09 01:32 / hm			IC101-H_090818A	53	R56049
Sulfate	80	mg/L		1		E300.0	08/19/09 01:32 / hm			IC101-H_090818A	53	R56049
METALS, DISSOLVED												
Aluminum	ND	mg/L		0.001		E200.8	08/19/09 22:39 / dck			SUB-B134593	11	B_R134593
Arsenic	ND	mg/L		0.005		E200.8	08/19/09 22:39 / dck			SUB-B134593	11	B_R134593
Cadmium	ND	mg/L		0.001		E200.8	08/19/09 22:39 / dck			SUB-B134593	11	B_R134593
Calcium	49	mg/L		1		E200.7	08/19/09 13:43 / eli-b			SUB-B134631	11	B_R134631
Iron	ND	mg/L		0.02		E200.7	08/19/09 13:43 / eli-b			SUB-B134631	11	B_R134631
Lead	ND	mg/L		0.001		E200.8	08/19/09 22:39 / dck			SUB-B134593	11	B_R134593
Magnesium	13	mg/L		1		E200.7	08/19/09 13:43 / eli-b			SUB-B134631	11	B_R134631
Manganese	ND	mg/L		0.005		E200.8	08/19/09 22:39 / dck			SUB-B134593	11	B_R134593
Potassium	5	mg/L		1		E200.7	08/19/09 13:43 / eli-b			SUB-B134631	11	B_R134631
Selenium	0.002	mg/L		0.001		E200.8	08/19/09 22:39 / dck			SUB-B134593	11	B_R134593
Sodium	36	mg/L		1		E200.7	08/19/09 13:43 / eli-b			SUB-B134631	11	B_R134631
Tin	ND	mg/L		0.1		E200.7	08/19/09 13:43 / eli-b			SUB-B134631	11	B_R134631

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-111
Project: 1054 Asarco E HLN Quarterly Monitoring
Matrix: Aqueous

Lab ID: H09080170-012
Collection Date: 08/13/09 13:45
DateReceived: 08/13/09
Report Date: 09/01/09 **Revised Date:** 11/05/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
pH	7.6	s.u.		0.1		A4500-H B	08/14/09 10:55 / JG			PH_090814A	15	090814A-PH-W
Conductivity	485	umhos/cm		1		A2510 B	08/14/09 10:39 / JG			COND_090814A	16	090814A-COND-PROBE W
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/17/09 14:31 / hm			SOLIDS_090817A	15	090817A-SLDS-TSS-W
Solids, Total Dissolved TDS @ 180 C	156	mg/L		10		A2540 C	08/17/09 14:10 / hm			SOLIDS_090817B	18	090817A-SLDS-TDS-W
INORGANICS												
Alkalinity, Total as CaCO3	150	mg/L		1		A2320 B	08/19/09 11:31 / JG			TITTR_090819A	13	090819A-ALK-W
Bicarbonate as HCO3	190	mg/L		1		A2320 B	08/19/09 11:31 / JG			TITTR_090819A	13	090819A-ALK-W
Chloride	12	mg/L		1		E300.0	08/19/09 01:48 / hm			IC101-H_090818A	54	R56049
Sulfate	80	mg/L		1		E300.0	08/19/09 01:48 / hm			IC101-H_090818A	54	R56049
METALS, DISSOLVED												
Aluminum	ND	mg/L		0.001		E200.8	08/19/09 22:43 / dck			SUB-B134593	12	B_R134593
Arsenic	ND	mg/L		0.005		E200.8	08/19/09 22:43 / dck			SUB-B134593	12	B_R134593
Cadmium	ND	mg/L		0.001		E200.8	08/19/09 22:43 / dck			SUB-B134593	12	B_R134593
Calcium	48	mg/L		1		E200.7	08/19/09 13:46 / eli-b			SUB-B134631	12	B_R134631
Iron	ND	mg/L		0.02		E200.7	08/19/09 13:46 / eli-b			SUB-B134631	12	B_R134631
Lead	ND	mg/L		0.001		E200.8	08/19/09 22:43 / dck			SUB-B134593	12	B_R134593
Magnesium	13	mg/L		1		E200.7	08/19/09 13:46 / eli-b			SUB-B134631	12	B_R134631
Manganese	ND	mg/L		0.005		E200.8	08/19/09 22:43 / dck			SUB-B134593	12	B_R134593
Potassium	5	mg/L		1		E200.7	08/19/09 13:46 / eli-b			SUB-B134631	12	B_R134631
Selenium	0.001	mg/L		0.001		E200.8	08/19/09 22:43 / dck			SUB-B134593	12	B_R134593
Sodium	35	mg/L		1		E200.7	08/19/09 13:46 / eli-b			SUB-B134631	12	B_R134631
Tin	ND	mg/L		0.1		E200.7	08/19/09 13:46 / eli-b			SUB-B134631	12	B_R134631

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-112
Project: 1054 Asarco E HLN Quarterly Monitoring
Matrix: Aqueous

Lab ID: H09080170-013
Collection Date: 08/13/09 14:00
DateReceived: 08/13/09
Report Date: 09/01/09 **Revised Date:** 11/05/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
pH	5.6	s.u.		0.1		A4500-H B	08/14/09 11:00 / JG			PH_090814A	16	090814A-PH-W
Conductivity	41	umhos/cm		1		A2510 B	08/14/09 10:41 / JG			COND_090814A	17	090814A-COND-PROBE W
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/17/09 14:31 / hm			SOLIDS_090817A	17	090817A-SLDS-TSS-W
Solids, Total Dissolved TDS @ 180 C	44	mg/L		10		A2540 C	08/18/09 12:42 / JG			SOLIDS_090818A	7	090818A-SLDS-TDS-W
INORGANICS												
Alkalinity, Total as CaCO3	6	mg/L		1		A2320 B	08/19/09 11:46 / JG			TITTR_090819A	14	090819A-ALK-W
Bicarbonate as HCO3	7	mg/L		1		A2320 B	08/19/09 11:46 / JG			TITTR_090819A	14	090819A-ALK-W
Chloride	4	mg/L		1		E300.0	08/19/09 02:04 / hm			IC101-H_090818A	55	R56049
Sulfate	ND	mg/L		1		E300.0	08/19/09 02:04 / hm			IC101-H_090818A	55	R56049
METALS, DISSOLVED												
Aluminum	ND	mg/L		0.001		E200.8	08/19/09 22:47 / dck			SUB-B134593	13	B_R134593
Arsenic	ND	mg/L		0.005		E200.8	08/19/09 22:47 / dck			SUB-B134593	13	B_R134593
Cadmium	ND	mg/L		0.001		E200.8	08/19/09 22:47 / dck			SUB-B134593	13	B_R134593
Calcium	ND	mg/L		1		E200.7	08/19/09 13:50 / eli-b			SUB-B134631	13	B_R134631
Iron	ND	mg/L		0.02		E200.7	08/19/09 13:50 / eli-b			SUB-B134631	13	B_R134631
Lead	ND	mg/L		0.001		E200.8	08/19/09 22:47 / dck			SUB-B134593	13	B_R134593
Magnesium	ND	mg/L		1		E200.7	08/19/09 13:50 / eli-b			SUB-B134631	13	B_R134631
Manganese	ND	mg/L		0.005		E200.8	08/19/09 22:47 / dck			SUB-B134593	13	B_R134593
Potassium	ND	mg/L		1		E200.7	08/19/09 13:50 / eli-b			SUB-B134631	13	B_R134631
Selenium	ND	mg/L		0.001		E200.8	08/19/09 22:47 / dck			SUB-B134593	13	B_R134593
Sodium	9	mg/L		1		E200.7	08/19/09 13:50 / eli-b			SUB-B134631	13	B_R134631
Tin	ND	mg/L		0.1		E200.7	08/19/09 13:50 / eli-b			SUB-B134631	13	B_R134631

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-113
Project: 1054 Asarco E HLN Quarterly Monitoring
Matrix: Aqueous

Lab ID: H09080170-014
Collection Date: 08/13/09 14:30
DateReceived: 08/13/09
Report Date: 09/01/09 **Revised Date:** 11/05/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
pH	7.7	s.u.		0.1		A4500-H B	08/14/09 11:07 / JG			PH_090814A	18	090814A-PH-W
Conductivity	339	umhos/cm		1		A2510 B	08/14/09 10:47 / JG			COND_090814A	19	090814A-COND-PROBE W
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/17/09 14:32 / hm			SOLIDS_090817A	18	090817A-SLDS-TSS-W
Solids, Total Dissolved TDS @ 180 C	238	mg/L		10		A2540 C	08/17/09 14:12 / hm			SOLIDS_090817B	21	090817A-SLDS-TDS-W
INORGANICS												
Alkalinity, Total as CaCO3	130	mg/L		1		A2320 B	08/19/09 11:46 / JG			TITTR_090819A	16	090819A-ALK-W
Bicarbonate as HCO3	150	mg/L		1		A2320 B	08/19/09 11:46 / JG			TITTR_090819A	16	090819A-ALK-W
Chloride	4	mg/L		1		E300.0	08/19/09 02:21 / hm			IC101-H_090818A	56	R56049
Sulfate	43	mg/L		1		E300.0	08/19/09 02:21 / hm			IC101-H_090818A	56	R56049
METALS, DISSOLVED												
Aluminum	0.007	mg/L		0.001		E200.8	08/19/09 23:07 / dck			SUB-B134593	14	B_R134593
Arsenic	ND	mg/L		0.005		E200.8	08/19/09 23:07 / dck			SUB-B134593	14	B_R134593
Cadmium	ND	mg/L		0.001		E200.8	08/19/09 23:07 / dck			SUB-B134593	14	B_R134593
Calcium	35	mg/L		1		E200.7	08/19/09 13:54 / eli-b			SUB-B134631	14	B_R134631
Iron	ND	mg/L		0.02		E200.7	08/19/09 13:54 / eli-b			SUB-B134631	14	B_R134631
Lead	ND	mg/L		0.001		E200.8	08/19/09 23:07 / dck			SUB-B134593	14	B_R134593
Magnesium	11	mg/L		1		E200.7	08/19/09 13:54 / eli-b			SUB-B134631	14	B_R134631
Manganese	ND	mg/L		0.005		E200.8	08/19/09 23:07 / dck			SUB-B134593	14	B_R134593
Potassium	5	mg/L		1		E200.7	08/19/09 13:54 / eli-b			SUB-B134631	14	B_R134631
Selenium	ND	mg/L		0.001		E200.8	08/19/09 23:07 / dck			SUB-B134593	14	B_R134593
Sodium	20	mg/L		1		E200.7	08/19/09 13:54 / eli-b			SUB-B134631	14	B_R134631
Tin	ND	mg/L		0.1		E200.7	08/19/09 13:54 / eli-b			SUB-B134631	14	B_R134631

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-114
Project: 1054 Asarco E HLN Quarterly Monitoring
Matrix: Aqueous

Lab ID: H09080170-015
Collection Date: 08/13/09 15:10
DateReceived: 08/13/09
Report Date: 09/01/09 **Revised Date:** 11/05/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
pH	7.6	s.u.		0.1		A4500-H B	08/14/09 11:09 / JG			PH_090814A	19	090814A-PH-W
Conductivity	400	umhos/cm		1		A2510 B	08/14/09 10:50 / JG			COND_090814A	20	090814A-COND-PROBE W
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/17/09 14:32 / hm			SOLIDS_090817A	19	090817A-SLDS-TSS-W
Solids, Total Dissolved TDS @ 180 C	277	mg/L		10		A2540 C	08/17/09 14:13 / hm			SOLIDS_090817B	22	090817A-SLDS-TDS-W
INORGANICS												
Alkalinity, Total as CaCO3	140	mg/L		1		A2320 B	08/25/09 12:29 / sld			TITTR_090825A	3	090825A-ALK-W
Bicarbonate as HCO3	170	mg/L		1		A2320 B	08/25/09 12:29 / sld			TITTR_090825A	3	090825A-ALK-W
Chloride	6	mg/L		1		E300.0	08/19/09 02:37 / hm			IC101-H_090818A	57	R56049
Sulfate	58	mg/L		1		E300.0	08/19/09 02:37 / hm			IC101-H_090818A	57	R56049
METALS, DISSOLVED												
Aluminum	0.002	mg/L		0.001		E200.8	08/19/09 23:11 / dck			SUB-B134593	15	B_R134593
Arsenic	0.006	mg/L		0.005		E200.8	08/19/09 23:11 / dck			SUB-B134593	15	B_R134593
Cadmium	ND	mg/L		0.001		E200.8	08/19/09 23:11 / dck			SUB-B134593	15	B_R134593
Calcium	39	mg/L		1		E200.7	08/19/09 13:58 / eli-b			SUB-B134631	15	B_R134631
Iron	ND	mg/L		0.02		E200.7	08/19/09 13:58 / eli-b			SUB-B134631	15	B_R134631
Lead	ND	mg/L		0.001		E200.8	08/19/09 23:11 / dck			SUB-B134593	15	B_R134593
Magnesium	13	mg/L		1		E200.7	08/19/09 13:58 / eli-b			SUB-B134631	15	B_R134631
Manganese	ND	mg/L		0.005		E200.8	08/19/09 23:11 / dck			SUB-B134593	15	B_R134593
Potassium	6	mg/L		1		E200.7	08/19/09 13:58 / eli-b			SUB-B134631	15	B_R134631
Selenium	0.001	mg/L		0.001		E200.8	08/19/09 23:11 / dck			SUB-B134593	15	B_R134593
Sodium	25	mg/L		1		E200.7	08/19/09 13:58 / eli-b			SUB-B134631	15	B_R134631
Tin	ND	mg/L		0.1		E200.7	08/19/09 13:58 / eli-b			SUB-B134631	15	B_R134631

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-115
Project: 1054 Asarco E HLN Quarterly Monitoring
Matrix: Aqueous

Lab ID: H09080170-016
Collection Date: 08/13/09 15:30
DateReceived: 08/13/09
Report Date: 09/01/09 **Revised Date:** 11/05/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
pH	5.7	s.u.		0.1		A4500-H B	08/14/09 11:12 / JG			PH_090814A	20	090814A-PH-W
Conductivity	50	umhos/cm		1		A2510 B	08/14/09 10:54 / JG			COND_090814A	21	090814A-COND-PROBE W
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/17/09 14:33 / hm			SOLIDS_090817A	20	090817A-SLDS-TSS-W
Solids, Total Dissolved TDS @ 180 C	44	mg/L		10		A2540 C	08/17/09 14:14 / hm			SOLIDS_090817B	23	090817A-SLDS-TDS-W
INORGANICS												
Alkalinity, Total as CaCO3	10	mg/L		1		A2320 B	08/25/09 12:32 / sld			TITTR_090825A	4	090825A-ALK-W
Bicarbonate as HCO3	12	mg/L		1		A2320 B	08/25/09 12:32 / sld			TITTR_090825A	4	090825A-ALK-W
Chloride	5	mg/L		1		E300.0	08/19/09 03:27 / hm			IC101-H_090818A	60	R56049
Sulfate	ND	mg/L		1		E300.0	08/19/09 03:27 / hm			IC101-H_090818A	60	R56049
METALS, DISSOLVED												
Aluminum	ND	mg/L		0.001		E200.8	08/19/09 23:16 / dck			SUB-B134593	16	B_R134593
Arsenic	ND	mg/L		0.005		E200.8	08/19/09 23:16 / dck			SUB-B134593	16	B_R134593
Cadmium	ND	mg/L		0.001		E200.8	08/19/09 23:16 / dck			SUB-B134593	16	B_R134593
Calcium	ND	mg/L		1		E200.7	08/19/09 14:02 / eli-b			SUB-B134631	16	B_R134631
Iron	ND	mg/L		0.02		E200.7	08/19/09 14:02 / eli-b			SUB-B134631	16	B_R134631
Lead	ND	mg/L		0.001		E200.8	08/19/09 23:16 / dck			SUB-B134593	16	B_R134593
Magnesium	ND	mg/L		1		E200.7	08/19/09 14:02 / eli-b			SUB-B134631	16	B_R134631
Manganese	ND	mg/L		0.005		E200.8	08/19/09 23:16 / dck			SUB-B134593	16	B_R134593
Potassium	ND	mg/L		1		E200.7	08/19/09 14:02 / eli-b			SUB-B134631	16	B_R134631
Selenium	ND	mg/L		0.001		E200.8	08/19/09 23:16 / dck			SUB-B134593	16	B_R134593
Sodium	11	mg/L		1		E200.7	08/19/09 14:02 / eli-b			SUB-B134631	16	B_R134631
Tin	ND	mg/L		0.1		E200.7	08/19/09 14:02 / eli-b			SUB-B134631	16	B_R134631

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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Client: Asarco Consulting
Work Order: H09080170
Project: 1054 Asarco E HLN Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: 090814A-COND-PROBE

Date: *01-Sep-09*

Run ID :Run Order: **COND_090814A: 1** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090814A** Method: **A2510 B**
Analysis Date: **08/14/09 10:02** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	1400	1.0	1412		99	90	110				

Associated samples: H09080170-001A; H09080170-002A; H09080170-003A; H09080170-004A; H09080170-005A; H09080170-006A; H09080170-007A; H09080170-008A; H09080170-009A; H09080170-010A; H09080170-011A; H09080170-012A; H09080170-013A; H09080170-014A; H09080170-015A; H09080170-016A

Run ID :Run Order: **COND_090814A: 4** SampType: **Sample Duplicate** Sample ID: **H09080170-002ADUP** Method: **A2510 B**
Analysis Date: **08/14/09 10:14** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	6.17	1.0						6.235	1.1	10	

Associated samples: H09080170-001A; H09080170-002A; H09080170-003A; H09080170-004A; H09080170-005A; H09080170-006A; H09080170-007A; H09080170-008A; H09080170-009A; H09080170-010A; H09080170-011A; H09080170-012A; H09080170-013A; H09080170-014A; H09080170-015A; H09080170-016A

Run ID :Run Order: **COND_090814A: 8** SampType: **Sample Duplicate** Sample ID: **H09080170-005ADUP** Method: **A2510 B**
Analysis Date: **08/14/09 10:20** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	258	1.0						255.9	0.8	10	

Associated samples: H09080170-001A; H09080170-002A; H09080170-003A; H09080170-004A; H09080170-005A; H09080170-006A; H09080170-007A; H09080170-008A; H09080170-009A; H09080170-010A; H09080170-011A; H09080170-012A; H09080170-013A; H09080170-014A; H09080170-015A; H09080170-016A

Run ID :Run Order: **COND_090814A: 14** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV1_090814A** Method: **A2510 B**
Analysis Date: **08/14/09 10:32** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	723	1.0	718		101	90	110				

Associated samples: H09080170-011A; H09080170-012A; H09080170-013A; H09080170-014A; H09080170-015A; H09080170-016A

Run ID :Run Order: **COND_090814A: 18** SampType: **Sample Duplicate** Sample ID: **H09080170-013ADUP** Method: **A2510 B**
Analysis Date: **08/14/09 10:44** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	40.9	1.0						41.33	1	10	

Associated samples: H09080170-001A; H09080170-002A; H09080170-003A; H09080170-004A; H09080170-005A; H09080170-006A; H09080170-007A; H09080170-008A; H09080170-009A; H09080170-010A; H09080170-011A; H09080170-012A; H09080170-013A; H09080170-014A; H09080170-015A; H09080170-016A

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080170
Project: 1054 Asarco E HLN Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: 090814A-PH-W

Date: *01-Sep-09*

Run ID :Run Order: **PH_090814A: 1** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090814A** Method: **A4500-H B**

Analysis Date: **08/14/09 10:08** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.02	0.10	7		**100**	99	101				

Associated samples: H09080170-001A; H09080170-002A; H09080170-003A; H09080170-004A; H09080170-005A; H09080170-007A; H09080170-008A; H09080170-009A; H09080170-010A; H09080170-011A; H09080170-012A; H09080170-013A; H09080170-014A; H09080170-015A; H09080170-016A

Run ID :Run Order: **PH_090814A: 7** SampType: **Sample Duplicate** Sample ID: **H09080170-005ADUP** Method: **A4500-H B**

Analysis Date: **08/14/09 10:30** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.16	0.10						7.15	**0.1**	2	

Associated samples: H09080170-001A; H09080170-002A; H09080170-003A; H09080170-004A; H09080170-005A; H09080170-007A; H09080170-008A; H09080170-009A; H09080170-010A; H09080170-011A; H09080170-012A; H09080170-013A; H09080170-014A; H09080170-015A; H09080170-016A

Run ID :Run Order: **PH_090814A: 13** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV1_090814A** Method: **A4500-H B**

Analysis Date: **08/14/09 10:50** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	9.98	0.10	10		**100**	99	101				

Associated samples: H09080170-011A; H09080170-012A; H09080170-013A; H09080170-014A; H09080170-015A; H09080170-016A

Run ID :Run Order: **PH_090814A: 17** SampType: **Sample Duplicate** Sample ID: **H09080170-013ADUP** Method: **A4500-H B**

Analysis Date: **08/14/09 11:01** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	5.60	0.10						5.63	**0.5**	2	

Associated samples: H09080170-001A; H09080170-002A; H09080170-003A; H09080170-004A; H09080170-005A; H09080170-007A; H09080170-008A; H09080170-009A; H09080170-010A; H09080170-011A; H09080170-012A; H09080170-013A; H09080170-014A; H09080170-015A; H09080170-016A

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080170
Project: 1054 Asarco E HLN Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: 090817A-ALK-W

Date: *01-Sep-09*

Run ID :Run Order: **TITTR_090817A: 1** SampType: **Method Blank** Sample ID: **MBLK1_090817A** Method: **A2320 B**
Analysis Date: **08/17/09 13:48** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	2	1									

Associated samples: H09080170-001A; H09080170-002A; H09080170-003A; H09080170-004A

Run ID :Run Order: **TITTR_090817A: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090817A** Method: **A2320 B**
Analysis Date: **08/17/09 13:56** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	600	4.0	600	1.964	**100**	90	110				

Associated samples: H09080170-001A; H09080170-002A; H09080170-003A; H09080170-004A

Run ID :Run Order: **TITTR_090817A: 6** SampType: **Sample Duplicate** Sample ID: **H09080144-002ADUP** Method: **A2320 B**
Analysis Date: **08/17/09 14:40** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	110	4.0						116.9	**1.7**	20	
Bicarbonate as HCO3	140	4.0						142.6	**1.7**	20	

Associated samples: H09080170-001A; H09080170-002A; H09080170-003A; H09080170-004A

Run ID :Run Order: **TITTR_090817A: 11** SampType: **Sample Matrix Spike** Sample ID: **H09080170-001AMS** Method: **A2320 B**
Analysis Date: **08/17/09 15:35** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	630	4.0	600	88.38	**90**	90	110				

Associated samples: H09080170-001A; H09080170-002A; H09080170-003A; H09080170-004A

Run ID :Run Order: **TITTR_090817A: 12** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080170-001AMSD** Method: **A2320 B**
Analysis Date: **08/17/09 15:40** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	640	4.0	600	88.38	**92**	90	110	628.5	**1.6**	20	

Associated samples: H09080170-001A; H09080170-002A; H09080170-003A; H09080170-004A

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080170
Project: 1054 Asarco E HLN Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: 090817A-ALK-W

Date: *01-Sep-09*

Run ID :Run Order: **TITTR_090817A: 16** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV1_090817A** Method: **A2320 B**

Analysis Date: **08/17/09 16:02** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	1000	4.0	1000		103	90	110				

Associated samples:

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080170
Project: 1054 Asarco E HLN Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: 090817A-SLDS-TDS-W

Date: *01-Sep-09*

Run ID :Run Order: **SOLIDS_090817B: 1** SampType: **Method Blank** Sample ID: **MBLK1_090817A** Method: **A2540 C**
Analysis Date: **08/17/09 13:53** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	ND	1.0									

Associated samples: H09080170-001A; H09080170-003A; H09080170-004A; H09080170-005A; H09080170-007A; H09080170-008A; H09080170-009A; H09080170-010A; H09080170-011A; H09080170-012A; H09080170-014A; H09080170-015A; H09080170-016A

Run ID :Run Order: **SOLIDS_090817B: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090817A** Method: **A2540 C**
Analysis Date: **08/17/09 13:56** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	969	10	1000		97	90	110				

Associated samples: H09080170-001A; H09080170-003A; H09080170-004A; H09080170-005A; H09080170-007A; H09080170-008A; H09080170-009A; H09080170-010A; H09080170-011A; H09080170-012A; H09080170-014A; H09080170-015A; H09080170-016A

Run ID :Run Order: **SOLIDS_090817B: 7** SampType: **Sample Matrix Spike** Sample ID: **H09080170-002AMS** Method: **A2540 C**
Analysis Date: **08/17/09 14:00** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2030	10	2000	36	100	80	120				

Associated samples: H09080170-001A; H09080170-003A; H09080170-004A; H09080170-005A; H09080170-007A; H09080170-008A; H09080170-009A; H09080170-010A; H09080170-011A; H09080170-012A; H09080170-014A; H09080170-015A; H09080170-016A

Run ID :Run Order: **SOLIDS_090817B: 8** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080170-002AMSD** Method: **A2540 C**
Analysis Date: **08/17/09 14:02** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2030	10	2000	36	100	80	120	2032	0.2	10	

Associated samples: H09080170-001A; H09080170-003A; H09080170-004A; H09080170-005A; H09080170-007A; H09080170-008A; H09080170-009A; H09080170-010A; H09080170-011A; H09080170-012A; H09080170-014A; H09080170-015A; H09080170-016A

Run ID :Run Order: **SOLIDS_090817B: 19** SampType: **Sample Duplicate** Sample ID: **H09080170-012ADUP** Method: **A2540 C**
Analysis Date: **08/17/09 14:11** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	158	10						156	1.3	20	

Associated samples: H09080170-001A; H09080170-003A; H09080170-004A; H09080170-005A; H09080170-007A; H09080170-008A; H09080170-009A; H09080170-010A; H09080170-011A; H09080170-012A; H09080170-014A; H09080170-015A; H09080170-016A

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080170
Project: 1054 Asarco E HLN Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: 090817A-SLDS-TDS-W

Date: *01-Sep-09*

Run ID :Run Order: **SOLIDS_090817B: 27** SampType: **Sample Matrix Spike** Sample ID: **H09080179-003AMS** Method: **A2540 C**

Analysis Date: **08/17/09 14:15** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	1980	10	2000		**99**	80	120				

Associated samples: H09080170-001A; H09080170-003A; H09080170-004A; H09080170-005A; H09080170-007A; H09080170-008A; H09080170-009A; H09080170-010A; H09080170-011A; H09080170-012A; H09080170-014A; H09080170-015A; H09080170-016A

Run ID :Run Order: **SOLIDS_090817B: 28** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080179-003AMSD** Method: **A2540 C**

Analysis Date: **08/17/09 14:16** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	1990	10	2000		**99**	80	120	1978	**0.4**	10	

Associated samples: H09080170-001A; H09080170-003A; H09080170-004A; H09080170-005A; H09080170-007A; H09080170-008A; H09080170-009A; H09080170-010A; H09080170-011A; H09080170-012A; H09080170-014A; H09080170-015A; H09080170-016A

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080170
Project: 1054 Asarco E HLN Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: 090817A-SLDS-TSS-W

Date: *01-Sep-09*

Run ID :Run Order: **SOLIDS_090817A: 1** SampType: **Method Blank** Sample ID: **MBLK1_090817A** Method: **A2540 D**
Analysis Date: **08/17/09 14:24** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	ND	1									

Associated samples: H09080170-001A; H09080170-002A; H09080170-003A; H09080170-004A; H09080170-005A; H09080170-006A; H09080170-007A; H09080170-008A; H09080170-009A; H09080170-010A; H09080170-011A; H09080170-012A; H09080170-013A; H09080170-014A; H09080170-015A; H09080170-016A

Run ID :Run Order: **SOLIDS_090817A: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090817A** Method: **A2540 D**
Analysis Date: **08/17/09 14:25** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	1970	10	2000		**99**	70	130				

Associated samples: H09080170-001A; H09080170-002A; H09080170-003A; H09080170-004A; H09080170-005A; H09080170-006A; H09080170-007A; H09080170-008A; H09080170-009A; H09080170-010A; H09080170-011A; H09080170-012A; H09080170-013A; H09080170-014A; H09080170-015A; H09080170-016A

Run ID :Run Order: **SOLIDS_090817A: 5** SampType: **Sample Duplicate** Sample ID: **H09080170-002ADUP** Method: **A2540 D**
Analysis Date: **08/17/09 14:26** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	ND	10								10	

Associated samples: H09080170-001A; H09080170-002A; H09080170-003A; H09080170-004A; H09080170-005A; H09080170-006A; H09080170-007A; H09080170-008A; H09080170-009A; H09080170-010A; H09080170-011A; H09080170-012A; H09080170-013A; H09080170-014A; H09080170-015A; H09080170-016A

Run ID :Run Order: **SOLIDS_090817A: 16** SampType: **Sample Duplicate** Sample ID: **H09080170-012ADUP** Method: **A2540 D**
Analysis Date: **08/17/09 14:31** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	ND	10								10	

Associated samples: H09080170-001A; H09080170-002A; H09080170-003A; H09080170-004A; H09080170-005A; H09080170-006A; H09080170-007A; H09080170-008A; H09080170-009A; H09080170-010A; H09080170-011A; H09080170-012A; H09080170-013A; H09080170-014A; H09080170-015A; H09080170-016A

Qualifiers:
ND - Not Detected at the Reporting Limit
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R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080170
Project: 1054 Asarco E HLN Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: 090818A-SLDS-TDS-W

Date: *01-Sep-09*

Run ID :Run Order: **SOLIDS_090818A: 1** SampType: **Method Blank** Sample ID: **MBLK1_090818A** Method: **A2540 C**
Analysis Date: **08/18/09 12:39** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	ND	1.0									

Associated samples: H09080170-002A; H09080170-006A; H09080170-013A

Run ID :Run Order: **SOLIDS_090818A: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090818A** Method: **A2540 C**
Analysis Date: **08/18/09 12:39** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	985	10	1000		**99**	90	110				

Associated samples: H09080170-002A; H09080170-006A; H09080170-013A

Run ID :Run Order: **SOLIDS_090818A: 5** SampType: **Sample Matrix Spike** Sample ID: **H09080170-006AMS** Method: **A2540 C**
Analysis Date: **08/18/09 12:41** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	1980	10	2000	30	**98**	80	120				

Associated samples: H09080170-002A; H09080170-006A; H09080170-013A

Run ID :Run Order: **SOLIDS_090818A: 6** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080170-006AMSD** Method: **A2540 C**
Analysis Date: **08/18/09 12:41** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	1970	10	2000	30	**97**	80	120	1980	**0.5**	10	

Associated samples: H09080170-002A; H09080170-006A; H09080170-013A

Qualifiers: ND - Not Detected at the Reporting Limit
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
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A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080170
Project: 1054 Asarco E HLN Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: 090819A-ALK-W

Date: *01-Sep-09*

Run ID :Run Order: **TITTR_090819A: 1** SampType: **Method Blank** Sample ID: **MBLK1_090819A** Method: **A2320 B**
Analysis Date: **08/19/09 10:04** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	ND	1									

Associated samples: H09080170-005A; H09080170-006A; H09080170-007A; H09080170-008A; H09080170-009A; H09080170-010A; H09080170-011A; H09080170-012A; H09080170-013A; H09080170-014A

Run ID :Run Order: **TITTR_090819A: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090819A** Method: **A2320 B**
Analysis Date: **08/19/09 10:16** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	580	4.0	600		**97**	90	110				

Associated samples: H09080170-005A; H09080170-006A; H09080170-007A; H09080170-008A; H09080170-009A; H09080170-010A; H09080170-011A; H09080170-012A; H09080170-013A; H09080170-014A

Run ID :Run Order: **TITTR_090819A: 6** SampType: **Sample Duplicate** Sample ID: **H09080170-007ADUP** Method: **A2320 B**
Analysis Date: **08/19/09 10:36** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	74	4.0						74.63	**1.3**	20	
Bicarbonate as HCO3	90	4.0						91.05	**1.3**	20	

Associated samples: H09080170-005A; H09080170-006A; H09080170-007A; H09080170-008A; H09080170-009A; H09080170-010A; H09080170-011A; H09080170-012A; H09080170-013A; H09080170-014A

Run ID :Run Order: **TITTR_090819A: 11** SampType: **Sample Matrix Spike** Sample ID: **H09080170-011AMS** Method: **A2320 B**
Analysis Date: **08/19/09 11:18** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	710	4.0	600	152.2	**93**	90	110				

Associated samples: H09080170-005A; H09080170-006A; H09080170-007A; H09080170-008A; H09080170-009A; H09080170-010A; H09080170-011A; H09080170-012A; H09080170-013A; H09080170-014A

Run ID :Run Order: **TITTR_090819A: 12** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080170-011AMSD** Method: **A2320 B**
Analysis Date: **08/19/09 11:23** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	710	4.0	600	152.2	**93**	90	110	709	**0**	20	

Associated samples: H09080170-005A; H09080170-006A; H09080170-007A; H09080170-008A; H09080170-009A; H09080170-010A; H09080170-011A; H09080170-012A; H09080170-013A; H09080170-014A

Qualifiers:
ND - Not Detected at the Reporting Limit
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R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080170
Project: 1054 Asarco E HLN Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: 090819A-ALK-W

Date: *01-Sep-09*

Run ID :Run Order: **TITTR_090819A: 15** SampType: **Sample Duplicate** Sample ID: **H09080170-013ADUP** Method: **A2320 B**

Analysis Date: **08/19/09 11:46** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	6.9	4.0						5.892	**15**	20	
Bicarbonate as HCO3	8.4	4.0						7.188	**15**	20	

Associated samples: H09080170-005A; H09080170-006A; H09080170-007A; H09080170-008A; H09080170-009A; H09080170-010A; H09080170-011A; H09080170-012A; H09080170-013A; H09080170-014A

Run ID :Run Order: **TITTR_090819A: 17** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV1_090819A** Method: **A2320 B**

Analysis Date: **08/19/09 11:57** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	1000	4.0	1000		**102**	90	110				

Associated samples:

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080170
Project: 1054 Asarco E HLN Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: 090821A-PH-W

Date: *01-Sep-09*

Run ID :Run Order: **PH_090821A: 1** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090821A** Method: **A4500-H B**
Analysis Date: **08/21/09 16:16** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.03	0.10	7		**100**	99	101				

Associated samples: H09080170-006A

Run ID :Run Order: **PH_090821A: 8** SampType: **Sample Duplicate** Sample ID: **H09080255-006ADUP** Method: **A4500-H B**
Analysis Date: **08/21/09 16:28** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.17	0.10						7.16	**0.1**	2	

Associated samples: H09080170-006A

Run ID :Run Order: **PH_090821A: 14** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV1_090821A** Method: **A4500-H B**
Analysis Date: **08/21/09 16:40** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	10.1	0.10	10		**101**	99	101				

Associated samples: H09080170-006A

Qualifiers:
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R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080170
Project: 1054 Asarco E HLN Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: 090825A-ALK-W

Date: *01-Sep-09*

Run ID :Run Order: **TITTR_090825A: 1** SampType: **Method Blank** Sample ID: **MBLK1_090825A** Method: **A2320 B**
Analysis Date: **08/25/09 12:19** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	ND	1									

Associated samples: H09080170-015A; H09080170-016A

Run ID :Run Order: **TITTR_090825A: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090825A** Method: **A2320 B**
Analysis Date: **08/25/09 12:25** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	570	4.0	600		**95**	90	110				

Associated samples: H09080170-015A; H09080170-016A

Run ID :Run Order: **TITTR_090825A: 8** SampType: **Sample Matrix Spike** Sample ID: **H09080179-004AMS** Method: **A2320 B**
Analysis Date: **08/25/09 12:58** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	910	4.0	600	384	88	90	110				S

Associated samples: H09080170-015A; H09080170-016A

Run ID :Run Order: **TITTR_090825A: 9** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080179-004AMSD** Method: **A2320 B**
Analysis Date: **08/25/09 13:05** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	910	4.0	600	384	88	90	110	913.3	**0**	20	S

Associated samples: H09080170-015A; H09080170-016A

Run ID :Run Order: **TITTR_090825A: 15** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV1_090825A** Method: **A2320 B**
Analysis Date: **08/25/09 14:02** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	1000	4.0	1000		102	90	110				

Associated samples:

Qualifiers: ND - Not Detected at the Reporting Limit
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080170
Project: 1054 Asarco E HLN Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R134593

Date: *01-Sep-09*

Run ID :Run Order: **SUB-B134593: 17** SampType: **Method Blank** Sample ID: **LRB** Method: **E200.8**
Analysis Date: **08/19/09 11:36** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	ND	0.0001									
Arsenic	ND	3E-05									
Cadmium	ND	1E-05									
Lead	ND	8E-06									
Manganese	2E-05	2E-05									
Selenium	ND	0.0002									

Associated samples: H09080170-001B; H09080170-002B; H09080170-003B; H09080170-004B; H09080170-005B; H09080170-006B; H09080170-007B; H09080170-008B; H09080170-009B; H09080170-010B; H09080170-011B; H09080170-012B; H09080170-013B; H09080170-014B; H09080170-015B; H09080170-016B

Run ID :Run Order: **SUB-B134593: 18** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**
Analysis Date: **08/19/09 11:40** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.048	0.10	0.05		**96**	85	115				
Arsenic	0.048	0.0050	0.05		**96**	85	115				
Cadmium	0.049	0.0010	0.05		**98**	85	115				
Lead	0.050	0.010	0.05		**100**	85	115				
Manganese	0.049	0.010	0.05	0.00002	**99**	85	115				
Selenium	0.048	0.0050	0.05		**96**	85	115				

Associated samples: H09080170-001B; H09080170-002B; H09080170-003B; H09080170-004B; H09080170-005B; H09080170-006B; H09080170-007B; H09080170-008B; H09080170-009B; H09080170-010B; H09080170-011B; H09080170-012B; H09080170-013B; H09080170-014B; H09080170-015B; H09080170-016B

Run ID :Run Order: **SUB-B134593: 19** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090609B, ME080814C** Method: **E200.8**
Analysis Date: **08/19/09 17:09** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.26	0.10	0.25		**103**	90	110				
Arsenic	0.049	0.0050	0.05		**99**	90	110				
Cadmium	0.026	0.0010	0.025		**102**	90	110				
Lead	0.049	0.010	0.05		**98**	90	110				
Manganese	0.25	0.010	0.25		**99**	90	110				
Selenium	0.050	0.0050	0.05		**100**	90	110				

Associated samples: H09080170-001B; H09080170-002B; H09080170-003B; H09080170-004B; H09080170-005B; H09080170-006B; H09080170-007B; H09080170-008B; H09080170-009B; H09080170-010B; H09080170-011B; H09080170-012B; H09080170-013B; H09080170-014B; H09080170-015B; H09080170-016B

Qualifiers:
ND - Not Detected at the Reporting Limit
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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ANALYTICAL QC SUMMARY REPORT

Client: Asarco Consulting
Work Order: H09080170
Project: 1054 Asarco E HLN Quarterly Monitoring

Date: *01-Sep-09*

BatchID: B_R134593

Run ID :Run Order: **SUB-B134593: 20** SampType: **Sample Matrix Spike** Sample ID: **B09081601-006BMS** Method: **E200.8**

Analysis Date: **08/19/09 22:11** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.247	0.10	0.25		**99**	70	130				
Arsenic	0.249	0.0050	0.25	0.00065	**99**	70	130				
Cadmium	0.250	0.0010	0.25		**100**	70	130				
Lead	0.254	0.010	0.25	0.00015	**101**	70	130				
Manganese	0.238	0.010	0.25	0.00035	**95**	70	130				
Selenium	0.239	0.0050	0.25		**96**	70	130				

Associated samples: H09080170-001B; H09080170-002B; H09080170-003B; H09080170-004B; H09080170-005B; H09080170-006B; H09080170-007B; H09080170-008B; H09080170-009B; H09080170-010B; H09080170-011B; H09080170-012B; H09080170-013B; H09080170-014B; H09080170-015B; H09080170-016B

Run ID :Run Order: **SUB-B134593: 21** SampType: **Sample Matrix Spike Duplicate** Sample ID: **B09081601-006BMSD** Method: **E200.8**

Analysis Date: **08/19/09 22:15** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.247	0.10	0.25		**99**	70	130	0.2467	**0.2**	20	
Arsenic	0.248	0.0050	0.25	0.00065	**99**	70	130	0.2486	**0**	20	
Cadmium	0.251	0.0010	0.25		**100**	70	130	0.2503	**0.4**	20	
Lead	0.256	0.010	0.25	0.00015	**102**	70	130	0.2536	**1**	20	
Manganese	0.239	0.010	0.25	0.00035	**95**	70	130	0.238	**0.2**	20	
Selenium	0.238	0.0050	0.25		**95**	70	130	0.2389	**0.2**	20	

Associated samples: H09080170-001B; H09080170-002B; H09080170-003B; H09080170-004B; H09080170-005B; H09080170-006B; H09080170-007B; H09080170-008B; H09080170-009B; H09080170-010B; H09080170-011B; H09080170-012B; H09080170-013B; H09080170-014B; H09080170-015B; H09080170-016B

Run ID :Run Order: **SUB-B134593: 22** SampType: **Sample Matrix Spike** Sample ID: **B09081601-016BMS** Method: **E200.8**

Analysis Date: **08/19/09 23:20** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.250	0.10	0.25		**100**	70	130				
Arsenic	0.250	0.0050	0.25	0.00015	**100**	70	130				
Cadmium	0.253	0.0010	0.25		**101**	70	130				
Lead	0.252	0.010	0.25	0.0002	**101**	70	130				
Manganese	0.239	0.010	0.25	0.00025	**95**	70	130				
Selenium	0.239	0.0050	0.25		**95**	70	130				

Associated samples: H09080170-001B; H09080170-002B; H09080170-003B; H09080170-004B; H09080170-005B; H09080170-006B; H09080170-007B; H09080170-008B; H09080170-009B; H09080170-010B; H09080170-011B; H09080170-012B; H09080170-013B; H09080170-014B; H09080170-015B; H09080170-016B

Qualifiers: ND - Not Detected at the Reporting Limit
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R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080170
Project: 1054 Asarco E HLN Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R134593

Date: 01-Sep-09

Run ID :Run Order: **SUB-B134593: 23** SampType: **Sample Matrix Spike Duplicate** Sample ID: **B09081601-016BMSD** Method: **E200.8**

Analysis Date: **08/19/09 23:24** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.249	0.10	0.25		**100**	70	130	0.25	**0.4**	20	
Arsenic	0.243	0.0050	0.25	0.00015	**97**	70	130	0.2499	**2.7**	20	
Cadmium	0.250	0.0010	0.25		**100**	70	130	0.2528	**1.1**	20	
Lead	0.247	0.010	0.25	0.0002	**99**	70	130	0.252	**2**	20	
Manganese	0.233	0.010	0.25	0.00025	**93**	70	130	0.2389	**2.6**	20	
Selenium	0.228	0.0050	0.25		**91**	70	130	0.2385	**4.5**	20	

Associated samples: H09080170-001B; H09080170-002B; H09080170-003B; H09080170-004B; H09080170-005B; H09080170-006B; H09080170-007B; H09080170-008B; H09080170-009B; H09080170-010B; H09080170-011B; H09080170-012B; H09080170-013B; H09080170-014B; H09080170-015B; H09080170-016B

Run ID :Run Order: **SUB-B134593: 28** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090609B, 080814C** Method: **E200.8**

Analysis Date: **08/19/09 11:00** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.25	0.10	0.25		**102**	90	110				
Arsenic	0.049	0.0050	0.05		**99**	90	110				
Cadmium	0.025	0.0010	0.025		**101**	90	110				
Lead	0.050	0.010	0.05		**100**	90	110				
Manganese	0.25	0.010	0.25		**99**	90	110				
Selenium	0.050	0.0050	0.05		**101**	90	110				

Associated samples: H09080170-001B; H09080170-002B; H09080170-003B; H09080170-004B; H09080170-005B; H09080170-006B; H09080170-007B; H09080170-008B; H09080170-009B; H09080170-010B; H09080170-011B; H09080170-012B; H09080170-013B; H09080170-014B; H09080170-015B; H09080170-016B

Run ID :Run Order: **SUB-B134593: 32** SampType: **Sample Matrix Spike** Sample ID: **B09081600-001AMS** Method: **E200.8**

Analysis Date: **08/19/09 21:18** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.052	0.10	0.05	0.00441	**95**	70	130				
Arsenic	0.051	0.0010	0.05	0.00206	**98**	70	130				
Cadmium	0.049	0.0010	0.05		**98**	70	130				
Lead	0.049	0.0010	0.05	0.00008	**97**	70	130				
Manganese	0.049	0.010	0.05	0.00044	**97**	70	130				
Selenium	0.050	0.0050	0.05	0.00054	**100**	70	130				

Associated samples: H09080170-001B; H09080170-002B; H09080170-003B; H09080170-004B; H09080170-005B; H09080170-006B; H09080170-007B; H09080170-008B; H09080170-009B; H09080170-010B; H09080170-011B; H09080170-012B; H09080170-013B; H09080170-014B; H09080170-015B; H09080170-016B

Qualifiers:
ND - Not Detected at the Reporting Limit
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080170
Project: 1054 Asarco E HLN Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R134593

Date: *01-Sep-09*

Run ID :Run Order: **SUB-B134593: 33** SampType: **Sample Matrix Spike Duplicate** Sample ID: **B09081600-001AMSD** Method: **E200.8**

Analysis Date: **08/19/09 21:23** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 6	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.052	0.10	0.05	0.00441	**95**	70	130	0.05168		20	
Arsenic	0.051	0.0010	0.05	0.00206	**98**	70	130	0.05127	**0**	20	
Cadmium	0.049	0.0010	0.05		**98**	70	130	0.04876	**0.7**	20	
Lead	0.049	0.0010	0.05	0.00008	**98**	70	130	0.04872	**0.7**	20	
Manganese	0.049	0.010	0.05	0.00044	**98**	70	130	0.04914	**0.6**	20	
Selenium	0.050	0.0050	0.05	0.00054	**98**	70	130	0.05047	**1.5**	20	

Associated samples: H09080170-001B; H09080170-002B; H09080170-003B; H09080170-004B; H09080170-005B; H09080170-006B; H09080170-007B; H09080170-008B; H09080170-009B; H09080170-010B; H09080170-011B; H09080170-012B; H09080170-013B; H09080170-014B; H09080170-015B; H09080170-016B

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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ANALYTICAL QC SUMMARY REPORT

Client: Asarco Consulting
Work Order: H09080170
Project: 1054 Asarco E HLN Quarterly Monitoring

Date: *01-Sep-09*

BatchID: B_R134631

Run ID :Run Order: **SUB-B134631: 17** SampType: **Continuing Calibration Verification Standard** Sample ID: **ICV** Method: **E200.7**

Analysis Date: **08/19/09 11:13** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	25.1	1.0	25		**100**	95	105				
Iron	2.61	0.030	2.5		**105**	95	105				
Magnesium	25.5	1.0	25		**102**	95	105				
Manganese	2.50	0.010	2.5		**100**	95	105				
Potassium	25.0	1.0	25		**100**	95	105				
Sodium	25.5	1.0	25		**102**	95	105				
Tin	2.39	0.090	2.5		**96**	95	105				

Associated samples: H09080170-001B; H09080170-002B; H09080170-003B; H09080170-004B; H09080170-005B; H09080170-006B; H09080170-007B; H09080170-008B; H09080170-009B; H09080170-010B; H09080170-011B; H09080170-012B; H09080170-013B; H09080170-014B; H09080170-015B; H09080170-016B

Run ID :Run Order: **SUB-B134631: 18** SampType: **Method Blank** Sample ID: **MB-TJADIS090819A** Method: **E200.7**

Analysis Date: **08/19/09 11:21** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	ND	0.04									
Iron	0.003	0.003									
Magnesium	ND	0.06									
Manganese	ND	0.0003									
Potassium	ND	0.05									
Sodium	ND	0.02									
Tin	ND	0.09									

Associated samples: H09080170-001B; H09080170-002B; H09080170-003B; H09080170-004B; H09080170-005B; H09080170-006B; H09080170-007B; H09080170-008B; H09080170-009B; H09080170-010B; H09080170-011B; H09080170-012B; H09080170-013B; H09080170-014B; H09080170-015B; H09080170-016B

Run ID :Run Order: **SUB-B134631: 19** SampType: **Laboratory Fortified Blank** Sample ID: **LFB-TJADIS090819A** Method: **E200.7**

Analysis Date: **08/19/09 11:25** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	48.8	1.0	50		**98**	85	115				
Iron	4.93	0.030	5	0.00309	**99**	85	115				
Magnesium	50.5	1.0	50		**101**	85	115				
Manganese	4.75	0.010	5		**95**	85	115				
Potassium	51.9	1.0	50		**104**	85	115				
Sodium	52.9	1.0	50		**106**	85	115				
Tin	0.937	0.093	1		**94**	85	115				

Qualifiers:
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Client: Asarco Consulting
Work Order: H09080170
Project: 1054 Asarco E HLN Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R134631

Date: *01-Sep-09*

Run ID :Run Order: **SUB-B134631: 19** SampType: **Laboratory Fortified Blank** Sample ID: **LFB-TJADIS090819A** Method: **E200.7**

Analysis Date: **08/19/09 11:25** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: H09080170-001B; H09080170-002B; H09080170-003B; H09080170-004B; H09080170-005B; H09080170-006B; H09080170-007B; H09080170-008B; H09080170-009B; H09080170-010B; H09080170-011B; H09080170-012B; H09080170-013B; H09080170-014B; H09080170-015B; H09080170-016B

Run ID :Run Order: **SUB-B134631: 20** SampType: **Sample Matrix Spike** Sample ID: **B09081559-001AMS2** Method: **E200.7**

Analysis Date: **08/19/09 12:26** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	106	1.0	50	57.43	**97**	70	130				
Iron	11.0	0.030	5	6.413	**92**	70	130				
Magnesium	64.7	1.0	50	13.71	**102**	70	130				
Manganese	8.05	0.010	5	3.483	**91**	70	130				
Potassium	56.0	1.0	50	3.795	**104**	70	130				
Sodium	60.9	1.0	50	8.63	**105**	70	130				
Tin	0.851	0.10	1		**85**	70	130				

Associated samples: H09080170-001B; H09080170-002B; H09080170-003B; H09080170-004B; H09080170-005B; H09080170-006B; H09080170-007B; H09080170-008B; H09080170-009B; H09080170-010B; H09080170-011B; H09080170-012B; H09080170-013B; H09080170-014B; H09080170-015B; H09080170-016B

Run ID :Run Order: **SUB-B134631: 21** SampType: **Sample Matrix Spike Duplicate** Sample ID: **B09081559-001AMSD2** Method: **E200.7**

Analysis Date: **08/19/09 12:30** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	108	1.0	50	57.43	**101**	70	130	105.8	**1.8**	20	
Iron	11.3	0.030	5	6.413	**97**	70	130	11.03	**2.1**	20	
Magnesium	65.2	1.0	50	13.71	**103**	70	130	64.74	**0.8**	20	
Manganese	8.28	0.010	5	3.483	**96**	70	130	8.054	**2.8**	20	
Potassium	57.4	1.0	50	3.795	**107**	70	130	55.99	**2.5**	20	
Sodium	62.7	1.0	50	8.63	**108**	70	130	60.89	**2.9**	20	
Tin	0.916	0.10	1		**92**	70	130	0.8508	**7.4**	20	

Associated samples: H09080170-001B; H09080170-002B; H09080170-003B; H09080170-004B; H09080170-005B; H09080170-006B; H09080170-007B; H09080170-008B; H09080170-009B; H09080170-010B; H09080170-011B; H09080170-012B; H09080170-013B; H09080170-014B; H09080170-015B; H09080170-016B

Run ID :Run Order: **SUB-B134631: 22** SampType: **Sample Matrix Spike** Sample ID: **B09081601-009BMS2** Method: **E200.7**

Analysis Date: **08/19/09 13:24** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	78.8	1.0	50	28.65	**100**	70	130				
Iron	5.14	0.030	5		**103**	70	130				

Qualifiers: ND - Not Detected at the Reporting Limit; S - Spike Recovery outside accepted recovery limits; N - Analyte concentration was not sufficiently high to calculate RPD; J - Analyte detected below quantitation limits; R - RPD outside accepted recovery limits; A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080170
Project: 1054 Asarco E HLN Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

Date: *01-Sep-09*

BatchID: B_R134631

Run ID :Run Order: **SUB-B134631: 22** SampType: **Sample Matrix Spike** Sample ID: **B09081601-009BMS2** Method: **E200.7**

Analysis Date: **08/19/09 13:24** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Magnesium	58.3	1.0	50	6.567	**103**	70	130				
Manganese	4.94	0.010	5		**99**	70	130				
Potassium	54.9	1.0	50	2.49	**105**	70	130				
Sodium	67.1	1.0	50	14.38	**105**	70	130				
Tin	0.953	0.10	1		**95**	70	130				

Associated samples: H09080170-001B; H09080170-002B; H09080170-003B; H09080170-004B; H09080170-005B; H09080170-006B; H09080170-007B; H09080170-008B; H09080170-009B; H09080170-010B; H09080170-011B; H09080170-012B; H09080170-013B; H09080170-014B; H09080170-015B; H09080170-016B

Run ID :Run Order: **SUB-B134631: 23** SampType: **Sample Matrix Spike Duplicate** Sample ID: **B09081601-009BMSD2** Method: **E200.7**

Analysis Date: **08/19/09 13:27** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	78.1	1.0	50	28.65	**99**	70	130	78.76	**0.9**	20	
Iron	4.96	0.030	5		**99**	70	130	5.136	**3.4**	20	
Magnesium	58.9	1.0	50	6.567	**105**	70	130	58.31	**0.9**	20	
Manganese	4.76	0.010	5		**95**	70	130	4.936	**3.6**	20	
Potassium	55.7	1.0	50	2.49	**106**	70	130	54.88	**1.5**	20	
Sodium	67.2	1.0	50	14.38	**106**	70	130	67.11	**0.2**	20	
Tin	0.996	0.10	1		**100**	70	130	0.9532	**4.4**	20	

Associated samples: H09080170-001B; H09080170-002B; H09080170-003B; H09080170-004B; H09080170-005B; H09080170-006B; H09080170-007B; H09080170-008B; H09080170-009B; H09080170-010B; H09080170-011B; H09080170-012B; H09080170-013B; H09080170-014B; H09080170-015B; H09080170-016B

Run ID :Run Order: **SUB-B134631: 24** SampType: **Sample Matrix Spike** Sample ID: **B09081610-001BMS2** Method: **E200.7**

Analysis Date: **08/19/09 14:25** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	114	1.0	50	63.88	**99**	70	130				
Iron	4.94	0.030	5		**99**	70	130				
Magnesium	73.6	1.0	50	20.92	**105**	70	130				
Manganese	5.80	0.010	5	1.108	**94**	70	130				
Potassium	57.3	1.0	50	4.146	**106**	70	130				
Sodium	59.7	1.0	50	6.849	**106**	70	130				
Tin	0.968	0.10	1		**97**	70	130				

Associated samples: H09080170-001B; H09080170-002B; H09080170-003B; H09080170-004B; H09080170-005B; H09080170-006B; H09080170-007B; H09080170-008B; H09080170-009B; H09080170-010B; H09080170-011B; H09080170-012B; H09080170-013B; H09080170-014B; H09080170-015B; H09080170-016B

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080170
Project: 1054 Asarco E HLN Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R134631

Date: *01-Sep-09*

Run ID :Run Order: **SUB-B134631: 25** SampType: **Sample Matrix Spike Duplicate** Sample ID: **B09081610-001BMSD2** Method: **E200.7**

Analysis Date: **08/19/09 14:29** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 7	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	113	1.0	50	63.88	**99**	70	130	113.5	**0.3**	20	
Iron	5.02	0.030	5		**100**	70	130	4.94	**1.7**	20	
Magnesium	74.1	1.0	50	20.92	**106**	70	130	73.57	**0.7**	20	
Manganese	5.89	0.010	5	1.108	**96**	70	130	5.802	**1.5**	20	
Potassium	60.2	1.0	50	4.146	**112**	70	130	57.26	**5**	20	
Sodium	62.3	1.0	50	6.849	**111**	70	130	59.74	**4.2**	20	
Tin	1.03	0.10	1		**103**	70	130	0.9676	**6.4**	20	

Associated samples: H09080170-001B; H09080170-002B; H09080170-003B; H09080170-004B; H09080170-005B; H09080170-006B; H09080170-007B; H09080170-008B; H09080170-009B; H09080170-010B; H09080170-011B; H09080170-012B; H09080170-013B; H09080170-014B; H09080170-015B; H09080170-016B

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
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Project: 1054 Asarco E HLN Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R135363

Date: *01-Sep-09*

Run ID :Run Order: **SUB-B135363: 2** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS-090602A,090609B,080814C** Method: **E200.8**

Analysis Date: **09/02/09 09:51** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.25	0.10	0.25		98	90	110				

Associated samples: H09080170-002B

Run ID :Run Order: **SUB-B135363: 3** SampType: **Method Blank** Sample ID: **LRB** Method: **E200.8**

Analysis Date: **09/02/09 10:28** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.001	0.00010									

Associated samples: H09080170-002B

Run ID :Run Order: **SUB-B135363: 4** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**

Analysis Date: **09/02/09 10:33** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.047	0.10	0.05	0.001081	92	85	115				

Associated samples: H09080170-002B

Run ID :Run Order: **SUB-B135363: 5** SampType: **Sample Matrix Spike** Sample ID: **H09080170-002B** Method: **E200.8**

Analysis Date: **09/02/09 10:46** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0501	0.10	0.05	0.002528	95	70	130				

Associated samples: H09080170-002B

Run ID :Run Order: **SUB-B135363: 6** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080170-002B** Method: **E200.8**

Analysis Date: **09/02/09 10:51** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0487	0.10	0.05	0.002528	92	70	130	0.05007		20	

Associated samples: H09080170-002B

Qualifiers:
ND - Not Detected at the Reporting Limit
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080170
Project: 1054 Asarco E HLN Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: R56049

Date: *01-Sep-09*

Run ID :Run Order: **IC101-H_090818A: 13** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV** Method: **E300.0**

Analysis Date: **08/18/09 14:35** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.5	1.0	2.5		**101**	90	110				
Sulfate	9.9	1.0	10		**99**	90	110				

Associated samples: H09080170-001A; H09080170-002A; H09080170-003A; H09080170-004A; H09080170-005A; H09080170-006A; H09080170-007A; H09080170-008A; H09080170-009A; H09080170-010A; H09080170-011A; H09080170-012A; H09080170-013A; H09080170-014A; H09080170-015A; H09080170-016A

Run ID :Run Order: **IC101-H_090818A: 14** SampType: **Laboratory Control Sample** Sample ID: **LCS** Method: **E300.0**

Analysis Date: **08/18/09 14:51** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	85	1.0	87.47		**98**	90	110				
Sulfate	28	1.0	28.53	0.238	**96**	90	110				

Associated samples: H09080170-001A; H09080170-002A; H09080170-003A; H09080170-004A; H09080170-005A; H09080170-006A; H09080170-007A; H09080170-008A; H09080170-009A; H09080170-010A; H09080170-011A; H09080170-012A; H09080170-013A; H09080170-014A; H09080170-015A; H09080170-016A

Run ID :Run Order: **IC101-H_090818A: 15** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E300.0**

Analysis Date: **08/18/09 15:08** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	4.9	1.0	5		**97**	90	110				
Sulfate	9.9	1.0	10	0.238	**97**	90	110				

Associated samples: H09080170-001A; H09080170-002A; H09080170-003A; H09080170-004A; H09080170-005A; H09080170-006A; H09080170-007A; H09080170-008A; H09080170-009A; H09080170-010A; H09080170-011A; H09080170-012A; H09080170-013A; H09080170-014A; H09080170-015A; H09080170-016A

Run ID :Run Order: **IC101-H_090818A: 16** SampType: **Method Blank** Sample ID: **MBLK** Method: **E300.0**

Analysis Date: **08/18/09 15:24** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.05									
Sulfate	0.2	0.1									

Associated samples: H09080170-001A; H09080170-002A; H09080170-003A; H09080170-004A; H09080170-005A; H09080170-006A; H09080170-007A; H09080170-008A; H09080170-009A; H09080170-010A; H09080170-011A; H09080170-012A; H09080170-013A; H09080170-014A; H09080170-015A; H09080170-016A

Run ID :Run Order: **IC101-H_090818A: 30** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV** Method: **E300.0**

Analysis Date: **08/18/09 19:14** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	23	1.0	25		**92**	90	110				
Sulfate	49	1.0	50		**98**	90	110				

Qualifiers: ND - Not Detected at the Reporting Limit; S - Spike Recovery outside accepted recovery limits; N - Analyte concentration was not sufficiently high to calculate RPD; J - Analyte detected below quantitation limits; R - RPD outside accepted recovery limits; A - Analyte concentration greater than three times the spike amount

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Work Order: H09080170
Project: 1054 Asarco E HLN Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: R56049

Date: *01-Sep-09*

Run ID :Run Order: **IC101-H_090818A: 30** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV** Method: **E300.0**
Analysis Date: **08/18/09 19:14** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: H09080170-001A; H09080170-002A; H09080170-003A; H09080170-004A; H09080170-005A

Run ID :Run Order: **IC101-H_090818A: 38** SampType: **Sample Matrix Spike** Sample ID: **H09080170-001A MS** Method: **E300.0**
Analysis Date: **08/18/09 21:25** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	27	1.0	25	5.688	84	90	110				S
Sulfate	110	1.0	50	76.61	71	90	110				S

Associated samples: H09080170-001A; H09080170-002A; H09080170-003A; H09080170-004A; H09080170-005A; H09080170-006A; H09080170-007A; H09080170-008A; H09080170-009A; H09080170-010A; H09080170-011A; H09080170-012A; H09080170-013A; H09080170-014A; H09080170-015A; H09080170-016A

Run ID :Run Order: **IC101-H_090818A: 39** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080170-001A MSD** Method: **E300.0**
Analysis Date: **08/18/09 21:42** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	26	1.0	25	5.688	83	90	110	26.56	0.5	20	S
Sulfate	110	1.0	50	76.61	72	90	110	112.3	0.5	20	S

Associated samples: H09080170-001A; H09080170-002A; H09080170-003A; H09080170-004A; H09080170-005A; H09080170-006A; H09080170-007A; H09080170-008A; H09080170-009A; H09080170-010A; H09080170-011A; H09080170-012A; H09080170-013A; H09080170-014A; H09080170-015A; H09080170-016A

Run ID :Run Order: **IC101-H_090818A: 44** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV** Method: **E300.0**
Analysis Date: **08/18/09 23:04** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	23	1.0	25		93	90	110				
Sulfate	49	1.0	50		99	90	110				

Associated samples: H09080170-006A; H09080170-007A; H09080170-008A; H09080170-009A; H09080170-010A; H09080170-011A; H09080170-012A; H09080170-013A; H09080170-014A; H09080170-015A

Run ID :Run Order: **IC101-H_090818A: 51** SampType: **Sample Matrix Spike** Sample ID: **H09080170-010A MS** Method: **E300.0**
Analysis Date: **08/19/09 00:59** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	42	1.0	25	16.81	100	90	110				
Sulfate	160	1.0	50	106.4	107	90	110				

Associated samples: H09080170-001A; H09080170-002A; H09080170-003A; H09080170-004A; H09080170-005A; H09080170-006A; H09080170-007A; H09080170-008A; H09080170-009A; H09080170-010A; H09080170-011A; H09080170-012A; H09080170-013A; H09080170-014A; H09080170-015A; H09080170-016A

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080170
Project: 1054 Asarco E HLN Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: R56049

Date: *01-Sep-09*

Run ID :Run Order: **IC101-H_090818A: 52** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080170-010A MSD** Method: **E300.0**

Analysis Date: **08/19/09 01:15** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	42	1.0	25	16.81	**99**	90	110	41.83	**0.5**	20	
Sulfate	160	1.0	50	106.4	**106**	90	110	159.9	**0.3**	20	

Associated samples: H09080170-001A; H09080170-002A; H09080170-003A; H09080170-004A; H09080170-005A; H09080170-006A; H09080170-007A; H09080170-008A; H09080170-009A; H09080170-010A; H09080170-011A; H09080170-012A; H09080170-013A; H09080170-014A; H09080170-015A; H09080170-016A

Run ID :Run Order: **IC101-H_090818A: 58** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV** Method: **E300.0**

Analysis Date: **08/19/09 02:54** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	23	1.0	25		**93**	90	110				
Sulfate	50	1.0	50		**99**	90	110				

Associated samples: H09080170-016A

Run ID :Run Order: **IC101-H_090818A: 61** SampType: **Sample Matrix Spike** Sample ID: **H09080170-016A MS** Method: **E300.0**

Analysis Date: **08/19/09 03:43** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	29	1.0	25	4.63	**98**	90	110				
Sulfate	51	1.0	50	0.331	**101**	90	110				

Associated samples: H09080170-001A; H09080170-002A; H09080170-003A; H09080170-004A; H09080170-005A; H09080170-006A; H09080170-007A; H09080170-008A; H09080170-009A; H09080170-010A; H09080170-011A; H09080170-012A; H09080170-013A; H09080170-014A; H09080170-015A; H09080170-016A

Run ID :Run Order: **IC101-H_090818A: 62** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080170-016A MSD** Method: **E300.0**

Analysis Date: **08/19/09 03:59** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	29	1.0	25	4.63	**97**	90	110	29.08	**0.6**	20	
Sulfate	51	1.0	50	0.331	**102**	90	110	51.04	**0.7**	20	

Associated samples: H09080170-001A; H09080170-002A; H09080170-003A; H09080170-004A; H09080170-005A; H09080170-006A; H09080170-007A; H09080170-008A; H09080170-009A; H09080170-010A; H09080170-011A; H09080170-012A; H09080170-013A; H09080170-014A; H09080170-015A; H09080170-016A

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

ENERGY LABORATORIES, INC. * 3161 E Lyndale (59604) * PO Box 5688 * Helena, MT 59601
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CLIENT: Asarco Consulting

Project: 1054 Asarco E HLN Quarterly Monitoring

Sample Delivery Group: H09080170

Date: *06-Nov-09*

CASE NARRATIVE

Iron was originally reported at 0.03 mg/L and Se at 0.005 mg/L on some samples. Report revised to reflect Iron at 0.02 mg/L and Se at 0.001 mg/L

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ANALYTICAL SUMMARY REPORT

September 07, 2009

Asarco Consulting
5219 N Shirley St
Ruston, WA 98407

Workorder No.: H09080188 Quote ID: H454 - Revised Quarterly Monitoring Program August 2009

Project Name: 1054 Asarco E Helena Quarterly Monitoring

Energy Laboratories Inc received the following 15 samples for Asarco Consulting on 8/14/2009 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H09080188-001	AEH-0908-116	08/14/09 7:45	08/14/09	Aqueous	Metals by ICP/ICPMS, Dissolved Alkalinity Anion - Cation Balance Conductivity Anions by Ion Chromatography pH Solids, Total Dissolved Solids, Total Suspended
H09080188-002	AEH-0908-117	08/14/09 8:55	08/14/09	Aqueous	Same As Above
H09080188-003	AEH-0908-118	08/14/09 9:35	08/14/09	Aqueous	Same As Above
H09080188-004	AEH-0908-119	08/14/09 10:15	08/14/09	Aqueous	Same As Above
H09080188-005	AEH-0908-120	08/14/09 10:55	08/14/09	Aqueous	Same As Above
H09080188-006	AEH-0908-121	08/14/09 11:05	08/14/09	Aqueous	Same As Above
H09080188-007	AEH-0908-122	08/14/09 11:15	08/14/09	Aqueous	Same As Above
H09080188-008	AEH-0908-123	08/14/09 11:35	08/14/09	Aqueous	Same As Above
H09080188-009	AEH-0908-124	08/14/09 12:50	08/14/09	Aqueous	Same As Above
H09080188-010	AEH-0908-125	08/14/09 13:20	08/14/09	Aqueous	Same As Above
H09080188-011	AEH-0908-126	08/14/09 13:30	08/14/09	Aqueous	Same As Above
H09080188-012	AEH-0908-127	08/14/09 13:50	08/14/09	Aqueous	Same As Above
H09080188-013	AEH-0908-128	08/14/09 14:15	08/14/09	Aqueous	Same As Above
H09080188-014	AEH-0908-129	08/14/09 14:45	08/14/09	Aqueous	Same As Above
H09080188-015	AEH-0908-130	08/14/09 15:40	08/14/09	Aqueous	Same As Above

BRANCH LABORATORY LOCATIONS
eli-b - Energy Laboratories, Inc. - Billings, MT, EPA # MT00005
eli-c - Energy Laboratories, Inc. - Casper, WY, EPA# WY00002
eli-g - Energy Laboratories, Inc. - Gillette, WY, EPA# WY00006
eli-h - Energy Laboratories, Inc. - Helena, MT, EPA# MT00945
eli-r - Energy Laboratories, Inc. - Rapid City, SD, EPA# SD00012
eli-t - Energy Laboratories, Inc. - College Station, TX, EPA# TX01520

SUBCONTRACTING ANALYSIS
Subcontracting of sample analyses to an outside laboratory may be required. If so, ENERGY LABORATORIES, INC. will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories are indicated within the Laboratory Analytical Report.

SAMPLE TEMPERATURE COMPLIANCE: 4°C (±2°C)
Temperature of samples received may not be considered properly preserved by accepted standards. Samples that

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ANALYTICAL SUMMARY REPORT

are hand delivered immediately after collection shall be considered acceptable if there is evidence that the chilling process has begun.

ELI appreciates the opportunity to provide you with this analytical service. For additional information, including certifications, and analytical services visit our web page www.energylab.com.

Report Approved By: Jonathan D. Hager

Digitally signed by Jonathan D. Hager
DN: cn=Jonathan D. Hager, o=Energy Laboratory-Helena, ou=Assistant Lab Manager, email=jhager@energylab.com, c=US
Date: 2009.09.09 07:30:22 -06'00'

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-116
Lab ID: H09080188-001
Matrix: Aqueous

Project: 1054 Asarco E Helena Quarterly Monitoring
Collection Date: 08/14/09 07:45 **DateReceived:** 08/14/09
Report Date: 09/07/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.6	s.u.		0.1		A4500-H B	08/17/09 11:17 / JG		PH_090817A	7	090817A-PH-W
Conductivity	587	umhos/cm		1		A2510 B	08/17/09 10:24 / JG		COND_090817A	3	590817A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/19/09 12:50 / hm		SOLIDS_090819B	3	090819A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	378	mg/L		10		A2540 C	08/19/09 13:29 / JG		SOLIDS_090819A	3	090819A-SLDS-TDS-
INORGANICS											
Alkalinity, Total as CaCO3	170	mg/L		1		A2320 B	08/25/09 13:45 / sld		TITTR_090825A	11	090825A-ALK-W
Bicarbonate as HCO3	210	mg/L		1		A2320 B	08/25/09 13:45 / sld		TITTR_090825A	11	090825A-ALK-W
Chloride	23	mg/L		1		E300.0	08/19/09 14:07 / hm		IC101-H_090818A	99	R56049
Sulfate	94	mg/L		1		E300.0	08/19/09 14:07 / hm		IC101-H_090818A	99	R56049
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.001		E200.8	08/22/09 12:58 / eli-b		SUB-B134750	74	B_R134750
Arsenic	ND	mg/L		0.005		E200.8	08/21/09 07:09 / eli-b		SUB-B134713	24	B_R134713
Cadmium	ND	mg/L		0.001		E200.7	08/20/09 13:27 / eli-b		SUB-B134666	8	B_R134666
Calcium	61	mg/L		1		E200.7	08/20/09 13:27 / eli-b		SUB-B134666	8	B_R134666
Iron	ND	mg/L		0.02		E200.7	08/20/09 13:27 / eli-b		SUB-B134666	8	B_R134666
Lead	ND	mg/L		0.005		E200.8	08/22/09 12:58 / eli-b		SUB-B134750	74	B_R134750
Magnesium	21	mg/L		1		E200.7	08/20/09 13:27 / eli-b		SUB-B134666	8	B_R134666
Manganese	ND	mg/L		0.01		E200.7	08/20/09 13:27 / eli-b		SUB-B134666	8	B_R134666
Potassium	3	mg/L		1		E200.7	08/20/09 13:27 / eli-b		SUB-B134666	8	B_R134666
Selenium	0.006	mg/L		0.001		E200.8	08/22/09 12:58 / eli-b		SUB-B134750	74	B_R134750
Sodium	28	mg/L		1		E200.7	08/20/09 13:27 / eli-b		SUB-B134666	8	B_R134666
Tin	ND	mg/L		0.1		E200.7	08/20/09 13:27 / eli-b		SUB-B134666	8	B_R134666

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-117
Lab ID: H09080188-002
Matrix: Aqueous

Project: 1054 Asarco E Helena Quarterly Monitoring
Collection Date: 08/14/09 08:55 **DateReceived:** 08/14/09
Report Date: 09/07/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.0	s.u.		0.1		A4500-H B	08/17/09 11:20 / JG		PH_090817A : 8		090817A-PH-W
Conductivity	325	umhos/cm		1		A2510 B	08/17/09 10:26 / JG		COND_090817A : 3		690817A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/19/09 12:50 / hm		SOLIDS_090819B : 4		090819A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	230	mg/L		10		A2540 C	08/19/09 13:30 / JG		SOLIDS_090819A : 4		090819A-SLDS-TDS-
INORGANICS											
Alkalinity, Total as CaCO3	120	mg/L		1		A2320 B	08/25/09 13:48 / sld		TITTR_090825A : 12		090825A-ALK-W
Bicarbonate as HCO3	140	mg/L		1		A2320 B	08/25/09 13:48 / sld		TITTR_090825A : 12		090825A-ALK-W
Chloride	3	mg/L		1		E300.0	08/19/09 14:56 / hm		IC101-H_090818A : 102		R56049
Sulfate	38	mg/L		1		E300.0	08/19/09 14:56 / hm		IC101-H_090818A : 102		R56049
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.001		E200.8	08/25/09 15:33 / eli-b		SUB-B134929 : 22		B_R134929
Arsenic	0.007	mg/L		0.005		E200.8	08/21/09 07:25 / eli-b		SUB-B134713 : 25		B_R134713
Cadmium	ND	mg/L		0.001		E200.7	08/20/09 13:39 / eli-b		SUB-B134666 : 9		B_R134666
Calcium	32	mg/L		1		E200.7	08/20/09 13:39 / eli-b		SUB-B134666 : 9		B_R134666
Iron	ND	mg/L		0.02		E200.7	08/20/09 13:39 / eli-b		SUB-B134666 : 9		B_R134666
Lead	ND	mg/L		0.005		E200.8	08/24/09 17:49 / eli-b		SUB-B134849 : 29		B_R134849
Magnesium	10	mg/L		1		E200.7	08/20/09 13:39 / eli-b		SUB-B134666 : 9		B_R134666
Manganese	ND	mg/L		0.01		E200.7	08/20/09 13:39 / eli-b		SUB-B134666 : 9		B_R134666
Potassium	5	mg/L		1		E200.7	08/20/09 13:39 / eli-b		SUB-B134666 : 9		B_R134666
Selenium	ND	mg/L		0.001		E200.8	08/24/09 17:49 / eli-b		SUB-B134849 : 29		B_R134849
Sodium	17	mg/L		1		E200.7	08/20/09 13:39 / eli-b		SUB-B134666 : 9		B_R134666
Tin	ND	mg/L		0.1		E200.7	08/20/09 13:39 / eli-b		SUB-B134666 : 9		B_R134666

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-118
Lab ID: H09080188-003
Matrix: Aqueous

Project: 1054 Asarco E Helena Quarterly Monitoring
Collection Date: 08/14/09 09:35 **DateReceived:** 08/14/09
Report Date: 09/07/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.9	s.u.		0.1		A4500-H B	08/17/09 11:23 / JG		PH_090817A	9	090817A-PH-W
Conductivity	606	umhos/cm		1		A2510 B	08/17/09 10:28 / JG		COND_090817A	3	890817A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/19/09 12:51 / hm		SOLIDS_090819B	5	090819A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	409	mg/L		10		A2540 C	08/19/09 13:30 / JG		SOLIDS_090819A	5	090819A-SLDS-TDS-
INORGANICS											
Alkalinity, Total as CaCO3	160	mg/L		1		A2320 B	08/25/09 13:51 / sld		TITTR_090825A	13	090825A-ALK-W
Bicarbonate as HCO3	200	mg/L		1		A2320 B	08/25/09 13:51 / sld		TITTR_090825A	13	090825A-ALK-W
Chloride	18	mg/L		1		E300.0	08/19/09 15:13 / hm		IC101-H_090818A	103	R56049
Sulfate	120	mg/L		1		E300.0	08/19/09 15:13 / hm		IC101-H_090818A	103	R56049
METALS, DISSOLVED											
Aluminum	0.002	mg/L		0.001		E200.8	08/22/09 13:34 / eli-b		SUB-B134750	76	B_R134750
Arsenic	ND	mg/L		0.005		E200.8	08/21/09 07:29 / eli-b		SUB-B134713	26	B_R134713
Cadmium	ND	mg/L		0.001		E200.7	08/20/09 13:47 / eli-b		SUB-B134666	10	B_R134666
Calcium	59	mg/L		1		E200.7	08/20/09 13:47 / eli-b		SUB-B134666	10	B_R134666
Iron	ND	mg/L		0.02		E200.7	08/20/09 13:47 / eli-b		SUB-B134666	10	B_R134666
Lead	ND	mg/L		0.005		E200.8	08/21/09 07:29 / eli-b		SUB-B134713	26	B_R134713
Magnesium	25	mg/L		1		E200.7	08/20/09 13:47 / eli-b		SUB-B134666	10	B_R134666
Manganese	ND	mg/L		0.01		E200.7	08/20/09 13:47 / eli-b		SUB-B134666	10	B_R134666
Potassium	4	mg/L		1		E200.7	08/20/09 13:47 / eli-b		SUB-B134666	10	B_R134666
Selenium	0.032	mg/L		0.001		E200.8	08/22/09 13:34 / eli-b		SUB-B134750	76	B_R134750
Sodium	28	mg/L		1		E200.7	08/20/09 13:47 / eli-b		SUB-B134666	10	B_R134666
Tin	ND	mg/L		0.1		E200.7	08/20/09 13:47 / eli-b		SUB-B134666	10	B_R134666

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-119
Lab ID: H09080188-004
Matrix: Aqueous

Project: 1054 Asarco E Helena Quarterly Monitoring
Collection Date: 08/14/09 10:15 **DateReceived:** 08/14/09
Report Date: 09/07/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.5	s.u.		0.1		A4500-H B	08/17/09 11:27 / JG		PH_090817A	10	090817A-PH-W
Conductivity	961	umhos/cm		1		A2510 B	08/17/09 10:29 / JG		COND_090817A	3	990817A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/19/09 12:52 / hm		SOLIDS_090819B	6	090819A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	692	mg/L		10		A2540 C	08/19/09 13:30 / JG		SOLIDS_090819A	6	090819A-SLDS-TDS-
INORGANICS											
Alkalinity, Total as CaCO3	120	mg/L		1		A2320 B	08/25/09 14:07 / sld		TITTR_090825A	16	090825A-ALK-W
Bicarbonate as HCO3	150	mg/L		1		A2320 B	08/25/09 14:07 / sld		TITTR_090825A	16	090825A-ALK-W
Chloride	29	mg/L		1		E300.0	08/19/09 15:29 / hm		IC101-H_090818A	104	R56049
Sulfate	330	mg/L		1		E300.0	08/19/09 15:29 / hm		IC101-H_090818A	104	R56049
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.001		E200.8	08/22/09 13:38 / eli-b		SUB-B134750	77	B_R134750
Arsenic	ND	mg/L		0.005		E200.8	08/21/09 07:50 / eli-b		SUB-B134713	27	B_R134713
Cadmium	ND	mg/L		0.001		E200.7	08/20/09 13:51 / eli-b		SUB-B134666	11	B_R134666
Calcium	89	mg/L		1		E200.7	08/20/09 13:51 / eli-b		SUB-B134666	11	B_R134666
Iron	ND	mg/L		0.02		E200.7	08/20/09 13:51 / eli-b		SUB-B134666	11	B_R134666
Lead	ND	mg/L		0.005		E200.8	08/22/09 13:38 / eli-b		SUB-B134750	77	B_R134750
Magnesium	23	mg/L		1		E200.7	08/20/09 13:51 / eli-b		SUB-B134666	11	B_R134666
Manganese	ND	mg/L		0.01		E200.7	08/20/09 13:51 / eli-b		SUB-B134666	11	B_R134666
Potassium	5	mg/L		1		E200.7	08/20/09 13:51 / eli-b		SUB-B134666	11	B_R134666
Selenium	0.060	mg/L		0.001		E200.8	08/21/09 07:50 / eli-b		SUB-B134713	27	B_R134713
Sodium	82	mg/L		1		E200.7	08/20/09 13:51 / eli-b		SUB-B134666	11	B_R134666
Tin	ND	mg/L		0.1		E200.7	08/20/09 13:51 / eli-b		SUB-B134666	11	B_R134666

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-120
Lab ID: H09080188-005
Matrix: Aqueous

Project: 1054 Asarco E Helena Quarterly Monitoring
Collection Date: 08/14/09 10:55 **DateReceived:** 08/14/09
Report Date: 09/07/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.2	s.u.		0.1		A4500-H B	08/17/09 11:29 / JG		PH_090817A	11	090817A-PH-W
Conductivity	1830	umhos/cm		1		A2510 B	08/17/09 10:30 / JG		COND_090817A	4	090817A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/19/09 12:52 / hm		SOLIDS_090819B	7	090819A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	1490	mg/L		10		A2540 C	08/19/09 13:31 / JG		SOLIDS_090819A	7	090819A-SLDS-TDS-
INORGANICS											
Alkalinity, Total as CaCO3	130	mg/L		1		A2320 B	08/25/09 14:10 / sld		TITTR_090825A	17	090825A-ALK-W
Bicarbonate as HCO3	160	mg/L		1		A2320 B	08/25/09 14:10 / sld		TITTR_090825A	17	090825A-ALK-W
Chloride	68	mg/L		1		E300.0	08/19/09 15:46 / hm		IC101-H_090818A	105	R56049
Sulfate	850	mg/L		1		E300.0	08/19/09 15:46 / hm		IC101-H_090818A	105	R56049
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.001		E200.8	08/22/09 13:42 / eli-b		SUB-B134750	78	B_R134750
Arsenic	0.007	mg/L		0.005		E200.8	08/22/09 13:42 / eli-b		SUB-B134750	78	B_R134750
Cadmium	ND	mg/L		0.001		E200.8	08/21/09 07:54 / eli-b		SUB-B134713	28	B_R134713
Calcium	245	mg/L		1		E200.7	08/20/09 13:55 / eli-b		SUB-B134666	12	B_R134666
Iron	ND	mg/L		0.02		E200.7	08/20/09 13:55 / eli-b		SUB-B134666	12	B_R134666
Lead	ND	mg/L		0.005		E200.8	08/22/09 13:42 / eli-b		SUB-B134750	78	B_R134750
Magnesium	52	mg/L		1		E200.7	08/20/09 13:55 / eli-b		SUB-B134666	12	B_R134666
Manganese	ND	mg/L		0.01		E200.7	08/20/09 13:55 / eli-b		SUB-B134666	12	B_R134666
Potassium	7	mg/L		1		E200.7	08/20/09 13:55 / eli-b		SUB-B134666	12	B_R134666
Selenium	0.130	mg/L		0.001		E200.8	08/21/09 07:54 / eli-b		SUB-B134713	28	B_R134713
Sodium	118	mg/L		1		E200.7	08/20/09 13:55 / eli-b		SUB-B134666	12	B_R134666
Tin	ND	mg/L		0.1		E200.7	08/20/09 13:55 / eli-b		SUB-B134666	12	B_R134666

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-121
Lab ID: H09080188-006
Matrix: Aqueous

Project: 1054 Asarco E Helena Quarterly Monitoring
Collection Date: 08/14/09 11:05 **DateReceived:** 08/14/09
Report Date: 09/07/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.1	s.u.		0.1		A4500-H B	08/17/09 11:31 / JG		PH_090817A	12	090817A-PH-W
Conductivity	1830	umhos/cm		1		A2510 B	08/17/09 10:31 / JG		COND_090817A	4	190817A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/19/09 12:54 / hm		SOLIDS_090819B	9	090819A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	1540	mg/L		10		A2540 C	08/19/09 13:33 / JG		SOLIDS_090819A	10	090819A-SLDS-TDS-
INORGANICS											
Alkalinity, Total as CaCO3	130	mg/L		1		A2320 B	08/25/09 14:15 / sld		TITTR_090825A	18	090825A-ALK-W
Bicarbonate as HCO3	160	mg/L		1		A2320 B	08/25/09 14:15 / sld		TITTR_090825A	18	090825A-ALK-W
Chloride	68	mg/L		1		E300.0	08/19/09 16:02 / hm		IC101-H_090818A	106	R56049
Sulfate	850	mg/L		1		E300.0	08/19/09 16:02 / hm		IC101-H_090818A	106	R56049
METALS, DISSOLVED											
Aluminum	0.002	mg/L		0.001		E200.8	08/21/09 16:14 / eli-b		SUB-B134750	79	B_R134750
Arsenic	0.007	mg/L		0.005		E200.8	08/21/09 16:14 / eli-b		SUB-B134750	79	B_R134750
Cadmium	ND	mg/L		0.001		E200.8	08/21/09 16:14 / eli-b		SUB-B134750	79	B_R134750
Calcium	246	mg/L		1		E200.7	08/20/09 13:59 / eli-b		SUB-B134666	13	B_R134666
Iron	ND	mg/L		0.02		E200.7	08/20/09 13:59 / eli-b		SUB-B134666	13	B_R134666
Lead	ND	mg/L		0.005		E200.8	08/21/09 16:14 / eli-b		SUB-B134750	79	B_R134750
Magnesium	53	mg/L		1		E200.7	08/20/09 13:59 / eli-b		SUB-B134666	13	B_R134666
Manganese	ND	mg/L		0.01		E200.7	08/20/09 13:59 / eli-b		SUB-B134666	13	B_R134666
Potassium	7	mg/L		1		E200.7	08/20/09 13:59 / eli-b		SUB-B134666	13	B_R134666
Selenium	0.136	mg/L		0.001		E200.8	08/21/09 16:14 / eli-b		SUB-B134750	79	B_R134750
Sodium	118	mg/L		1		E200.7	08/20/09 13:59 / eli-b		SUB-B134666	13	B_R134666
Tin	ND	mg/L		0.1		E200.7	08/20/09 13:59 / eli-b		SUB-B134666	13	B_R134666

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-122
Lab ID: H09080188-007
Matrix: Aqueous

Project: 1054 Asarco E Helena Quarterly Monitoring
Collection Date: 08/14/09 11:15 **DateReceived:** 08/14/09
Report Date: 09/07/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.4	s.u.		0.1		A4500-H B	08/17/09 11:37 / JG		PH_090817A	14	090817A-PH-W
Conductivity	8	umhos/cm		1		A2510 B	08/17/09 10:32 / JG		COND_090817A	4	290817A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/19/09 12:54 / hm		SOLIDS_090819B	10	090819A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	29	mg/L		10		A2540 C	08/21/09 09:38 / hm		SOLIDS_090821A	3	090821A-SLDS-TDS-
-The TDS was re-analyzed to confirm detection. The TDS value duplicated.											
INORGANICS											
Alkalinity, Total as CaCO3	ND	mg/L		1		A2320 B	08/25/09 14:45 / sld		TITTR_090825A	19	090825A-ALK-W
Bicarbonate as HCO3	ND	mg/L		1		A2320 B	08/25/09 14:45 / sld		TITTR_090825A	19	090825A-ALK-W
Chloride	ND	mg/L		1		E300.0	08/19/09 16:18 / hm		IC101-H_090818A	107	R56049
Sulfate	ND	mg/L		1		E300.0	08/19/09 16:18 / hm		IC101-H_090818A	107	R56049
METALS, DISSOLVED											
Aluminum	0.005	mg/L		0.001		E200.8	08/26/09 19:49 / eli-b		SUB-B134969	10	B_R134969
Arsenic	ND	mg/L		0.005		E200.8	08/21/09 16:18 / eli-b		SUB-B134750	80	B_R134750
Cadmium	ND	mg/L		0.001		E200.7	08/20/09 14:31 / eli-b		SUB-B134666	14	B_R134666
Calcium	ND	mg/L		1		E200.7	08/20/09 14:31 / eli-b		SUB-B134666	14	B_R134666
Iron	ND	mg/L		0.02		E200.7	08/20/09 14:31 / eli-b		SUB-B134666	14	B_R134666
Lead	ND	mg/L		0.005		E200.8	08/21/09 16:18 / eli-b		SUB-B134750	80	B_R134750
Magnesium	ND	mg/L		1		E200.7	08/20/09 14:31 / eli-b		SUB-B134666	14	B_R134666
Manganese	ND	mg/L		0.01		E200.7	08/20/09 14:31 / eli-b		SUB-B134666	14	B_R134666
Potassium	ND	mg/L		1		E200.7	08/20/09 14:31 / eli-b		SUB-B134666	14	B_R134666
Selenium	ND	mg/L		0.001		E200.8	08/21/09 16:18 / eli-b		SUB-B134750	80	B_R134750
Sodium	ND	mg/L		1		E200.7	08/20/09 14:31 / eli-b		SUB-B134666	14	B_R134666
Tin	ND	mg/L		0.1		E200.7	08/20/09 14:31 / eli-b		SUB-B134666	14	B_R134666

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-123
Lab ID: H09080188-008
Matrix: Aqueous

Project: 1054 Asarco E Helena Quarterly Monitoring
Collection Date: 08/14/09 11:35 **DateReceived:** 08/14/09
Report Date: 09/07/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.6	s.u.		0.1		A4500-H B	08/17/09 11:40 / JG		PH_090817A	15	090817A-PH-W
Conductivity	992	umhos/cm		1		A2510 B	08/17/09 10:34 / JG		COND_090817A	4	390817A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/19/09 12:55 / hm		SOLIDS_090819B	11	090819A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	687	mg/L		10		A2540 C	08/19/09 13:34 / JG		SOLIDS_090819A	12	090819A-SLDS-TDS-
INORGANICS											
Alkalinity, Total as CaCO3	170	mg/L		1		A2320 B	08/25/09 15:00 / sld		TITTR_090825A	20	090825A-ALK-W
Bicarbonate as HCO3	210	mg/L		1		A2320 B	08/25/09 15:00 / sld		TITTR_090825A	20	090825A-ALK-W
Chloride	43	mg/L		1		E300.0	08/19/09 17:08 / hm		IC101-H_090818A	110	R56049
Sulfate	270	mg/L		1		E300.0	08/19/09 17:08 / hm		IC101-H_090818A	110	R56049
METALS, DISSOLVED											
Aluminum	0.001	mg/L		0.001		E200.8	08/21/09 16:31 / eli-b		SUB-B134750	81	B_R134750
Arsenic	ND	mg/L		0.005		E200.8	08/21/09 16:31 / eli-b		SUB-B134750	81	B_R134750
Cadmium	ND	mg/L		0.001		E200.7	08/20/09 14:35 / eli-b		SUB-B134666	15	B_R134666
Calcium	84	mg/L		1		E200.7	08/20/09 14:35 / eli-b		SUB-B134666	15	B_R134666
Iron	ND	mg/L		0.02		E200.7	08/20/09 14:35 / eli-b		SUB-B134666	15	B_R134666
Lead	ND	mg/L		0.005		E200.8	08/21/09 16:31 / eli-b		SUB-B134750	81	B_R134750
Magnesium	27	mg/L		1		E200.7	08/20/09 14:35 / eli-b		SUB-B134666	15	B_R134666
Manganese	ND	mg/L		0.01		E200.7	08/20/09 14:35 / eli-b		SUB-B134666	15	B_R134666
Potassium	5	mg/L		1		E200.7	08/20/09 14:35 / eli-b		SUB-B134666	15	B_R134666
Selenium	0.194	mg/L		0.001		E200.8	08/21/09 16:31 / eli-b		SUB-B134750	81	B_R134750
Sodium	88	mg/L		1		E200.7	08/20/09 14:35 / eli-b		SUB-B134666	15	B_R134666
Tin	ND	mg/L		0.1		E200.7	08/20/09 14:35 / eli-b		SUB-B134666	15	B_R134666

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-124
Lab ID: H09080188-009
Matrix: Aqueous

Project: 1054 Asarco E Helena Quarterly Monitoring
Collection Date: 08/14/09 12:50 **DateReceived:** 08/14/09
Report Date: 09/07/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.7	s.u.		0.1		A4500-H B	08/17/09 11:42 / JG		PH_090817A	16	090817A-PH-W
Conductivity	537	umhos/cm		1		A2510 B	08/17/09 10:37 / JG		COND_090817A	4	490817A-COND-PROB
Solids, Total Suspended TSS @ 105 C	67	mg/L		10		A2540 D	08/19/09 12:55 / hm		SOLIDS_090819B	12	090819A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	357	mg/L		10		A2540 C	08/19/09 13:34 / JG		SOLIDS_090819A	13	090819A-SLDS-TDS-
INORGANICS											
Alkalinity, Total as CaCO3	140	mg/L		1		A2320 B	08/25/09 15:04 / sld		TITTR_090825A	23	090825A-ALK-W
Bicarbonate as HCO3	170	mg/L		1		A2320 B	08/25/09 15:04 / sld		TITTR_090825A	23	090825A-ALK-W
Chloride	17	mg/L		1		E300.0	08/19/09 17:24 / hm		IC101-H_090818A	111	R56049
Sulfate	99	mg/L		1		E300.0	08/19/09 17:24 / hm		IC101-H_090818A	111	R56049
METALS, DISSOLVED											
Aluminum	0.020	mg/L		0.001		E200.8	08/21/09 16:35 / eli-b		SUB-B134750	82	B_R134750
Arsenic	ND	mg/L		0.005		E200.8	08/21/09 16:35 / eli-b		SUB-B134750	82	B_R134750
Cadmium	ND	mg/L		0.001		E200.7	08/20/09 14:39 / eli-b		SUB-B134666	16	B_R134666
Calcium	57	mg/L		1		E200.7	08/20/09 14:39 / eli-b		SUB-B134666	16	B_R134666
Iron	ND	mg/L		0.02		E200.7	08/20/09 14:39 / eli-b		SUB-B134666	16	B_R134666
Lead	ND	mg/L		0.005		E200.8	08/21/09 16:35 / eli-b		SUB-B134750	82	B_R134750
Magnesium	17	mg/L		1		E200.7	08/20/09 14:39 / eli-b		SUB-B134666	16	B_R134666
Manganese	ND	mg/L		0.01		E200.7	08/20/09 14:39 / eli-b		SUB-B134666	16	B_R134666
Potassium	4	mg/L		1		E200.7	08/20/09 14:39 / eli-b		SUB-B134666	16	B_R134666
Selenium	0.027	mg/L		0.001		E200.8	08/21/09 16:35 / eli-b		SUB-B134750	82	B_R134750
Sodium	24	mg/L		1		E200.7	08/20/09 14:39 / eli-b		SUB-B134666	16	B_R134666
Tin	ND	mg/L		0.1		E200.7	08/20/09 14:39 / eli-b		SUB-B134666	16	B_R134666

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-125
Lab ID: H09080188-010
Matrix: Aqueous

Project: 1054 Asarco E Helena Quarterly Monitoring
Collection Date: 08/14/09 13:20 **DateReceived:** 08/14/09
Report Date: 09/07/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.1	s.u.		0.1		A4500-H B	08/17/09 11:47 / JG		PH_090817A	17	090817A-PH-W
Conductivity	1660	umhos/cm		1		A2510 B	08/17/09 10:38 / JG		COND_090817A	45	90817A-COND-PROB
Solids, Total Suspended TSS @ 105 C	32	mg/L		10		A2540 D	08/19/09 12:56 / hm		SOLIDS_090819B	13	090819A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	1240	mg/L		10		A2540 C	08/19/09 13:35 / JG		SOLIDS_090819A	14	090819A-SLDS-TDS-
INORGANICS											
Alkalinity, Total as CaCO3	170	mg/L		1		A2320 B	08/25/09 15:08 / sld		TITTR_090825A	24	090825A-ALK-W
Bicarbonate as HCO3	210	mg/L		1		A2320 B	08/25/09 15:08 / sld		TITTR_090825A	24	090825A-ALK-W
Chloride	74	mg/L		1		E300.0	08/19/09 17:40 / hm		IC101-H_090818A	112	R56049
Sulfate	620	mg/L		1		E300.0	08/19/09 17:40 / hm		IC101-H_090818A	112	R56049
METALS, DISSOLVED											
Aluminum	0.006	mg/L		0.001		E200.8	08/21/09 16:39 / eli-b		SUB-B134750	83	B_R134750
Arsenic	0.007	mg/L		0.005		E200.8	08/21/09 16:39 / eli-b		SUB-B134750	83	B_R134750
Cadmium	ND	mg/L		0.001		E200.8	08/21/09 16:39 / eli-b		SUB-B134750	83	B_R134750
Calcium	150	mg/L		1		E200.7	08/20/09 14:43 / eli-b		SUB-B134666	17	B_R134666
Iron	ND	mg/L		0.02		E200.7	08/20/09 14:43 / eli-b		SUB-B134666	17	B_R134666
Lead	ND	mg/L		0.005		E200.8	08/21/09 16:39 / eli-b		SUB-B134750	83	B_R134750
Magnesium	33	mg/L		1		E200.7	08/20/09 14:43 / eli-b		SUB-B134666	17	B_R134666
Manganese	ND	mg/L		0.01		E200.7	08/20/09 14:43 / eli-b		SUB-B134666	17	B_R134666
Potassium	7	mg/L		1		E200.7	08/20/09 14:43 / eli-b		SUB-B134666	17	B_R134666
Selenium	0.174	mg/L		0.001		E200.8	08/21/09 16:39 / eli-b		SUB-B134750	83	B_R134750
Sodium	181	mg/L		1		E200.7	08/20/09 14:43 / eli-b		SUB-B134666	17	B_R134666
Tin	ND	mg/L		0.1		E200.7	08/20/09 14:43 / eli-b		SUB-B134666	17	B_R134666

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-126
Lab ID: H09080188-011
Matrix: Aqueous

Project: 1054 Asarco E Helena Quarterly Monitoring
Collection Date: 08/14/09 13:30 **DateReceived:** 08/14/09
Report Date: 09/07/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.4	s.u.		0.1		A4500-H B	08/17/09 11:55 / JG		PH_090817A : 19		090817A-PH-W
Conductivity	4	umhos/cm		1		A2510 B	08/17/09 10:41 / JG		COND_090817A : 4		790817A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/19/09 12:57 / hm		SOLIDS_090819B : 14		090819A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	13	mg/L		10		A2540 C	08/21/09 09:39 / hm		SOLIDS_090821A : 4		090821A-SLDS-TDS-
-The TDS was re-analyzed to confirm detection. The TDS value duplicated.											
INORGANICS											
Alkalinity, Total as CaCO3	ND	mg/L		1		A2320 B	08/25/09 15:10 / sld		TITTR_090825A : 25		090825A-ALK-W
Bicarbonate as HCO3	ND	mg/L		1		A2320 B	08/25/09 15:10 / sld		TITTR_090825A : 25		090825A-ALK-W
Chloride	ND	mg/L		1		E300.0	08/19/09 17:57 / hm		IC101-H_090818A : 113		R56049
Sulfate	ND	mg/L		1		E300.0	08/19/09 17:57 / hm		IC101-H_090818A : 113		R56049
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.001		E200.8	08/26/09 19:53 / eli-b		SUB-B134969 : 12		B_R134969
Arsenic	ND	mg/L		0.005		E200.8	08/21/09 16:43 / eli-b		SUB-B134750 : 84		B_R134750
Cadmium	ND	mg/L		0.001		E200.7	08/20/09 14:47 / eli-b		SUB-B134666 : 18		B_R134666
Calcium	ND	mg/L		1		E200.7	08/20/09 14:47 / eli-b		SUB-B134666 : 18		B_R134666
Iron	ND	mg/L		0.02		E200.7	08/20/09 14:47 / eli-b		SUB-B134666 : 18		B_R134666
Lead	ND	mg/L		0.005		E200.8	08/21/09 16:43 / eli-b		SUB-B134750 : 84		B_R134750
Magnesium	ND	mg/L		1		E200.7	08/20/09 14:47 / eli-b		SUB-B134666 : 18		B_R134666
Manganese	ND	mg/L		0.01		E200.7	08/20/09 14:47 / eli-b		SUB-B134666 : 18		B_R134666
Potassium	ND	mg/L		1		E200.7	08/20/09 14:47 / eli-b		SUB-B134666 : 18		B_R134666
Selenium	ND	mg/L		0.001		E200.8	08/21/09 16:43 / eli-b		SUB-B134750 : 84		B_R134750
Sodium	ND	mg/L		1		E200.7	08/20/09 14:47 / eli-b		SUB-B134666 : 18		B_R134666
Tin	ND	mg/L		0.1		E200.7	08/20/09 14:47 / eli-b		SUB-B134666 : 18		B_R134666

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-127
Lab ID: H09080188-012
Matrix: Aqueous

Project: 1054 Asarco E Helena Quarterly Monitoring
Collection Date: 08/14/09 13:50 **DateReceived:** 08/14/09
Report Date: 09/07/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.8	s.u.		0.1		A4500-H B	08/17/09 11:57 / JG		PH_090817A	20	090817A-PH-W
Conductivity	1480	umhos/cm		1		A2510 B	08/17/09 10:42 / JG		COND_090817A	4	890817A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/19/09 12:58 / hm		SOLIDS_090819B	15	090819A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	1040	mg/L		10		A2540 C	08/19/09 13:38 / JG		SOLIDS_090819A	16	090819A-SLDS-TDS-
INORGANICS											
Alkalinity, Total as CaCO3	150	mg/L		1		A2320 B	08/25/09 15:15 / sld		TITTR_090825A	26	090825A-ALK-W
Bicarbonate as HCO3	180	mg/L		1		A2320 B	08/25/09 15:15 / sld		TITTR_090825A	26	090825A-ALK-W
Chloride	57	mg/L		1		E300.0	08/19/09 18:46 / hm		IC101-H_090818A	116	R56049
Sulfate	530	mg/L		1		E300.0	08/19/09 18:46 / hm		IC101-H_090818A	116	R56049
METALS, DISSOLVED											
Aluminum	0.005	mg/L		0.001		E200.8	08/21/09 18:45 / eli-b		SUB-B134750	85	B_R134750
Arsenic	0.006	mg/L		0.005		E200.8	08/21/09 18:45 / eli-b		SUB-B134750	85	B_R134750
Cadmium	ND	mg/L		0.001		E200.8	08/21/09 18:45 / eli-b		SUB-B134750	85	B_R134750
Calcium	88	mg/L		1		E200.7	08/20/09 14:59 / eli-b		SUB-B134666	19	B_R134666
Iron	ND	mg/L		0.02		E200.7	08/20/09 14:59 / eli-b		SUB-B134666	19	B_R134666
Lead	ND	mg/L		0.005		E200.8	08/21/09 18:45 / eli-b		SUB-B134750	85	B_R134750
Magnesium	20	mg/L		1		E200.7	08/20/09 14:59 / eli-b		SUB-B134666	19	B_R134666
Manganese	ND	mg/L		0.01		E200.7	08/20/09 14:59 / eli-b		SUB-B134666	19	B_R134666
Potassium	7	mg/L		1		E200.7	08/20/09 14:59 / eli-b		SUB-B134666	19	B_R134666
Selenium	0.213	mg/L		0.001		E200.8	08/21/09 18:45 / eli-b		SUB-B134750	85	B_R134750
Sodium	218	mg/L		1		E200.7	08/20/09 14:59 / eli-b		SUB-B134666	19	B_R134666
Tin	ND	mg/L		0.1		E200.7	08/20/09 14:59 / eli-b		SUB-B134666	19	B_R134666

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-128
Lab ID: H09080188-013
Matrix: Aqueous

Project: 1054 Asarco E Helena Quarterly Monitoring
Collection Date: 08/14/09 14:15 **DateReceived:** 08/14/09
Report Date: 09/07/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.8	s.u.		0.1		A4500-H B	08/18/09 13:29 / JG		PH_090818A	2	090818A-PH-W
Conductivity	1250	umhos/cm		1		A2510 B	08/18/09 11:48 / JG		COND_090818B	29	0818A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/19/09 12:58 / hm		SOLIDS_090819B	16	090819A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	928	mg/L		10		A2540 C	08/19/09 13:38 / JG		SOLIDS_090819A	17	090819A-SLDS-TDS-
INORGANICS											
Alkalinity, Total as CaCO3	180	mg/L		1		A2320 B	08/25/09 15:19 / sld		TITTR_090825A	27	090825A-ALK-W
Bicarbonate as HCO3	220	mg/L		1		A2320 B	08/25/09 15:19 / sld		TITTR_090825A	27	090825A-ALK-W
Chloride	48	mg/L		1		E300.0	08/19/09 19:03 / hm		IC101-H_090818A	117	R56049
Sulfate	450	mg/L		1		E300.0	08/19/09 19:03 / hm		IC101-H_090818A	117	R56049
METALS, DISSOLVED											
Aluminum	0.003	mg/L		0.001		E200.8	08/21/09 18:49 / eli-b		SUB-B134750	86	B_R134750
Arsenic	ND	mg/L		0.005		E200.8	08/21/09 18:49 / eli-b		SUB-B134750	86	B_R134750
Cadmium	ND	mg/L		0.001		E200.8	08/21/09 18:49 / eli-b		SUB-B134750	86	B_R134750
Calcium	128	mg/L		1		E200.7	08/20/09 15:03 / eli-b		SUB-B134666	20	B_R134666
Iron	ND	mg/L		0.02		E200.7	08/20/09 15:03 / eli-b		SUB-B134666	20	B_R134666
Lead	ND	mg/L		0.005		E200.8	08/21/09 18:49 / eli-b		SUB-B134750	86	B_R134750
Magnesium	32	mg/L		1		E200.7	08/20/09 15:03 / eli-b		SUB-B134666	20	B_R134666
Manganese	ND	mg/L		0.01		E200.7	08/20/09 15:03 / eli-b		SUB-B134666	20	B_R134666
Potassium	7	mg/L		1		E200.7	08/20/09 15:03 / eli-b		SUB-B134666	20	B_R134666
Selenium	0.175	mg/L		0.001		E200.8	08/21/09 18:49 / eli-b		SUB-B134750	86	B_R134750
Sodium	107	mg/L		1		E200.7	08/20/09 15:03 / eli-b		SUB-B134666	20	B_R134666
Tin	ND	mg/L		0.1		E200.7	08/20/09 15:03 / eli-b		SUB-B134666	20	B_R134666

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-129
Lab ID: H09080188-014
Matrix: Aqueous

Project: 1054 Asarco E Helena Quarterly Monitoring
Collection Date: 08/14/09 14:45 **DateReceived:** 08/14/09
Report Date: 09/07/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.0	s.u.		0.1		A4500-H B	08/18/09 13:47 / JG		PH_090818A	3	090818A-PH-W
Conductivity	283	umhos/cm		1		A2510 B	08/18/09 11:50 / JG		COND_090818B	3	90818A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/19/09 12:59 / hm		SOLIDS_090819B	17	090819A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	214	mg/L		10		A2540 C	08/19/09 13:38 / JG		SOLIDS_090819A	18	090819A-SLDS-TDS-
INORGANICS											
Alkalinity, Total as CaCO3	110	mg/L		1		A2320 B	08/25/09 15:30 / sld		TITTR_090825A	30	090825A-ALK-W
Bicarbonate as HCO3	130	mg/L		1		A2320 B	08/25/09 15:30 / sld		TITTR_090825A	30	090825A-ALK-W
Chloride	3	mg/L		1		E300.0	08/19/09 19:19 / hm		IC101-H_090818A	118	R56049
Sulfate	31	mg/L		1		E300.0	08/19/09 19:19 / hm		IC101-H_090818A	118	R56049
METALS, DISSOLVED											
Aluminum	0.005	mg/L		0.001		E200.8	08/21/09 18:53 / eli-b		SUB-B134750	87	B_R134750
Arsenic	0.042	mg/L		0.005		E200.8	08/21/09 18:53 / eli-b		SUB-B134750	87	B_R134750
Cadmium	ND	mg/L		0.001		E200.7	08/20/09 15:07 / eli-b		SUB-B134666	21	B_R134666
Calcium	31	mg/L		1		E200.7	08/20/09 15:07 / eli-b		SUB-B134666	21	B_R134666
Iron	ND	mg/L		0.02		E200.7	08/20/09 15:07 / eli-b		SUB-B134666	21	B_R134666
Lead	ND	mg/L		0.005		E200.8	08/21/09 18:53 / eli-b		SUB-B134750	87	B_R134750
Magnesium	10	mg/L		1		E200.7	08/20/09 15:07 / eli-b		SUB-B134666	21	B_R134666
Manganese	ND	mg/L		0.01		E200.7	08/20/09 15:07 / eli-b		SUB-B134666	21	B_R134666
Potassium	3	mg/L		1		E200.7	08/20/09 15:07 / eli-b		SUB-B134666	21	B_R134666
Selenium	0.001	mg/L		0.001		E200.8	08/21/09 18:53 / eli-b		SUB-B134750	87	B_R134750
Sodium	10	mg/L		1		E200.7	08/20/09 15:07 / eli-b		SUB-B134666	21	B_R134666
Tin	ND	mg/L		0.1		E200.7	08/20/09 15:07 / eli-b		SUB-B134666	21	B_R134666

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-130
Lab ID: H09080188-015
Matrix: Aqueous

Project: 1054 Asarco E Helena Quarterly Monitoring
Collection Date: 08/14/09 15:40 **DateReceived:** 08/14/09
Report Date: 09/07/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.8	s.u.		0.1		A4500-H B	08/17/09 11:45 / JG		PH_090817A	21	090817A-PH-W
Conductivity	263	umhos/cm		1		A2510 B	08/17/09 10:44 / JG		COND_090817A	5	090817A-COND-PROB
Solids, Total Suspended TSS @ 105 C	16	mg/L		10		A2540 D	08/19/09 13:09 / hm		SOLIDS_090819B	19	090819A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	204	mg/L		10		A2540 C	08/19/09 13:39 / JG		SOLIDS_090819A	20	090819A-SLDS-TDS-
INORGANICS											
Alkalinity, Total as CaCO3	86	mg/L		1		A2320 B	08/25/09 15:34 / sld		TITTR_090825A	31	090825A-ALK-W
Bicarbonate as HCO3	110	mg/L		1		A2320 B	08/25/09 15:34 / sld		TITTR_090825A	31	090825A-ALK-W
Chloride	3	mg/L		1		E300.0	08/19/09 19:35 / hm		IC101-H_090818A	119	R56049
Sulfate	39	mg/L		1		E300.0	08/19/09 19:35 / hm		IC101-H_090818A	119	R56049
METALS, DISSOLVED											
Aluminum	0.009	mg/L		0.001		E200.8	08/21/09 19:13 / eli-b		SUB-B134750	88	B_R134750
Arsenic	0.028	mg/L		0.005		E200.8	08/21/09 19:13 / eli-b		SUB-B134750	88	B_R134750
Cadmium	ND	mg/L		0.001		E200.7	08/20/09 15:19 / eli-b		SUB-B134666	22	B_R134666
Calcium	22	mg/L		1		E200.7	08/20/09 15:19 / eli-b		SUB-B134666	22	B_R134666
Iron	ND	mg/L		0.02		E200.7	08/20/09 15:19 / eli-b		SUB-B134666	22	B_R134666
Lead	ND	mg/L		0.005		E200.8	08/21/09 19:13 / eli-b		SUB-B134750	88	B_R134750
Magnesium	7	mg/L		1		E200.7	08/20/09 15:19 / eli-b		SUB-B134666	22	B_R134666
Manganese	ND	mg/L		0.01		E200.7	08/20/09 15:19 / eli-b		SUB-B134666	22	B_R134666
Potassium	6	mg/L		1		E200.7	08/20/09 15:19 / eli-b		SUB-B134666	22	B_R134666
Selenium	ND	mg/L		0.001		E200.8	08/21/09 19:13 / eli-b		SUB-B134750	88	B_R134750
Sodium	18	mg/L		1		E200.7	08/20/09 15:19 / eli-b		SUB-B134666	22	B_R134666
Tin	ND	mg/L		0.1		E200.7	08/20/09 15:19 / eli-b		SUB-B134666	22	B_R134666

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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Client: Asarco Consulting
Work Order: H09080188
Project: 1054 Asarco E Helena Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: 090817A-COND-PROBE

Date: *07-Sep-09*

Run ID :Run Order: **COND_090817A: 1** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090817A** Method: **A2510 B**
Analysis Date: **08/17/09 09:37** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	1410	1.0	1412		**100**	90	110				

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-015

Run ID :Run Order: **COND_090817A: 25** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV2_090817A** Method: **A2510 B**
Analysis Date: **08/17/09 10:11** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	724	1.0	718		**101**	90	110				

Associated samples: H09080188-001; H09080188-002

Run ID :Run Order: **COND_090817A: 37** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV3_090817A** Method: **A2510 B**
Analysis Date: **08/17/09 10:27** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	722	1.0	718		**101**	90	110				

Associated samples: H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012

Run ID :Run Order: **COND_090817A: 46** SampType: **Sample Duplicate** Sample ID: **H09080188-010ADUP** Method: **A2510 B**
Analysis Date: **08/17/09 10:40** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	1650	1.0						1665	**0.9**	10	

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-015

Run ID :Run Order: **COND_090817A: 49** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV4_090817A** Method: **A2510 B**
Analysis Date: **08/17/09 10:43** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	723	1.0	718		**101**	90	110				

Associated samples: H09080188-015

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080188
Project: 1054 Asarco E Helena Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: 090817A-PH-W

Date: *07-Sep-09*

Run ID :Run Order: **PH_090817A: 1** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090817A** Method: **A4500-H B**

Analysis Date: **08/17/09 10:54** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	6.99	0.10	7		**100**	99	101				

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-015

Run ID :Run Order: **PH_090817A: 13** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV1_090817A** Method: **A4500-H B**

Analysis Date: **08/17/09 11:33** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	10.0	0.10	10		**100**	99	101				

Associated samples: H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-015

Run ID :Run Order: **PH_090817A: 18** SampType: **Sample Duplicate** Sample ID: **H09080188-010ADUP** Method: **A4500-H B**

Analysis Date: **08/17/09 11:49** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.10	0.10						7.12	**0.3**	2	

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-015

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080188
Project: 1054 Asarco E Helena Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: 090818A-COND-PROBE

Date: *07-Sep-09*

Run ID :Run Order: **COND_090818B: 1** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090818A** Method: **A2510 B**
Analysis Date: **08/18/09 11:47** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	1400	1.0	1412		**99**	90	110				

Associated samples: H09080188-013; H09080188-014

Run ID :Run Order: **COND_090818B: 6** SampType: **Sample Duplicate** Sample ID: **H09080202-001ADUP** Method: **A2510 B**
Analysis Date: **08/18/09 11:53** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	370	1.0						367.7	**0.5**	10	

Associated samples: H09080188-013; H09080188-014

Run ID :Run Order: **COND_090818B: 7** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV1_090818A** Method: **A2510 B**
Analysis Date: **08/18/09 11:54** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	718	1.0	718		**100**	90	110				

Associated samples:

Qualifiers:
ND - Not Detected at the Reporting Limit
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
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A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080188
Project: 1054 Asarco E Helena Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: 090818A-PH-W

Date: *07-Sep-09*

Run ID :Run Order: **PH_090818A: 1** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090818A** Method: **A4500-H B**

Analysis Date: **08/18/09 13:27** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.01	0.10	7		**100**	99	101				

Associated samples: H09080188-013; H09080188-014

Run ID :Run Order: **PH_090818A: 4** SampType: **Sample Duplicate** Sample ID: **H09080188-014ADUP** Method: **A4500-H B**

Analysis Date: **08/18/09 13:46** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.97	0.10						7.98	**0.1**	2	

Associated samples: H09080188-013; H09080188-014

Run ID :Run Order: **PH_090818A: 5** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV1_090818A** Method: **A4500-H B**

Analysis Date: **08/18/09 13:48** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	10.0	0.10	10		**100**	99	101				

Associated samples:

Qualifiers: ND - Not Detected at the Reporting Limit
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R - RPD outside accepted recovery limits
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Client: Asarco Consulting
Work Order: H09080188
Project: 1054 Asarco E Helena Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

Date: *07-Sep-09*

BatchID: 090819A-SLDS-TDS-W

Run ID :Run Order: **SOLIDS_090819A: 1** SampType: **Method Blank** Sample ID: **MBLK1_090819A** Method: **A2540 C**
Analysis Date: **08/19/09 13:26** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	3	1.0									

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-008; H09080188-009; H09080188-010; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Run ID :Run Order: **SOLIDS_090819A: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090819A** Method: **A2540 C**
Analysis Date: **08/19/09 13:28** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	998	10	1000	3	99	90	110				

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-008; H09080188-009; H09080188-010; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Run ID :Run Order: **SOLIDS_090819A: 8** SampType: **Sample Matrix Spike** Sample ID: **H09080188-005AMS** Method: **A2540 C**
Analysis Date: **08/19/09 13:32** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	3520	10	2000	1492	102	80	120				

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-008; H09080188-009; H09080188-010; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Run ID :Run Order: **SOLIDS_090819A: 9** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080188-005AMSD** Method: **A2540 C**
Analysis Date: **08/19/09 13:33** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	3540	10	2000	1492	102	80	120	3524	0.3	10	

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-008; H09080188-009; H09080188-010; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Run ID :Run Order: **SOLIDS_090819A: 19** SampType: **Sample Duplicate** Sample ID: **H09080188-014ADUP** Method: **A2540 C**
Analysis Date: **08/19/09 13:39** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	200	10						214	6.8	20	

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-008; H09080188-009; H09080188-010; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Qualifiers:
ND - Not Detected at the Reporting Limit
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Work Order: H09080188
Project: 1054 Asarco E Helena Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: 090819A-SLDS-TDS-W

Date: *07-Sep-09*

Run ID :Run Order: **SOLIDS_090819A: 29** SampType: **Sample Matrix Spike** Sample ID: **H09080217-002AMS** Method: **A2540 C**

Analysis Date: **08/19/09 13:43** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2100	10	2000	152	98	80	120				

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-008; H09080188-009; H09080188-010; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Run ID :Run Order: **SOLIDS_090819A: 30** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080217-002AMSD** Method: **A2540 C**

Analysis Date: **08/19/09 13:43** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2050	10	2000	152	95	80	120	2104	2.5	10	

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-008; H09080188-009; H09080188-010; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Qualifiers: ND - Not Detected at the Reporting Limit
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A - Analyte concentration greater than three times the spike amount

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Work Order: H09080188
Project: 1054 Asarco E Helena Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: 090819A-SLDS-TSS-W

Date: *07-Sep-09*

Run ID :Run Order: **SOLIDS_090819B: 1** SampType: **Method Blank** Sample ID: **MBLK1_090819A** Method: **A2540 D**
Analysis Date: **08/19/09 12:49** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	ND	1									

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Run ID :Run Order: **SOLIDS_090819B: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090819A** Method: **A2540 D**
Analysis Date: **08/19/09 12:49** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	1800	10	2000		90	70	130				

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Run ID :Run Order: **SOLIDS_090819B: 8** SampType: **Sample Duplicate** Sample ID: **H09080188-005ADUP** Method: **A2540 D**
Analysis Date: **08/19/09 12:53** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	6.00	10						4		10	

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Run ID :Run Order: **SOLIDS_090819B: 18** SampType: **Sample Duplicate** Sample ID: **H09080188-014ADUP** Method: **A2540 D**
Analysis Date: **08/19/09 13:00** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	10.0	10						10		10	

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Qualifiers:
ND - Not Detected at the Reporting Limit
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R - RPD outside accepted recovery limits
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A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080188
Project: 1054 Asarco E Helena Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: 090821A-SLDS-TDS-W

Date: *07-Sep-09*

Run ID :Run Order: **SOLIDS_090821A: 1** SampType: **Method Blank** Sample ID: **MBLK1_090821A** Method: **A2540 C**
Analysis Date: **08/21/09 09:37** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	1	1.0									

Associated samples: H09080188-007; H09080188-011

Run ID :Run Order: **SOLIDS_090821A: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090821A** Method: **A2540 C**
Analysis Date: **08/21/09 09:38** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	1010	10	1000	1	**101**	90	110				

Associated samples: H09080188-007; H09080188-011

Run ID :Run Order: **SOLIDS_090821A: 11** SampType: **Sample Matrix Spike** Sample ID: **H09080233-002AMS** Method: **A2540 C**
Analysis Date: **08/21/09 09:44** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2870	10	2000	907	**98**	80	120				

Associated samples: H09080188-007; H09080188-011

Run ID :Run Order: **SOLIDS_090821A: 12** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080233-002AMSD** Method: **A2540 C**
Analysis Date: **08/21/09 09:44** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2890	10	2000	907	**99**	80	120	2874	**0.7**	10	

Associated samples: H09080188-007; H09080188-011

Run ID :Run Order: **SOLIDS_090821A: 19** SampType: **Sample Duplicate** Sample ID: **H09080233-008ADUP** Method: **A2540 C**
Analysis Date: **08/21/09 09:48** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	374	10						369	**1.3**	20	

Associated samples: H09080188-007; H09080188-011

Qualifiers: ND - Not Detected at the Reporting Limit
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R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080188
Project: 1054 Asarco E Helena Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: 090825A-ALK-W

Date: *07-Sep-09*

Run ID :Run Order: **TITTR_090825A: 1** SampType: **Method Blank** Sample ID: **MBLK1_090825A** Method: **A2320 B**
Analysis Date: **08/25/09 12:19** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	ND	1									

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Run ID :Run Order: **TITTR_090825A: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090825A** Method: **A2320 B**
Analysis Date: **08/25/09 12:25** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	570	4.0	600		95	90	110				

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Run ID :Run Order: **TITTR_090825A: 8** SampType: **Sample Matrix Spike** Sample ID: **H09080179-004AMS** Method: **A2320 B**
Analysis Date: **08/25/09 12:58** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	910	4.0	600	384	88	90	110				S

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Run ID :Run Order: **TITTR_090825A: 9** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080179-004AMSD** Method: **A2320 B**
Analysis Date: **08/25/09 13:05** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	910	4.0	600	384	88	90	110	913.3	0	20	S

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Run ID :Run Order: **TITTR_090825A: 14** SampType: **Sample Duplicate** Sample ID: **H09080188-003ADUP** Method: **A2320 B**
Analysis Date: **08/25/09 13:55** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	160	4.0						163	0	20	
Bicarbonate as HCO3	200	4.0						198.9	0	20	

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Qualifiers:
ND - Not Detected at the Reporting Limit
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R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080188
Project: 1054 Asarco E Helena Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: 090825A-ALK-W

Date: *07-Sep-09*

Run ID :Run Order: **TITTR_090825A: 15** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV1_090825A** Method: **A2320 B**

Analysis Date: **08/25/09 14:02** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	1000	4.0	1000		**102**	90	110				

Associated samples: H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013

Run ID :Run Order: **TITTR_090825A: 21** SampType: **Sample Matrix Spike** Sample ID: **H09080188-008AMS** Method: **A2320 B**

Analysis Date: **08/25/09 15:53** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	830	4.0	600	172.8	**110**	90	110				

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Run ID :Run Order: **TITTR_090825A: 22** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080188-008AMSD** Method: **A2320 B**

Analysis Date: **08/25/09 15:01** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	830	4.0	600	172.8	**109**	90	110	832.7	**0.5**	20	

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Run ID :Run Order: **TITTR_090825A: 28** SampType: **Sample Duplicate** Sample ID: **H09080188-013ADUP** Method: **A2320 B**

Analysis Date: **08/25/09 15:23** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	180	4.0						176.8	**0**	20	
Bicarbonate as HCO3	220	4.0						215.6	**0**	20	

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Run ID :Run Order: **TITTR_090825A: 29** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV2_090825A** Method: **A2320 B**

Analysis Date: **08/25/09 15:27** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	1000	4.0	1000		**104**	90	110				

Associated samples: H09080188-014; H09080188-015

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Work Order: H09080188
Project: 1054 Asarco E Helena Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: 090825A-ALK-W

Date: *07-Sep-09*

Run ID :Run Order: **TITTR_090825A: 35** SampType: **Sample Matrix Spike** Sample ID: **H09080233-013AMS** Method: **A2320 B**

Analysis Date: **08/25/09 15:52** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	750	4.0	600	194.4	**93**	90	110				

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Run ID :Run Order: **TITTR_090825A: 36** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080233-013AMSD** Method: **A2320 B**

Analysis Date: **08/25/09 16:02** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	750	4.0	600	194.4	**93**	90	110	750.2	**0.3**	20	

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Work Order: H09080188
Project: 1054 Asarco E Helena Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R134666

Date: 07-Sep-09

Run ID :Run Order: **SUB-B134666: 3** SampType: **Continuing Calibration Verification Standard** Sample ID: **ICV** Method: **E200.7**

Analysis Date: **08/20/09 10:56** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	2.53	0.010	2.5		**101**	95	105				
Calcium	25.0	1.0	25		**100**	95	105				
Iron	2.59	0.030	2.5		**103**	95	105				
Magnesium	25.1	1.0	25		**100**	95	105				
Manganese	2.51	0.010	2.5		**100**	95	105				
Potassium	24.6	1.0	25		**98**	95	105				
Sodium	25.1	1.0	25		**100**	95	105				
Tin	2.57	0.0066	2.5		**103**	95	105				

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Run ID :Run Order: **SUB-B134666: 23** SampType: **Method Blank** Sample ID: **MB-SPDIS090820A** Method: **E200.7**

Analysis Date: **08/20/09 11:45** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	ND	0.0009									
Calcium	ND	0.009									
Iron	0.007	0.002									
Magnesium	ND	0.01									
Manganese	0.0007	0.0003									
Potassium	ND	0.01									
Sodium	ND	0.03									
Tin	ND	0.007									

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Run ID :Run Order: **SUB-B134666: 24** SampType: **Laboratory Fortified Blank** Sample ID: **LFB-SPDIS090820A** Method: **E200.7**

Analysis Date: **08/20/09 11:49** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.499	0.010	0.5		**100**	85	115				
Calcium	51.0	1.0	50		**102**	85	115				
Iron	5.07	0.030	5	0.00666	**101**	85	115				
Magnesium	50.6	1.0	50		**101**	85	115				
Manganese	5.02	0.010	5	0.00072	**100**	85	115				
Potassium	50.7	1.0	50		**101**	85	115				

Qualifiers: ND - Not Detected at the Reporting Limit; S - Spike Recovery outside accepted recovery limits; N - Analyte concentration was not sufficiently high to calculate RPD; J - Analyte detected below quantitation limits; R - RPD outside accepted recovery limits; A - Analyte concentration greater than three times the spike amount

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Work Order: H09080188
Project: 1054 Asarco E Helena Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R134666

Date: *07-Sep-09*

Run ID :Run Order: **SUB-B134666: 24** SampType: **Laboratory Fortified Blank** Sample ID: **LFB-SPDIS090820A** Method: **E200.7**
Analysis Date: **08/20/09 11:49** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	52.2	1.0	50		**104**	85	115				
Tin	1.05	0.0068	1		**105**	85	115				

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Run ID :Run Order: **SUB-B134666: 25** SampType: **Sample Matrix Spike** Sample ID: **H09080188-001B** Method: **E200.7**
Analysis Date: **08/20/09 13:31** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.483	0.0010	0.5		**97**	70	130				
Calcium	108	1.0	50	61.1	**94**	70	130				
Iron	4.93	0.030	5		**99**	70	130				
Magnesium	69.8	1.0	50	20.63	**98**	70	130				
Manganese	4.82	0.010	5		**96**	70	130				
Potassium	52.2	1.0	50	3.485	**97**	70	130				
Sodium	78.5	1.0	50	28	**101**	70	130				
Tin	0.995	0.10	1		**99**	70	130				

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Run ID :Run Order: **SUB-B134666: 26** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080188-001B** Method: **E200.7**
Analysis Date: **08/20/09 13:35** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.492	0.0010	0.5		**98**	70	130	0.4827	**1.8**	20	
Calcium	110	1.0	50	61.1	**98**	70	130	107.9	**1.8**	20	
Iron	4.95	0.030	5		**99**	70	130	4.93	**0.4**	20	
Magnesium	71.3	1.0	50	20.63	**101**	70	130	69.83	**2**	20	
Manganese	4.93	0.010	5		**99**	70	130	4.815	**2.3**	20	
Potassium	53.7	1.0	50	3.485	**100**	70	130	52.22	**2.7**	20	
Sodium	80.2	1.0	50	28	**104**	70	130	78.49	**2.2**	20	
Tin	1.01	0.10	1		**101**	70	130	0.995	**1.4**	20	

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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ANALYTICAL QC SUMMARY REPORT

BatchID: B_R134666

Date: 07-Sep-09

Run ID :Run Order: **SUB-B134666: 27** SampType: **Sample Matrix Spike** Sample ID: **H09080188-011B** Method: **E200.7**

Analysis Date: **08/20/09 14:51** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.496	0.0010	0.5		**99**	70	130				
Calcium	49.8	1.0	50		**100**	70	130				
Iron	5.04	0.030	5		**101**	70	130				
Magnesium	50.2	1.0	50		**100**	70	130				
Manganese	4.99	0.010	5		**100**	70	130				
Potassium	50.4	1.0	50	0.03237	**101**	70	130				
Sodium	50.9	1.0	50	0.09907	**102**	70	130				
Tin	1.03	0.10	1		**103**	70	130				

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Run ID :Run Order: **SUB-B134666: 28** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080188-011B** Method: **E200.7**

Analysis Date: **08/20/09 14:55** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 8	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.496	0.0010	0.5		**99**	70	130	0.4958	**0.1**	20	
Calcium	49.0	1.0	50		**98**	70	130	49.83	**1.6**	20	
Iron	5.05	0.030	5		**101**	70	130	5.037	**0.2**	20	
Magnesium	49.8	1.0	50		**100**	70	130	50.16	**0.8**	20	
Manganese	4.92	0.010	5		**98**	70	130	4.991	**1.4**	20	
Potassium	49.5	1.0	50	0.03237	**99**	70	130	50.42	**1.8**	20	
Sodium	50.7	1.0	50	0.09907	**101**	70	130	50.89	**0.4**	20	
Tin	1.03	0.10	1		**103**	70	130	1.028	**0.4**	20	

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Qualifiers: ND - Not Detected at the Reporting Limit; S - Spike Recovery outside accepted recovery limits; N - Analyte concentration was not sufficiently high to calculate RPD; J - Analyte detected below quantitation limits; R - RPD outside accepted recovery limits; A - Analyte concentration greater than three times the spike amount

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ANALYTICAL QC SUMMARY REPORT

BatchID: B_R134713

Date: 07-Sep-09

Run ID :Run Order: **SUB-B134713: 2** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090609B, 080814C** Method: **E200.8**

Analysis Date: **08/20/09 15:41** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.050	0.0050	0.05		**99**	90	110				
Cadmium	0.026	0.0010	0.025		**102**	90	110				
Lead	0.049	0.010	0.05		**98**	90	110				
Selenium	0.051	0.0050	0.05		**101**	90	110				

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005

Run ID :Run Order: **SUB-B134713: 11** SampType: **Method Blank** Sample ID: **LRB** Method: **E200.8**

Analysis Date: **08/20/09 16:05** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	3E-05									
Cadmium	ND	1E-05									
Lead	1E-05	8E-06									
Selenium	ND	0.0002									

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005

Run ID :Run Order: **SUB-B134713: 12** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**

Analysis Date: **08/20/09 16:11** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.050	0.0050	0.05		**100**	85	115				
Cadmium	0.050	0.0010	0.05		**100**	85	115				
Lead	0.049	0.010	0.05	0.00001	**98**	85	115				
Selenium	0.049	0.0050	0.05		**99**	85	115				

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005

Run ID :Run Order: **SUB-B134713: 29** SampType: **Sample Matrix Spike** Sample ID: **H09080188-001B** Method: **E200.8**

Analysis Date: **08/21/09 07:13** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.254	0.0050	0.25	0.00085	**101**	70	130				
Cadmium	0.255	0.0010	0.25		**102**	70	130				
Lead	0.250	0.010	0.25	0.0001	**100**	70	130				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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ANALYTICAL QC SUMMARY REPORT

BatchID: B_R134713

Date: *07-Sep-09*

Run ID :Run Order: **SUB-B134713: 29** SampType: **Sample Matrix Spike** Sample ID: **H09080188-001B** Method: **E200.8**

Analysis Date: **08/21/09 07:13** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	0.265	0.0050	0.25	0.00365	**105**	70	130				

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005

Run ID :Run Order: **SUB-B134713: 30** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080188-001B** Method: **E200.8**

Analysis Date: **08/21/09 07:17** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 4	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.250	0.0050	0.25	0.00085	**100**	70	130	0.254	**1.6**	20	
Cadmium	0.254	0.0010	0.25		**102**	70	130	0.2545	**0.1**	20	
Lead	0.250	0.010	0.25	0.0001	**100**	70	130	0.2501	**0.1**	20	
Selenium	0.260	0.0050	0.25	0.00365	**102**	70	130	0.265	**2**	20	

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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ANALYTICAL QC SUMMARY REPORT

BatchID: B_R134750

Date: *07-Sep-09*

Run ID :Run Order: **SUB-B134750: 8** SampType: **Method Blank** Sample ID: **LRB** Method: **E200.8**

Analysis Date: **08/21/09 13:18** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	ND	0.0001									
Arsenic	ND	3E-05									
Cadmium	ND	1E-05									
Lead	ND	8E-06									
Selenium	ND	0.0002									

Associated samples: H09080188-001; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Run ID :Run Order: **SUB-B134750: 9** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**

Analysis Date: **08/21/09 13:23** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0480	0.10	0.05		96	85	115				
Arsenic	0.0490	0.0050	0.05		98	85	115				
Cadmium	0.0500	0.0010	0.05		100	85	115				
Lead	0.0496	0.010	0.05		99	85	115				
Selenium	0.0503	0.0050	0.05		101	85	115				

Associated samples: H09080188-001; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Run ID :Run Order: **SUB-B134750: 10** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090609B, ME080814C** Method: **E200.8**

Analysis Date: **08/22/09 18:39** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.245	0.10	0.25		98	90	110				
Arsenic	0.0506	0.0050	0.05		101	90	110				
Cadmium	0.0263	0.0010	0.025		105	90	110				
Lead	0.0504	0.010	0.05		101	90	110				
Selenium	0.0504	0.0050	0.05		101	90	110				

Associated samples: H09080188-001; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080188
Project: 1054 Asarco E Helena Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R134750

Date: *07-Sep-09*

Run ID :Run Order: **SUB-B134750: 16** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090609B, 080814C** Method: **E200.8**

Analysis Date: **08/22/09 09:58** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.248	0.10	0.25		99	90	110				
Arsenic	0.0495	0.0050	0.05		99	90	110				
Cadmium	0.0258	0.0010	0.025		103	90	110				
Lead	0.0501	0.010	0.05		100	90	110				
Selenium	0.0492	0.0050	0.05		98	90	110				

Associated samples: H09080188-001; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Run ID :Run Order: **SUB-B134750: 17** SampType: **Sample Matrix Spike** Sample ID: **B09081885-001CMS** Method: **E200.8**

Analysis Date: **08/22/09 12:38** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.110	0.10	0.05	0.05882	103	70	130				
Arsenic	0.0551	0.0010	0.05	0.00063	109	70	130				
Cadmium	0.0534	0.0010	0.05		107	70	130				
Lead	0.0544	0.0010	0.05	0.00043	108	70	130				
Selenium	0.0567	0.0050	0.05		113	70	130				

Associated samples: H09080188-001; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Run ID :Run Order: **SUB-B134750: 18** SampType: **Sample Matrix Spike Duplicate** Sample ID: **B09081885-001CMSD** Method: **E200.8**

Analysis Date: **08/22/09 12:42** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.109	0.10	0.05	0.05882	101	70	130	0.1102	0.9	20	
Arsenic	0.0551	0.0010	0.05	0.00063	109	70	130	0.05508	0.1	20	
Cadmium	0.0540	0.0010	0.05		108	70	130	0.05336	1.2	20	
Lead	0.0546	0.0010	0.05	0.00043	108	70	130	0.05443	0.3	20	
Selenium	0.0567	0.0050	0.05		113	70	130	0.05672	0.1	20	

Associated samples: H09080188-001; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Qualifiers: ND - Not Detected at the Reporting Limit; S - Spike Recovery outside accepted recovery limits; N - Analyte concentration was not sufficiently high to calculate RPD; J - Analyte detected below quantitation limits; R - RPD outside accepted recovery limits; A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080188
Project: 1054 Asarco E Helena Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R134750

Date: *07-Sep-09*

Run ID :Run Order: **SUB-B134750: 51** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090609B, 080814C** Method: **E200.8**

Analysis Date: **08/21/09 15:42** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.250	0.10	0.25		100	90	110				
Arsenic	0.0494	0.0050	0.05		99	90	110				
Cadmium	0.0255	0.0010	0.025		102	90	110				
Lead	0.0495	0.010	0.05		99	90	110				
Selenium	0.0498	0.0050	0.05		100	90	110				

Associated samples: H09080188-001; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Run ID :Run Order: **SUB-B134750: 60** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090609B, ME080814C** Method: **E200.8**

Analysis Date: **08/22/09 02:53** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.245	0.10	0.25		98	90	110				
Arsenic	0.0497	0.0050	0.05		99	90	110				
Cadmium	0.0258	0.0010	0.025		103	90	110				
Lead	0.0500	0.010	0.05		100	90	110				
Selenium	0.0500	0.0050	0.05		100	90	110				

Associated samples: H09080188-001; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Run ID :Run Order: **SUB-B134750: 61** SampType: **Sample Matrix Spike** Sample ID: **B09081654-005AMS** Method: **E200.8**

Analysis Date: **08/22/09 07:19** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0515	0.10	0.05	0.0008	101	70	130				
Arsenic	0.0527	0.0010	0.05	0.00062	104	70	130				
Cadmium	0.0519	0.0010	0.05		104	70	130				
Lead	0.0515	0.0010	0.05	0.00001	103	70	130				
Selenium	0.0536	0.0050	0.05		107	70	130				

Associated samples: H09080188-001; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080188
Project: 1054 Asarco E Helena Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R134750

Date: 07-Sep-09

Run ID :Run Order: **SUB-B134750: 62** SampType: **Sample Matrix Spike Duplicate** Sample ID: **B09081654-005AMSD** Method: **E200.8**
Analysis Date: **08/22/09 07:23** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0505	0.10	0.05	0.0008	99	70	130	0.05152		20	
Arsenic	0.0526	0.0010	0.05	0.00062	104	70	130	0.05274	0.3	20	
Cadmium	0.0518	0.0010	0.05		104	70	130	0.05186	0.1	20	
Lead	0.0518	0.0010	0.05	0.00001	104	70	130	0.05149	0.6	20	
Selenium	0.0539	0.0050	0.05		108	70	130	0.05357	0.5	20	

Associated samples: H09080188-001; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Run ID :Run Order: **SUB-B134750: 89** SampType: **Sample Matrix Spike** Sample ID: **H09080188-011B** Method: **E200.8**
Analysis Date: **08/21/09 16:47** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.252	0.10	0.25	0.0031	100	70	130				
Arsenic	0.252	0.0050	0.25	0.0002	101	70	130				
Cadmium	0.258	0.0010	0.25		103	70	130				
Lead	0.254	0.010	0.25	0.00035	102	70	130				
Selenium	0.252	0.0050	0.25		101	70	130				

Associated samples: H09080188-001; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Run ID :Run Order: **SUB-B134750: 90** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080188-011B** Method: **E200.8**
Analysis Date: **08/21/09 16:51** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.250	0.10	0.25	0.0031	99	70	130	0.2524	0.8	20	
Arsenic	0.250	0.0050	0.25	0.0002	100	70	130	0.2516	0.8	20	
Cadmium	0.254	0.0010	0.25		102	70	130	0.2577	1.5	20	
Lead	0.253	0.010	0.25	0.00035	101	70	130	0.2541	0.3	20	
Selenium	0.252	0.0050	0.25		101	70	130	0.2519	0	20	

Associated samples: H09080188-001; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Run ID :Run Order: **SUB-B134750: 91** SampType: **Sample Matrix Spike** Sample ID: **B09081802-002AMS** Method: **E200.8**
Analysis Date: **08/21/09 20:13** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0498	0.10	0.05	0.00215	95	70	130				

Qualifiers: ND - Not Detected at the Reporting Limit; S - Spike Recovery outside accepted recovery limits; N - Analyte concentration was not sufficiently high to calculate RPD; J - Analyte detected below quantitation limits; R - RPD outside accepted recovery limits; A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080188
Project: 1054 Asarco E Helena Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R134750

Date: 07-Sep-09

Run ID :Run Order: **SUB-B134750: 91** SampType: **Sample Matrix Spike** Sample ID: **B09081802-002AMS** Method: **E200.8**
Analysis Date: **08/21/09 20:13** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0521	0.0010	0.05	0.00059	103	70	130				
Cadmium	0.0520	0.0010	0.05		104	70	130				
Lead	0.0591	0.0010	0.05	0.00692	104	70	130				
Selenium	0.0502	0.0050	0.05	0.00064	99	70	130				

Associated samples: H09080188-001; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Run ID :Run Order: **SUB-B134750: 92** SampType: **Sample Matrix Spike Duplicate** Sample ID: **B09081802-002AMSD** Method: **E200.8**
Analysis Date: **08/21/09 20:17** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0494	0.10	0.05	0.00215	95	70	130	0.04981		20	
Arsenic	0.0516	0.0010	0.05	0.00059	102	70	130	0.05214	1.1	20	
Cadmium	0.0506	0.0010	0.05		101	70	130	0.05196	2.7	20	
Lead	0.0583	0.0010	0.05	0.00692	103	70	130	0.05914	1.4	20	
Selenium	0.0487	0.0050	0.05	0.00064	96	70	130	0.05023	3.2	20	

Associated samples: H09080188-001; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Run ID :Run Order: **SUB-B134750: 93** SampType: **Sample Matrix Spike** Sample ID: **B09081769-002BMS** Method: **E200.8**
Analysis Date: **08/22/09 13:22** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0512	0.10	0.05	0.00216	98	70	130				
Arsenic	0.0598	0.0050	0.05	0.00009	119	70	130				
Cadmium	0.0529	0.0010	0.05		106	70	130				
Lead	0.0528	0.010	0.05	0.00001	106	70	130				
Selenium	0.0534	0.0050	0.05		107	70	130				

Associated samples: H09080188-001; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Run ID :Run Order: **SUB-B134750: 94** SampType: **Sample Matrix Spike Duplicate** Sample ID: **B09081769-002BMSD** Method: **E200.8**
Analysis Date: **08/22/09 13:26** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0520	0.10	0.05	0.00216	100	70	130	0.05115		20	
Arsenic	0.0614	0.0050	0.05	0.00009	123	70	130	0.05975	2.7	20	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080188
Project: 1054 Asarco E Helena Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R134750

Date: *07-Sep-09*

Run ID :Run Order: **SUB-B134750: 94** SampType: **Sample Matrix Spike Duplicate** Sample ID: **B09081769-002BMSD** Method: **E200.8**

Analysis Date: **08/22/09 13:26** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 5	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.0529	0.0010	0.05		**106**	70	130	0.05294	**0.1**	20	
Lead	0.0533	0.010	0.05	0.00001	**107**	70	130	0.05284	**0.8**	20	
Selenium	0.0550	0.0050	0.05		**110**	70	130	0.05339	**3**	20	

Associated samples: H09080188-001; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080188
Project: 1054 Asarco E Helena Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R134849

Date: *07-Sep-09*

Run ID :Run Order: **SUB-B134849: 9** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090609B, 080814C** Method: **E200.8**

Analysis Date: **08/24/09 11:41** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.0499	0.010	0.05		**100**	90	110				
Selenium	0.0505	0.0050	0.05		**101**	90	110				

Associated samples: H09080188-002

Run ID :Run Order: **SUB-B134849: 10** SampType: **Method Blank** Sample ID: **LRB** Method: **E200.8**

Analysis Date: **08/24/09 13:50** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	1E-05	8E-06									
Selenium	ND	0.0002									

Associated samples: H09080188-002

Run ID :Run Order: **SUB-B134849: 11** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**

Analysis Date: **08/24/09 13:54** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.0517	0.010	0.05	0.00001	**103**	85	115				
Selenium	0.0507	0.0050	0.05		**101**	85	115				

Associated samples: H09080188-002

Run ID :Run Order: **SUB-B134849: 12** SampType: **Sample Matrix Spike** Sample ID: **H09080233-001B** Method: **E200.8**

Analysis Date: **08/24/09 16:21** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.278	0.010	0.25	0.0001	**111**	70	130				
Selenium	0.259	0.0050	0.25	0.00285	**102**	70	130				

Associated samples: H09080188-002

Run ID :Run Order: **SUB-B134849: 13** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080233-001B** Method: **E200.8**

Analysis Date: **08/24/09 16:25** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.263	0.010	0.25	0.0001	**105**	70	130	0.2777	**5.5**	20	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Work Order: H09080188
Project: 1054 Asarco E Helena Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R134849

Date: 07-Sep-09

Run ID :Run Order: **SUB-B134849: 13** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080233-001B** Method: **E200.8**
Analysis Date: **08/24/09 16:25** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	0.248	0.0050	0.25	0.00285	**98**	70	130	0.2586	**4.2**	20	

Associated samples: H09080188-002

Run ID :Run Order: **SUB-B134849: 24** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090609B, ME080814C** Method: **E200.8**
Analysis Date: **08/24/09 22:14** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.0503	0.010	0.05		**100**	90	110				
Selenium	0.0511	0.0050	0.05		**102**	90	110				

Associated samples: H09080188-002

Run ID :Run Order: **SUB-B134849: 27** SampType: **Sample Matrix Spike** Sample ID: **H09080212-007A** Method: **E200.8**
Analysis Date: **08/25/09 01:47** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.0502	0.0010	0.05	0.00007	**100**	70	130				
Selenium	0.0506	0.0050	0.05		**101**	70	130				

Associated samples: H09080188-002

Run ID :Run Order: **SUB-B134849: 28** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080212-007A** Method: **E200.8**
Analysis Date: **08/25/09 01:51** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Lead	0.0500	0.0010	0.05	0.00007	**100**	70	130	0.05018	**0.4**	20	
Selenium	0.0507	0.0050	0.05		**101**	70	130	0.05063	**0.1**	20	

Associated samples: H09080188-002

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Work Order: H09080188
Project: 1054 Asarco E Helena Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R134929

Date: *07-Sep-09*

Run ID :Run Order: **SUB-B134929: 4** SampType: **Method Blank** Sample ID: **LRB** Method: **E200.8**
Analysis Date: **08/25/09 10:51** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0001	0.0001									

Associated samples: H09080188-002

Run ID :Run Order: **SUB-B134929: 5** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**
Analysis Date: **08/25/09 10:55** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0513	0.10	0.05	0.00013	**102**	85	115				

Associated samples: H09080188-002

Run ID :Run Order: **SUB-B134929: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090609B, ME080814C** Method: **E200.8**
Analysis Date: **08/26/09 01:37** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.250	0.10	0.25		**100**	90	110				

Associated samples: H09080188-002

Run ID :Run Order: **SUB-B134929: 17** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090609B, ME080814C** Method: **E200.8**
Analysis Date: **08/25/09 14:31** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.255	0.10	0.25		**102**	90	110				

Associated samples: H09080188-002

Run ID :Run Order: **SUB-B134929: 23** SampType: **Sample Matrix Spike** Sample ID: **H09080188-002B** Method: **E200.8**
Analysis Date: **08/25/09 15:37** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0506	0.10	0.05	0.00029	**101**	70	130				

Associated samples: H09080188-002

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Work Order: H09080188
Project: 1054 Asarco E Helena Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R134929

Date: *07-Sep-09*

Run ID :Run Order: **SUB-B134929: 24** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080188-002B** Method: **E200.8**

Analysis Date: **08/25/09 15:41** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0504	0.10	0.05	0.00029	**100**	70	130	0.05063		20	

Associated samples: H09080188-002

Qualifiers:
ND - Not Detected at the Reporting Limit
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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ANALYTICAL QC SUMMARY REPORT

BatchID: B_R134969

Date: 07-Sep-09

Run ID :Run Order: **SUB-B134969: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090609B, ME080814C** Method: **E200.8**

Analysis Date: **08/26/09 15:07** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.254	0.10	0.25		**102**	90	110				

Associated samples: H09080188-007; H09080188-011

Run ID :Run Order: **SUB-B134969: 13** SampType: **Method Blank** Sample ID: **LRB** Method: **E200.8**

Analysis Date: **08/26/09 11:09** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	ND	0.0001									

Associated samples: H09080188-007; H09080188-011

Run ID :Run Order: **SUB-B134969: 14** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**

Analysis Date: **08/26/09 11:13** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0505	0.10	0.05		**101**	85	115				

Associated samples: H09080188-007; H09080188-011

Run ID :Run Order: **SUB-B134969: 15** SampType: **Sample Matrix Spike** Sample ID: **B09082116-001BMS** Method: **E200.8**

Analysis Date: **08/26/09 17:50** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.123	0.10	0.1	0.0122	**111**	70	130				

Associated samples: H09080188-007; H09080188-011

Run ID :Run Order: **SUB-B134969: 16** SampType: **Sample Matrix Spike Duplicate** Sample ID: **B09082116-001BMSD** Method: **E200.8**

Analysis Date: **08/26/09 17:54** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.124	0.10	0.1	0.0122	**112**	70	130	0.1234	**0.8**	20	

Associated samples: H09080188-007; H09080188-011

Qualifiers:
ND - Not Detected at the Reporting Limit
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R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Work Order: H09080188
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ANALYTICAL QC SUMMARY REPORT

BatchID: B_R134969

Date: *07-Sep-09*

Run ID :Run Order: **SUB-B134969: 30** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090609B, ME080814C** Method: **E200.8**

Analysis Date: **08/26/09 19:09** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.246	0.10	0.25		**98**	90	110				

Associated samples: H09080188-007; H09080188-011

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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ANALYTICAL QC SUMMARY REPORT

BatchID: R56049

Date: *07-Sep-09*

Run ID :Run Order: **IC101-H_090818A: 13** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV** Method: **E300.0**

Analysis Date: **08/18/09 14:35** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.5	1.0	2.5		**101**	90	110				
Sulfate	9.9	1.0	10		**99**	90	110				

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Run ID :Run Order: **IC101-H_090818A: 14** SampType: **Laboratory Control Sample** Sample ID: **LCS** Method: **E300.0**

Analysis Date: **08/18/09 14:51** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	85	1.0	87.47		**98**	90	110				
Sulfate	28	1.0	28.53	0.238	**96**	90	110				

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Run ID :Run Order: **IC101-H_090818A: 15** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E300.0**

Analysis Date: **08/18/09 15:08** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	4.9	1.0	5		**97**	90	110				
Sulfate	9.9	1.0	10	0.238	**97**	90	110				

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Run ID :Run Order: **IC101-H_090818A: 16** SampType: **Method Blank** Sample ID: **MBLK** Method: **E300.0**

Analysis Date: **08/18/09 15:24** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.05									
Sulfate	0.2	0.1									

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Run ID :Run Order: **IC101-H_090818A: 86** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV** Method: **E300.0**

Analysis Date: **08/19/09 10:34** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	23	1.0	25		**93**	90	110				
Sulfate	50	1.0	50		**99**	90	110				

Qualifiers:
ND - Not Detected at the Reporting Limit
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R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Work Order: H09080188
Project: 1054 Asarco E Helena Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: R56049

Date: *07-Sep-09*

Run ID :Run Order: **IC101-H_090818A: 86** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV** Method: **E300.0**
Analysis Date: **08/19/09 10:34** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: H09080188-001

Run ID :Run Order: **IC101-H_090818A: 96** SampType: **Sample Matrix Spike** Sample ID: **H09080186-011A MS** Method: **E300.0**
Analysis Date: **08/19/09 13:18** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	25	1.0	25	1.006	**96**	90	110				
Sulfate	130	1.0	50	76.88	**105**	90	110				

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Run ID :Run Order: **IC101-H_090818A: 97** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080186-011A MSD** Method: **E300.0**
Analysis Date: **08/19/09 13:34** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	25	1.0	25	1.006	**96**	90	110	25	**0.4**	20	
Sulfate	130	1.0	50	76.88	**105**	90	110	129.2	**0**	20	

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Run ID :Run Order: **IC101-H_090818A: 100** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV** Method: **E300.0**
Analysis Date: **08/19/09 14:23** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	23	1.0	25		**93**	90	110				
Sulfate	50	1.0	50		**100**	90	110				

Associated samples: H09080188-002; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011

Run ID :Run Order: **IC101-H_090818A: 108** SampType: **Sample Matrix Spike** Sample ID: **H09080188-007A MS** Method: **E300.0**
Analysis Date: **08/19/09 16:35** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	24	1.0	25	0.295	**95**	90	110				
Sulfate	52	1.0	50	0.531	**102**	90	110				

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080188
Project: 1054 Asarco E Helena Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: R56049

Date: *07-Sep-09*

Run ID :Run Order: **IC101-H_090818A: 109** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080188-007A MSD** Method: **E300.0**

Analysis Date: **08/19/09 16:51** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	24	1.0	25	0.295	**95**	90	110	24.08	**0.2**	20	
Sulfate	52	1.0	50	0.531	**102**	90	110	51.68	**0.1**	20	

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Run ID :Run Order: **IC101-H_090818A: 114** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV** Method: **E300.0**

Analysis Date: **08/19/09 18:13** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	23	1.0	25		**93**	90	110				
Sulfate	49	1.0	50		**99**	90	110				

Associated samples: H09080188-012; H09080188-013; H09080188-014; H09080188-015

Run ID :Run Order: **IC101-H_090818A: 122** SampType: **Sample Matrix Spike** Sample ID: **H09080189-002A MS** Method: **E300.0**

Analysis Date: **08/19/09 20:25** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	28	1.0	25	3.573	**96**	90	110				
Sulfate	69	1.0	50	17.23	**104**	90	110				

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Run ID :Run Order: **IC101-H_090818A: 123** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080189-002A MSD** Method: **E300.0**

Analysis Date: **08/19/09 20:41** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	28	1.0	25	3.573	**96**	90	110	27.62	**0.3**	20	
Sulfate	69	1.0	50	17.23	**104**	90	110	69.19	**0.2**	20	

Associated samples: H09080188-001; H09080188-002; H09080188-003; H09080188-004; H09080188-005; H09080188-006; H09080188-007; H09080188-008; H09080188-009; H09080188-010; H09080188-011; H09080188-012; H09080188-013; H09080188-014; H09080188-015

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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ANALYTICAL SUMMARY REPORT

August 27, 2009

Asarco Consulting
5219 N Shirley St
Ruston, WA 98407

Workorder No.: H09080217

Project Name: 1054 Asarco E Helena Quarterly Monitoring

Energy Laboratories Inc received the following 7 samples for Asarco Consulting on 8/18/2009 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H09080217-001	AEH-0908-131	08/18/09 14:15	08/18/09	Aqueous	Metals by ICP/ICPMS, Dissolved Conductivity pH Solids, Total Dissolved Solids, Total Suspended
H09080217-002	AEH-0908-132	08/18/09 14:40	08/18/09	Aqueous	Same As Above
H09080217-003	AEH-0908-133	08/18/09 15:05	08/18/09	Aqueous	Same As Above
H09080217-004	AEH-0908-134	08/18/09 15:15	08/18/09	Aqueous	Same As Above
H09080217-005	AEH-0908-135	08/18/09 15:25	08/18/09	Aqueous	Same As Above
H09080217-006	AEH-0908-136	08/18/09 15:45	08/18/09	Aqueous	Same As Above
H09080217-007	AEH-0908-137	08/18/09 16:00	08/18/09	Aqueous	Same As Above

BRANCH LABORATORY LOCATIONS
eli-b - Energy Laboratories, Inc. - Billings, MT, EPA # MT00005
eli-c - Energy Laboratories, Inc. - Casper, WY, EPA# WY00002
eli-g - Energy Laboratories, Inc. - Gillette, WY, EPA# WY00006
eli-h - Energy Laboratories, Inc. - Helena, MT, EPA# MT00945
eli-r - Energy Laboratories, Inc. - Rapid City, SD, EPA# SD00012
eli-t - Energy Laboratories, Inc. - College Station, TX, EPA# TX01520

SUBCONTRACTING ANALYSIS
Subcontracting of sample analyses to an outside laboratory may be required. If so, ENERGY LABORATORIES, INC. will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories are indicated within the Laboratory Analytical Report.

SAMPLE TEMPERATURE COMPLIANCE: 4°C (±2°C)
Temperature of samples received may not be considered properly preserved by accepted standards. Samples that are hand delivered immediately after collection shall be considered acceptable if there is evidence that the chilling process has begun.

ELI appreciates the opportunity to provide you with this analytical service. For additional information, including certifications, and analytical services visit our web page www.energylab.com.

Report Approved By: Jonathan D. Hager

Digitally signed by Jonathan D. Hager
DN: cn=Jonathan D. Hager, o=Energy Laboratory-Helena, ou=Assistant Lab Manager, email=jhager@energylab.com, c=US
Date: 2009.08.31 09:21:55 -06'00'

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-131
Lab ID: H09080217-001
Matrix: Aqueous

Project: 1054 Asarco E Helena Quarterly Monitoring
Collection Date: 08/18/09 14:15 **DateReceived:** 08/18/09
Report Date: 08/27/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.1	s.u.		0.1		A4500-H B	08/19/09 08:48 / JG		PH_090819A	2	090819A-PH-W
Conductivity	264	umhos/cm		1		A2510 B	08/19/09 08:39 / JG		COND_090819A	4	90819A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/19/09 13:14 / hm		SOLIDS_090819B	26	090819A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	171	mg/L		10		A2540 C	08/19/09 13:42 / JG		SOLIDS_090819A	27	090819A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	ND	mg/L		0.005		E200.8	08/22/09 20:32 / eli-b		SUB-B134750	1	B_R134750
Selenium	ND	mg/L		0.001		E200.8	08/22/09 20:32 / eli-b		SUB-B134750	1	B_R134750

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-132
Lab ID: H09080217-002
Matrix: Aqueous

Project: 1054 Asarco E Helena Quarterly Monitoring
Collection Date: 08/18/09 14:40 **DateReceived:** 08/18/09
Report Date: 08/27/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.1	s.u.		0.1		A4500-H B	08/19/09 08:52 / JG		PH_090819A	3	090819A-PH-W
Conductivity	213	umhos/cm		1		A2510 B	08/19/09 08:43 / JG		COND_090819A	5	90819A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/19/09 13:15 / hm		SOLIDS_090819B	27	090819A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	152	mg/L		10		A2540 C	08/19/09 13:42 / JG		SOLIDS_090819A	28	090819A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	ND	mg/L		0.005		E200.8	08/22/09 20:52 / eli-b		SUB-B134750	2	B_R134750
Selenium	ND	mg/L		0.001		E200.8	08/22/09 20:52 / eli-b		SUB-B134750	2	B_R134750

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-133
Lab ID: H09080217-003
Matrix: Aqueous

Project: 1054 Asarco E Helena Quarterly Monitoring
Collection Date: 08/18/09 15:05 **DateReceived:** 08/18/09
Report Date: 08/27/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.4	s.u.		0.1		A4500-H B	08/19/09 08:55 / JG		PH_090819A	4	090819A-PH-W
Conductivity	428	umhos/cm		1		A2510 B	08/19/09 08:46 / JG		COND_090819A	6	90819A-COND-PROB
Solids, Total Suspended TSS @ 105 C	23	mg/L		10		A2540 D	08/19/09 13:15 / hm		SOLIDS_090819B	29	090819A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	291	mg/L		10		A2540 C	08/19/09 13:50 / JG		SOLIDS_090819A	31	090819A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	ND	mg/L		0.005		E200.8	08/22/09 20:56 / eli-b		SUB-B134750	3	B_R134750
Selenium	0.001	mg/L		0.001		E200.8	08/22/09 20:56 / eli-b		SUB-B134750	3	B_R134750

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-134
Lab ID: H09080217-004
Matrix: Aqueous

Project: 1054 Asarco E Helena Quarterly Monitoring
Collection Date: 08/18/09 15:15 **DateReceived:** 08/18/09
Report Date: 08/27/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.4	s.u.		0.1		A4500-H B	08/19/09 09:00 / JG		PH_090819A	5	090819A-PH-W
Conductivity	429	umhos/cm		1		A2510 B	08/19/09 08:50 / JG		COND_090819A	7	90819A-COND-PROB
Solids, Total Suspended TSS @ 105 C	18	mg/L		10		A2540 D	08/19/09 13:16 / hm		SOLIDS_090819B	30	090819A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	289	mg/L		10		A2540 C	08/19/09 13:51 / JG		SOLIDS_090819A	32	090819A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	ND	mg/L		0.005		E200.8	08/22/09 21:00 / eli-b		SUB-B134750	4	B_R134750
Selenium	0.001	mg/L		0.001		E200.8	08/22/09 21:00 / eli-b		SUB-B134750	4	B_R134750

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-135
Lab ID: H09080217-005
Matrix: Aqueous

Project: 1054 Asarco E Helena Quarterly Monitoring
Collection Date: 08/18/09 15:25 **DateReceived:** 08/18/09
Report Date: 08/27/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.4	s.u.		0.1		A4500-H B	08/27/09 11:45 / hm		PH_090827A	12	090827A-PH-W
Conductivity	7	umhos/cm		1		A2510 B	08/19/09 08:53 / JG		COND_090819A	9	90819A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/19/09 13:17 / hm		SOLIDS_090819B	31	090819A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	23	mg/L		10		A2540 C	08/21/09 09:41 / hm		SOLIDS_090821A	6	090821A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	ND	mg/L		0.005		E200.8	08/22/09 21:04 / eli-b		SUB-B134750	5	B_R134750
Selenium	ND	mg/L		0.001		E200.8	08/22/09 21:04 / eli-b		SUB-B134750	5	B_R134750

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-136
Lab ID: H09080217-006
Matrix: Aqueous

Project: 1054 Asarco E Helena Quarterly Monitoring
Collection Date: 08/18/09 15:45 **DateReceived:** 08/18/09
Report Date: 08/27/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.1	s.u.		0.1		A4500-H B	08/19/09 09:14 / JG		PH_090819A	8	090819A-PH-W
Conductivity	275	umhos/cm		1		A2510 B	08/19/09 08:55 / JG		COND_090819A	1	090819A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/19/09 13:17 / hm		SOLIDS_090819B	32	090819A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	183	mg/L		10		A2540 C	08/19/09 13:52 / JG		SOLIDS_090819A	34	090819A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	ND	mg/L		0.005		E200.8	08/22/09 21:09 / eli-b		SUB-B134750	6	B_R134750
Selenium	ND	mg/L		0.001		E200.8	08/22/09 21:09 / eli-b		SUB-B134750	6	B_R134750

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-137
Lab ID: H09080217-007
Matrix: Aqueous

Project: 1054 Asarco E Helena Quarterly Monitoring
Collection Date: 08/18/09 16:00 **DateReceived:** 08/18/09
Report Date: 08/27/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.8	s.u.		0.1		A4500-H B	08/19/09 09:18 / JG		PH_090819A	9	090819A-PH-W
Conductivity	2	umhos/cm		1		A2510 B	08/19/09 08:57 / JG		COND_090819A	1	190819A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/19/09 13:17 / hm		SOLIDS_090819B	33	090819A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	08/19/09 13:52 / JG		SOLIDS_090819A	35	090819A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	ND	mg/L		0.005		E200.8	08/22/09 21:13 / eli-b		SUB-B134750	7	B_R134750
Selenium	ND	mg/L		0.001		E200.8	08/22/09 21:13 / eli-b		SUB-B134750	7	B_R134750

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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Client: Asarco Consulting
Work Order: H09080217
Project: 1054 Asarco E Helena Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: 090819A-COND-PROBE

Date: *27-Aug-09*

Run ID :Run Order: **COND_090819A: 1** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090819A** Method: **A2510 B**

Analysis Date: **08/19/09 08:27** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	1400	1.0	1412		**99**	90	110				

Associated samples: H09080217-001A; H09080217-002A; H09080217-003A; H09080217-004A; H09080217-005A; H09080217-006A; H09080217-007A

Run ID :Run Order: **COND_090819A: 8** SampType: **Sample Duplicate** Sample ID: **H09080217-004ADUP** Method: **A2510 B**

Analysis Date: **08/19/09 08:51** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	431	1.0						429.1	**0.3**	10	

Associated samples: H09080217-001A; H09080217-002A; H09080217-003A; H09080217-004A; H09080217-005A; H09080217-006A; H09080217-007A

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080217
Project: 1054 Asarco E Helena Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: 090819A-PH-W

Date: *27-Aug-09*

Run ID :Run Order: **PH_090819A: 1** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090819A** Method: **A4500-H B**

Analysis Date: **08/19/09 08:43** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.02	0.10	7		**100**	99	101				

Associated samples: H09080217-001A; H09080217-002A; H09080217-003A; H09080217-004A; H09080217-006A; H09080217-007A

Run ID :Run Order: **PH_090819A: 6** SampType: **Sample Duplicate** Sample ID: **H09080217-004ADUP** Method: **A4500-H B**

Analysis Date: **08/19/09 09:01** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.45	0.10						7.44	**0.1**	2	

Associated samples: H09080217-001A; H09080217-002A; H09080217-003A; H09080217-004A; H09080217-006A; H09080217-007A

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080217
Project: 1054 Asarco E Helena Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: 090819A-SLDS-TDS-W

Date: *27-Aug-09*

Run ID :Run Order: **SOLIDS_090819A: 1** SampType: **Method Blank** Sample ID: **MBLK1_090819A** Method: **A2540 C**
Analysis Date: **08/19/09 13:26** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	3	1.0									

Associated samples: H09080217-001A; H09080217-002A; H09080217-003A; H09080217-004A; H09080217-006A; H09080217-007A

Run ID :Run Order: **SOLIDS_090819A: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090819A** Method: **A2540 C**
Analysis Date: **08/19/09 13:28** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	998	10	1000	3	**99**	90	110				

Associated samples: H09080217-001A; H09080217-002A; H09080217-003A; H09080217-004A; H09080217-006A; H09080217-007A

Run ID :Run Order: **SOLIDS_090819A: 19** SampType: **Sample Duplicate** Sample ID: **H09080188-014ADUP** Method: **A2540 C**
Analysis Date: **08/19/09 13:39** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	200	10						214	**6.8**	20	

Associated samples: H09080217-001A; H09080217-002A; H09080217-003A; H09080217-004A; H09080217-006A; H09080217-007A

Run ID :Run Order: **SOLIDS_090819A: 29** SampType: **Sample Matrix Spike** Sample ID: **H09080217-002AMS** Method: **A2540 C**
Analysis Date: **08/19/09 13:43** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2100	10	2000	152	**98**	80	120				

Associated samples: H09080217-001A; H09080217-002A; H09080217-003A; H09080217-004A; H09080217-006A; H09080217-007A

Run ID :Run Order: **SOLIDS_090819A: 30** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080217-002AMSD** Method: **A2540 C**
Analysis Date: **08/19/09 13:43** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2050	10	2000	152	**95**	80	120	2104	**2.5**	10	

Associated samples: H09080217-001A; H09080217-002A; H09080217-003A; H09080217-004A; H09080217-006A; H09080217-007A

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080217
Project: 1054 Asarco E Helena Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: 090819A-SLDS-TSS-W

Date: *27-Aug-09*

Run ID :Run Order: **SOLIDS_090819B: 1** SampType: **Method Blank** Sample ID: **MBLK1_090819A** Method: **A2540 D**
Analysis Date: **08/19/09 12:49** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	ND	1									

Associated samples: H09080217-001A; H09080217-002A; H09080217-003A; H09080217-004A; H09080217-005A; H09080217-006A; H09080217-007A

Run ID :Run Order: **SOLIDS_090819B: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090819A** Method: **A2540 D**
Analysis Date: **08/19/09 12:49** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	1800	10	2000		**90**	70	130				

Associated samples: H09080217-001A; H09080217-002A; H09080217-003A; H09080217-004A; H09080217-005A; H09080217-006A; H09080217-007A

Run ID :Run Order: **SOLIDS_090819B: 28** SampType: **Sample Duplicate** Sample ID: **H09080217-002ADUP** Method: **A2540 D**
Analysis Date: **08/19/09 13:15** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	10.0	10						8		10	

Associated samples: H09080217-001A; H09080217-002A; H09080217-003A; H09080217-004A; H09080217-005A; H09080217-006A; H09080217-007A

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080217
Project: 1054 Asarco E Helena Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: 090821A-SLDS-TDS-W

Date: *27-Aug-09*

Run ID :Run Order: **SOLIDS_090821A: 1** SampType: **Method Blank** Sample ID: **MBLK1_090821A** Method: **A2540 C**
Analysis Date: **08/21/09 09:37** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	1	1.0									

Associated samples: H09080217-005A

Run ID :Run Order: **SOLIDS_090821A: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090821A** Method: **A2540 C**
Analysis Date: **08/21/09 09:38** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	1010	10	1000	1	**101**	90	110				

Associated samples: H09080217-005A

Run ID :Run Order: **SOLIDS_090821A: 11** SampType: **Sample Matrix Spike** Sample ID: **H09080233-002AMS** Method: **A2540 C**
Analysis Date: **08/21/09 09:44** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2870	10	2000	907	**98**	80	120				

Associated samples: H09080217-005A

Run ID :Run Order: **SOLIDS_090821A: 12** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080233-002AMSD** Method: **A2540 C**
Analysis Date: **08/21/09 09:44** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2890	10	2000	907	**99**	80	120	2874	**0.7**	10	

Associated samples: H09080217-005A

Run ID :Run Order: **SOLIDS_090821A: 19** SampType: **Sample Duplicate** Sample ID: **H09080233-008ADUP** Method: **A2540 C**
Analysis Date: **08/21/09 09:48** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	374	10						369	**1.3**	20	

Associated samples: H09080217-005A

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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ANALYTICAL QC SUMMARY REPORT

Client: Asarco Consulting
Work Order: H09080217
Project: 1054 Asarco E Helena Quarterly Monitoring

Date: *27-Aug-09*

BatchID: 090827A-PH-W

Run ID :Run Order: **PH_090827A: 1** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090827A** Method: **A4500-H B**

Analysis Date: **08/27/09 11:22** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.03	0.10	7		100	99	101				

Associated samples: H09080217-005A

Run ID :Run Order: **PH_090827A: 6** SampType: **Sample Duplicate** Sample ID: **H09080316-002ADUP** Method: **A4500-H B**

Analysis Date: **08/27/09 11:30** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	6.81	0.10						6.8	0.1	2	

Associated samples: H09080217-005A

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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ANALYTICAL QC SUMMARY REPORT

Client: Asarco Consulting
Work Order: H09080217
Project: 1054 Asarco E Helena Quarterly Monitoring

Date: 27-Aug-09

BatchID: B_R134750

Run ID :Run Order: **SUB-B134750: 8** SampType: **Method Blank** Sample ID: **LRB** Method: **E200.8**
Analysis Date: **08/21/09 13:18** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	3E-05									
Selenium	ND	0.0002									

Associated samples: H09080217-001B; H09080217-002B; H09080217-003B; H09080217-004B; H09080217-005B; H09080217-006B; H09080217-007B

Run ID :Run Order: **SUB-B134750: 9** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**
Analysis Date: **08/21/09 13:23** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.049	0.0050	0.05		**98**	85	115				
Selenium	0.050	0.0050	0.05		**101**	85	115				

Associated samples: H09080217-001B; H09080217-002B; H09080217-003B; H09080217-004B; H09080217-005B; H09080217-006B; H09080217-007B

Run ID :Run Order: **SUB-B134750: 10** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090609B, ME080814C** Method: **E200.8**
Analysis Date: **08/22/09 18:39** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.051	0.0050	0.05		**101**	90	110				
Selenium	0.050	0.0050	0.05		**101**	90	110				

Associated samples: H09080217-001B; H09080217-002B; H09080217-003B; H09080217-004B; H09080217-005B; H09080217-006B; H09080217-007B

Run ID :Run Order: **SUB-B134750: 11** SampType: **Sample Matrix Spike** Sample ID: **H09080236-010B** Method: **E200.8**
Analysis Date: **08/22/09 20:08** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.253	0.0050	0.25		**101**	70	130				
Selenium	0.259	0.0050	0.25		**104**	70	130				

Associated samples: H09080217-001B; H09080217-002B; H09080217-003B; H09080217-004B; H09080217-005B; H09080217-006B; H09080217-007B

Run ID :Run Order: **SUB-B134750: 12** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080236-010B** Method: **E200.8**
Analysis Date: **08/22/09 20:12** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.259	0.0050	0.25		**104**	70	130	0.2529	**2.5**	20	

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080217
Project: 1054 Asarco E Helena Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R134750

Date: *27-Aug-09*

Run ID :Run Order: **SUB-B134750: 12** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080236-010B** Method: **E200.8**
Analysis Date: **08/22/09 20:12** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	0.265	0.0050	0.25		**106**	70	130	0.2591	**2.3**	20	

Associated samples: H09080217-001B; H09080217-002B; H09080217-003B; H09080217-004B; H09080217-005B; H09080217-006B; H09080217-007B

Run ID :Run Order: **SUB-B134750: 13** SampType: **Sample Matrix Spike** Sample ID: **H09080217-007B** Method: **E200.8**
Analysis Date: **08/22/09 21:17** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0502	0.0050	0.05		**100**	70	130				
Selenium	0.0511	0.0050	0.05		**102**	70	130				

Associated samples: H09080217-001B; H09080217-002B; H09080217-003B; H09080217-004B; H09080217-005B; H09080217-006B; H09080217-007B

Run ID :Run Order: **SUB-B134750: 14** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080217-007B** Method: **E200.8**
Analysis Date: **08/22/09 21:21** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0503	0.0050	0.05		**101**	70	130	0.05021	**0.2**	20	
Selenium	0.0510	0.0050	0.05		**102**	70	130	0.05114	**0.2**	20	

Associated samples: H09080217-001B; H09080217-002B; H09080217-003B; H09080217-004B; H09080217-005B; H09080217-006B; H09080217-007B

Run ID :Run Order: **SUB-B134750: 16** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090609B, 080814C** Method: **E200.8**
Analysis Date: **08/22/09 09:58** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.050	0.0050	0.05		**99**	90	110				
Selenium	0.049	0.0050	0.05		**98**	90	110				

Associated samples: H09080217-001B; H09080217-002B; H09080217-003B; H09080217-004B; H09080217-005B; H09080217-006B; H09080217-007B

Run ID :Run Order: **SUB-B134750: 51** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090609B, 080814C** Method: **E200.8**
Analysis Date: **08/21/09 15:42** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.049	0.0050	0.05		**99**	90	110				
Selenium	0.050	0.0050	0.05		**100**	90	110				

Qualifiers: ND - Not Detected at the Reporting Limit; S - Spike Recovery outside accepted recovery limits; N - Analyte concentration was not sufficiently high to calculate RPD; J - Analyte detected below quantitation limits; R - RPD outside accepted recovery limits; A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080217
Project: 1054 Asarco E Helena Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R134750

Date: *27-Aug-09*

Run ID :Run Order: **SUB-B134750: 51** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090609B, 080814C** Method: **E200.8**

Analysis Date: **08/21/09 15:42** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: H09080217-001B; H09080217-002B; H09080217-003B; H09080217-004B; H09080217-005B; H09080217-006B; H09080217-007B

Run ID :Run Order: **SUB-B134750: 60** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090609B, ME080814C** Method: **E200.8**

Analysis Date: **08/22/09 02:53** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.050	0.0050	0.05		**99**	90	110				
Selenium	0.050	0.0050	0.05		**100**	90	110				

Associated samples: H09080217-001B; H09080217-002B; H09080217-003B; H09080217-004B; H09080217-005B; H09080217-006B; H09080217-007B

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
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R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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ANALYTICAL SUMMARY REPORT

August 28, 2009

Asarco Consulting
5219 N Shirley St
Ruston, WA 98407

Workorder No.: H09080236 Quote ID: H454 - Revised Quarterly Monitoring Program August 2009

Project Name: 1054 Asarco E.Helena Quarterly Monitoring

Energy Laboratories Inc received the following 13 samples for Asarco Consulting on 8/19/2009 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H09080236-001	AEH-0908-138	08/19/09 9:35	08/19/09	Aqueous	Metals by ICP/ICPMS, Dissolved Conductivity pH Solids, Total Dissolved Solids, Total Suspended
H09080236-002	AEH-0908-139	08/19/09 10:00	08/19/09	Aqueous	Same As Above
H09080236-003	AEH-0908-140	08/19/09 10:50	08/19/09	Aqueous	Same As Above
H09080236-004	AEH-0908-141	08/19/09 11:15	08/19/09	Aqueous	Same As Above
H09080236-005	AEH-0908-142	08/19/09 11:40	08/19/09	Aqueous	Same As Above
H09080236-006	AEH-0908-143	08/19/09 12:10	08/19/09	Aqueous	Same As Above
H09080236-007	AEH-0908-144	08/19/09 12:20	08/19/09	Aqueous	Same As Above
H09080236-008	AEH-0908-145	08/19/09 13:25	08/19/09	Aqueous	Same As Above
H09080236-009	AEH-0908-146	08/19/09 14:30	08/19/09	Aqueous	Same As Above
H09080236-010	AEH-0908-147	08/19/09 14:45	08/19/09	Aqueous	Same As Above
H09080236-011	AEH-0908-148	08/19/09 15:20	08/19/09	Aqueous	Same As Above
H09080236-012	AEH-0908-149	08/19/09 15:50	08/19/09	Aqueous	Same As Above
H09080236-013	AEH-0908-150	08/19/09 16:15	08/19/09	Aqueous	Same As Above

BRANCH LABORATORY LOCATIONS
eli-b - Energy Laboratories, Inc. - Billings, MT, EPA # MT00005
eli-c - Energy Laboratories, Inc. - Casper, WY, EPA# WY00002
eli-g - Energy Laboratories, Inc. - Gillette, WY, EPA# WY00006
eli-h - Energy Laboratories, Inc. - Helena, MT, EPA# MT00945
eli-r - Energy Laboratories, Inc. - Rapid City, SD, EPA# SD00012
eli-t - Energy Laboratories, Inc. - College Station, TX, EPA# TX01520

SUBCONTRACTING ANALYSIS
Subcontracting of sample analyses to an outside laboratory may be required. If so, ENERGY LABORATORIES, INC. will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories are indicated within the Laboratory Analytical Report.

SAMPLE TEMPERATURE COMPLIANCE: 4°C (±2°C)
Temperature of samples received may not be considered properly preserved by accepted standards. Samples that are hand delivered immediately after collection shall be considered acceptable if there is evidence that the chilling process has begun.

ELI appreciates the opportunity to provide you with this analytical service. For additional information, including certifications, and analytical services visit our web page www.energylab.com.

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ANALYTICAL SUMMARY REPORT

Report Approved By: Jonathan D. Hager

Digitally signed by Jonathan D. Hager
DN: cn=Jonathan D. Hager, o=Energy Laboratory-Helena, ou=Assistant Lab Manager, email=jhager@energylab.com, c=US
Date: 2009.08.31 09:24:50 -06'00'

ENERGY LABORATORIES, INC. * 3161 E Lyndale (59604) * PO Box [redacted] * Helena, MT [redacted]
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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-138
Project: 1054 Asarco E.Helena Quarterly Monitoring
Matrix: Aqueous

Lab ID: H09080236-001
Collection Date: 08/19/09 09:35
DateReceived: 08/19/09
Report Date: 08/28/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
pH	7.1	s.u.		0.1		A4500-H B	08/20/09 15:10 / hm			PH_090820B	24	090820A-PH-W
Conductivity	502	umhos/cm		1		A2510 B	08/20/09 15:00 / hm			COND_090820A	25	090820A-COND-PROBE W
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/25/09 10:36 / hm			SOLIDS_090825A	3	090825A-SLDS-TSS-W
Solids, Total Dissolved TDS @ 180 C	306	mg/L		10		A2540 C	08/25/09 11:24 / hm			SOLIDS_090825B	4	090825A-SLDS-TDS-W
METALS, DISSOLVED												
Arsenic	ND	mg/L		0.005		E200.8	08/22/09 19:11 / eli-b			SUB-B134750	19	B_R134750
Selenium	ND	mg/L		0.001		E200.8	08/22/09 19:11 / eli-b			SUB-B134750	19	B_R134750

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-139
Project: 1054 Asarco E.Helena Quarterly Monitoring
Matrix: Aqueous

Lab ID: H09080236-002
Collection Date: 08/19/09 10:00
DateReceived: 08/19/09
Report Date: 08/28/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
pH	7.0	s.u.		0.1		A4500-H B	08/20/09 15:12 / hm			PH_090820B	25	090820A-PH-W
Conductivity	524	umhos/cm		1		A2510 B	08/20/09 15:10 / hm			COND_090820A	27	090820A-COND-PROBE W
Solids, Total Suspended TSS @ 105 C	12	mg/L		10		A2540 D	08/25/09 10:36 / hm			SOLIDS_090825A	4	090825A-SLDS-TSS-W
Solids, Total Dissolved TDS @ 180 C	352	mg/L		10		A2540 C	08/25/09 11:25 / hm			SOLIDS_090825B	5	090825A-SLDS-TDS-W
METALS, DISSOLVED												
Arsenic	ND	mg/L		0.005		E200.8	08/22/09 19:15 / eli-b			SUB-B134750	20	B_R134750
Selenium	0.010	mg/L		0.001		E200.8	08/22/09 19:15 / eli-b			SUB-B134750	20	B_R134750

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-140
Project: 1054 Asarco E.Helena Quarterly Monitoring
Matrix: Aqueous

Lab ID: H09080236-003
Collection Date: 08/19/09 10:50
DateReceived: 08/19/09
Report Date: 08/28/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
pH	7.2	s.u.		0.1		A4500-H B	08/20/09 15:18 / hm			PH_090820B	27	090820A-PH-W
Conductivity	526	umhos/cm		1		A2510 B	08/20/09 15:11 / hm			COND_090820A	28	090820A-COND-PROBE W
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/25/09 10:37 / hm			SOLIDS_090825A	6	090825A-SLDS-TSS-W
Solids, Total Dissolved TDS @ 180 C	340	mg/L		10		A2540 C	08/25/09 11:26 / hm			SOLIDS_090825B	8	090825A-SLDS-TDS-W
METALS, DISSOLVED												
Arsenic	ND	mg/L		0.005		E200.8	08/22/09 19:19 / eli-b			SUB-B134750	21	B_R134750
Selenium	0.024	mg/L		0.001		E200.8	08/22/09 19:19 / eli-b			SUB-B134750	21	B_R134750

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-141
Project: 1054 Asarco E.Helena Quarterly Monitoring
Matrix: Aqueous

Lab ID: H09080236-004
Collection Date: 08/19/09 11:15
DateReceived: 08/19/09
Report Date: 08/28/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
pH	7.1	s.u.		0.1		A4500-H B	08/20/09 15:19 / hm			PH_090820B	28	090820A-PH-W
Conductivity	571	umhos/cm		1		A2510 B	08/20/09 15:13 / hm			COND_090820A	29	090820A-COND-PROBE W
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/25/09 10:38 / hm			SOLIDS_090825A	7	090825A-SLDS-TSS-W
Solids, Total Dissolved TDS @ 180 C	372	mg/L		10		A2540 C	08/25/09 11:27 / hm			SOLIDS_090825B	9	090825A-SLDS-TDS-W
METALS, DISSOLVED												
Arsenic	0.366	mg/L		0.005		E200.8	08/22/09 19:23 / eli-b			SUB-B134750	22	B_R134750
Selenium	0.024	mg/L		0.001		E200.8	08/22/09 19:23 / eli-b			SUB-B134750	22	B_R134750

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-142
Project: 1054 Asarco E.Helena Quarterly Monitoring
Matrix: Aqueous

Lab ID: H09080236-005
Collection Date: 08/19/09 11:40
DateReceived: 08/19/09
Report Date: 08/28/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
pH	5.8	s.u.		0.1		A4500-H B	08/20/09 15:20 / hm			PH_090820B	29	090820A-PH-W
Conductivity	3	umhos/cm		1		A2510 B	08/20/09 15:15 / hm			COND_090820A	30	090820A-COND-PROBE W
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/25/09 10:38 / hm			SOLIDS_090825A	8	090825A-SLDS-TSS-W
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	08/25/09 11:27 / hm			SOLIDS_090825B	10	090825A-SLDS-TDS-W
METALS, DISSOLVED												
Arsenic	ND	mg/L		0.005		E200.8	08/22/09 19:27 / eli-b			SUB-B134750	23	B_R134750
Selenium	ND	mg/L		0.001		E200.8	08/22/09 19:27 / eli-b			SUB-B134750	23	B_R134750

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-143
Project: 1054 Asarco E.Helena Quarterly Monitoring
Matrix: Aqueous

Lab ID: H09080236-006
Collection Date: 08/19/09 12:10
DateReceived: 08/19/09
Report Date: 08/28/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
pH	7.1	s.u.		0.1		A4500-H B	08/20/09 15:26 / hm			PH_090820B	30	090820A-PH-W
Conductivity	310	umhos/cm		1		A2510 B	08/20/09 15:17 / hm			COND_090820A	31	090820A-COND-PROBE W
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/25/09 10:38 / hm			SOLIDS_090825A	9	090825A-SLDS-TSS-W
Solids, Total Dissolved TDS @ 180 C	200	mg/L		10		A2540 C	08/25/09 11:28 / hm			SOLIDS_090825B	11	090825A-SLDS-TDS-W
METALS, DISSOLVED												
Arsenic	ND	mg/L		0.005		E200.8	08/22/09 19:31 / eli-b			SUB-B134750	24	B_R134750
Selenium	0.001	mg/L		0.001		E200.8	08/22/09 19:31 / eli-b			SUB-B134750	24	B_R134750

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-144
Project: 1054 Asarco E.Helena Quarterly Monitoring
Matrix: Aqueous

Lab ID: H09080236-007
Collection Date: 08/19/09 12:20
DateReceived: 08/19/09
Report Date: 08/28/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
pH	7.0	s.u.		0.1		A4500-H B	08/20/09 15:28 / hm			PH_090820B	31	090820A-PH-W
Conductivity	315	umhos/cm		1		A2510 B	08/20/09 15:18 / hm			COND_090820A	32	090820A-COND-PROBE W
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/25/09 10:39 / hm			SOLIDS_090825A	10	090825A-SLDS-TSS-W
Solids, Total Dissolved TDS @ 180 C	201	mg/L		10		A2540 C	08/25/09 11:28 / hm			SOLIDS_090825B	12	090825A-SLDS-TDS-W
METALS, DISSOLVED												
Arsenic	ND	mg/L		0.005		E200.8	08/22/09 19:35 / eli-b			SUB-B134750	25	B_R134750
Selenium	0.001	mg/L		0.001		E200.8	08/22/09 19:35 / eli-b			SUB-B134750	25	B_R134750

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-145
Project: 1054 Asarco E.Helena Quarterly Monitoring
Matrix: Aqueous

Lab ID: H09080236-008
Collection Date: 08/19/09 13:25
DateReceived: 08/19/09
Report Date: 08/28/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
pH	7.0	s.u.		0.1		A4500-H B	08/20/09 15:28 / hm			PH_090820B	32	090820A-PH-W
Conductivity	274	umhos/cm		1		A2510 B	08/20/09 15:20 / hm			COND_090820A	33	090820A-COND-PROBE W
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/25/09 10:39 / hm			SOLIDS_090825A	11	090825A-SLDS-TSS-W
Solids, Total Dissolved TDS @ 180 C	179	mg/L		10		A2540 C	08/25/09 11:29 / hm			SOLIDS_090825B	13	090825A-SLDS-TDS-W
METALS, DISSOLVED												
Arsenic	0.022	mg/L		0.005		E200.8	08/22/09 19:56 / eli-b			SUB-B134750	26	B_R134750
Selenium	ND	mg/L		0.001		E200.8	08/22/09 19:56 / eli-b			SUB-B134750	26	B_R134750

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-146
Project: 1054 Asarco E.Helena Quarterly Monitoring
Matrix: Aqueous

Lab ID: H09080236-009
Collection Date: 08/19/09 14:30
DateReceived: 08/19/09
Report Date: 08/28/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
pH	7.3	s.u.		0.1		A4500-H B	08/20/09 15:32 / hm			PH_090820B	33	090820A-PH-W
Conductivity	405	umhos/cm		1		A2510 B	08/20/09 15:21 / hm			COND_090820A	34	090820A-COND-PROBE W
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/25/09 10:40 / hm			SOLIDS_090825A	12	090825A-SLDS-TSS-W
Solids, Total Dissolved TDS @ 180 C	262	mg/L		10		A2540 C	08/25/09 11:29 / hm			SOLIDS_090825B	14	090825A-SLDS-TDS-W
METALS, DISSOLVED												
Arsenic	ND	mg/L		0.005		E200.8	08/22/09 20:00 / eli-b			SUB-B134750	27	B_R134750
Selenium	0.005	mg/L		0.001		E200.8	08/22/09 20:00 / eli-b			SUB-B134750	27	B_R134750

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-147
Project: 1054 Asarco E.Helena Quarterly Monitoring
Matrix: Aqueous

Lab ID: H09080236-010
Collection Date: 08/19/09 14:45
DateReceived: 08/19/09
Report Date: 08/28/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
pH	5.7	s.u.		0.1		A4500-H B	08/20/09 15:42 / hm			PH_090820B	34	090820A-PH-W
Conductivity	1	umhos/cm		1		A2510 B	08/20/09 15:22 / hm			COND_090820A	35	090820A-COND-PROBE W
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/25/09 10:40 / hm			SOLIDS_090825A	13	090825A-SLDS-TSS-W
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	08/25/09 11:29 / hm			SOLIDS_090825B	15	090825A-SLDS-TDS-W
METALS, DISSOLVED												
Arsenic	ND	mg/L		0.005		E200.8	08/22/09 20:04 / eli-b			SUB-B134750	28	B_R134750
Selenium	ND	mg/L		0.001		E200.8	08/22/09 20:04 / eli-b			SUB-B134750	28	B_R134750

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-148
Project: 1054 Asarco E.Helena Quarterly Monitoring
Matrix: Aqueous

Lab ID: H09080236-011
Collection Date: 08/19/09 15:20
DateReceived: 08/19/09
Report Date: 08/28/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
pH	6.9	s.u.		0.1		A4500-H B	08/20/09 15:48 / hm			PH_090820B	35	090820A-PH-W
Conductivity	1520	umhos/cm		1		A2510 B	08/20/09 15:25 / hm			COND_090820A	36	090820A-COND-PROBE W
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/25/09 10:40 / hm			SOLIDS_090825A	14	090825A-SLDS-TSS-W
Solids, Total Dissolved TDS @ 180 C	1110	mg/L		10		A2540 C	08/25/09 11:30 / hm			SOLIDS_090825B	16	090825A-SLDS-TDS-W
METALS, DISSOLVED												
Arsenic	ND	mg/L		0.005		E200.8	08/22/09 20:20 / eli-b			SUB-B134750	29	B_R134750
Selenium	0.083	mg/L		0.001		E200.8	08/22/09 20:20 / eli-b			SUB-B134750	29	B_R134750

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-149
Project: 1054 Asarco E.Helena Quarterly Monitoring
Matrix: Aqueous

Lab ID: H09080236-012
Collection Date: 08/19/09 15:50
DateReceived: 08/19/09
Report Date: 08/28/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
pH	7.0	s.u.		0.1		A4500-H B	08/20/09 15:52 / hm			PH_090820B	38	090820A-PH-W
Conductivity	1450	umhos/cm		1		A2510 B	08/20/09 15:32 / hm			COND_090820A	39	090820A-COND-PROBE W
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/25/09 10:41 / hm			SOLIDS_090825A	16	090825A-SLDS-TSS-W
Solids, Total Dissolved TDS @ 180 C	1040	mg/L		10		A2540 C	08/25/09 11:30 / hm			SOLIDS_090825B	19	090825A-SLDS-TDS-W
METALS, DISSOLVED												
Arsenic	ND	mg/L		0.005		E200.8	08/22/09 20:24 / eli-b			SUB-B134750	30	B_R134750
Selenium	0.111	mg/L		0.001		E200.8	08/22/09 20:24 / eli-b			SUB-B134750	30	B_R134750

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-150
Project: 1054 Asarco E.Helena Quarterly Monitoring
Matrix: Aqueous

Lab ID: H09080236-013
Collection Date: 08/19/09 16:15
DateReceived: 08/19/09
Report Date: 08/28/09

Analyses	Result	Units	QUAL	RL	MCL	Method	Analysis Date / By	Prep Date	Prep Method	RunID	Run Order	BatchID
PHYSICAL PROPERTIES												
pH	7.2	s.u.		0.1		A4500-H B	08/20/09 15:59 / hm			PH_090820B	40	090820A-PH-W
Conductivity	355	umhos/cm		1		A2510 B	08/20/09 15:45 / hm			COND_090820A	41	090820A-COND-PROBE W
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/25/09 10:42 / hm			SOLIDS_090825A	17	090825A-SLDS-TSS-W
Solids, Total Dissolved TDS @ 180 C	229	mg/L		10		A2540 C	08/25/09 11:31 / hm			SOLIDS_090825B	20	090825A-SLDS-TDS-W
METALS, DISSOLVED												
Arsenic	ND	mg/L		0.005		E200.8	08/22/09 20:28 / eli-b			SUB-B134750	31	B_R134750
Selenium	0.006	mg/L		0.001		E200.8	08/22/09 20:28 / eli-b			SUB-B134750	31	B_R134750

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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Client: Asarco Consulting
Work Order: H09080236
Project: 1054 Asarco E.Helena Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: 090820A-COND-PROBE

Date: *28-Aug-09*

Run ID :Run Order: **COND_090820A: 1** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090820A** Method: **A2510 B**
Analysis Date: **08/20/09 12:23** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	1430	1.0	1412		**101**	90	110				

Associated samples: H09080236-001A; H09080236-002A; H09080236-003A; H09080236-004A; H09080236-005A; H09080236-006A; H09080236-007A; H09080236-008A; H09080236-009A; H09080236-010A; H09080236-011A; H09080236-012A; H09080236-013A

Run ID :Run Order: **COND_090820A: 13** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV1_090820A** Method: **A2510 B**
Analysis Date: **08/20/09 14:33** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	735	1.0	718		**102**	90	110				

Associated samples: H09080236-001A

Run ID :Run Order: **COND_090820A: 26** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV2_090820A** Method: **A2510 B**
Analysis Date: **08/20/09 15:00** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	723	1.0	718		**101**	90	110				

Associated samples: H09080236-002A; H09080236-003A; H09080236-004A; H09080236-005A; H09080236-006A; H09080236-007A; H09080236-008A; H09080236-009A; H09080236-010A; H09080236-011A

Run ID :Run Order: **COND_090820A: 37** SampType: **Sample Duplicate** Sample ID: **H09080236-011ADUP** Method: **A2510 B**
Analysis Date: **08/20/09 15:27** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	1510	1.0						1524	**0.8**	10	

Associated samples: H09080236-001A; H09080236-002A; H09080236-003A; H09080236-004A; H09080236-005A; H09080236-006A; H09080236-007A; H09080236-008A; H09080236-009A; H09080236-010A; H09080236-011A; H09080236-012A; H09080236-013A

Run ID :Run Order: **COND_090820A: 38** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV3_090820A** Method: **A2510 B**
Analysis Date: **08/20/09 15:29** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	731	1.0	718		**102**	90	110				

Associated samples: H09080236-012A; H09080236-013A

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080236
Project: 1054 Asarco E.Helena Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: 090820A-COND-PROBE

Date: *28-Aug-09*

Run ID :Run Order: **COND_090820A: 40** SampType: **Sample Duplicate** Sample ID: **H09080236-012ADUP** Method: **A2510 B**

Analysis Date: **08/20/09 15:41** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	1450	1.0						1454	**0.2**	10	

Associated samples: H09080236-001A; H09080236-002A; H09080236-003A; H09080236-004A; H09080236-005A; H09080236-006A; H09080236-007A; H09080236-008A; H09080236-009A; H09080236-010A; H09080236-011A; H09080236-012A; H09080236-013A

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080236
Project: 1054 Asarco E.Helena Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: 090820A-PH-W

Date: *28-Aug-09*

Run ID :Run Order: **PH_090820B: 1** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090820A** Method: **A4500-H B**
Analysis Date: **08/20/09 12:26** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.02	0.10	7		**100**	99	101				

Associated samples: H09080236-001A; H09080236-002A; H09080236-003A; H09080236-004A; H09080236-005A; H09080236-006A; H09080236-007A; H09080236-008A; H09080236-009A; H09080236-010A; H09080236-011A; H09080236-012A; H09080236-013A

Run ID :Run Order: **PH_090820B: 13** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV1_090820A** Method: **A4500-H B**
Analysis Date: **08/20/09 14:32** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	10.0	0.10	10		**100**	99	101				

Associated samples: H09080236-001A; H09080236-002A

Run ID :Run Order: **PH_090820B: 26** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV2_090820A** Method: **A4500-H B**
Analysis Date: **08/20/09 15:14** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	10.0	0.10	10		**100**	99	101				

Associated samples: H09080236-003A; H09080236-004A; H09080236-005A; H09080236-006A; H09080236-007A; H09080236-008A; H09080236-009A; H09080236-010A; H09080236-011A

Run ID :Run Order: **PH_090820B: 36** SampType: **Sample Duplicate** Sample ID: **H09080236-011ADUP** Method: **A4500-H B**
Analysis Date: **08/20/09 15:48** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	6.95	0.10						6.93	**0.3**	2	

Associated samples: H09080236-001A; H09080236-002A; H09080236-003A; H09080236-004A; H09080236-005A; H09080236-006A; H09080236-007A; H09080236-008A; H09080236-009A; H09080236-010A; H09080236-011A; H09080236-012A; H09080236-013A

Run ID :Run Order: **PH_090820B: 37** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV3_090820A** Method: **A4500-H B**
Analysis Date: **08/20/09 15:53** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	10.0	0.10	10		**100**	99	101				

Associated samples: H09080236-012A; H09080236-013A

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080236
Project: 1054 Asarco E.Helena Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: 090820A-PH-W

Date: *28-Aug-09*

Run ID :Run Order: **PH_090820B: 39** SampType: **Sample Duplicate** Sample ID: **H09080236-012ADUP** Method: **A4500-H B**

Analysis Date: **08/20/09 15:55** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	6.97	0.10						6.98	**0.1**	2	

Associated samples: H09080236-001A; H09080236-002A; H09080236-003A; H09080236-004A; H09080236-005A; H09080236-006A; H09080236-007A; H09080236-008A; H09080236-009A; H09080236-010A; H09080236-011A; H09080236-012A; H09080236-013A

Qualifiers:
ND - Not Detected at the Reporting Limit
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Work Order: H09080236
Project: 1054 Asarco E.Helena Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: 090825A-SLDS-TDS-W

Date: *28-Aug-09*

Run ID :Run Order: **SOLIDS_090825B: 1** SampType: **Method Blank** Sample ID: **MBLK1_090825A** Method: **A2540 C**
Analysis Date: **08/25/09 11:23** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	4	1.0									

Associated samples: H09080236-001A; H09080236-002A; H09080236-003A; H09080236-004A; H09080236-005A; H09080236-006A; H09080236-007A; H09080236-008A; H09080236-009A; H09080236-010A; H09080236-011A; H09080236-012A; H09080236-013A

Run ID :Run Order: **SOLIDS_090825B: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090825A** Method: **A2540 C**
Analysis Date: **08/25/09 11:24** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	986	10	1000	4	**98**	90	110				

Associated samples: H09080236-001A; H09080236-002A; H09080236-003A; H09080236-004A; H09080236-005A; H09080236-006A; H09080236-007A; H09080236-008A; H09080236-009A; H09080236-010A; H09080236-011A; H09080236-012A; H09080236-013A

Run ID :Run Order: **SOLIDS_090825B: 6** SampType: **Sample Matrix Spike** Sample ID: **H09080236-002AMS** Method: **A2540 C**
Analysis Date: **08/25/09 11:25** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2330	10	2000	352	**99**	80	120				

Associated samples: H09080236-001A; H09080236-002A; H09080236-003A; H09080236-004A; H09080236-005A; H09080236-006A; H09080236-007A; H09080236-008A; H09080236-009A; H09080236-010A; H09080236-011A; H09080236-012A; H09080236-013A

Run ID :Run Order: **SOLIDS_090825B: 7** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080236-002AMSD** Method: **A2540 C**
Analysis Date: **08/25/09 11:26** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2350	10	2000	352	**100**	80	120	2330	**0.9**	10	

Associated samples: H09080236-001A; H09080236-002A; H09080236-003A; H09080236-004A; H09080236-005A; H09080236-006A; H09080236-007A; H09080236-008A; H09080236-009A; H09080236-010A; H09080236-011A; H09080236-012A; H09080236-013A

Run ID :Run Order: **SOLIDS_090825B: 17** SampType: **Sample Matrix Spike** Sample ID: **H09080236-011AMS** Method: **A2540 C**
Analysis Date: **08/25/09 11:30** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	3080	10	2000	1114	**98**	80	120				

Associated samples: H09080236-001A; H09080236-002A; H09080236-003A; H09080236-004A; H09080236-005A; H09080236-006A; H09080236-007A; H09080236-008A; H09080236-009A; H09080236-010A; H09080236-011A; H09080236-012A; H09080236-013A

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080236
Project: 1054 Asarco E.Helena Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: 090825A-SLDS-TDS-W

Date: *28-Aug-09*

Run ID :Run Order: **SOLIDS_090825B: 18** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080236-011AMSD** Method: **A2540 C**

Analysis Date: **08/25/09 11:30** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	3070	10	2000	1114	**98**	80	120	3078	**0.4**	10	

Associated samples: H09080236-001A; H09080236-002A; H09080236-003A; H09080236-004A; H09080236-005A; H09080236-006A; H09080236-007A; H09080236-008A; H09080236-009A; H09080236-010A; H09080236-011A; H09080236-012A; H09080236-013A

Run ID :Run Order: **SOLIDS_090825B: 28** SampType: **Sample Duplicate** Sample ID: **H09080255-007ADUP** Method: **A2540 C**

Analysis Date: **08/25/09 11:33** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	1360	10						1354	**0.1**	20	

Associated samples: H09080236-001A; H09080236-002A; H09080236-003A; H09080236-004A; H09080236-005A; H09080236-006A; H09080236-007A; H09080236-008A; H09080236-009A; H09080236-010A; H09080236-011A; H09080236-012A; H09080236-013A

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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ANALYTICAL QC SUMMARY REPORT

BatchID: 090825A-SLDS-TSS-W

Date: *28-Aug-09*

Run ID :Run Order: **SOLIDS_090825A: 1** SampType: **Method Blank** Sample ID: **MBLK1_090825A** Method: **A2540 D**

Analysis Date: **08/25/09 10:32** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	ND	1									

Associated samples: H09080236-001A; H09080236-002A; H09080236-003A; H09080236-004A; H09080236-005A; H09080236-006A; H09080236-007A; H09080236-008A; H09080236-009A; H09080236-010A; H09080236-011A; H09080236-012A; H09080236-013A

Run ID :Run Order: **SOLIDS_090825A: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090825A** Method: **A2540 D**

Analysis Date: **08/25/09 10:33** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	2140	10	2000		107	70	130				

Associated samples: H09080236-001A; H09080236-002A; H09080236-003A; H09080236-004A; H09080236-005A; H09080236-006A; H09080236-007A; H09080236-008A; H09080236-009A; H09080236-010A; H09080236-011A; H09080236-012A; H09080236-013A

Run ID :Run Order: **SOLIDS_090825A: 5** SampType: **Sample Duplicate** Sample ID: **H09080236-002ADUP** Method: **A2540 D**

Analysis Date: **08/25/09 10:37** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	12.0	10						12	0	10	

Associated samples: H09080236-001A; H09080236-002A; H09080236-003A; H09080236-004A; H09080236-005A; H09080236-006A; H09080236-007A; H09080236-008A; H09080236-009A; H09080236-010A; H09080236-011A; H09080236-012A; H09080236-013A

Run ID :Run Order: **SOLIDS_090825A: 15** SampType: **Sample Duplicate** Sample ID: **H09080236-011ADUP** Method: **A2540 D**

Analysis Date: **08/25/09 10:41** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	4.00	10						4		10	

Associated samples: H09080236-001A; H09080236-002A; H09080236-003A; H09080236-004A; H09080236-005A; H09080236-006A; H09080236-007A; H09080236-008A; H09080236-009A; H09080236-010A; H09080236-011A; H09080236-012A; H09080236-013A

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080236
Project: 1054 Asarco E.Helena Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R134750

Date: *28-Aug-09*

Run ID :Run Order: **SUB-B134750: 8** SampType: **Method Blank** Sample ID: **LRB** Method: **E200.8**
Analysis Date: **08/21/09 13:18** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	3E-05									
Selenium	ND	0.0002									

Associated samples: H09080236-001B; H09080236-002B; H09080236-003B; H09080236-004B; H09080236-005B; H09080236-006B; H09080236-007B; H09080236-008B; H09080236-009B; H09080236-010B; H09080236-011B; H09080236-012B; H09080236-013B

Run ID :Run Order: **SUB-B134750: 9** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**
Analysis Date: **08/21/09 13:23** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.049	0.0050	0.05		98	85	115				
Selenium	0.050	0.0050	0.05		101	85	115				

Associated samples: H09080236-001B; H09080236-002B; H09080236-003B; H09080236-004B; H09080236-005B; H09080236-006B; H09080236-007B; H09080236-008B; H09080236-009B; H09080236-010B; H09080236-011B; H09080236-012B; H09080236-013B

Run ID :Run Order: **SUB-B134750: 10** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090609B, ME080814C** Method: **E200.8**
Analysis Date: **08/22/09 18:39** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.051	0.0050	0.05		101	90	110				
Selenium	0.050	0.0050	0.05		101	90	110				

Associated samples: H09080236-001B; H09080236-002B; H09080236-003B; H09080236-004B; H09080236-005B; H09080236-006B; H09080236-007B; H09080236-008B; H09080236-009B; H09080236-010B; H09080236-011B; H09080236-012B; H09080236-013B

Run ID :Run Order: **SUB-B134750: 11** SampType: **Sample Matrix Spike** Sample ID: **H09080236-010B** Method: **E200.8**
Analysis Date: **08/22/09 20:08** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.253	0.0050	0.25		101	70	130				
Selenium	0.259	0.0050	0.25		104	70	130				

Associated samples: H09080236-001B; H09080236-002B; H09080236-003B; H09080236-004B; H09080236-005B; H09080236-006B; H09080236-007B; H09080236-008B; H09080236-009B; H09080236-010B; H09080236-011B; H09080236-012B; H09080236-013B

Run ID :Run Order: **SUB-B134750: 12** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080236-010B** Method: **E200.8**
Analysis Date: **08/22/09 20:12** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.259	0.0050	0.25		104	70	130	0.2529	2.5	20	

Qualifiers:
ND - Not Detected at the Reporting Limit
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R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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ANALYTICAL QC SUMMARY REPORT

Client: Asarco Consulting
Work Order: H09080236
Project: 1054 Asarco E.Helena Quarterly Monitoring

BatchID: B_R134750

Date: 28-Aug-09

Run ID :Run Order: **SUB-B134750: 12** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080236-010B** Method: **E200.8**

Analysis Date: **08/22/09 20:12** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	0.265	0.0050	0.25		**106**	70	130	0.2591	**2.3**	20	

Associated samples: H09080236-001B; H09080236-002B; H09080236-003B; H09080236-004B; H09080236-005B; H09080236-006B; H09080236-007B; H09080236-008B; H09080236-009B; H09080236-010B; H09080236-011B; H09080236-012B; H09080236-013B

Run ID :Run Order: **SUB-B134750: 16** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090609B, 080814C** Method: **E200.8**

Analysis Date: **08/22/09 09:58** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.050	0.0050	0.05		**99**	90	110				
Selenium	0.049	0.0050	0.05		**98**	90	110				

Associated samples: H09080236-001B; H09080236-002B; H09080236-003B; H09080236-004B; H09080236-005B; H09080236-006B; H09080236-007B; H09080236-008B; H09080236-009B; H09080236-010B; H09080236-011B; H09080236-012B; H09080236-013B

Run ID :Run Order: **SUB-B134750: 17** SampType: **Sample Matrix Spike** Sample ID: **B09081885-001CMS** Method: **E200.8**

Analysis Date: **08/22/09 12:38** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.055	0.0010	0.05	0.00063	**109**	70	130				
Selenium	0.057	0.0050	0.05		**113**	70	130				

Associated samples: H09080236-001B; H09080236-002B; H09080236-003B; H09080236-004B; H09080236-005B; H09080236-006B; H09080236-007B; H09080236-008B; H09080236-009B; H09080236-010B; H09080236-011B; H09080236-012B; H09080236-013B

Run ID :Run Order: **SUB-B134750: 18** SampType: **Sample Matrix Spike Duplicate** Sample ID: **B09081885-001CMSD** Method: **E200.8**

Analysis Date: **08/22/09 12:42** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.055	0.0010	0.05	0.00063	**109**	70	130	0.05508	**0.1**	20	
Selenium	0.057	0.0050	0.05		**113**	70	130	0.05672	**0.1**	20	

Associated samples: H09080236-001B; H09080236-002B; H09080236-003B; H09080236-004B; H09080236-005B; H09080236-006B; H09080236-007B; H09080236-008B; H09080236-009B; H09080236-010B; H09080236-011B; H09080236-012B; H09080236-013B

Run ID :Run Order: **SUB-B134750: 51** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090609B, 080814C** Method: **E200.8**

Analysis Date: **08/21/09 15:42** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.049	0.0050	0.05		**99**	90	110				

Qualifiers: ND - Not Detected at the Reporting Limit; S - Spike Recovery outside accepted recovery limits; N - Analyte concentration was not sufficiently high to calculate RPD; J - Analyte detected below quantitation limits; R - RPD outside accepted recovery limits; A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080236
Project: 1054 Asarco E.Helena Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R134750

Date: *28-Aug-09*

Run ID :Run Order: **SUB-B134750: 51** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090609B, 080814C** Method: **E200.8**

Analysis Date: **08/21/09 15:42** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	0.050	0.0050	0.05		**100**	90	110				

Associated samples: H09080236-001B; H09080236-002B; H09080236-003B; H09080236-004B; H09080236-005B; H09080236-006B; H09080236-007B; H09080236-008B; H09080236-009B; H09080236-010B; H09080236-011B; H09080236-012B; H09080236-013B

Run ID :Run Order: **SUB-B134750: 60** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090609B, ME080814C** Method: **E200.8**

Analysis Date: **08/22/09 02:53** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.050	0.0050	0.05		**99**	90	110				
Selenium	0.050	0.0050	0.05		**100**	90	110				

Associated samples: H09080236-001B; H09080236-002B; H09080236-003B; H09080236-004B; H09080236-005B; H09080236-006B; H09080236-007B; H09080236-008B; H09080236-009B; H09080236-010B; H09080236-011B; H09080236-012B; H09080236-013B

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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ANALYTICAL SUMMARY REPORT

October 05, 2009

Asarco Consulting
5219 N Shirley St
Ruston, WA 98407

Workorder No.: H09080255 Quote ID: H454 - Revised Quarterly Monitoring Program August 2009

Project Name: 1054 Asarco E.Helena Quarterly Monitoring

Energy Laboratories Inc received the following 11 samples for Asarco Consulting on 8/20/2009 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H09080255-001	AEH-0908-151	08/20/09 8:50	08/20/09	Aqueous	Metals by ICP/ICPMS, Dissolved Conductivity pH Solids, Total Dissolved Solids, Total Suspended
H09080255-002	AEH-0908-152	08/20/09 9:30	08/20/09	Aqueous	Same As Above
H09080255-003	AEH-0908-153	08/20/09 10:10	08/20/09	Aqueous	Same As Above
H09080255-004	AEH-0908-154	08/20/09 10:20	08/20/09	Aqueous	Same As Above
H09080255-005	AEH-0908-155	08/20/09 11:21	08/20/09	Aqueous	Same As Above
H09080255-006	AEH-0908-156	08/20/09 12:40	08/20/09	Aqueous	Same As Above
H09080255-007	AEH-0908-157	08/20/09 13:30	08/20/09	Aqueous	Same As Above
H09080255-008	AEH-0908-158	08/20/09 13:45	08/20/09	Aqueous	Same As Above
H09080255-009	AEH-0908-159	08/20/09 14:20	08/20/09	Aqueous	Same As Above
H09080255-010	AEH-0908-160	08/20/09 14:30	08/20/09	Aqueous	Same As Above
H09080255-011	AEH-0908-161	08/20/09 15:15	08/20/09	Aqueous	Same As Above

BRANCH LABORATORY LOCATIONS
eli-b - Energy Laboratories, Inc. - Billings, MT, EPA # MT00005
eli-c - Energy Laboratories, Inc. - Casper, WY, EPA# WY00002
eli-g - Energy Laboratories, Inc. - Gillette, WY, EPA# WY00006
eli-h - Energy Laboratories, Inc. - Helena, MT, EPA# MT00945
eli-r - Energy Laboratories, Inc. - Rapid City, SD, EPA# SD00012
eli-t - Energy Laboratories, Inc. - College Station, TX, EPA# TX01520

SUBCONTRACTING ANALYSIS
Subcontracting of sample analyses to an outside laboratory may be required. If so, ENERGY LABORATORIES, INC. will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories are indicated within the Laboratory Analytical Report.

SAMPLE TEMPERATURE COMPLIANCE: 4°C (±2°C)
Temperature of samples received may not be considered properly preserved by accepted standards. Samples that are hand delivered immediately after collection shall be considered acceptable if there is evidence that the chilling process has begun.

ELI appreciates the opportunity to provide you with this analytical service. For additional information, including certifications, and analytical services visit our web page www.energylab.com.

Report Approved By: Jonathan D. Hager

Digitally signed by Jonathan D. Hager
DN: cn=Jonathan D. Hager, o=Energy Laboratory-Helena, ou=Assistant Lab Manager, email=jhager@energylab.com, c=US
Date: 2009.10.07 14:37:49 -06'00'

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-151
Lab ID: H09080255-001
Matrix: Aqueous

Project: 1054 Asarco E.Helena Quarterly Monitoring
Collection Date: 08/20/09 08:50 **DateReceived:** 08/20/09
Report Date: 10/05/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.2	s.u.		0.1		A4500-H B	08/21/09 16:19 / kjw		PH_090821A	2	090821A-PH-W
Conductivity	811	umhos/cm		1		A2510 B	08/24/09 15:44 / hm		COND_090824A	6	90824A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/25/09 10:42 / hm		SOLIDS_090825A	18	090825A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	540	mg/L		10		A2540 C	08/25/09 11:31 / hm		SOLIDS_090825B	21	090825A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	ND	mg/L		0.005		E200.8	08/26/09 21:29 / eli-b		SUB-B134969	19	B_R134969
Selenium	0.066	mg/L		0.001		E200.8	08/26/09 21:29 / eli-b		SUB-B134969	19	B_R134969

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-152
Lab ID: H09080255-002
Matrix: Aqueous

Project: 1054 Asarco E.Helena Quarterly Monitoring
Collection Date: 08/20/09 09:30 **DateReceived:** 08/20/09
Report Date: 10/05/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.1	s.u.		0.1		A4500-H B	08/21/09 16:20 / kjw		PH_090821A	3	090821A-PH-W
Conductivity	328	umhos/cm		1		A2510 B	08/24/09 15:47 / hm		COND_090824A	7	90824A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/25/09 10:42 / hm		SOLIDS_090825A	19	090825A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	212	mg/L		10		A2540 C	08/25/09 11:32 / hm		SOLIDS_090825B	22	090825A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	ND	mg/L		0.005		E200.8	08/26/09 21:33 / eli-b		SUB-B134969	20	B_R134969
Selenium	0.002	mg/L		0.001		E200.8	08/26/09 21:33 / eli-b		SUB-B134969	20	B_R134969

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-153
Lab ID: H09080255-003
Matrix: Aqueous

Project: 1054 Asarco E.Helena Quarterly Monitoring
Collection Date: 08/20/09 10:10 **DateReceived:** 08/20/09
Report Date: 10/05/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.4	s.u.		0.1		A4500-H B	08/21/09 16:21 / kjw		PH_090821A	4	090821A-PH-W
Conductivity	519	umhos/cm		1		A2510 B	08/24/09 15:53 / hm		COND_090824A	8	90824A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/25/09 10:45 / hm		SOLIDS_090825A	20	090825A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	328	mg/L		10		A2540 C	08/25/09 11:32 / hm		SOLIDS_090825B	23	090825A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	ND	mg/L		0.005		E200.8	08/26/09 21:37 / eli-b		SUB-B134969	21	B_R134969
Selenium	0.003	mg/L		0.001		E200.8	08/26/09 21:37 / eli-b		SUB-B134969	21	B_R134969

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-154
Lab ID: H09080255-004
Matrix: Aqueous

Project: 1054 Asarco E.Helena Quarterly Monitoring
Collection Date: 08/20/09 10:20 **DateReceived:** 08/20/09
Report Date: 10/05/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.4	s.u.		0.1		A4500-H B	08/21/09 16:23 / kjw		PH_090821A	5	090821A-PH-W
Conductivity	522	umhos/cm		1		A2510 B	08/24/09 15:56 / hm		COND_090824A	99	0824A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/25/09 10:46 / hm		SOLIDS_090825A	21	090825A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	332	mg/L		10		A2540 C	08/25/09 11:32 / hm		SOLIDS_090825B	24	090825A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	ND	mg/L		0.005		E200.8	08/26/09 21:41 / eli-b		SUB-B134969	22	B_R134969
Selenium	0.003	mg/L		0.001		E200.8	08/26/09 21:41 / eli-b		SUB-B134969	22	B_R134969

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-155
Lab ID: H09080255-005
Matrix: Aqueous

Project: 1054 Asarco E.Helena Quarterly Monitoring
Collection Date: 08/20/09 11:21 **DateReceived:** 08/20/09
Report Date: 10/05/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.8	s.u.		0.1		A4500-H B	08/21/09 16:25 / kjw		PH_090821A	6	090821A-PH-W
Conductivity	519	umhos/cm		1		A2510 B	08/24/09 15:59 / hm		COND_090824A	1	090824A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/25/09 10:46 / hm		SOLIDS_090825A	22	090825A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	337	mg/L		10		A2540 C	08/25/09 11:33 / hm		SOLIDS_090825B	25	090825A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	ND	mg/L		0.005		E200.8	08/26/09 21:46 / eli-b		SUB-B134969	23	B_R134969
Selenium	0.012	mg/L		0.001		E200.8	08/26/09 21:46 / eli-b		SUB-B134969	23	B_R134969

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-156
Lab ID: H09080255-006
Matrix: Aqueous

Project: 1054 Asarco E.Helena Quarterly Monitoring
Collection Date: 08/20/09 12:40 **DateReceived:** 08/20/09
Report Date: 10/05/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.2	s.u.		0.1		A4500-H B	08/21/09 16:26 / kjw		PH_090821A	7	090821A-PH-W
Conductivity	688	umhos/cm		1		A2510 B	08/24/09 16:01 / hm		COND_090824A	1	190824A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/25/09 10:46 / hm		SOLIDS_090825A	23	090825A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	441	mg/L		10		A2540 C	08/25/09 11:33 / hm		SOLIDS_090825B	26	090825A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	ND	mg/L		0.005		E200.8	08/26/09 21:50 / eli-b		SUB-B134969	24	B_R134969
Selenium	0.051	mg/L		0.001		E200.8	08/26/09 21:50 / eli-b		SUB-B134969	24	B_R134969

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-157
Lab ID: H09080255-007
Matrix: Aqueous

Project: 1054 Asarco E.Helena Quarterly Monitoring
Collection Date: 08/20/09 13:30 **DateReceived:** 08/20/09
Report Date: 10/05/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.0	s.u.		0.1		A4500-H B	08/21/09 16:29 / kjw		PH_090821A	9	090821A-PH-W
Conductivity	1740	umhos/cm		1		A2510 B	08/24/09 16:05 / hm		COND_090824A	1	290824A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/25/09 10:47 / hm		SOLIDS_090825A	24	090825A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	1350	mg/L		10		A2540 C	08/25/09 11:33 / hm		SOLIDS_090825B	27	090825A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	0.006	mg/L		0.005		E200.8	08/26/09 21:54 / eli-b		SUB-B134969	25	B_R134969
Selenium	0.196	mg/L		0.001		E200.8	08/26/09 21:54 / eli-b		SUB-B134969	25	B_R134969

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-158
Lab ID: H09080255-008
Matrix: Aqueous

Project: 1054 Asarco E.Helena Quarterly Monitoring
Collection Date: 08/20/09 13:45 **DateReceived:** 08/20/09
Report Date: 10/05/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.8	s.u.		0.1		A4500-H B	08/21/09 16:31 / kjw		PH_090821A	10	090821A-PH-W
Conductivity	2	umhos/cm		1		A2510 B	08/24/09 16:08 / hm		COND_090824A	1	1490824A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/25/09 10:47 / hm		SOLIDS_090825A	26	090825A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	08/25/09 11:34 / hm		SOLIDS_090825B	29	090825A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	ND	mg/L		0.005		E200.8	08/26/09 21:57 / eli-b		SUB-B134969	26	B_R134969
Selenium	ND	mg/L		0.001		E200.8	08/26/09 21:57 / eli-b		SUB-B134969	26	B_R134969

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-159
Lab ID: H09080255-009
Matrix: Aqueous

Project: 1054 Asarco E.Helena Quarterly Monitoring
Collection Date: 08/20/09 14:20 **DateReceived:** 08/20/09
Report Date: 10/05/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.0	s.u.		0.1		A4500-H B	08/21/09 16:34 / kjw		PH_090821A	11	090821A-PH-W
Conductivity	1810	umhos/cm		1		A2510 B	08/24/09 16:10 / hm		COND_090824A	1	590824A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/25/09 10:48 / hm		SOLIDS_090825A	27	090825A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	1380	mg/L		10		A2540 C	08/25/09 11:34 / hm		SOLIDS_090825B	30	090825A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	0.005	mg/L		0.005		E200.8	08/26/09 22:18 / eli-b		SUB-B134969	27	B_R134969
Selenium	0.152	mg/L		0.001		E200.8	08/26/09 22:18 / eli-b		SUB-B134969	27	B_R134969

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-160
Lab ID: H09080255-010
Matrix: Aqueous

Project: 1054 Asarco E.Helena Quarterly Monitoring
Collection Date: 08/20/09 14:30 **DateReceived:** 08/20/09
Report Date: 10/05/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.9	s.u.		0.1		A4500-H B	08/21/09 16:36 / kjw		PH_090821A	12	090821A-PH-W
Conductivity	2	umhos/cm		1		A2510 B	08/24/09 16:12 / hm		COND_090824A	1	790824A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/25/09 10:48 / hm		SOLIDS_090825A	28	090825A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	08/25/09 11:34 / hm		SOLIDS_090825B	31	090825A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	ND	mg/L		0.005		E200.8	08/26/09 22:22 / eli-b		SUB-B134969	28	B_R134969
Selenium	ND	mg/L		0.001		E200.8	08/26/09 22:22 / eli-b		SUB-B134969	28	B_R134969

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-161
Lab ID: H09080255-011
Matrix: Aqueous

Project: 1054 Asarco E.Helena Quarterly Monitoring
Collection Date: 08/20/09 15:15 **DateReceived:** 08/20/09
Report Date: 10/05/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.9	s.u.		0.1		A4500-H B	08/21/09 16:38 / kjw		PH_090821A	13	090821A-PH-W
Conductivity	1980	umhos/cm		1		A2510 B	08/24/09 16:22 / hm		COND_090824A	1	890824A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/25/09 10:49 / hm		SOLIDS_090825A	29	090825A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	1590	mg/L		10		A2540 C	08/25/09 11:35 / hm		SOLIDS_090825B	32	090825A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	0.008	mg/L		0.005		E200.8	08/26/09 22:38 / eli-b		SUB-B134969	29	B_R134969
Selenium	0.243	mg/L		0.001		E200.8	08/26/09 22:38 / eli-b		SUB-B134969	29	B_R134969

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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Client: Asarco Consulting
Work Order: H09080255
Project: 1054 Asarco E.Helena Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: 090821A-PH-W

Date: *05-Oct-09*

Run ID :Run Order: **PH_090821A: 1** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090821A** Method: **A4500-H B**

Analysis Date: **08/21/09 16:16** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.03	0.10	7		**100**	99	101				

Associated samples: H09080255-001A; H09080255-002A; H09080255-003A; H09080255-004A; H09080255-005A; H09080255-006A; H09080255-007A; H09080255-008A; H09080255-009A; H09080255-010A; H09080255-011A

Run ID :Run Order: **PH_090821A: 8** SampType: **Sample Duplicate** Sample ID: **H09080255-006ADUP** Method: **A4500-H B**

Analysis Date: **08/21/09 16:28** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.17	0.10						7.16	**0.1**	2	

Associated samples: H09080255-001A; H09080255-002A; H09080255-003A; H09080255-004A; H09080255-005A; H09080255-006A; H09080255-007A; H09080255-008A; H09080255-009A; H09080255-010A; H09080255-011A

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080255
Project: 1054 Asarco E.Helena Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: 090824A-COND-PROBE

Date: *05-Oct-09*

Run ID :Run Order: **COND_090824A: 1** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090824A** Method: **A2510 B**
Analysis Date: **08/24/09 15:28** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	1410	1.0	1412		**100**	90	110				

Associated samples: H09080255-001A; H09080255-002A; H09080255-003A; H09080255-004A; H09080255-005A; H09080255-006A; H09080255-007A; H09080255-008A; H09080255-009A; H09080255-010A; H09080255-011A

Run ID :Run Order: **COND_090824A: 13** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV1_090824A** Method: **A2510 B**
Analysis Date: **08/24/09 16:07** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	726	1.0	718		**101**	90	110				

Associated samples: H09080255-008A; H09080255-009A; H09080255-010A; H09080255-011A

Run ID :Run Order: **COND_090824A: 16** SampType: **Sample Duplicate** Sample ID: **H09080255-009ADUP** Method: **A2510 B**
Analysis Date: **08/24/09 16:11** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	1810	1.0						1813	**0.2**	10	

Associated samples: H09080255-001A; H09080255-002A; H09080255-003A; H09080255-004A; H09080255-005A; H09080255-006A; H09080255-007A; H09080255-008A; H09080255-009A; H09080255-010A; H09080255-011A

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080255
Project: 1054 Asarco E.Helena Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: 090825A-SLDS-TDS-W

Date: *05-Oct-09*

Run ID :Run Order: **SOLIDS_090825B: 1** SampType: **Method Blank** Sample ID: **MBLK1_090825A** Method: **A2540 C**

Analysis Date: **08/25/09 11:23** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	4	1.0									

Associated samples: H09080255-001A; H09080255-002A; H09080255-003A; H09080255-004A; H09080255-005A; H09080255-006A; H09080255-007A; H09080255-008A; H09080255-009A; H09080255-010A; H09080255-011A

Run ID :Run Order: **SOLIDS_090825B: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090825A** Method: **A2540 C**

Analysis Date: **08/25/09 11:24** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	986	10	1000	4	98	90	110				

Associated samples: H09080255-001A; H09080255-002A; H09080255-003A; H09080255-004A; H09080255-005A; H09080255-006A; H09080255-007A; H09080255-008A; H09080255-009A; H09080255-010A; H09080255-011A

Run ID :Run Order: **SOLIDS_090825B: 17** SampType: **Sample Matrix Spike** Sample ID: **H09080236-011AMS** Method: **A2540 C**

Analysis Date: **08/25/09 11:30** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	3080	10	2000	1114	98	80	120				

Associated samples: H09080255-001A; H09080255-002A; H09080255-003A; H09080255-004A; H09080255-005A; H09080255-006A; H09080255-007A; H09080255-008A; H09080255-009A; H09080255-010A; H09080255-011A

Run ID :Run Order: **SOLIDS_090825B: 18** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080236-011AMSD** Method: **A2540 C**

Analysis Date: **08/25/09 11:30** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	3070	10	2000	1114	98	80	120	3078	**0.4**	10	

Associated samples: H09080255-001A; H09080255-002A; H09080255-003A; H09080255-004A; H09080255-005A; H09080255-006A; H09080255-007A; H09080255-008A; H09080255-009A; H09080255-010A; H09080255-011A

Run ID :Run Order: **SOLIDS_090825B: 28** SampType: **Sample Duplicate** Sample ID: **H09080255-007ADUP** Method: **A2540 C**

Analysis Date: **08/25/09 11:33** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	1360	10						1354	**0.1**	20	

Associated samples: H09080255-001A; H09080255-002A; H09080255-003A; H09080255-004A; H09080255-005A; H09080255-006A; H09080255-007A; H09080255-008A; H09080255-009A; H09080255-010A; H09080255-011A

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080255
Project: 1054 Asarco E.Helena Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: 090825A-SLDS-TSS-W

Date: *05-Oct-09*

Run ID :Run Order: **SOLIDS_090825A: 1** SampType: **Method Blank** Sample ID: **MBLK1_090825A** Method: **A2540 D**

Analysis Date: **08/25/09 10:32** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	ND	1									

Associated samples: H09080255-001A; H09080255-002A; H09080255-003A; H09080255-004A; H09080255-005A; H09080255-006A; H09080255-007A; H09080255-008A; H09080255-009A; H09080255-010A; H09080255-011A

Run ID :Run Order: **SOLIDS_090825A: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090825A** Method: **A2540 D**

Analysis Date: **08/25/09 10:33** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	2140	10	2000		107	70	130				

Associated samples: H09080255-001A; H09080255-002A; H09080255-003A; H09080255-004A; H09080255-005A; H09080255-006A; H09080255-007A; H09080255-008A; H09080255-009A; H09080255-010A; H09080255-011A

Run ID :Run Order: **SOLIDS_090825A: 25** SampType: **Sample Duplicate** Sample ID: **H09080255-007ADUP** Method: **A2540 D**

Analysis Date: **08/25/09 10:47** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	2.00	10						4		10	

Associated samples: H09080255-001A; H09080255-002A; H09080255-003A; H09080255-004A; H09080255-005A; H09080255-006A; H09080255-007A; H09080255-008A; H09080255-009A; H09080255-010A; H09080255-011A

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080255
Project: 1054 Asarco E.Helena Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R134969

Date: 05-Oct-09

Run ID :Run Order: **SUB-B134969: 6** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090609B, ME080814C** Method: **E200.8**

Analysis Date: **08/26/09 15:07** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0497	0.0050	0.05		**99**	90	110				
Selenium	0.0507	0.0050	0.05		**101**	90	110				

Associated samples: H09080255-001B; H09080255-002B; H09080255-003B; H09080255-004B; H09080255-005B; H09080255-006B; H09080255-007B; H09080255-008B; H09080255-009B; H09080255-010B; H09080255-011B

Run ID :Run Order: **SUB-B134969: 13** SampType: **Method Blank** Sample ID: **LRB** Method: **E200.8**

Analysis Date: **08/26/09 11:09** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	3E-05									
Selenium	ND	0.0002									

Associated samples: H09080255-001B; H09080255-002B; H09080255-003B; H09080255-004B; H09080255-005B; H09080255-006B; H09080255-007B; H09080255-008B; H09080255-009B; H09080255-010B; H09080255-011B

Run ID :Run Order: **SUB-B134969: 14** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**

Analysis Date: **08/26/09 11:13** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0506	0.0050	0.05		**101**	85	115				
Selenium	0.0513	0.0050	0.05		**103**	85	115				

Associated samples: H09080255-001B; H09080255-002B; H09080255-003B; H09080255-004B; H09080255-005B; H09080255-006B; H09080255-007B; H09080255-008B; H09080255-009B; H09080255-010B; H09080255-011B

Run ID :Run Order: **SUB-B134969: 15** SampType: **Sample Matrix Spike** Sample ID: **B09082116-001BMS** Method: **E200.8**

Analysis Date: **08/26/09 17:50** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.108	0.0050	0.1	0.00224	**106**	70	130				
Selenium	0.261	0.0050	0.1	0.1571	**104**	70	130				

Associated samples: H09080255-001B; H09080255-002B; H09080255-003B; H09080255-004B; H09080255-005B; H09080255-006B; H09080255-007B; H09080255-008B; H09080255-009B; H09080255-010B; H09080255-011B

Run ID :Run Order: **SUB-B134969: 16** SampType: **Sample Matrix Spike Duplicate** Sample ID: **B09082116-001BMSD** Method: **E200.8**

Analysis Date: **08/26/09 17:54** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.107	0.0050	0.1	0.00224	**105**	70	130	0.1079	**0.6**	20	

Qualifiers: ND - Not Detected at the Reporting Limit; S - Spike Recovery outside accepted recovery limits; N - Analyte concentration was not sufficiently high to calculate RPD
J - Analyte detected below quantitation limits; R - RPD outside accepted recovery limits; A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080255
Project: 1054 Asarco E.Helena Quarterly Monitoring

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R134969

Date: 05-Oct-09

Run ID :Run Order: **SUB-B134969: 16** SampType: **Sample Matrix Spike Duplicate** Sample ID: **B09082116-001BMSD** Method: **E200.8**
Analysis Date: **08/26/09 17:54** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	0.259	0.0050	0.1	0.1571	**102**	70	130	0.2608	**0.5**	20	

Associated samples: H09080255-001B; H09080255-002B; H09080255-003B; H09080255-004B; H09080255-005B; H09080255-006B; H09080255-007B; H09080255-008B; H09080255-009B; H09080255-010B; H09080255-011B

Run ID :Run Order: **SUB-B134969: 30** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090609B, ME080814C** Method: **E200.8**
Analysis Date: **08/26/09 19:09** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0495	0.0050	0.05		**99**	90	110				
Selenium	0.0507	0.0050	0.05		**101**	90	110				

Associated samples: H09080255-001B; H09080255-002B; H09080255-003B; H09080255-004B; H09080255-005B; H09080255-006B; H09080255-007B; H09080255-008B; H09080255-009B; H09080255-010B; H09080255-011B

Run ID :Run Order: **SUB-B134969: 31** SampType: **Sample Matrix Spike** Sample ID: **B09082264-010BMS** Method: **E200.8**
Analysis Date: **08/26/09 22:26** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0508	0.0050	0.05	0.0001	**101**	70	130				
Selenium	0.0531	0.0050	0.05	0.00028	**106**	70	130				

Associated samples: H09080255-001B; H09080255-002B; H09080255-003B; H09080255-004B; H09080255-005B; H09080255-006B; H09080255-007B; H09080255-008B; H09080255-009B; H09080255-010B; H09080255-011B

Run ID :Run Order: **SUB-B134969: 32** SampType: **Sample Matrix Spike Duplicate** Sample ID: **B09082264-010BMSD** Method: **E200.8**
Analysis Date: **08/26/09 22:30** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0510	0.0050	0.05	0.0001	**102**	70	130	0.05079	**0.5**	20	
Selenium	0.0536	0.0050	0.05	0.00028	**107**	70	130	0.0531	**1**	20	

Associated samples: H09080255-001B; H09080255-002B; H09080255-003B; H09080255-004B; H09080255-005B; H09080255-006B; H09080255-007B; H09080255-008B; H09080255-009B; H09080255-010B; H09080255-011B

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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ANALYTICAL SUMMARY REPORT

September 07, 2009

Asarco Consulting
5219 N Shirley St
Ruston, WA 98407

Workorder No.: H09080296 Quote ID: H454 - Revised Quarterly Monitoring Program August 2009

Project Name: 1054 Asarco E Helena

Energy Laboratories Inc received the following 12 samples for Asarco Consulting on 8/25/2009 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H09080296-001	AEH-0908-163	08/25/09 10:00	08/25/09	Aqueous	Metals by ICP/ICPMS, Dissolved Conductivity pH Solids, Total Dissolved Solids, Total Suspended
H09080296-002	AEH-0908-164	08/25/09 10:15	08/25/09	Aqueous	Same As Above
H09080296-003	AEH-0908-165	08/25/09 10:20	08/25/09	Aqueous	Same As Above
H09080296-004	AEH-0908-166	08/25/09 11:00	08/25/09	Aqueous	Same As Above
H09080296-005	AEH-0908-167	08/25/09 12:00	08/25/09	Aqueous	Same As Above
H09080296-006	AEH-0908-168	08/25/09 12:30	08/25/09	Aqueous	Same As Above
H09080296-007	AEH-0908-169	08/25/09 12:40	08/25/09	Aqueous	Same As Above
H09080296-008	AEH-0908-170	08/25/09 13:50	08/25/09	Aqueous	Same As Above
H09080296-009	AEH-0908-171	08/25/09 14:25	08/25/09	Aqueous	Same As Above
H09080296-010	AEH-0908-172	08/25/09 14:40	08/25/09	Aqueous	Same As Above
H09080296-011	AEH-0908-173	08/25/09 15:45	08/25/09	Aqueous	Same As Above
H09080296-012	AEH-0908-162	08/25/09 9:35	08/25/09	Aqueous	Same As Above

BRANCH LABORATORY LOCATIONS
eli-b - Energy Laboratories, Inc. - Billings, MT, EPA # MT00005
eli-c - Energy Laboratories, Inc. - Casper, WY, EPA# WY00002
eli-g - Energy Laboratories, Inc. - Gillette, WY, EPA# WY00006
eli-h - Energy Laboratories, Inc. - Helena, MT, EPA# MT00945
eli-r - Energy Laboratories, Inc. - Rapid City, SD, EPA# SD00012
eli-t - Energy Laboratories, Inc. - College Station, TX, EPA# TX01520

SUBCONTRACTING ANALYSIS
Subcontracting of sample analyses to an outside laboratory may be required. If so, ENERGY LABORATORIES, INC. will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories are indicated within the Laboratory Analytical Report.

SAMPLE TEMPERATURE COMPLIANCE: 4°C (±2°C)
Temperature of samples received may not be considered properly preserved by accepted standards. Samples that are hand delivered immediately after collection shall be considered acceptable if there is evidence that the chilling process has begun.

ELI appreciates the opportunity to provide you with this analytical service. For additional information, including certifications, and analytical services visit our web page www.energylab.com.

Jonathan D. Hager

Digitally signed by Jonathan D. Hager
DN: cn=Jonathan D. Hager, o=Energy Laboratory-Helena, ou=Assistant Lab Manager, email=jhager@energylab.com, c=US
Date: 2009.09.09 07:03:22 -06'00'

Report Approved By:

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Toll Free 877.472.0711 * 406.442.0711 * FAX 406.442.0712 * helena@energylab.com

ANALYTICAL SUMMARY REPORT

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-163
Lab ID: H09080296-001
Matrix: Aqueous

Project: 1054 Asarco E Helena
Collection Date: 08/25/09 10:00 **DateReceived:** 08/25/09
Report Date: 09/07/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.1	s.u.		0.1		A4500-H B	08/26/09 11:24 / hm		PH_090826A	18	090826A-PH-W
Conductivity	1360	umhos/cm		1		A2510 B	08/26/09 11:21 / hm		COND_090826A	1	990826A-COND-PROB
Solids, Total Suspended TSS @ 105 C	118	mg/L		10		A2540 D	08/28/09 09:55 / sld		SOLIDS_090828A	3	090828A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	1030	mg/L		10		A2540 C	08/28/09 10:21 / sld		SOLIDS_090828B	4	090828A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	0.606	mg/L		0.005		E200.8	08/31/09 22:34 / eli-b		SUB-B135260	10	B_R135260
Selenium	0.031	mg/L		0.001		E200.8	08/31/09 22:34 / eli-b		SUB-B135260	10	B_R135260

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-164
Lab ID: H09080296-002
Matrix: Aqueous

Project: 1054 Asarco E Helena
Collection Date: 08/25/09 10:15 **DateReceived:** 08/25/09
Report Date: 09/07/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.3	s.u.		0.1		A4500-H B	08/26/09 11:26 / hm		PH_090826A	19	090826A-PH-W
Conductivity	539	umhos/cm		1		A2510 B	08/26/09 11:22 / hm		COND_090826A	2	090826A-COND-PROB
Solids, Total Suspended TSS @ 105 C	70	mg/L		10		A2540 D	08/28/09 09:55 / sld		SOLIDS_090828A	4	090828A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	365	mg/L		10		A2540 C	08/28/09 10:21 / sld		SOLIDS_090828B	5	090828A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	0.217	mg/L		0.005		E200.8	08/31/09 22:54 / eli-b		SUB-B135260	11	B_R135260
Selenium	0.002	mg/L		0.001		E200.8	08/31/09 22:54 / eli-b		SUB-B135260	11	B_R135260

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-165
Lab ID: H09080296-003
Matrix: Aqueous

Project: 1054 Asarco E Helena
Collection Date: 08/25/09 10:20 **DateReceived:** 08/25/09
Report Date: 09/07/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.3	s.u.		0.1		A4500-H B	08/26/09 11:27 / hm		PH_090826A	20	090826A-PH-W
Conductivity	538	umhos/cm		1		A2510 B	08/26/09 11:23 / hm		COND_090826A	2	190826A-COND-PROB
Solids, Total Suspended TSS @ 105 C	68	mg/L		10		A2540 D	08/28/09 09:55 / sld		SOLIDS_090828A	5	090828A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	382	mg/L		10		A2540 C	08/28/09 10:21 / sld		SOLIDS_090828B	6	090828A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	0.214	mg/L		0.005		E200.8	08/31/09 22:58 / eli-b		SUB-B135260	12	B_R135260
Selenium	0.001	mg/L		0.001		E200.8	08/31/09 22:58 / eli-b		SUB-B135260	12	B_R135260

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-166
Lab ID: H09080296-004
Matrix: Aqueous

Project: 1054 Asarco E Helena
Collection Date: 08/25/09 11:00 **DateReceived:** 08/25/09
Report Date: 09/07/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.6	s.u.		0.1		A4500-H B	08/26/09 11:29 / hm		PH_090826A	21	090826A-PH-W
Conductivity	996	umhos/cm		1		A2510 B	08/26/09 11:25 / hm		COND_090826A	22	090826A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/28/09 09:56 / sld		SOLIDS_090828A	6	090828A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	673	mg/L		10		A2540 C	08/28/09 10:21 / sld		SOLIDS_090828B	7	090828A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	1.21	mg/L		0.005		E200.8	08/31/09 23:02 / eli-b		SUB-B135260	13	B_R135260
Selenium	0.044	mg/L		0.001		E200.8	08/31/09 23:02 / eli-b		SUB-B135260	13	B_R135260

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-167
Lab ID: H09080296-005
Matrix: Aqueous

Project: 1054 Asarco E Helena
Collection Date: 08/25/09 12:00 **DateReceived:** 08/25/09
Report Date: 09/07/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.8	s.u.		0.1		A4500-H B	08/26/09 11:34 / hm		PH_090826A	22	090826A-PH-W
Conductivity	2	umhos/cm		1		A2510 B	08/26/09 11:26 / hm		COND_090826A	2	390826A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/28/09 09:57 / sld		SOLIDS_090828A	7	090828A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	08/28/09 10:22 / sld		SOLIDS_090828B	10	090828A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	ND	mg/L		0.005		E200.8	08/31/09 23:18 / eli-b		SUB-B135260	14	B_R135260
Selenium	ND	mg/L		0.001		E200.8	08/31/09 23:18 / eli-b		SUB-B135260	14	B_R135260

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-168
Lab ID: H09080296-006
Matrix: Aqueous

Project: 1054 Asarco E Helena
Collection Date: 08/25/09 12:30 **DateReceived:** 08/25/09
Report Date: 09/07/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.1	s.u.		0.1		A4500-H B	08/26/09 11:36 / hm		PH_090826A	23	090826A-PH-W
Conductivity	4870	umhos/cm		1		A2510 B	08/26/09 11:27 / hm		COND_090826A	2	490826A-COND-PROB
Solids, Total Suspended TSS @ 105 C	28	mg/L		10		A2540 D	08/28/09 09:57 / sld		SOLIDS_090828A	9	090828A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	4490	mg/L		10		A2540 C	08/28/09 10:22 / sld		SOLIDS_090828B	11	090828A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	0.102	mg/L		0.005		E200.8	08/31/09 23:22 / eli-b		SUB-B135260	15	B_R135260
Selenium	4.64	mg/L		0.001		E200.8	08/31/09 23:22 / eli-b		SUB-B135260	15	B_R135260

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-169
Lab ID: H09080296-007
Matrix: Aqueous

Project: 1054 Asarco E Helena
Collection Date: 08/25/09 12:40 **DateReceived:** 08/25/09
Report Date: 09/07/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.7	s.u.		0.1		A4500-H B	08/26/09 11:38 / hm		PH_090826A	24	090826A-PH-W
Conductivity	2	umhos/cm		1		A2510 B	08/26/09 11:30 / hm		COND_090826A	2	690826A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/28/09 09:58 / sld		SOLIDS_090828A	10	090828A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	08/31/09 11:45 / hm		SOLIDS_090831B	3	090831A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	ND	mg/L		0.005		E200.8	08/31/09 23:26 / eli-b		SUB-B135260	16	B_R135260
Selenium	0.004	mg/L		0.001		E200.8	08/31/09 23:26 / eli-b		SUB-B135260	16	B_R135260

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-170
Lab ID: H09080296-008
Matrix: Aqueous

Project: 1054 Asarco E Helena
Collection Date: 08/25/09 13:50 **DateReceived:** 08/25/09
Report Date: 09/07/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.8	s.u.		0.1		A4500-H B	08/26/09 11:41 / hm		PH_090826A	26	090826A-PH-W
Conductivity	1530	umhos/cm		1		A2510 B	08/26/09 11:33 / hm		COND_090826A	2	790826A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/28/09 09:58 / sld		SOLIDS_090828A	11	090828A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	1110	mg/L		10		A2540 C	08/28/09 10:23 / sld		SOLIDS_090828B	13	090828A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	0.262	mg/L		0.005		E200.8	08/31/09 23:30 / eli-b		SUB-B135260	17	B_R135260
Selenium	0.077	mg/L		0.001		E200.8	08/31/09 23:30 / eli-b		SUB-B135260	17	B_R135260

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-171
Lab ID: H09080296-009
Matrix: Aqueous

Project: 1054 Asarco E Helena
Collection Date: 08/25/09 14:25 **DateReceived:** 08/25/09
Report Date: 09/07/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.7	s.u.		0.1		A4500-H B	08/26/09 11:44 / hm		PH_090826A	28	090826A-PH-W
Conductivity	612	umhos/cm		1		A2510 B	08/26/09 11:37 / hm		COND_090826A	2	990826A-COND-PROB
Solids, Total Suspended TSS @ 105 C	10	mg/L		10		A2540 D	08/28/09 09:59 / sld		SOLIDS_090828A	12	090828A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	415	mg/L		10		A2540 C	08/28/09 10:23 / sld		SOLIDS_090828B	14	090828A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	10.2	mg/L		0.005		E200.8	08/31/09 23:50 / eli-b		SUB-B135260	18	B_R135260
Selenium	0.030	mg/L		0.001		E200.8	08/31/09 23:50 / eli-b		SUB-B135260	18	B_R135260

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-172
Lab ID: H09080296-010
Matrix: Aqueous

Project: 1054 Asarco E Helena
Collection Date: 08/25/09 14:40 **DateReceived:** 08/25/09
Report Date: 09/07/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.9	s.u.		0.1		A4500-H B	08/26/09 11:45 / hm		PH_090826A	29	090826A-PH-W
Conductivity	1140	umhos/cm		1		A2510 B	08/26/09 11:38 / hm		COND_090826A	3	090826A-COND-PROB
Solids, Total Suspended TSS @ 105 C	132	mg/L		10		A2540 D	08/28/09 09:59 / sld		SOLIDS_090828A	13	090828A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	810	mg/L		10		A2540 C	08/28/09 10:25 / sld		SOLIDS_090828B	16	090828A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	2.98	mg/L		0.005		E200.8	08/31/09 23:54 / eli-b		SUB-B135260	19	B_R135260
Selenium	0.104	mg/L		0.001		E200.8	08/31/09 23:54 / eli-b		SUB-B135260	19	B_R135260

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-173
Lab ID: H09080296-011
Matrix: Aqueous

Project: 1054 Asarco E Helena
Collection Date: 08/25/09 15:45 **DateReceived:** 08/25/09
Report Date: 09/07/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.1	s.u.		0.1		A4500-H B	08/26/09 11:46 / hm		PH_090826A	30	090826A-PH-W
Conductivity	1220	umhos/cm		1		A2510 B	08/26/09 11:40 / hm		COND_090826A	3	190826A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/28/09 10:00 / sld		SOLIDS_090828A	14	090828A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	860	mg/L		10		A2540 C	08/28/09 10:25 / sld		SOLIDS_090828B	17	090828A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	0.322	mg/L		0.005		E200.8	08/31/09 23:58 / eli-b		SUB-B135260	20	B_R135260
Selenium	0.138	mg/L		0.001		E200.8	08/31/09 23:58 / eli-b		SUB-B135260	20	B_R135260

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-162
Lab ID: H09080296-012
Matrix: Aqueous

Project: 1054 Asarco E Helena
Collection Date: 08/25/09 09:35 **DateReceived:** 08/25/09
Report Date: 09/07/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.0	s.u.		0.1		A4500-H B	08/26/09 11:47 / hm		PH_090826A	31	090826A-PH-W
Conductivity	766	umhos/cm		1		A2510 B	08/26/09 11:41 / hm		COND_090826A	32	090826A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/28/09 10:00 / sld		SOLIDS_090828A	15	090828A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	527	mg/L		10		A2540 C	08/28/09 10:25 / sld		SOLIDS_090828B	18	090828A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	1.84	mg/L		0.005		E200.8	09/01/09 00:02 / eli-b		SUB-B135260	21	B_R135260
Selenium	0.024	mg/L		0.001		E200.8	09/01/09 00:02 / eli-b		SUB-B135260	21	B_R135260

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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Client: Asarco Consulting
Work Order: H09080296
Project: 1054 Asarco E Helena

ANALYTICAL QC SUMMARY REPORT

Date: *07-Sep-09*

BatchID: 090826A-COND-PROBE

Run ID :Run Order: **COND_090826A: 1** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090826A** Method: **A2510 B**

Analysis Date: **08/26/09 10:29** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	1400	1.0	1412		**99**	90	110				

Associated samples: H09080296-001A; H09080296-002A; H09080296-003A; H09080296-004A; H09080296-005A; H09080296-006A; H09080296-007A; H09080296-008A; H09080296-009A; H09080296-010A; H09080296-011A; H09080296-012A

Run ID :Run Order: **COND_090826A: 13** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV1_090826A** Method: **A2510 B**

Analysis Date: **08/26/09 10:52** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	715	1.0	718		**100**	90	110				

Associated samples: H09080296-001A; H09080296-002A; H09080296-003A; H09080296-004A; H09080296-005A; H09080296-006A

Run ID :Run Order: **COND_090826A: 25** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV2_090826A** Method: **A2510 B**

Analysis Date: **08/26/09 11:29** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	716	1.0	718		**100**	90	110				

Associated samples: H09080296-007A; H09080296-008A; H09080296-009A; H09080296-010A; H09080296-011A; H09080296-012A

Run ID :Run Order: **COND_090826A: 28** SampType: **Sample Duplicate** Sample ID: **H09080296-008ADUP** Method: **A2510 B**

Analysis Date: **08/26/09 11:34** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	1530	1.0						1526	**0**	10	

Associated samples: H09080296-001A; H09080296-002A; H09080296-003A; H09080296-004A; H09080296-005A; H09080296-006A; H09080296-007A; H09080296-008A; H09080296-009A; H09080296-010A; H09080296-011A; H09080296-012A

Qualifiers: ND - Not Detected at the Reporting Limit; S - Spike Recovery outside accepted recovery limits; N - Analyte concentration was not sufficiently high to calculate RPD; J - Analyte detected below quantitation limits; R - RPD outside accepted recovery limits; A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080296
Project: 1054 Asarco E Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: 090826A-PH-W

Date: *07-Sep-09*

Run ID :Run Order: **PH_090826A: 1** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090826A** Method: **A4500-H B**
Analysis Date: **08/26/09 10:32** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.02	0.10	7		**100**	99	101				

Associated samples: H09080296-001A; H09080296-002A; H09080296-003A; H09080296-004A; H09080296-005A; H09080296-006A; H09080296-007A; H09080296-008A; H09080296-009A; H09080296-010A; H09080296-011A; H09080296-012A

Run ID :Run Order: **PH_090826A: 13** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV1_090826A** Method: **A4500-H B**
Analysis Date: **08/26/09 11:11** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	9.99	0.10	10		**100**	99	101				

Associated samples: H09080296-001A; H09080296-002A; H09080296-003A; H09080296-004A; H09080296-005A; H09080296-006A; H09080296-007A

Run ID :Run Order: **PH_090826A: 25** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV2_090826A** Method: **A4500-H B**
Analysis Date: **08/26/09 11:39** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	9.98	0.10	10		**100**	99	101				

Associated samples: H09080296-008A; H09080296-009A; H09080296-010A; H09080296-011A; H09080296-012A

Run ID :Run Order: **PH_090826A: 27** SampType: **Sample Duplicate** Sample ID: **H09080296-008ADUP** Method: **A4500-H B**
Analysis Date: **08/26/09 11:42** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	6.76	0.10						6.78	**0.3**	2	

Associated samples: H09080296-001A; H09080296-002A; H09080296-003A; H09080296-004A; H09080296-005A; H09080296-006A; H09080296-007A; H09080296-008A; H09080296-009A; H09080296-010A; H09080296-011A; H09080296-012A

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080296
Project: 1054 Asarco E Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: 090828A-SLDS-TDS-W

Date: 07-Sep-09

Run ID :Run Order: **SOLIDS_090828B: 1** SampType: **Method Blank** Sample ID: **MBLK1_090828A** Method: **A2540 C**
Analysis Date: **08/28/09 10:20** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	9	1.0									

Associated samples: H09080296-001A; H09080296-002A; H09080296-003A; H09080296-004A; H09080296-005A; H09080296-006A; H09080296-008A; H09080296-009A; H09080296-010A; H09080296-011A; H09080296-012A

Run ID :Run Order: **SOLIDS_090828B: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090828A** Method: **A2540 C**
Analysis Date: **08/28/09 10:20** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	996	10	1000	9	**99**	90	110				

Associated samples: H09080296-001A; H09080296-002A; H09080296-003A; H09080296-004A; H09080296-005A; H09080296-006A; H09080296-008A; H09080296-009A; H09080296-010A; H09080296-011A; H09080296-012A

Run ID :Run Order: **SOLIDS_090828B: 8** SampType: **Sample Matrix Spike** Sample ID: **H09080296-004AMS** Method: **A2540 C**
Analysis Date: **08/28/09 10:22** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2650	10	2000	673	**99**	80	120				

Associated samples: H09080296-001A; H09080296-002A; H09080296-003A; H09080296-004A; H09080296-005A; H09080296-006A; H09080296-008A; H09080296-009A; H09080296-010A; H09080296-011A; H09080296-012A

Run ID :Run Order: **SOLIDS_090828B: 9** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080296-004AMSD** Method: **A2540 C**
Analysis Date: **08/28/09 10:22** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2660	10	2000	673	**99**	80	120	2654	**0.2**	10	

Associated samples: H09080296-001A; H09080296-002A; H09080296-003A; H09080296-004A; H09080296-005A; H09080296-006A; H09080296-008A; H09080296-009A; H09080296-010A; H09080296-011A; H09080296-012A

Run ID :Run Order: **SOLIDS_090828B: 15** SampType: **Sample Duplicate** Sample ID: **H09080296-009ADUP** Method: **A2540 C**
Analysis Date: **08/28/09 10:24** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	414	10						415	**0.2**	20	

Associated samples: H09080296-001A; H09080296-002A; H09080296-003A; H09080296-004A; H09080296-005A; H09080296-006A; H09080296-008A; H09080296-009A; H09080296-010A; H09080296-011A; H09080296-012A

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080296
Project: 1054 Asarco E Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: 090828A-SLDS-TDS-W

Date: *07-Sep-09*

Run ID :Run Order: **SOLIDS_090828B: 21** SampType: **Sample Matrix Spike** Sample ID: **H09080300-005AMS** Method: **A2540 C**

Analysis Date: **08/28/09 10:26** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2170	10	2000	176	**99**	80	120				

Associated samples: H09080296-001A; H09080296-002A; H09080296-003A; H09080296-004A; H09080296-005A; H09080296-006A; H09080296-008A; H09080296-009A; H09080296-010A; H09080296-011A; H09080296-012A

Run ID :Run Order: **SOLIDS_090828B: 22** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080300-005AMSD** Method: **A2540 C**

Analysis Date: **08/28/09 10:26** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2180	10	2000	176	**100**	80	120	2166	**0.6**	10	

Associated samples: H09080296-001A; H09080296-002A; H09080296-003A; H09080296-004A; H09080296-005A; H09080296-006A; H09080296-008A; H09080296-009A; H09080296-010A; H09080296-011A; H09080296-012A

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080296
Project: 1054 Asarco E Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: 090828A-SLDS-TSS-W

Date: *07-Sep-09*

Run ID :Run Order: **SOLIDS_090828A: 1** SampType: **Method Blank** Sample ID: **MBLK1_090828A** Method: **A2540 D**

Analysis Date: **08/28/09 09:54** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	ND	1									

Associated samples: H09080296-001A; H09080296-002A; H09080296-003A; H09080296-004A; H09080296-005A; H09080296-006A; H09080296-007A; H09080296-008A; H09080296-009A; H09080296-010A; H09080296-011A; H09080296-012A

Run ID :Run Order: **SOLIDS_090828A: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090828A** Method: **A2540 D**

Analysis Date: **08/28/09 09:54** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	1980	10	2000		99	70	130				

Associated samples: H09080296-001A; H09080296-002A; H09080296-003A; H09080296-004A; H09080296-005A; H09080296-006A; H09080296-007A; H09080296-008A; H09080296-009A; H09080296-010A; H09080296-011A; H09080296-012A

Run ID :Run Order: **SOLIDS_090828A: 8** SampType: **Sample Duplicate** Sample ID: **H09080296-005ADUP** Method: **A2540 D**

Analysis Date: **08/28/09 09:57** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	ND	10								10	

Associated samples: H09080296-001A; H09080296-002A; H09080296-003A; H09080296-004A; H09080296-005A; H09080296-006A; H09080296-007A; H09080296-008A; H09080296-009A; H09080296-010A; H09080296-011A; H09080296-012A

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080296
Project: 1054 Asarco E Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: 090831A-SLDS-TDS-W

Date: *07-Sep-09*

Run ID :Run Order: **SOLIDS_090831B: 1** SampType: **Method Blank** Sample ID: **MBLK1_090831A** Method: **A2540 C**
Analysis Date: **08/31/09 11:44** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	ND	1.0									

Associated samples: H09080296-007A

Run ID :Run Order: **SOLIDS_090831B: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090831A** Method: **A2540 C**
Analysis Date: **08/31/09 11:45** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	966	10	1000		**97**	90	110				

Associated samples: H09080296-007A

Run ID :Run Order: **SOLIDS_090831B: 9** SampType: **Sample Matrix Spike** Sample ID: **H09080347-003AMS** Method: **A2540 C**
Analysis Date: **08/31/09 11:47** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	3000	10	2000	1018	**99**	80	120				

Associated samples: H09080296-007A

Run ID :Run Order: **SOLIDS_090831B: 10** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080347-003AMSD** Method: **A2540 C**
Analysis Date: **08/31/09 11:47** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	3060	10	2000	1018	**102**	80	120	3004	**1.7**	10	

Associated samples: H09080296-007A

Run ID :Run Order: **SOLIDS_090831B: 18** SampType: **Sample Duplicate** Sample ID: **H09080347-010ADUP** Method: **A2540 C**
Analysis Date: **08/31/09 11:50** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	38.0	10						36	**5.4**	20	

Associated samples: H09080296-007A

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080296
Project: 1054 Asarco E Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R135260

Date: *07-Sep-09*

Run ID :Run Order: **SUB-B135260: 9** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090609B, 080814C** Method: **E200.8**

Analysis Date: **08/31/09 11:16** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.049	0.0050	0.05		**98**	90	110				
Selenium	0.050	0.0050	0.05		**99**	90	110				

Associated samples: H09080296-001B; H09080296-002B; H09080296-003B; H09080296-004B; H09080296-005B; H09080296-006B; H09080296-007B; H09080296-008B; H09080296-009B; H09080296-010B; H09080296-011B; H09080296-012B

Run ID :Run Order: **SUB-B135260: 22** SampType: **Method Blank** Sample ID: **LRB** Method: **E200.8**

Analysis Date: **08/31/09 13:21** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	3E-05									
Selenium	ND	0.0002									

Associated samples: H09080296-001B; H09080296-002B; H09080296-003B; H09080296-004B; H09080296-005B; H09080296-006B; H09080296-007B; H09080296-008B; H09080296-009B; H09080296-010B; H09080296-011B; H09080296-012B

Run ID :Run Order: **SUB-B135260: 23** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**

Analysis Date: **08/31/09 13:25** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.050	0.0050	0.05		**100**	85	115				
Selenium	0.050	0.0050	0.05		**101**	85	115				

Associated samples: H09080296-001B; H09080296-002B; H09080296-003B; H09080296-004B; H09080296-005B; H09080296-006B; H09080296-007B; H09080296-008B; H09080296-009B; H09080296-010B; H09080296-011B; H09080296-012B

Run ID :Run Order: **SUB-B135260: 24** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090609B, ME080814C** Method: **E200.8**

Analysis Date: **08/31/09 18:49** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.049	0.0050	0.05		**98**	90	110				
Selenium	0.050	0.0050	0.05		**100**	90	110				

Associated samples: H09080296-001B; H09080296-002B; H09080296-003B; H09080296-004B; H09080296-005B; H09080296-006B; H09080296-007B; H09080296-008B; H09080296-009B; H09080296-010B; H09080296-011B; H09080296-012B

Qualifiers: ND - Not Detected at the Reporting Limit; S - Spike Recovery outside accepted recovery limits; N - Analyte concentration was not sufficiently high to calculate RPD; J - Analyte detected below quantitation limits; R - RPD outside accepted recovery limits; A - Analyte concentration greater than three times the spike amount

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Toll Free 877.472.0711 * 406.442.0711 * FAX 406.442.0712 * helena@energylab.com

Client: Asarco Consulting
Work Order: H09080296
Project: 1054 Asarco E Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R135260

Date: *07-Sep-09*

Run ID :Run Order: **SUB-B135260: 25** SampType: **Sample Matrix Spike** Sample ID: **B09082306-001BMS** Method: **E200.8**
Analysis Date: **08/31/09 22:02** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.050	0.0010	0.05	0.00009	**99**	70	130				
Selenium	0.051	0.0050	0.05	0.0003	**102**	70	130				

Associated samples: H09080296-001B; H09080296-002B; H09080296-003B; H09080296-004B; H09080296-005B; H09080296-006B; H09080296-007B; H09080296-008B; H09080296-009B; H09080296-010B; H09080296-011B; H09080296-012B

Run ID :Run Order: **SUB-B135260: 26** SampType: **Sample Matrix Spike Duplicate** Sample ID: **B09082306-001BMSD** Method: **E200.8**
Analysis Date: **08/31/09 22:05** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.049	0.0010	0.05	0.00009	**99**	70	130	0.04984	**1**	20	
Selenium	0.050	0.0050	0.05	0.0003	**100**	70	130	0.05133	**1.8**	20	

Associated samples: H09080296-001B; H09080296-002B; H09080296-003B; H09080296-004B; H09080296-005B; H09080296-006B; H09080296-007B; H09080296-008B; H09080296-009B; H09080296-010B; H09080296-011B; H09080296-012B

Run ID :Run Order: **SUB-B135260: 27** SampType: **Sample Matrix Spike** Sample ID: **H09080296-004B** Method: **E200.8**
Analysis Date: **08/31/09 23:06** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	1.38	0.0050	0.25	1.21		70	130				A
Selenium	0.289	0.0050	0.25	0.0437	**98**	70	130				

Associated samples: H09080296-001B; H09080296-002B; H09080296-003B; H09080296-004B; H09080296-005B; H09080296-006B; H09080296-007B; H09080296-008B; H09080296-009B; H09080296-010B; H09080296-011B; H09080296-012B

Run ID :Run Order: **SUB-B135260: 28** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080296-004B** Method: **E200.8**
Analysis Date: **08/31/09 23:10** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	1.38	0.0050	0.25	1.21		70	130	1.381	**0.2**	20	A
Selenium	0.288	0.0050	0.25	0.0437	**98**	70	130	0.2889	**0.3**	20	

Associated samples: H09080296-001B; H09080296-002B; H09080296-003B; H09080296-004B; H09080296-005B; H09080296-006B; H09080296-007B; H09080296-008B; H09080296-009B; H09080296-010B; H09080296-011B; H09080296-012B

Run ID :Run Order: **SUB-B135260: 29** SampType: **Sample Matrix Spike** Sample ID: **H09080316-002B** Method: **E200.8**
Analysis Date: **09/01/09 00:14** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	6.30	0.0050	0.25	6.195		70	130				A
Selenium	0.265	0.0050	0.25	0.0094	**102**	70	130				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080296
Project: 1054 Asarco E Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R135260

Date: *07-Sep-09*

Run ID :Run Order: **SUB-B135260: 29** SampType: **Sample Matrix Spike** Sample ID: **H09080316-002B** Method: **E200.8**

Analysis Date: **09/01/09 00:14** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: H09080296-001B; H09080296-002B; H09080296-003B; H09080296-004B; H09080296-005B; H09080296-006B; H09080296-007B; H09080296-008B; H09080296-009B; H09080296-010B; H09080296-011B; H09080296-012B

Run ID :Run Order: **SUB-B135260: 30** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080316-002B** Method: **E200.8**

Analysis Date: **09/01/09 00:18** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	6.22	0.0050	0.25	6.195		70	130	6.295	**1.2**	20	A
Selenium	0.259	0.0050	0.25	0.0094	**100**	70	130	0.2645	**2.1**	20	

Associated samples: H09080296-001B; H09080296-002B; H09080296-003B; H09080296-004B; H09080296-005B; H09080296-006B; H09080296-007B; H09080296-008B; H09080296-009B; H09080296-010B; H09080296-011B; H09080296-012B

Qualifiers: ND - Not Detected at the Reporting Limit; S - Spike Recovery outside accepted recovery limits; N - Analyte concentration was not sufficiently high to calculate RPD; J - Analyte detected below quantitation limits; R - RPD outside accepted recovery limits; A - Analyte concentration greater than three times the spike amount

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ANALYTICAL SUMMARY REPORT

September 07, 2009

Asarco Consulting
5219 N Shirley St
Ruston, WA 98407

Workorder No.: H09080316 Quote ID: H454 - Revised Quarterly Monitoring Program August 2009

Project Name: 1054 E Helena Quarterly Sampling

Energy Laboratories Inc received the following 7 samples for Asarco Consulting on 8/26/2009 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H09080316-001	AEH-0908-174	08/26/09 9:00	08/26/09	Aqueous	Metals by ICP/ICPMS, Dissolved Conductivity pH Solids, Total Dissolved Solids, Total Suspended
H09080316-002	AEH-0908-175	08/26/09 9:45	08/26/09	Aqueous	Same As Above
H09080316-003	AEH-0908-176	08/26/09 9:50	08/26/09	Aqueous	Same As Above
H09080316-004	AEH-0908-177	08/26/09 10:15	08/26/09	Aqueous	Same As Above
H09080316-005	AEH-0908-178	08/26/09 10:25	08/26/09	Aqueous	Same As Above
H09080316-006	AEH-0908-179	08/26/09 10:30	08/26/09	Aqueous	Same As Above
H09080316-007	AEH-0908-180	08/26/09 12:00	08/26/09	Aqueous	Same As Above

BRANCH LABORATORY LOCATIONS
eli-b - Energy Laboratories, Inc. - Billings, MT, EPA # MT00005
eli-c - Energy Laboratories, Inc. - Casper, WY, EPA# WY00002
eli-g - Energy Laboratories, Inc. - Gillette, WY, EPA# WY00006
eli-h - Energy Laboratories, Inc. - Helena, MT, EPA# MT00945
eli-r - Energy Laboratories, Inc. - Rapid City, SD, EPA# SD00012
eli-t - Energy Laboratories, Inc. - College Station, TX, EPA# TX01520

SUBCONTRACTING ANALYSIS
Subcontracting of sample analyses to an outside laboratory may be required. If so, ENERGY LABORATORIES, INC. will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories are indicated within the Laboratory Analytical Report.

SAMPLE TEMPERATURE COMPLIANCE: 4°C (±2°C)
Temperature of samples received may not be considered properly preserved by accepted standards. Samples that are hand delivered immediately after collection shall be considered acceptable if there is evidence that the chilling process has begun.

ELI appreciates the opportunity to provide you with this analytical service. For additional information, including certifications, and analytical services visit our web page www.energylab.com.

Report Approved By: Jonathan D. Hager

Digitally signed by Jonathan D. Hager
DN: cn=Jonathan D. Hager, o=Energy Laboratory-Helena, ou=Assistant Lab Manager, email=jhager@energylab.com, c=US
Date: 2009.09.09 07:04:14 -06'00'

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-174
Lab ID: H09080316-001
Matrix: Aqueous

Project: 1054 E Helena Quarterly Sampling
Collection Date: 08/26/09 09:00 **DateReceived:** 08/26/09
Report Date: 09/07/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.2	s.u.		0.1		A4500-H B	08/27/09 11:28 / hm		PH_090827A	4	090827A-PH-W
Conductivity	310	umhos/cm		1		A2510 B	08/27/09 11:24 / hm		COND_090827A	4	90827A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/28/09 10:03 / sld		SOLIDS_090828A	23	090828A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	206	mg/L		10		A2540 C	08/28/09 10:28 / sld		SOLIDS_090828B	28	090828A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	0.025	mg/L		0.005		E200.8	09/01/09 00:06 / eli-b		SUB-B135260	31	B_R135260
Selenium	0.001	mg/L		0.001		E200.8	09/01/09 00:06 / eli-b		SUB-B135260	31	B_R135260

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-175
Lab ID: H09080316-002
Matrix: Aqueous

Project: 1054 E Helena Quarterly Sampling
Collection Date: 08/26/09 09:45 **DateReceived:** 08/26/09
Report Date: 09/07/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.8	s.u.		0.1		A4500-H B	08/27/09 11:29 / hm		PH_090827A	5	090827A-PH-W
Conductivity	1420	umhos/cm		1		A2510 B	08/27/09 11:26 / hm		COND_090827A	5	90827A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/28/09 10:03 / sld		SOLIDS_090828A	24	090828A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	966	mg/L		10		A2540 C	08/28/09 10:29 / sld		SOLIDS_090828B	30	090828A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	6.20	mg/L		0.005		E200.8	09/01/09 00:10 / eli-b		SUB-B135260	32	B_R135260
Selenium	0.009	mg/L		0.001		E200.8	09/01/09 00:10 / eli-b		SUB-B135260	32	B_R135260

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-176
Lab ID: H09080316-003
Matrix: Aqueous

Project: 1054 E Helena Quarterly Sampling
Collection Date: 08/26/09 09:50 **DateReceived:** 08/26/09
Report Date: 09/07/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.8	s.u.		0.1		A4500-H B	08/27/09 11:32 / hm		PH_090827A	7	090827A-PH-W
Conductivity	1410	umhos/cm		1		A2510 B	08/27/09 11:29 / hm		COND_090827A	7	90827A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/28/09 10:03 / sld		SOLIDS_090828A	25	090828A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	967	mg/L		10		A2540 C	08/28/09 10:30 / sld		SOLIDS_090828B	31	090828A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	6.21	mg/L		0.005		E200.8	09/01/09 00:26 / eli-b		SUB-B135260	33	B_R135260
Selenium	0.009	mg/L		0.001		E200.8	09/01/09 00:26 / eli-b		SUB-B135260	33	B_R135260

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-177
Lab ID: H09080316-004
Matrix: Aqueous

Project: 1054 E Helena Quarterly Sampling
Collection Date: 08/26/09 10:15 **DateReceived:** 08/26/09
Report Date: 09/07/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.7	s.u.		0.1		A4500-H B	08/27/09 11:33 / hm		PH_090827A	8	090827A-PH-W
Conductivity	1500	umhos/cm		1		A2510 B	08/27/09 11:30 / hm		COND_090827A	8	90827A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/28/09 10:04 / sld		SOLIDS_090828A	26	090828A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	1070	mg/L		10		A2540 C	08/28/09 10:30 / sld		SOLIDS_090828B	32	090828A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	0.090	mg/L		0.005		E200.8	09/01/09 00:46 / eli-b		SUB-B135260	34	B_R135260
Selenium	0.036	mg/L		0.001		E200.8	09/01/09 00:46 / eli-b		SUB-B135260	34	B_R135260

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-178
Lab ID: H09080316-005
Matrix: Aqueous

Project: 1054 E Helena Quarterly Sampling
Collection Date: 08/26/09 10:25 **DateReceived:** 08/26/09
Report Date: 09/07/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.3	s.u.		0.1		A4500-H B	08/27/09 11:37 / hm		PH_090827A	9	090827A-PH-W
Conductivity	3	umhos/cm		1		A2510 B	08/27/09 11:31 / hm		COND_090827A	9	90827A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/28/09 10:04 / sld		SOLIDS_090828A	27	090828A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	26	mg/L		10		A2540 C	08/28/09 10:30 / sld		SOLIDS_090828B	33	090828A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	ND	mg/L		0.005		E200.8	09/01/09 00:50 / eli-b		SUB-B135260	35	B_R135260
Selenium	ND	mg/L		0.001		E200.8	09/01/09 00:50 / eli-b		SUB-B135260	35	B_R135260

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-179
Lab ID: H09080316-006
Matrix: Aqueous

Project: 1054 E Helena Quarterly Sampling
Collection Date: 08/26/09 10:30 **DateReceived:** 08/26/09
Report Date: 09/07/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.6	s.u.		0.1		A4500-H B	08/27/09 11:39 / hm		PH_090827A	10	090827A-PH-W
Conductivity	2	umhos/cm		1		A2510 B	08/27/09 11:32 / hm		COND_090827A	1	090827A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/28/09 10:04 / sld		SOLIDS_090828A	28	090828A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	08/28/09 10:31 / sld		SOLIDS_090828B	36	090828A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	ND	mg/L		0.005		E200.8	09/01/09 00:54 / eli-b		SUB-B135260	36	B_R135260
Selenium	ND	mg/L		0.001		E200.8	09/01/09 00:54 / eli-b		SUB-B135260	36	B_R135260

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-180
Lab ID: H09080316-007
Matrix: Aqueous

Project: 1054 E Helena Quarterly Sampling
Collection Date: 08/26/09 12:00 **DateReceived:** 08/26/09
Report Date: 09/07/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.4	s.u.		0.1		A4500-H B	08/27/09 11:44 / hm		PH_090827A	11	090827A-PH-W
Conductivity	1590	umhos/cm		1		A2510 B	08/27/09 11:34 / hm		COND_090827A	1	1190827A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/28/09 10:05 / sld		SOLIDS_090828A	29	090828A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	1170	mg/L		10		A2540 C	08/28/09 10:32 / sld		SOLIDS_090828B	37	090828A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	4.25	mg/L		0.005		E200.8	09/01/09 00:58 / eli-b		SUB-B135260	37	B_R135260
Selenium	0.778	mg/L		0.001		E200.8	09/01/09 00:58 / eli-b		SUB-B135260	37	B_R135260

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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Client: Asarco Consulting
Work Order: H09080316
Project: 1054 E Helena Quarterly Sampling

ANALYTICAL QC SUMMARY REPORT

BatchID: 090827A-COND-PROBE

Date: *07-Sep-09*

Run ID :Run Order: **COND_090827A: 1** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090827A** Method: **A2510 B**

Analysis Date: **08/27/09 11:19** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	1410	1.0	1412		**100**	90	110				

Associated samples: H09080316-001A; H09080316-002A; H09080316-003A; H09080316-004A; H09080316-005A; H09080316-006A; H09080316-007A

Run ID :Run Order: **COND_090827A: 6** SampType: **Sample Duplicate** Sample ID: **H09080316-002ADUP** Method: **A2510 B**

Analysis Date: **08/27/09 11:28** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	1410	1.0						1415	**0.7**	10	

Associated samples: H09080316-001A; H09080316-002A; H09080316-003A; H09080316-004A; H09080316-005A; H09080316-006A; H09080316-007A

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

ENERGY LABORATORIES, INC. * 3161 E Lyndale (59604) * PO Box 5688 * Helena, MT 59601
Toll Free 877.472.0711 * 406.442.0711 * FAX 406.442.0712 * helena@energylab.com

Client: Asarco Consulting
Work Order: H09080316
Project: 1054 E Helena Quarterly Sampling

ANALYTICAL QC SUMMARY REPORT

BatchID: 090827A-PH-W

Date: *07-Sep-09*

Run ID :Run Order: **PH_090827A: 1** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090827A** Method: **A4500-H B**

Analysis Date: **08/27/09 11:22** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.03	0.10	7		**100**	99	101				

Associated samples: H09080316-001A; H09080316-002A; H09080316-003A; H09080316-004A; H09080316-005A; H09080316-006A; H09080316-007A

Run ID :Run Order: **PH_090827A: 6** SampType: **Sample Duplicate** Sample ID: **H09080316-002ADUP** Method: **A4500-H B**

Analysis Date: **08/27/09 11:30** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	6.81	0.10						6.8	**0.1**	2	

Associated samples: H09080316-001A; H09080316-002A; H09080316-003A; H09080316-004A; H09080316-005A; H09080316-006A; H09080316-007A

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080316
Project: 1054 E Helena Quarterly Sampling

ANALYTICAL QC SUMMARY REPORT

BatchID: 090828A-SLDS-TDS-W

Date: *07-Sep-09*

Run ID :Run Order: **SOLIDS_090828B: 1** SampType: **Method Blank** Sample ID: **MBLK1_090828A** Method: **A2540 C**
Analysis Date: **08/28/09 10:20** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	9	1.0									

Associated samples: H09080316-001A; H09080316-002A; H09080316-003A; H09080316-004A; H09080316-005A; H09080316-006A; H09080316-007A

Run ID :Run Order: **SOLIDS_090828B: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090828A** Method: **A2540 C**
Analysis Date: **08/28/09 10:20** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	996	10	1000	9	99	90	110				

Associated samples: H09080316-001A; H09080316-002A; H09080316-003A; H09080316-004A; H09080316-005A; H09080316-006A; H09080316-007A

Run ID :Run Order: **SOLIDS_090828B: 29** SampType: **Sample Duplicate** Sample ID: **H09080316-001ADUP** Method: **A2540 C**
Analysis Date: **08/28/09 10:28** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	206	10						206	0	20	

Associated samples: H09080316-001A; H09080316-002A; H09080316-003A; H09080316-004A; H09080316-005A; H09080316-006A; H09080316-007A

Run ID :Run Order: **SOLIDS_090828B: 34** SampType: **Sample Matrix Spike** Sample ID: **H09080316-005AMS** Method: **A2540 C**
Analysis Date: **08/28/09 10:31** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2020	10	2000	26	99	80	120				

Associated samples: H09080316-001A; H09080316-002A; H09080316-003A; H09080316-004A; H09080316-005A; H09080316-006A; H09080316-007A

Run ID :Run Order: **SOLIDS_090828B: 35** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080316-005AMSD** Method: **A2540 C**
Analysis Date: **08/28/09 10:31** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2030	10	2000	26	100	80	120	2016	0.6	10	

Associated samples: H09080316-001A; H09080316-002A; H09080316-003A; H09080316-004A; H09080316-005A; H09080316-006A; H09080316-007A

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080316
Project: 1054 E Helena Quarterly Sampling

ANALYTICAL QC SUMMARY REPORT

BatchID: 090828A-SLDS-TSS-W

Date: *07-Sep-09*

Run ID :Run Order: **SOLIDS_090828A: 1** SampType: **Method Blank** Sample ID: **MBLK1_090828A** Method: **A2540 D**
Analysis Date: **08/28/09 09:54** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	ND	1									

Associated samples: H09080316-001A; H09080316-002A; H09080316-003A; H09080316-004A; H09080316-005A; H09080316-006A; H09080316-007A

Run ID :Run Order: **SOLIDS_090828A: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090828A** Method: **A2540 D**
Analysis Date: **08/28/09 09:54** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	1980	10	2000		**99**	70	130				

Associated samples: H09080316-001A; H09080316-002A; H09080316-003A; H09080316-004A; H09080316-005A; H09080316-006A; H09080316-007A

Run ID :Run Order: **SOLIDS_090828A: 30** SampType: **Sample Duplicate** Sample ID: **H09080316-007ADUP** Method: **A2540 D**
Analysis Date: **08/28/09 10:05** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	5.00	10						6		10	

Associated samples: H09080316-001A; H09080316-002A; H09080316-003A; H09080316-004A; H09080316-005A; H09080316-006A; H09080316-007A

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080316
Project: 1054 E Helena Quarterly Sampling

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R135260

Date: *07-Sep-09*

Run ID :Run Order: **SUB-B135260: 9** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090609B, 080814C** Method: **E200.8**

Analysis Date: **08/31/09 11:16** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.049	0.0050	0.05		98	90	110				
Selenium	0.050	0.0050	0.05		99	90	110				

Associated samples: H09080316-001B; H09080316-002B; H09080316-003B; H09080316-004B; H09080316-005B; H09080316-006B; H09080316-007B

Run ID :Run Order: **SUB-B135260: 22** SampType: **Method Blank** Sample ID: **LRB** Method: **E200.8**

Analysis Date: **08/31/09 13:21** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	3E-05									
Selenium	ND	0.0002									

Associated samples: H09080316-001B; H09080316-002B; H09080316-003B; H09080316-004B; H09080316-005B; H09080316-006B; H09080316-007B

Run ID :Run Order: **SUB-B135260: 23** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**

Analysis Date: **08/31/09 13:25** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.050	0.0050	0.05		100	85	115				
Selenium	0.050	0.0050	0.05		101	85	115				

Associated samples: H09080316-001B; H09080316-002B; H09080316-003B; H09080316-004B; H09080316-005B; H09080316-006B; H09080316-007B

Run ID :Run Order: **SUB-B135260: 24** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090609B, ME080814C** Method: **E200.8**

Analysis Date: **08/31/09 18:49** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.049	0.0050	0.05		98	90	110				
Selenium	0.050	0.0050	0.05		100	90	110				

Associated samples: H09080316-001B; H09080316-002B; H09080316-003B; H09080316-004B; H09080316-005B; H09080316-006B; H09080316-007B

Run ID :Run Order: **SUB-B135260: 29** SampType: **Sample Matrix Spike** Sample ID: **H09080316-002B** Method: **E200.8**

Analysis Date: **09/01/09 00:14** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	6.30	0.0050	0.25	6.195		70	130				A

Qualifiers: ND - Not Detected at the Reporting Limit; S - Spike Recovery outside accepted recovery limits; N - Analyte concentration was not sufficiently high to calculate RPD; J - Analyte detected below quantitation limits; R - RPD outside accepted recovery limits; A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080316
Project: 1054 E Helena Quarterly Sampling

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R135260

Date: *07-Sep-09*

Run ID :Run Order: **SUB-B135260: 29** SampType: **Sample Matrix Spike** Sample ID: **H09080316-002B** Method: **E200.8**

Analysis Date: **09/01/09 00:14** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	0.265	0.0050	0.25	0.0094	**102**	70	130				

Associated samples: H09080316-001B; H09080316-002B; H09080316-003B; H09080316-004B; H09080316-005B; H09080316-006B; H09080316-007B

Run ID :Run Order: **SUB-B135260: 30** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080316-002B** Method: **E200.8**

Analysis Date: **09/01/09 00:18** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	6.22	0.0050	0.25	6.195		70	130	6.295	**1.2**	20	A
Selenium	0.259	0.0050	0.25	0.0094	**100**	70	130	0.2645	**2.1**	20	

Associated samples: H09080316-001B; H09080316-002B; H09080316-003B; H09080316-004B; H09080316-005B; H09080316-006B; H09080316-007B

Qualifiers:
ND - Not Detected at the Reporting Limit
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R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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ANALYTICAL SUMMARY REPORT

September 15, 2009

Asarco Consulting
5219 N Shirley St
Ruston, WA 98407

Workorder No.: H09080347 Quote ID: H454 - Revised Quarterly Monitoring Program August 2009

Project Name: 1054 Asarco E Helena

Energy Laboratories Inc received the following 11 samples for Asarco Consulting on 8/27/2009 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H09080347-001	AEH-0908-181	08/27/09 8:40	08/27/09	Aqueous	Metals by ICP/ICPMS, Dissolved Conductivity pH Solids, Total Dissolved Solids, Total Suspended
H09080347-002	AEH-0908-182	08/27/09 9:10	08/27/09	Aqueous	Same As Above
H09080347-003	AEH-0908-183	08/27/09 9:20	08/27/09	Aqueous	Same As Above
H09080347-004	AEH-0908-184	08/27/09 10:00	08/27/09	Aqueous	Same As Above
H09080347-005	AEH-0908-185	08/27/09 10:25	08/27/09	Aqueous	Same As Above
H09080347-006	AEH-0908-186	08/27/09 10:50	08/27/09	Aqueous	Same As Above
H09080347-007	AEH-0908-187	08/27/09 12:15	08/27/09	Aqueous	Same As Above
H09080347-008	AEH-0908-188	08/27/09 12:30	08/27/09	Aqueous	Same As Above
H09080347-009	AEH-0908-189	08/27/09 12:45	08/27/09	Aqueous	Same As Above
H09080347-010	AEH-0908-190	08/27/09 13:05	08/27/09	Aqueous	Same As Above
H09080347-011	AEH-0908-191	08/27/09 13:30	08/27/09	Aqueous	Same As Above

BRANCH LABORATORY LOCATIONS
eli-b - Energy Laboratories, Inc. - Billings, MT, EPA # MT00005
eli-c - Energy Laboratories, Inc. - Casper, WY, EPA# WY00002
eli-g - Energy Laboratories, Inc. - Gillette, WY, EPA# WY00006
eli-h - Energy Laboratories, Inc. - Helena, MT, EPA# MT00945
eli-r - Energy Laboratories, Inc. - Rapid City, SD, EPA# SD00012
eli-t - Energy Laboratories, Inc. - College Station, TX, EPA# TX01520

SUBCONTRACTING ANALYSIS
Subcontracting of sample analyses to an outside laboratory may be required. If so, ENERGY LABORATORIES, INC. will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories are indicated within the Laboratory Analytical Report.

SAMPLE TEMPERATURE COMPLIANCE: 4°C (±2°C)
Temperature of samples received may not be considered properly preserved by accepted standards. Samples that are hand delivered immediately after collection shall be considered acceptable if there is evidence that the chilling process has begun.

ELI appreciates the opportunity to provide you with this analytical service. For additional information, including certifications, and analytical services visit our web page www.energylab.com.

Report Approved By: Jonathan D. Hager

Digitally signed by Jonathan D. Hager
DN: cn=Jonathan D. Hager, o=Energy Laboratory-Helena, ou=Assistant Lab Manager, email=jhager@energylab.com, c=US
Date: 2009.09.16 07:40:00 -06'00'

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-181
Lab ID: H09080347-001
Matrix: Aqueous

Project: 1054 Asarco E Helena
Collection Date: 08/27/09 08:40 **DateReceived:** 08/27/09
Report Date: 09/15/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.5	s.u.		0.1		A4500-H B	08/28/09 16:53 / JG		PH_090828A	3	090828A-PH-W
Conductivity	700	umhos/cm		1		A2510 B	08/31/09 10:09 / hm		COND_090831A	89	0831A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/31/09 10:59 / hm		SOLIDS_090831A	16	090831A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	465	mg/L		10		A2540 C	08/31/09 11:46 / hm		SOLIDS_090831B	6	090831A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	ND	mg/L		0.005		E200.8	09/03/09 05:58 / eli-b		SUB-B135419	19	B_R135419
Selenium	0.017	mg/L		0.001		E200.8	09/03/09 05:58 / eli-b		SUB-B135419	19	B_R135419

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-182
Lab ID: H09080347-002
Matrix: Aqueous

Project: 1054 Asarco E Helena
Collection Date: 08/27/09 09:10 **DateReceived:** 08/27/09
Report Date: 09/15/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.4	s.u.		0.1		A4500-H B	08/28/09 16:55 / JG		PH_090828A	4	090828A-PH-W
Conductivity	1450	umhos/cm		1		A2510 B	08/31/09 10:13 / hm		COND_090831A	1	090831A-COND-PROB
Solids, Total Suspended TSS @ 105 C	63	mg/L		10		A2540 D	08/31/09 11:00 / hm		SOLIDS_090831A	17	090831A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	1020	mg/L		10		A2540 C	08/31/09 11:46 / hm		SOLIDS_090831B	7	090831A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	10.5	mg/L		0.005		E200.8	09/08/09 14:07 / eli-b		SUB-B135664	11	B_R135664
Selenium	0.393	mg/L		0.001		E200.8	09/03/09 06:02 / eli-b		SUB-B135419	20	B_R135419

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-183
Lab ID: H09080347-003
Matrix: Aqueous

Project: 1054 Asarco E Helena
Collection Date: 08/27/09 09:20 **DateReceived:** 08/27/09
Report Date: 09/15/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.4	s.u.		0.1		A4500-H B	08/28/09 16:57 / JG		PH_090828A	6	090828A-PH-W
Conductivity	1460	umhos/cm		1		A2510 B	08/31/09 10:14 / hm		COND_090831A	1	190831A-COND-PROB
Solids, Total Suspended TSS @ 105 C	62	mg/L		10		A2540 D	08/31/09 11:00 / hm		SOLIDS_090831A	18	090831A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	1020	mg/L		10		A2540 C	08/31/09 11:47 / hm		SOLIDS_090831B	8	090831A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	10.6	mg/L		0.005		E200.8	09/08/09 14:10 / eli-b		SUB-B135664	12	B_R135664
Selenium	0.376	mg/L		0.001		E200.8	09/03/09 06:06 / eli-b		SUB-B135419	21	B_R135419

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-184
Lab ID: H09080347-004
Matrix: Aqueous

Project: 1054 Asarco E Helena
Collection Date: 08/27/09 10:00 **DateReceived:** 08/27/09
Report Date: 09/15/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.8	s.u.		0.1		A4500-H B	08/28/09 16:58 / JG		PH_090828A	7	090828A-PH-W
Conductivity	1310	umhos/cm		1		A2510 B	08/31/09 10:16 / hm		COND_090831A	1	290831A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/31/09 11:00 / hm		SOLIDS_090831A	20	090831A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	906	mg/L		10		A2540 C	08/31/09 11:48 / hm		SOLIDS_090831B	11	090831A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	10.0	mg/L		0.005		E200.8	09/08/09 14:14 / eli-b		SUB-B135664	13	B_R135664
Selenium	0.015	mg/L		0.001		E200.8	09/03/09 14:04 / eli-b		SUB-B135481	51	B_R135481

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-185
Lab ID: H09080347-005
Matrix: Aqueous

Project: 1054 Asarco E Helena
Collection Date: 08/27/09 10:25 **DateReceived:** 08/27/09
Report Date: 09/15/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.0	s.u.		0.1		A4500-H B	08/28/09 17:04 / JG		PH_090828A	9	090828A-PH-W
Conductivity	2480	umhos/cm		1		A2510 B	08/31/09 10:17 / hm		COND_090831A	1	490831A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/31/09 11:01 / hm		SOLIDS_090831A	21	090831A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	2040	mg/L		10		A2540 C	08/31/09 11:48 / hm		SOLIDS_090831B	12	090831A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	0.009	mg/L		0.005		E200.8	09/03/09 14:36 / eli-b		SUB-B135481	52	B_R135481
Selenium	0.505	mg/L		0.001		E200.8	09/03/09 14:36 / eli-b		SUB-B135481	52	B_R135481

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-186
Lab ID: H09080347-006
Matrix: Aqueous

Project: 1054 Asarco E Helena
Collection Date: 08/27/09 10:50 **DateReceived:** 08/27/09
Report Date: 09/15/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.6	s.u.		0.1		A4500-H B	08/28/09 17:05 / JG		PH_090828A	10	090828A-PH-W
Conductivity	1480	umhos/cm		1		A2510 B	08/31/09 10:18 / hm		COND_090831A	1	590831A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/31/09 11:01 / hm		SOLIDS_090831A	22	090831A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	1040	mg/L		10		A2540 C	08/31/09 11:48 / hm		SOLIDS_090831B	13	090831A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	3.17	mg/L		0.005		E200.8	09/03/09 14:40 / eli-b		SUB-B135481	53	B_R135481
Selenium	0.050	mg/L		0.001		E200.8	09/03/09 14:40 / eli-b		SUB-B135481	53	B_R135481

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-187
Lab ID: H09080347-007
Matrix: Aqueous

Project: 1054 Asarco E Helena
Collection Date: 08/27/09 12:15 **DateReceived:** 08/27/09
Report Date: 09/15/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.6	s.u.		0.1		A4500-H B	08/28/09 17:06 / JG		PH_090828A	11	090828A-PH-W
Conductivity	1410	umhos/cm		1		A2510 B	08/31/09 10:19 / hm		COND_090831A	1	690831A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/31/09 11:02 / hm		SOLIDS_090831A	23	090831A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	1020	mg/L		10		A2540 C	08/31/09 11:49 / hm		SOLIDS_090831B	14	090831A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	0.006	mg/L		0.005		E200.8	09/03/09 14:43 / eli-b		SUB-B135481	54	B_R135481
Selenium	0.043	mg/L		0.001		E200.8	09/03/09 14:43 / eli-b		SUB-B135481	54	B_R135481

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-188
Lab ID: H09080347-008
Matrix: Aqueous

Project: 1054 Asarco E Helena
Collection Date: 08/27/09 12:30 **DateReceived:** 08/27/09
Report Date: 09/15/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.6	s.u.		0.1		A4500-H B	08/28/09 17:10 / JG		PH_090828A	12	090828A-PH-W
Conductivity	2	umhos/cm		1		A2510 B	08/31/09 10:20 / hm		COND_090831A	1	790831A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/31/09 11:02 / hm		SOLIDS_090831A	24	090831A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	21	mg/L		10		A2540 C	08/31/09 11:49 / hm		SOLIDS_090831B	15	090831A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	ND	mg/L		0.005		E200.8	09/03/09 14:47 / eli-b		SUB-B135481	55	B_R135481
Selenium	ND	mg/L		0.001		E200.8	09/03/09 14:47 / eli-b		SUB-B135481	55	B_R135481

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-189
Lab ID: H09080347-009
Matrix: Aqueous

Project: 1054 Asarco E Helena
Collection Date: 08/27/09 12:45 **DateReceived:** 08/27/09
Report Date: 09/15/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	6.7	s.u.		0.1		A4500-H B	08/28/09 17:12 / JG		PH_090828A	13	090828A-PH-W
Conductivity	1130	umhos/cm		1		A2510 B	08/31/09 10:21 / hm		COND_090831A	1	990831A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/31/09 11:02 / hm		SOLIDS_090831A	25	090831A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	808	mg/L		10		A2540 C	08/31/09 11:49 / hm		SOLIDS_090831B	16	090831A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	ND	mg/L		0.005		E200.8	09/03/09 14:51 / eli-b		SUB-B135481	56	B_R135481
Selenium	0.195	mg/L		0.001		E200.8	09/03/09 14:51 / eli-b		SUB-B135481	56	B_R135481

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-190
Lab ID: H09080347-010
Matrix: Aqueous

Project: 1054 Asarco E Helena
Collection Date: 08/27/09 13:05 **DateReceived:** 08/27/09
Report Date: 09/15/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.0	s.u.		0.1		A4500-H B	08/28/09 17:14 / JG		PH_090828A	15	090828A-PH-W
Conductivity	7	umhos/cm		1		A2510 B	08/31/09 10:21 / hm		COND_090831A	2	090831A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/31/09 11:02 / hm		SOLIDS_090831A	26	090831A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	36	mg/L		10		A2540 C	08/31/09 11:49 / hm		SOLIDS_090831B	17	090831A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	ND	mg/L		0.005		E200.8	09/03/09 14:55 / eli-b		SUB-B135481	57	B_R135481
Selenium	ND	mg/L		0.001		E200.8	09/03/09 14:55 / eli-b		SUB-B135481	57	B_R135481

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-191
Lab ID: H09080347-011
Matrix: Aqueous

Project: 1054 Asarco E Helena
Collection Date: 08/27/09 13:30 **DateReceived:** 08/27/09
Report Date: 09/15/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.2	s.u.		0.1		A4500-H B	08/28/09 17:17 / JG		PH_090828A	16	090828A-PH-W
Conductivity	527	umhos/cm		1		A2510 B	08/31/09 10:22 / hm		COND_090831A	22	90831A-COND-PROB
Solids, Total Suspended TSS @ 105 C	10	mg/L		10		A2540 D	08/31/09 11:03 / hm		SOLIDS_090831A	28	090831A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	338	mg/L		10		A2540 C	08/31/09 11:50 / hm		SOLIDS_090831B	19	090831A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	ND	mg/L		0.005		E200.8	09/03/09 14:59 / eli-b		SUB-B135481	58	B_R135481
Selenium	0.024	mg/L		0.001		E200.8	09/03/09 14:59 / eli-b		SUB-B135481	58	B_R135481

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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Client: Asarco Consulting
Work Order: H09080347
Project: 1054 Asarco E Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: 090828A-PH-W

Date: *15-Sep-09*

Run ID :Run Order: **PH_090828A: 1** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090828A** Method: **A4500-H B**
Analysis Date: **08/28/09 16:49** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.01	0.10	7		**100**	99	101				

Associated samples: H09080347-001A; H09080347-002A; H09080347-003A; H09080347-004A; H09080347-005A; H09080347-006A; H09080347-007A; H09080347-008A; H09080347-009A; H09080347-010A; H09080347-011A

Run ID :Run Order: **PH_090828A: 5** SampType: **Sample Duplicate** Sample ID: **H09080347-002ADUP** Method: **A4500-H B**
Analysis Date: **08/28/09 16:55** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	6.43	0.10						6.45	**0.3**	2	

Associated samples: H09080347-001A; H09080347-002A; H09080347-003A; H09080347-004A; H09080347-005A; H09080347-006A; H09080347-007A; H09080347-008A; H09080347-009A; H09080347-010A; H09080347-011A

Run ID :Run Order: **PH_090828A: 8** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV1_090828A** Method: **A4500-H B**
Analysis Date: **08/28/09 17:01** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	10.0	0.10	10		**100**	99	101				

Associated samples: H09080347-005A; H09080347-006A; H09080347-007A; H09080347-008A; H09080347-009A; H09080347-010A; H09080347-011A

Run ID :Run Order: **PH_090828A: 14** SampType: **Sample Duplicate** Sample ID: **H09080347-009ADUP** Method: **A4500-H B**
Analysis Date: **08/28/09 17:13** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	6.67	0.10						6.66	**0.2**	2	

Associated samples: H09080347-001A; H09080347-002A; H09080347-003A; H09080347-004A; H09080347-005A; H09080347-006A; H09080347-007A; H09080347-008A; H09080347-009A; H09080347-010A; H09080347-011A

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080347
Project: 1054 Asarco E Helena

ANALYTICAL QC SUMMARY REPORT

Date: *15-Sep-09*

BatchID: 090831A-COND-PROBE

Run ID :Run Order: **COND_090831A: 1** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090831A** Method: **A2510 B**
Analysis Date: **08/31/09 09:56** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	1410	1.0	1412		**100**	90	110				

Associated samples: H09080347-001A; H09080347-002A; H09080347-003A; H09080347-004A; H09080347-005A; H09080347-006A; H09080347-007A; H09080347-008A; H09080347-009A; H09080347-010A; H09080347-011A

Run ID :Run Order: **COND_090831A: 9** SampType: **Sample Duplicate** Sample ID: **H09080347-001ADUP** Method: **A2510 B**
Analysis Date: **08/31/09 10:12** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	697	1.0						699.7	**0.3**	10	

Associated samples: H09080347-001A; H09080347-002A; H09080347-003A; H09080347-004A; H09080347-005A; H09080347-006A; H09080347-007A; H09080347-008A; H09080347-009A; H09080347-010A; H09080347-011A

Run ID :Run Order: **COND_090831A: 13** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV1_090831A** Method: **A2510 B**
Analysis Date: **08/31/09 10:17** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	719	1.0	718		**100**	90	110				

Associated samples: H09080347-005A; H09080347-006A; H09080347-007A; H09080347-008A; H09080347-009A; H09080347-010A; H09080347-011A

Run ID :Run Order: **COND_090831A: 18** SampType: **Sample Duplicate** Sample ID: **H09080347-008ADUP** Method: **A2510 B**
Analysis Date: **08/31/09 10:20** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	2.23	1.0						2.25	**0.9**	10	

Associated samples: H09080347-001A; H09080347-002A; H09080347-003A; H09080347-004A; H09080347-005A; H09080347-006A; H09080347-007A; H09080347-008A; H09080347-009A; H09080347-010A; H09080347-011A

Run ID :Run Order: **COND_090831A: 21** SampType: **Sample Duplicate** Sample ID: **H09080347-010ADUP** Method: **A2510 B**
Analysis Date: **08/31/09 10:23** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	7.58	1.0						7.33	**3.4**	10	

Associated samples: H09080347-001A; H09080347-002A; H09080347-003A; H09080347-004A; H09080347-005A; H09080347-006A; H09080347-007A; H09080347-008A; H09080347-009A; H09080347-010A; H09080347-011A

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080347
Project: 1054 Asarco E Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: 090831A-SLDS-TDS-W

Date: *15-Sep-09*

Run ID :Run Order: **SOLIDS_090831B: 1** SampType: **Method Blank** Sample ID: **MBLK1_090831A** Method: **A2540 C**
Analysis Date: **08/31/09 11:44** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	ND	1.0									

Associated samples: H09080347-001A; H09080347-002A; H09080347-003A; H09080347-004A; H09080347-005A; H09080347-006A; H09080347-007A; H09080347-008A; H09080347-009A; H09080347-010A; H09080347-011A

Run ID :Run Order: **SOLIDS_090831B: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090831A** Method: **A2540 C**
Analysis Date: **08/31/09 11:45** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	966	10	1000		97	90	110				

Associated samples: H09080347-001A; H09080347-002A; H09080347-003A; H09080347-004A; H09080347-005A; H09080347-006A; H09080347-007A; H09080347-008A; H09080347-009A; H09080347-010A; H09080347-011A

Run ID :Run Order: **SOLIDS_090831B: 9** SampType: **Sample Matrix Spike** Sample ID: **H09080347-003AMS** Method: **A2540 C**
Analysis Date: **08/31/09 11:47** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	3000	10	2000	1018	99	80	120				

Associated samples: H09080347-001A; H09080347-002A; H09080347-003A; H09080347-004A; H09080347-005A; H09080347-006A; H09080347-007A; H09080347-008A; H09080347-009A; H09080347-010A; H09080347-011A

Run ID :Run Order: **SOLIDS_090831B: 10** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080347-003AMSD** Method: **A2540 C**
Analysis Date: **08/31/09 11:47** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	3060	10	2000	1018	102	80	120	3004	1.7	10	

Associated samples: H09080347-001A; H09080347-002A; H09080347-003A; H09080347-004A; H09080347-005A; H09080347-006A; H09080347-007A; H09080347-008A; H09080347-009A; H09080347-010A; H09080347-011A

Run ID :Run Order: **SOLIDS_090831B: 18** SampType: **Sample Duplicate** Sample ID: **H09080347-010ADUP** Method: **A2540 C**
Analysis Date: **08/31/09 11:50** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	38.0	10						36	5.4	20	

Associated samples: H09080347-001A; H09080347-002A; H09080347-003A; H09080347-004A; H09080347-005A; H09080347-006A; H09080347-007A; H09080347-008A; H09080347-009A; H09080347-010A; H09080347-011A

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Work Order: H09080347
Project: 1054 Asarco E Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: 090831A-SLDS-TDS-W

Date: *15-Sep-09*

Run ID :Run Order: **SOLIDS_090831B: 26** SampType: **Sample Matrix Spike** Sample ID: **H09080353-006AMS** Method: **A2540 C**

Analysis Date: **08/31/09 11:51** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2030	10	2000	8	101	80	120				

Associated samples: H09080347-001A; H09080347-002A; H09080347-003A; H09080347-004A; H09080347-005A; H09080347-006A; H09080347-007A; H09080347-008A; H09080347-009A; H09080347-010A; H09080347-011A

Run ID :Run Order: **SOLIDS_090831B: 27** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080353-006AMSD** Method: **A2540 C**

Analysis Date: **08/31/09 11:52** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2040	10	2000	8	102	80	120	2026	0.7	10	

Associated samples: H09080347-001A; H09080347-002A; H09080347-003A; H09080347-004A; H09080347-005A; H09080347-006A; H09080347-007A; H09080347-008A; H09080347-009A; H09080347-010A; H09080347-011A

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080347
Project: 1054 Asarco E Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: 090831A-SLDS-TSS-W

Date: *15-Sep-09*

Run ID :Run Order: **SOLIDS_090831A: 1** SampType: **Method Blank** Sample ID: **MBLK1_090831A** Method: **A2540 D**
Analysis Date: **08/31/09 10:54** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	ND	1									

Associated samples: H09080347-001A; H09080347-002A; H09080347-003A; H09080347-004A; H09080347-005A; H09080347-006A; H09080347-007A; H09080347-008A; H09080347-009A; H09080347-010A; H09080347-011A

Run ID :Run Order: **SOLIDS_090831A: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090831A** Method: **A2540 D**
Analysis Date: **08/31/09 10:54** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	1760	10	2000		88	70	130				

Associated samples: H09080347-001A; H09080347-002A; H09080347-003A; H09080347-004A; H09080347-005A; H09080347-006A; H09080347-007A; H09080347-008A; H09080347-009A; H09080347-010A; H09080347-011A

Run ID :Run Order: **SOLIDS_090831A: 19** SampType: **Sample Duplicate** Sample ID: **H09080347-003ADUP** Method: **A2540 D**
Analysis Date: **08/31/09 11:00** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	64.0	10						62	**3.2**	10	

Associated samples: H09080347-001A; H09080347-002A; H09080347-003A; H09080347-004A; H09080347-005A; H09080347-006A; H09080347-007A; H09080347-008A; H09080347-009A; H09080347-010A; H09080347-011A

Run ID :Run Order: **SOLIDS_090831A: 27** SampType: **Sample Duplicate** Sample ID: **H09080347-010ADUP** Method: **A2540 D**
Analysis Date: **08/31/09 11:03** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	ND	10								10	

Associated samples: H09080347-001A; H09080347-002A; H09080347-003A; H09080347-004A; H09080347-005A; H09080347-006A; H09080347-007A; H09080347-008A; H09080347-009A; H09080347-010A; H09080347-011A

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09080347
Project: 1054 Asarco E Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R135419

Date: *15-Sep-09*

Run ID :Run Order: **SUB-B135419: 2** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090609B, 080814C** Method: **E200.8**

Analysis Date: **09/02/09 11:14** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.050	0.0050	0.05		**99**	90	110				
Selenium	0.049	0.0050	0.05		**99**	90	110				

Associated samples: H09080347-001B; H09080347-002B; H09080347-003B

Run ID :Run Order: **SUB-B135419: 14** SampType: **Method Blank** Sample ID: **LRB** Method: **E200.8**

Analysis Date: **09/02/09 13:24** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	3E-05									
Selenium	ND	0.0002									

Associated samples: H09080347-001B; H09080347-002B; H09080347-003B

Run ID :Run Order: **SUB-B135419: 15** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**

Analysis Date: **09/02/09 13:27** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.052	0.0050	0.05		**104**	85	115				
Selenium	0.052	0.0050	0.05		**103**	85	115				

Associated samples: H09080347-001B; H09080347-002B; H09080347-003B

Run ID :Run Order: **SUB-B135419: 16** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090609B, ME080814C** Method: **E200.8**

Analysis Date: **09/02/09 22:50** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.049	0.0050	0.05		**99**	90	110				
Selenium	0.049	0.0050	0.05		**98**	90	110				

Associated samples: H09080347-001B; H09080347-002B; H09080347-003B

Run ID :Run Order: **SUB-B135419: 17** SampType: **Sample Matrix Spike** Sample ID: **H09080349-004A** Method: **E200.8**

Analysis Date: **09/03/09 07:43** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.050	0.0010	0.05	0.00116	**98**	70	130				

Qualifiers: ND - Not Detected at the Reporting Limit; S - Spike Recovery outside accepted recovery limits; N - Analyte concentration was not sufficiently high to calculate RPD; J - Analyte detected below quantitation limits; R - RPD outside accepted recovery limits; A - Analyte concentration greater than three times the spike amount

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Project: 1054 Asarco E Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R135419

Date: *15-Sep-09*

Run ID :Run Order: **SUB-B135419: 17** SampType: **Sample Matrix Spike** Sample ID: **H09080349-004A** Method: **E200.8**
Analysis Date: **09/03/09 07:43** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	0.048	0.0050	0.05		**97**	70	130				

Associated samples: H09080347-001B; H09080347-002B; H09080347-003B

Run ID :Run Order: **SUB-B135419: 18** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080349-004A** Method: **E200.8**
Analysis Date: **09/03/09 08:03** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.050	0.0010	0.05	0.00116	**98**	70	130	0.05012	**0.5**	20	
Selenium	0.048	0.0050	0.05		**96**	70	130	0.04831	**0.7**	20	

Associated samples: H09080347-001B; H09080347-002B; H09080347-003B

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Work Order: H09080347
Project: 1054 Asarco E Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R135481

Date: *15-Sep-09*

Run ID :Run Order: **SUB-B135481: 32** SampType: **Method Blank** Sample ID: **LRB** Method: **E200.8**
Analysis Date: **09/03/09 13:28** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	3E-05									
Selenium	0.0003	0.0002									

Associated samples: H09080347-004B; H09080347-005B; H09080347-006B; H09080347-007B; H09080347-008B; H09080347-009B; H09080347-010B; H09080347-011B

Run ID :Run Order: **SUB-B135481: 33** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**
Analysis Date: **09/03/09 13:32** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.049	0.0050	0.05		**99**	85	115				
Selenium	0.051	0.0050	0.05	0.00025	**101**	85	115				

Associated samples: H09080347-004B; H09080347-005B; H09080347-006B; H09080347-007B; H09080347-008B; H09080347-009B; H09080347-010B; H09080347-011B

Run ID :Run Order: **SUB-B135481: 34** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090609B, ME080814C** Method: **E200.8**
Analysis Date: **09/04/09 01:44** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.050	0.0050	0.05		**101**	90	110				
Selenium	0.050	0.0050	0.05		**101**	90	110				

Associated samples: H09080347-004B; H09080347-005B; H09080347-006B; H09080347-007B; H09080347-008B; H09080347-009B; H09080347-010B; H09080347-011B

Run ID :Run Order: **SUB-B135481: 46** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090609B, 080814C** Method: **E200.8**
Analysis Date: **09/03/09 12:52** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.050	0.0050	0.05		**99**	90	110				
Selenium	0.050	0.0050	0.05		**101**	90	110				

Associated samples: H09080347-004B; H09080347-005B; H09080347-006B; H09080347-007B; H09080347-008B; H09080347-009B; H09080347-010B; H09080347-011B

Run ID :Run Order: **SUB-B135481: 47** SampType: **Sample Matrix Spike** Sample ID: **H09080347-002B** Method: **E200.8**
Analysis Date: **09/04/09 00:44** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.2	0.0050	0.05	10.29		70	130				A

Qualifiers: ND - Not Detected at the Reporting Limit; S - Spike Recovery outside accepted recovery limits; N - Analyte concentration was not sufficiently high to calculate RPD; J - Analyte detected below quantitation limits; R - RPD outside accepted recovery limits; A - Analyte concentration greater than three times the spike amount

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Work Order: H09080347
Project: 1054 Asarco E Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R135481

Date: *15-Sep-09*

Run ID :Run Order: **SUB-B135481: 47** SampType: **Sample Matrix Spike** Sample ID: **H09080347-002B** Method: **E200.8**
Analysis Date: **09/04/09 00:44** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	0.442	0.0050	0.05	0.4037		70	130				A

Associated samples: H09080347-004B; H09080347-005B; H09080347-006B; H09080347-007B; H09080347-008B; H09080347-009B; H09080347-010B; H09080347-011B

Run ID :Run Order: **SUB-B135481: 48** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09080347-002B** Method: **E200.8**
Analysis Date: **09/04/09 00:48** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.1	0.0050	0.05	10.29		70	130	10.23	**1.2**	20	A
Selenium	0.440	0.0050	0.05	0.4037		70	130	0.4418	**0.4**	20	A

Associated samples: H09080347-004B; H09080347-005B; H09080347-006B; H09080347-007B; H09080347-008B; H09080347-009B; H09080347-010B; H09080347-011B

Run ID :Run Order: **SUB-B135481: 59** SampType: **Sample Matrix Spike** Sample ID: **B09090131-004BMS** Method: **E200.8**
Analysis Date: **09/03/09 14:24** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.0	0.0050	0.05	10		70	130				A
Selenium	0.0666	0.0050	0.05	0.01537	**102**	70	130				

Associated samples: H09080347-004B; H09080347-005B; H09080347-006B; H09080347-007B; H09080347-008B; H09080347-009B; H09080347-010B; H09080347-011B

Run ID :Run Order: **SUB-B135481: 60** SampType: **Sample Matrix Spike Duplicate** Sample ID: **B09090131-004BMSD** Method: **E200.8**
Analysis Date: **09/03/09 14:28** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.0	0.0050	0.05	10		70	130	10.02	**0.1**	20	A
Selenium	0.0661	0.0050	0.05	0.01537	**101**	70	130	0.06661	**0.8**	20	

Associated samples: H09080347-004B; H09080347-005B; H09080347-006B; H09080347-007B; H09080347-008B; H09080347-009B; H09080347-010B; H09080347-011B

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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ANALYTICAL QC SUMMARY REPORT

BatchID: B_R135664

Date: *15-Sep-09*

Run ID :Run Order: **SUB-B135664: 2** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090609B, 080814C** Method: **E200.8**

Analysis Date: **09/08/09 11:27** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.050	0.0050	0.05		**101**	90	110				

Associated samples: H09080347-002B; H09080347-003B; H09080347-004B

Run ID :Run Order: **SUB-B135664: 3** SampType: **Method Blank** Sample ID: **LRB** Method: **E200.8**

Analysis Date: **09/08/09 13:03** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	3E-05									

Associated samples: H09080347-002B; H09080347-003B; H09080347-004B

Run ID :Run Order: **SUB-B135664: 4** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**

Analysis Date: **09/08/09 13:07** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.052	0.0050	0.05		**103**	85	115				

Associated samples: H09080347-002B; H09080347-003B; H09080347-004B

Run ID :Run Order: **SUB-B135664: 5** SampType: **Sample Matrix Spike** Sample ID: **B09090573-001BMS** Method: **E200.8**

Analysis Date: **09/08/09 13:39** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0521	0.0050	0.05	0.0017	**101**	70	130				

Associated samples: H09080347-002B; H09080347-003B; H09080347-004B

Run ID :Run Order: **SUB-B135664: 6** SampType: **Sample Matrix Spike Duplicate** Sample ID: **B09090573-001BMSD** Method: **E200.8**

Analysis Date: **09/08/09 13:59** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0524	0.0050	0.05	0.0017	**101**	70	130	0.05213	**0.5**	20	

Associated samples: H09080347-002B; H09080347-003B; H09080347-004B

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Project: 1054 Asarco E Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R135664

Date: *15-Sep-09*

Run ID :Run Order: **SUB-B135664: 9** SampType: **Sample Matrix Spike** Sample ID: **B09090340-001CMS** Method: **E200.8**
Analysis Date: **09/08/09 19:44** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.05328	0.0050	0.05	0.00086	**105**	70	130				

Associated samples: H09080347-002B; H09080347-003B; H09080347-004B

Run ID :Run Order: **SUB-B135664: 10** SampType: **Sample Matrix Spike Duplicate** Sample ID: **B09090340-001CMSD** Method: **E200.8**
Analysis Date: **09/08/09 19:48** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.05155	0.0050	0.05	0.00086	**101**	70	130	0.05328	**3.3**	20	

Associated samples: H09080347-002B; H09080347-003B; H09080347-004B

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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ANALYTICAL SUMMARY REPORT

September 23, 2009

Asarco Consulting
5219 N Shirley St
Ruston, WA 98407

Workorder No.: H09090136 Quote ID: H454 - Revised Quarterly Monitoring Program August 2009

Project Name: 1054 Asarco E Helena

Energy Laboratories Inc received the following 6 samples for Asarco Consulting on 9/10/2009 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H09090136-001	AEH-0908-192	09/10/09 11:00	09/10/09	Aqueous	Metals by ICP/ICPMS, Dissolved Conductivity pH Solids, Total Dissolved Solids, Total Suspended
H09090136-002	AEH-0908-193	09/09/09 11:10	09/10/09	Aqueous	Same As Above
H09090136-003	AEH-0908-194	09/09/09 11:45	09/10/09	Aqueous	Same As Above
H09090136-004	AEH-0908-195	09/09/09 12:00	09/10/09	Aqueous	Same As Above
H09090136-005	AEH-0908-196	09/09/09 12:10	09/10/09	Aqueous	Same As Above
H09090136-006	AEH-0908-197	09/09/09 12:55	09/10/09	Aqueous	Same As Above

BRANCH LABORATORY LOCATIONS
eli-b - Energy Laboratories, Inc. - Billings, MT, EPA # MT00005
eli-c - Energy Laboratories, Inc. - Casper, WY, EPA# WY00002
eli-g - Energy Laboratories, Inc. - Gillette, WY, EPA# WY00006
eli-h - Energy Laboratories, Inc. - Helena, MT, EPA# MT00945
eli-r - Energy Laboratories, Inc. - Rapid City, SD, EPA# SD00012
eli-t - Energy Laboratories, Inc. - College Station, TX, EPA# TX01520

SUBCONTRACTING ANALYSIS
Subcontracting of sample analyses to an outside laboratory may be required. If so, ENERGY LABORATORIES, INC. will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories are indicated within the Laboratory Analytical Report.

SAMPLE TEMPERATURE COMPLIANCE: 4°C (±2°C)
Temperature of samples received may not be considered properly preserved by accepted standards. Samples that are hand delivered immediately after collection shall be considered acceptable if there is evidence that the chilling process has begun.

ELI appreciates the opportunity to provide you with this analytical service. For additional information, including certifications, and analytical services visit our web page www.energylab.com.

Report Approved By: Jonathan D. Hager

Digitally signed by Jonathan D. Hager
DN: cn=Jonathan D. Hager, o=Energy Laboratory-Helena, ou=Assistant Lab Manager, email=jhager@energylab.com, c=US
Date: 2009.09.23 09:39:23 -06'00'

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-192
Lab ID: H09090136-001
Matrix: Aqueous

Project: 1054 Asarco E Helena
Collection Date: 09/10/09 11:00 **DateReceived:** 09/10/09
Report Date: 09/23/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.0	s.u.		0.1		A4500-H B	09/11/09 10:24 / hm		PH_090911A	2	090911A-PH-W
Conductivity	1270	umhos/cm		1		A2510 B	09/10/09 16:07 / hm		COND_090910A	1	290910A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/11/09 13:38 / JG		SOLIDS_090911A	8	090911A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	862	mg/L		10		A2540 C	09/11/09 14:05 / JG		SOLIDS_090911B	5	090911A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	0.951	mg/L		0.005		E200.8	09/15/09 02:08 / eli-b		SUB-B135964	41	B_R135964
Selenium	0.170	mg/L		0.001		E200.8	09/15/09 02:08 / eli-b		SUB-B135964	41	B_R135964

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-193
Lab ID: H09090136-002
Matrix: Aqueous

Project: 1054 Asarco E Helena
Collection Date: 09/09/09 11:10 **DateReceived:** 09/10/09
Report Date: 09/23/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	8.0	s.u.		0.1		A4500-H B	09/11/09 10:25 / hm		PH_090911A	3	090911A-PH-W
Conductivity	1250	umhos/cm		1		A2510 B	09/10/09 16:07 / hm		COND_090910A	1	390910A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/11/09 13:39 / JG		SOLIDS_090911A	10	090911A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	853	mg/L		10		A2540 C	09/11/09 14:07 / JG		SOLIDS_090911B	8	090911A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	0.953	mg/L		0.005		E200.8	09/15/09 02:24 / eli-b		SUB-B135964	42	B_R135964
Selenium	0.171	mg/L		0.001		E200.8	09/15/09 02:24 / eli-b		SUB-B135964	42	B_R135964

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-194
Lab ID: H09090136-003
Matrix: Aqueous

Project: 1054 Asarco E Helena
Collection Date: 09/09/09 11:45 **DateReceived:** 09/10/09
Report Date: 09/23/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.9	s.u.		0.1		A4500-H B	09/11/09 10:28 / hm		PH_090911A	4	090911A-PH-W
Conductivity	824	umhos/cm		1		A2510 B	09/10/09 16:09 / hm		COND_090910A	1	490910A-COND-PROB
Solids, Total Suspended TSS @ 105 C	12	mg/L		10		A2540 D	09/11/09 13:39 / JG		SOLIDS_090911A	11	090911A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	561	mg/L		10		A2540 C	09/11/09 14:07 / JG		SOLIDS_090911B	9	090911A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	0.853	mg/L		0.005		E200.8	09/15/09 02:44 / eli-b		SUB-B135964	43	B_R135964
Selenium	0.042	mg/L		0.001		E200.8	09/15/09 02:44 / eli-b		SUB-B135964	43	B_R135964

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-195
Lab ID: H09090136-004
Matrix: Aqueous

Project: 1054 Asarco E Helena
Collection Date: 09/09/09 12:00 **DateReceived:** 09/10/09
Report Date: 09/23/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.7	s.u.		0.1		A4500-H B	09/11/09 10:34 / hm		PH_090911A	5	090911A-PH-W
Conductivity	2	umhos/cm		1		A2510 B	09/10/09 16:10 / hm		COND_090910A	1	590910A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/11/09 13:40 / JG		SOLIDS_090911A	12	090911A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	09/14/09 15:46 / hm		SOLIDS_090914A	4	090914A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	ND	mg/L		0.005		E200.8	09/15/09 02:48 / eli-b		SUB-B135964	44	B_R135964
Selenium	ND	mg/L		0.001		E200.8	09/15/09 02:48 / eli-b		SUB-B135964	44	B_R135964

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-196
Lab ID: H09090136-005
Matrix: Aqueous

Project: 1054 Asarco E Helena
Collection Date: 09/09/09 12:10 **DateReceived:** 09/10/09
Report Date: 09/23/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.6	s.u.		0.1		A4500-H B	09/11/09 10:42 / hm		PH_090911A	6	090911A-PH-W
Conductivity	2760	umhos/cm		1		A2510 B	09/10/09 16:11 / hm		COND_090910A	1	790910A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/11/09 13:40 / JG		SOLIDS_090911A	13	090911A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	1970	mg/L		10		A2540 C	09/11/09 14:08 / JG		SOLIDS_090911B	11	090911A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	1.10	mg/L		0.005		E200.8	09/15/09 02:52 / eli-b		SUB-B135964	45	B_R135964
Selenium	0.514	mg/L		0.001		E200.8	09/15/09 02:52 / eli-b		SUB-B135964	45	B_R135964

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-197
Lab ID: H09090136-006
Matrix: Aqueous

Project: 1054 Asarco E Helena
Collection Date: 09/09/09 12:55 **DateReceived:** 09/10/09
Report Date: 09/23/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.7	s.u.		0.1		A4500-H B	09/11/09 10:51 / hm		PH_090911A	7	090911A-PH-W
Conductivity	2	umhos/cm		1		A2510 B	09/10/09 16:11 / hm		COND_090910A	1	890910A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/11/09 13:40 / JG		SOLIDS_090911A	14	090911A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	09/14/09 15:46 / hm		SOLIDS_090914A	5	090914A-SLDS-TDS-
METALS, DISSOLVED											
Arsenic	ND	mg/L		0.005		E200.8	09/15/09 02:56 / eli-b		SUB-B135964	46	B_R135964
Selenium	ND	mg/L		0.001		E200.8	09/15/09 02:56 / eli-b		SUB-B135964	46	B_R135964

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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Client: Asarco Consulting
Work Order: H09090136
Project: 1054 Asarco E Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: 090910A-COND-PROBE

Date: *23-Sep-09*

Run ID :Run Order: **COND_090910A: 1** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090910A** Method: **A2510 B**
Analysis Date: **09/10/09 15:57** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	1400	1.0	1412		99	90	110				

Associated samples: H09090136-001; H09090136-002; H09090136-003; H09090136-004; H09090136-005; H09090136-006

Run ID :Run Order: **COND_090910A: 11** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV1_090910A** Method: **A2510 B**
Analysis Date: **09/10/09 16:05** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	719	1.0	718		100	90	110				

Associated samples: H09090136-001; H09090136-002; H09090136-003; H09090136-004; H09090136-005; H09090136-006

Run ID :Run Order: **COND_090910A: 16** SampType: **Sample Duplicate** Sample ID: **H09090136-004ADUP** Method: **A2510 B**
Analysis Date: **09/10/09 16:10** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	2.30	1.0						2.35	2.2	10	

Associated samples: H09090136-001; H09090136-002; H09090136-003; H09090136-004; H09090136-005; H09090136-006

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09090136
Project: 1054 Asarco E Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: 090911A-PH-W

Date: *23-Sep-09*

Run ID :Run Order: **PH_090911A: 1** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090911A** Method: **A4500-H B**

Analysis Date: **09/11/09 10:17** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.02	0.10	7		**100**	99	101				

Associated samples: H09090136-001; H09090136-002; H09090136-003; H09090136-004; H09090136-005; H09090136-006

Run ID :Run Order: **PH_090911A: 11** SampType: **Sample Duplicate** Sample ID: **H09090148-004ADUP** Method: **A4500-H B**

Analysis Date: **09/11/09 11:04** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.77	0.10						7.75	**0.3**	2	

Associated samples: H09090136-001; H09090136-002; H09090136-003; H09090136-004; H09090136-005; H09090136-006

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09090136
Project: 1054 Asarco E Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: 090911A-SLDS-TDS-W

Date: *23-Sep-09*

Run ID :Run Order: **SOLIDS_090911B: 1** SampType: **Method Blank** Sample ID: **MBLK1_090911A** Method: **A2540 C**
Analysis Date: **09/11/09 14:04** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2	1.0									

Associated samples: H09090136-001; H09090136-002; H09090136-003; H09090136-005

Run ID :Run Order: **SOLIDS_090911B: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090911A** Method: **A2540 C**
Analysis Date: **09/11/09 14:34** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	996	10	1000	2	**99**	90	110				

Associated samples: H09090136-001; H09090136-002; H09090136-003; H09090136-005

Run ID :Run Order: **SOLIDS_090911B: 6** SampType: **Sample Matrix Spike** Sample ID: **H09090136-001AMS** Method: **A2540 C**
Analysis Date: **09/11/09 14:06** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2830	10	2000	862	**98**	80	120				

Associated samples: H09090136-001; H09090136-002; H09090136-003; H09090136-005

Run ID :Run Order: **SOLIDS_090911B: 7** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09090136-001AMSD** Method: **A2540 C**
Analysis Date: **09/11/09 14:06** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2810	10	2000	862	**97**	80	120	2828	**0.7**	10	

Associated samples: H09090136-001; H09090136-002; H09090136-003; H09090136-005

Run ID :Run Order: **SOLIDS_090911B: 18** SampType: **Sample Duplicate** Sample ID: **H09090139-005ADUP** Method: **A2540 C**
Analysis Date: **09/11/09 14:20** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	338	10						336	**0.6**	20	

Associated samples: H09090136-001; H09090136-002; H09090136-003; H09090136-005

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09090136
Project: 1054 Asarco E Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: 090911A-SLDS-TSS-W

Date: *23-Sep-09*

Run ID :Run Order: **SOLIDS_090911A: 1** SampType: **Method Blank** Sample ID: **MBLK1_090911A** Method: **A2540 D**
Analysis Date: **09/11/09 13:33** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	ND	1									

Associated samples: H09090136-001; H09090136-002; H09090136-003; H09090136-004; H09090136-005; H09090136-006

Run ID :Run Order: **SOLIDS_090911A: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090911A** Method: **A2540 D**
Analysis Date: **09/11/09 13:33** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	1760	10	2000		88	70	130				

Associated samples: H09090136-001; H09090136-002; H09090136-003; H09090136-004; H09090136-005; H09090136-006

Run ID :Run Order: **SOLIDS_090911A: 9** SampType: **Sample Duplicate** Sample ID: **H09090136-001ADUP** Method: **A2540 D**
Analysis Date: **09/11/09 13:39** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	4.00	10						4		10	

Associated samples: H09090136-001; H09090136-002; H09090136-003; H09090136-004; H09090136-005; H09090136-006

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09090136
Project: 1054 Asarco E Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: 090914A-SLDS-TDS-W

Date: *23-Sep-09*

Run ID :Run Order: **SOLIDS_090914A: 1** SampType: **Method Blank** Sample ID: **MBLK1_090914A** Method: **A2540 C**
Analysis Date: **09/14/09 15:45** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2	1.0									

Associated samples: H09090136-004; H09090136-006

Run ID :Run Order: **SOLIDS_090914A: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090914A** Method: **A2540 C**
Analysis Date: **09/14/09 15:45** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	994	10	1000	2	**99**	90	110				

Associated samples: H09090136-004; H09090136-006

Run ID :Run Order: **SOLIDS_090914A: 8** SampType: **Sample Matrix Spike** Sample ID: **H09090157-001AMS** Method: **A2540 C**
Analysis Date: **09/14/09 15:48** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2140	10	2000	194	**97**	80	120				

Associated samples: H09090136-004; H09090136-006

Run ID :Run Order: **SOLIDS_090914A: 9** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09090157-001AMSD** Method: **A2540 C**
Analysis Date: **09/14/09 15:48** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2190	10	2000	194	**100**	80	120	2142	**2.3**	10	

Associated samples: H09090136-004; H09090136-006

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09090136
Project: 1054 Asarco E Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R135964

Date: *23-Sep-09*

Run ID :Run Order: **SUB-B135964: 2** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090609B, 080814C** Method: **E200.8**

Analysis Date: **09/14/09 09:59** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0499	0.0050	0.05		**100**	90	110				
Selenium	0.0505	0.0050	0.05		**101**	90	110				

Associated samples: H09090136-001; H09090136-002; H09090136-003; H09090136-004; H09090136-005; H09090136-006

Run ID :Run Order: **SUB-B135964: 3** SampType: **Method Blank** Sample ID: **LRB** Method: **E200.8**

Analysis Date: **09/14/09 12:12** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	8E-05	3E-05									
Selenium	ND	0.0002									

Associated samples: H09090136-001; H09090136-002; H09090136-003; H09090136-004; H09090136-005; H09090136-006

Run ID :Run Order: **SUB-B135964: 4** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**

Analysis Date: **09/14/09 12:16** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0509	0.0050	0.05		**102**	85	115				
Selenium	0.0514	0.0050	0.05		**103**	85	115				

Associated samples: H09090136-001; H09090136-002; H09090136-003; H09090136-004; H09090136-005; H09090136-006

Run ID :Run Order: **SUB-B135964: 12** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090609B, ME080814C** Method: **E200.8**

Analysis Date: **09/14/09 19:50** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0495	0.0050	0.05		**99**	90	110				
Selenium	0.0503	0.0050	0.05		**101**	90	110				

Associated samples: H09090136-001; H09090136-002; H09090136-003; H09090136-004; H09090136-005; H09090136-006

Run ID :Run Order: **SUB-B135964: 39** SampType: **Sample Matrix Spike** Sample ID: **B09091100-005AMS** Method: **E200.8**

Analysis Date: **09/15/09 01:56** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0522	0.0010	0.05	0.0004	**104**	70	130				

Qualifiers: ND - Not Detected at the Reporting Limit; S - Spike Recovery outside accepted recovery limits; N - Analyte concentration was not sufficiently high to calculate RPD; J - Analyte detected below quantitation limits; R - RPD outside accepted recovery limits; A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09090136
Project: 1054 Asarco E Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R135964

Date: *23-Sep-09*

Run ID :Run Order: **SUB-B135964: 39** SampType: **Sample Matrix Spike** Sample ID: **B09091100-005AMS** Method: **E200.8**
Analysis Date: **09/15/09 01:56** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	0.0533	0.0050	0.05		**106**	70	130				

Associated samples: H09090136-001; H09090136-002; H09090136-003; H09090136-004; H09090136-005; H09090136-006

Run ID :Run Order: **SUB-B135964: 40** SampType: **Sample Matrix Spike Duplicate** Sample ID: **B09091100-005AMSD** Method: **E200.8**
Analysis Date: **09/15/09 02:00** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0524	0.0010	0.05	0.0004	**104**	70	130	0.05216	**0.5**	20	
Selenium	0.0534	0.0050	0.05		**107**	70	130	0.05325	**0.3**	20	

Associated samples: H09090136-001; H09090136-002; H09090136-003; H09090136-004; H09090136-005; H09090136-006

Run ID :Run Order: **SUB-B135964: 47** SampType: **Sample Matrix Spike** Sample ID: **H09090136-001B** Method: **E200.8**
Analysis Date: **09/15/09 02:12** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.974	0.0050	0.05	0.9512		70	130				A
Selenium	0.218	0.0050	0.05	0.1697	**97**	70	130				

Associated samples: H09090136-001; H09090136-002; H09090136-003; H09090136-004; H09090136-005; H09090136-006

Run ID :Run Order: **SUB-B135964: 48** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09090136-001B** Method: **E200.8**
Analysis Date: **09/15/09 02:16** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.982	0.0050	0.05	0.9512		70	130	0.9742	**0.8**	20	A
Selenium	0.218	0.0050	0.05	0.1697	**96**	70	130	0.2183	**0.2**	20	

Associated samples: H09090136-001; H09090136-002; H09090136-003; H09090136-004; H09090136-005; H09090136-006

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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ANALYTICAL SUMMARY REPORT

October 01, 2009

Asarco Consulting
5219 N Shirley St
Ruston, WA 98407

Workorder No.: H09090235 Quote ID: H454 - Revised Quarterly Monitoring Program August 2009

Project Name: 1054 Asarco E. Helena

Energy Laboratories Inc received the following 13 samples for Asarco Consulting on 9/17/2009 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H09090235-001	AEH-0908-198	09/16/09 9:00	09/17/09	Aqueous	Metals by ICP/ICPMS, Dissolved Alkalinity Conductivity Anions by Ion Chromatography pH Solids, Total Dissolved Solids, Total Suspended
H09090235-002	AEH-0908-199	09/16/09 9:45	09/17/09	Aqueous	Same As Above
H09090235-003	AEH-0908-200	09/16/09 9:55	09/17/09	Aqueous	Same As Above
H09090235-004	AEH-0908-201	09/16/09 10:35	09/17/09	Aqueous	Same As Above
H09090235-005	AEH-0908-202	09/16/09 10:45	09/17/09	Aqueous	Same As Above
H09090235-006	AEH-0908-203	09/16/09 11:05	09/17/09	Aqueous	Same As Above
H09090235-007	AEH-0908-204	09/16/09 11:20	09/17/09	Aqueous	Same As Above
H09090235-008	AEH-0908-205	09/16/09 11:40	09/17/09	Aqueous	Same As Above
H09090235-009	AEH-0908-206	09/16/09 12:15	09/17/09	Aqueous	Same As Above
H09090235-010	AEH-0908-207	09/16/09 14:00	09/17/09	Aqueous	Same As Above
H09090235-011	AEH-0908-208	09/16/09 14:40	09/17/09	Aqueous	Same As Above
H09090235-012	AEH-0908-210	09/16/09 15:50	09/17/09	Aqueous	Same As Above
H09090235-013	AEH-0908-211	09/16/09 16:20	09/17/09	Aqueous	Same As Above

BRANCH LABORATORY LOCATIONS
eli-b - Energy Laboratories, Inc. - Billings, MT, EPA # MT00005
eli-c - Energy Laboratories, Inc. - Casper, WY, EPA# WY00002
eli-g - Energy Laboratories, Inc. - Gillette, WY, EPA# WY00006
eli-h - Energy Laboratories, Inc. - Helena, MT, EPA# MT00945
eli-r - Energy Laboratories, Inc. - Rapid City, SD, EPA# SD00012
eli-t - Energy Laboratories, Inc. - College Station, TX, EPA# TX01520

SUBCONTRACTING ANALYSIS
Subcontracting of sample analyses to an outside laboratory may be required. If so, ENERGY LABORATORIES, INC. will utilize its branch laboratories or qualified contract laboratories for this service. Any such laboratories are indicated within the Laboratory Analytical Report.

SAMPLE TEMPERATURE COMPLIANCE: 4°C (±2°C)
Temperature of samples received may not be considered properly preserved by accepted standards. Samples that are hand delivered immediately after collection shall be considered acceptable if there is evidence that the chilling process has begun.

ELI appreciates the opportunity to provide you with this analytical service. For additional information, including certifications, and analytical services visit our web page www.energylab.com.

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ANALYTICAL SUMMARY REPORT

Report Approved By: Jonathan D. Hager

Digitally signed by Jonathan D. Hager
DN: cn=Jonathan D. Hager, o=Energy Laboratory-Helena, ou=Assistant Lab Manager, email=jhager@energylab.com, c=US
Date: 2009.10.01 10:43:54 -06'00'

ENERGY LABORATORIES, INC. * 3161 E Lyndale (59604) * PO Box 5688 * Helena, MT 59601
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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-198
Lab ID: H09090235-001
Matrix: Aqueous

Project: 1054 Asarco E. Helena
Collection Date: 09/16/09 09:00 **DateReceived:** 09/17/09
Report Date: 09/30/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.5	s.u.		0.1		A4500-H B	09/17/09 15:37 / hm		PH_090917A	4	090917A-PH-W
Conductivity	475	umhos/cm		1		A2510 B	09/17/09 15:18 / hm		COND_090917A	2	090917A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/18/09 11:15 / hm		SOLIDS_090918C	4	090918A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	333	mg/L		10		A2540 C	09/18/09 10:42 / hm		SOLIDS_090918A	11	090918A-SLDS-TDS-
INORGANICS											
Alkalinity, Total as CaCO3	170	mg/L		1		A2320 B	09/21/09 16:16 / JG		TITTR_090921A	17	090921A-ALK-W
Bicarbonate as HCO3	200	mg/L		1		A2320 B	09/21/09 16:16 / JG		TITTR_090921A	17	090921A-ALK-W
Chloride	8	mg/L		1		E300.0	09/20/09 19:11 / hm		IC101-H_090920A	27	R56766
Sulfate	71	mg/L		1		E300.0	09/20/09 19:11 / hm		IC101-H_090920A	27	R56766
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.1		E200.7	09/21/09 16:18 / eli-b		SUB-B136324	12	B_R136324
Antimony	ND	mg/L		0.003		E200.8	09/21/09 13:37 / eli-b		SUB-B136306	19	B_R136306
Arsenic	0.003	mg/L		0.002		E200.8	09/21/09 13:37 / eli-b		SUB-B136306	19	B_R136306
Barium	ND	mg/L		0.1		E200.7	09/21/09 16:18 / eli-b		SUB-B136324	12	B_R136324
Beryllium	ND	mg/L		0.001		E200.7	09/21/09 16:18 / eli-b		SUB-B136324	12	B_R136324
Cadmium	ND	mg/L		0.001		E200.7	09/21/09 16:18 / eli-b		SUB-B136324	12	B_R136324
Calcium	53	mg/L		1		E200.7	09/21/09 16:18 / eli-b		SUB-B136324	12	B_R136324
Chromium	ND	mg/L		0.001		E200.8	09/21/09 13:37 / eli-b		SUB-B136306	19	B_R136306
Cobalt	ND	mg/L		0.01		E200.7	09/21/09 16:18 / eli-b		SUB-B136324	12	B_R136324
Copper	ND	mg/L		0.001		E200.8	09/21/09 13:37 / eli-b		SUB-B136306	19	B_R136306
Gold	ND	mg/L		0.01		E200.7	09/21/09 16:18 / eli-b		SUB-B136324	12	B_R136324
Iron	ND	mg/L		0.02		E200.7	09/21/09 16:18 / eli-b		SUB-B136324	12	B_R136324
Lead	ND	mg/L		0.005		E200.8	09/21/09 13:37 / eli-b		SUB-B136306	19	B_R136306
Magnesium	11	mg/L		1		E200.7	09/21/09 16:18 / eli-b		SUB-B136324	12	B_R136324
Manganese	ND	mg/L		0.01		E200.7	09/21/09 16:18 / eli-b		SUB-B136324	12	B_R136324
Mercury	ND	mg/L		0.001		E200.8	09/21/09 13:37 / eli-b		SUB-B136306	19	B_R136306
Nickel	ND	mg/L		0.01		E200.7	09/21/09 16:18 / eli-b		SUB-B136324	12	B_R136324
Potassium	6	mg/L		1		E200.7	09/21/09 16:18 / eli-b		SUB-B136324	12	B_R136324
Selenium	0.001	mg/L		0.001		E200.8	09/21/09 13:37 / eli-b		SUB-B136306	19	B_R136306
Silver	ND	mg/L		0.005		E200.7	09/21/09 16:18 / eli-b		SUB-B136324	12	B_R136324

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-198
Lab ID: H09090235-001
Matrix: Aqueous

Project: 1054 Asarco E. Helena
Collection Date: 09/16/09 09:00 **DateReceived:** 09/17/09
Report Date: 09/30/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Sodium	26	mg/L		1		E200.7	09/21/09 16:18 / eli-b		SUB-B136324	12	B_R136324
Tellurium	ND	mg/L		0.1		E200.7	09/21/09 16:18 / eli-b		SUB-B136324	12	B_R136324
Thallium	ND	mg/L		0.001		E200.8	09/21/09 13:37 / eli-b		SUB-B136306	19	B_R136306
Vanadium	ND	mg/L		0.01		E200.7	09/21/09 16:18 / eli-b		SUB-B136324	12	B_R136324
Zinc	ND	mg/L		0.01		E200.7	09/21/09 16:18 / eli-b		SUB-B136324	12	B_R136324

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-199
Lab ID: H09090235-002
Matrix: Aqueous

Project: 1054 Asarco E. Helena
Collection Date: 09/16/09 09:45 **DateReceived:** 09/17/09
Report Date: 09/30/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.5	s.u.		0.1		A4500-H B	09/17/09 15:36 / hm		PH_090917A	5	090917A-PH-W
Conductivity	429	umhos/cm		1		A2510 B	09/17/09 15:19 / hm		COND_090917A	3	90917A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/18/09 11:15 / hm		SOLIDS_090918C	5	090918A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	304	mg/L		10		A2540 C	09/18/09 10:42 / hm		SOLIDS_090918A	12	090918A-SLDS-TDS-
INORGANICS											
Alkalinity, Total as CaCO3	120	mg/L		1		A2320 B	09/21/09 16:26 / JG		TITTR_090921A	18	090921A-ALK-W
Bicarbonate as HCO3	140	mg/L		1		A2320 B	09/21/09 16:26 / JG		TITTR_090921A	18	090921A-ALK-W
Chloride	12	mg/L		1		E300.0	09/21/09 00:24 / hm		IC101-H_090920A	36	R56766
Sulfate	81	mg/L		1		E300.0	09/21/09 00:24 / hm		IC101-H_090920A	36	R56766
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.1		E200.7	09/21/09 16:30 / eli-b		SUB-B136324	13	B_R136324
Antimony	ND	mg/L		0.003		E200.8	09/21/09 13:41 / eli-b		SUB-B136306	21	B_R136306
Arsenic	0.004	mg/L		0.002		E200.8	09/21/09 13:41 / eli-b		SUB-B136306	21	B_R136306
Barium	ND	mg/L		0.1		E200.7	09/21/09 16:30 / eli-b		SUB-B136324	13	B_R136324
Beryllium	ND	mg/L		0.001		E200.7	09/21/09 16:30 / eli-b		SUB-B136324	13	B_R136324
Cadmium	ND	mg/L		0.001		E200.7	09/21/09 16:30 / eli-b		SUB-B136324	13	B_R136324
Calcium	45	mg/L		1		E200.7	09/21/09 16:30 / eli-b		SUB-B136324	13	B_R136324
Chromium	ND	mg/L		0.001		E200.8	09/21/09 13:41 / eli-b		SUB-B136306	21	B_R136306
Cobalt	ND	mg/L		0.01		E200.7	09/21/09 16:30 / eli-b		SUB-B136324	13	B_R136324
Copper	ND	mg/L		0.001		E200.8	09/21/09 13:41 / eli-b		SUB-B136306	21	B_R136306
Gold	ND	mg/L		0.01		E200.7	09/21/09 16:30 / eli-b		SUB-B136324	13	B_R136324
Iron	ND	mg/L		0.02		E200.7	09/21/09 16:30 / eli-b		SUB-B136324	13	B_R136324
Lead	ND	mg/L		0.005		E200.8	09/21/09 13:41 / eli-b		SUB-B136306	21	B_R136306
Magnesium	9	mg/L		1		E200.7	09/21/09 16:30 / eli-b		SUB-B136324	13	B_R136324
Manganese	ND	mg/L		0.01		E200.7	09/21/09 16:30 / eli-b		SUB-B136324	13	B_R136324
Mercury	ND	mg/L		0.001		E200.8	09/21/09 13:41 / eli-b		SUB-B136306	21	B_R136306
Nickel	ND	mg/L		0.01		E200.7	09/21/09 16:30 / eli-b		SUB-B136324	13	B_R136324
Potassium	5	mg/L		1		E200.7	09/21/09 16:30 / eli-b		SUB-B136324	13	B_R136324
Selenium	0.002	mg/L		0.001		E200.8	09/21/09 13:41 / eli-b		SUB-B136306	21	B_R136306
Silver	ND	mg/L		0.005		E200.7	09/21/09 16:30 / eli-b		SUB-B136324	13	B_R136324

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-199
Lab ID: H09090235-002
Matrix: Aqueous

Project: 1054 Asarco E. Helena
Collection Date: 09/16/09 09:45 **DateReceived:** 09/17/09
Report Date: 09/30/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Sodium	25	mg/L		1		E200.7	09/21/09 16:30 / eli-b		SUB-B136324	13	B_R136324
Tellurium	ND	mg/L		0.1		E200.7	09/21/09 16:30 / eli-b		SUB-B136324	13	B_R136324
Thallium	ND	mg/L		0.001		E200.8	09/21/09 13:41 / eli-b		SUB-B136306	21	B_R136306
Vanadium	ND	mg/L		0.01		E200.7	09/21/09 16:30 / eli-b		SUB-B136324	13	B_R136324
Zinc	ND	mg/L		0.01		E200.7	09/21/09 16:30 / eli-b		SUB-B136324	13	B_R136324

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-200
Lab ID: H09090235-003
Matrix: Aqueous

Project: 1054 Asarco E. Helena
Collection Date: 09/16/09 09:55 **DateReceived:** 09/17/09
Report Date: 09/30/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.5	s.u.		0.1		A4500-H B	09/17/09 15:36 / hm		PH_090917A	6	090917A-PH-W
Conductivity	430	umhos/cm		1		A2510 B	09/17/09 15:20 / hm		COND_090917A	4	90917A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/18/09 11:15 / hm		SOLIDS_090918C	6	090918A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	296	mg/L		10		A2540 C	09/18/09 10:43 / hm		SOLIDS_090918A	13	090918A-SLDS-TDS-
INORGANICS											
Alkalinity, Total as CaCO3	110	mg/L		1		A2320 B	09/21/09 16:29 / JG		TITTR_090921A	19	090921A-ALK-W
Bicarbonate as HCO3	140	mg/L		1		A2320 B	09/21/09 16:29 / JG		TITTR_090921A	19	090921A-ALK-W
Chloride	12	mg/L		1		E300.0	09/21/09 00:40 / hm		IC101-H_090920A	37	R56766
Sulfate	81	mg/L		1		E300.0	09/21/09 00:40 / hm		IC101-H_090920A	37	R56766
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.1		E200.7	09/21/09 16:38 / eli-b		SUB-B136324	14	B_R136324
Antimony	ND	mg/L		0.003		E200.8	09/21/09 14:13 / eli-b		SUB-B136306	22	B_R136306
Arsenic	0.004	mg/L		0.002		E200.8	09/21/09 14:13 / eli-b		SUB-B136306	22	B_R136306
Barium	ND	mg/L		0.1		E200.7	09/21/09 16:38 / eli-b		SUB-B136324	14	B_R136324
Beryllium	ND	mg/L		0.001		E200.7	09/21/09 16:38 / eli-b		SUB-B136324	14	B_R136324
Cadmium	ND	mg/L		0.001		E200.7	09/21/09 16:38 / eli-b		SUB-B136324	14	B_R136324
Calcium	44	mg/L		1		E200.7	09/21/09 16:38 / eli-b		SUB-B136324	14	B_R136324
Chromium	ND	mg/L		0.001		E200.8	09/21/09 14:13 / eli-b		SUB-B136306	22	B_R136306
Cobalt	ND	mg/L		0.01		E200.7	09/21/09 16:38 / eli-b		SUB-B136324	14	B_R136324
Copper	ND	mg/L		0.001		E200.8	09/21/09 14:13 / eli-b		SUB-B136306	22	B_R136306
Gold	ND	mg/L		0.01		E200.7	09/21/09 16:38 / eli-b		SUB-B136324	14	B_R136324
Iron	ND	mg/L		0.02		E200.7	09/21/09 16:38 / eli-b		SUB-B136324	14	B_R136324
Lead	ND	mg/L		0.005		E200.8	09/21/09 14:13 / eli-b		SUB-B136306	22	B_R136306
Magnesium	9	mg/L		1		E200.7	09/21/09 16:38 / eli-b		SUB-B136324	14	B_R136324
Manganese	ND	mg/L		0.01		E200.7	09/21/09 16:38 / eli-b		SUB-B136324	14	B_R136324
Mercury	ND	mg/L		0.001		E200.8	09/21/09 14:13 / eli-b		SUB-B136306	22	B_R136306
Nickel	ND	mg/L		0.01		E200.7	09/21/09 16:38 / eli-b		SUB-B136324	14	B_R136324
Potassium	5	mg/L		1		E200.7	09/21/09 16:38 / eli-b		SUB-B136324	14	B_R136324
Selenium	0.002	mg/L		0.001		E200.8	09/21/09 14:13 / eli-b		SUB-B136306	22	B_R136306
Silver	ND	mg/L		0.005		E200.7	09/21/09 16:38 / eli-b		SUB-B136324	14	B_R136324

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-200
Lab ID: H09090235-003
Matrix: Aqueous

Project: 1054 Asarco E. Helena
Collection Date: 09/16/09 09:55 **DateReceived:** 09/17/09
Report Date: 09/30/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Sodium	24	mg/L		1		E200.7	09/21/09 16:38 / eli-b		SUB-B136324	14	B_R136324
Tellurium	ND	mg/L		0.1		E200.7	09/21/09 16:38 / eli-b		SUB-B136324	14	B_R136324
Thallium	ND	mg/L		0.001		E200.8	09/21/09 14:13 / eli-b		SUB-B136306	22	B_R136306
Vanadium	ND	mg/L		0.01		E200.7	09/21/09 16:38 / eli-b		SUB-B136324	14	B_R136324
Zinc	ND	mg/L		0.01		E200.7	09/21/09 16:38 / eli-b		SUB-B136324	14	B_R136324

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-201
Lab ID: H09090235-004
Matrix: Aqueous

Project: 1054 Asarco E. Helena
Collection Date: 09/16/09 10:35 **DateReceived:** 09/17/09
Report Date: 09/30/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.3	s.u.		0.1		A4500-H B	09/17/09 15:35 / hm		PH_090917A : 7		090917A-PH-W
Conductivity	493	umhos/cm		1		A2510 B	09/17/09 15:21 / hm		COND_090917A : 5		90917A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/18/09 11:16 / hm		SOLIDS_090918C : 8		090918A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	314	mg/L		10		A2540 C	09/18/09 10:44 / hm		SOLIDS_090918A : 16		090918A-SLDS-TDS-
INORGANICS											
Alkalinity, Total as CaCO3	230	mg/L		1		A2320 B	09/21/09 16:41 / JG		TITTR_090921A : 21		090921A-ALK-W
Bicarbonate as HCO3	280	mg/L		1		A2320 B	09/21/09 16:41 / JG		TITTR_090921A : 21		090921A-ALK-W
Chloride	6	mg/L		1		E300.0	09/21/09 01:29 / hm		IC101-H_090920A : 40		R56766
Sulfate	31	mg/L		1		E300.0	09/21/09 01:29 / hm		IC101-H_090920A : 40		R56766
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.1		E200.7	09/21/09 16:50 / eli-b		SUB-B136324 : 15		B_R136324
Antimony	ND	mg/L		0.003		E200.8	09/21/09 14:17 / eli-b		SUB-B136306 : 23		B_R136306
Arsenic	0.012	mg/L		0.002		E200.8	09/21/09 14:17 / eli-b		SUB-B136306 : 23		B_R136306
Barium	ND	mg/L		0.1		E200.7	09/21/09 16:50 / eli-b		SUB-B136324 : 15		B_R136324
Beryllium	ND	mg/L		0.001		E200.7	09/21/09 16:50 / eli-b		SUB-B136324 : 15		B_R136324
Cadmium	ND	mg/L		0.001		E200.7	09/21/09 16:50 / eli-b		SUB-B136324 : 15		B_R136324
Calcium	63	mg/L		1		E200.7	09/21/09 16:50 / eli-b		SUB-B136324 : 15		B_R136324
Chromium	ND	mg/L		0.001		E200.8	09/21/09 14:17 / eli-b		SUB-B136306 : 23		B_R136306
Cobalt	ND	mg/L		0.01		E200.7	09/21/09 16:50 / eli-b		SUB-B136324 : 15		B_R136324
Copper	ND	mg/L		0.001		E200.8	09/21/09 14:17 / eli-b		SUB-B136306 : 23		B_R136306
Gold	ND	mg/L		0.01		E200.7	09/21/09 16:50 / eli-b		SUB-B136324 : 15		B_R136324
Iron	ND	mg/L		0.02		E200.7	09/21/09 16:50 / eli-b		SUB-B136324 : 15		B_R136324
Lead	ND	mg/L		0.005		E200.8	09/21/09 14:17 / eli-b		SUB-B136306 : 23		B_R136306
Magnesium	14	mg/L		1		E200.7	09/21/09 16:50 / eli-b		SUB-B136324 : 15		B_R136324
Manganese	0.23	mg/L		0.01		E200.7	09/21/09 16:50 / eli-b		SUB-B136324 : 15		B_R136324
Mercury	ND	mg/L		0.001		E200.8	09/21/09 14:17 / eli-b		SUB-B136306 : 23		B_R136306
Nickel	ND	mg/L		0.01		E200.7	09/21/09 16:50 / eli-b		SUB-B136324 : 15		B_R136324
Potassium	5	mg/L		1		E200.7	09/21/09 16:50 / eli-b		SUB-B136324 : 15		B_R136324
Selenium	ND	mg/L		0.001		E200.8	09/21/09 14:17 / eli-b		SUB-B136306 : 23		B_R136306
Silver	ND	mg/L		0.005		E200.7	09/21/09 16:50 / eli-b		SUB-B136324 : 15		B_R136324

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-201
Lab ID: H09090235-004
Matrix: Aqueous

Project: 1054 Asarco E. Helena
Collection Date: 09/16/09 10:35 **DateReceived:** 09/17/09
Report Date: 09/30/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Sodium	19	mg/L		1		E200.7	09/21/09 16:50 / eli-b		SUB-B136324	15	B_R136324
Tellurium	ND	mg/L		0.1		E200.7	09/21/09 16:50 / eli-b		SUB-B136324	15	B_R136324
Thallium	ND	mg/L		0.001		E200.8	09/21/09 14:17 / eli-b		SUB-B136306	23	B_R136306
Vanadium	ND	mg/L		0.01		E200.7	09/21/09 16:50 / eli-b		SUB-B136324	15	B_R136324
Zinc	ND	mg/L		0.01		E200.7	09/21/09 16:50 / eli-b		SUB-B136324	15	B_R136324

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-202
Lab ID: H09090235-005
Matrix: Aqueous

Project: 1054 Asarco E. Helena
Collection Date: 09/16/09 10:45 **DateReceived:** 09/17/09
Report Date: 09/30/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.8	s.u.		0.1		A4500-H B	09/17/09 15:35 / hm		PH_090917A	9	090917A-PH-W
Conductivity	2	umhos/cm		1		A2510 B	09/17/09 15:23 / hm		COND_090917A	7	90917A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/18/09 11:16 / hm		SOLIDS_090918C	9	090918A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	09/18/09 10:45 / hm		SOLIDS_090918A	17	090918A-SLDS-TDS-
INORGANICS											
Alkalinity, Total as CaCO3	2	mg/L		1		A2320 B	09/21/09 16:43 / JG		TITTR_090921A	22	090921A-ALK-W
Bicarbonate as HCO3	2	mg/L		1		A2320 B	09/21/09 16:43 / JG		TITTR_090921A	22	090921A-ALK-W
Chloride	ND	mg/L		1		E300.0	09/21/09 02:18 / hm		IC101-H_090920A	43	R56766
Sulfate	ND	mg/L		1		E300.0	09/21/09 02:18 / hm		IC101-H_090920A	43	R56766
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.1		E200.7	09/21/09 16:55 / eli-b		SUB-B136324	16	B_R136324
Antimony	ND	mg/L		0.003		E200.8	09/21/09 14:21 / eli-b		SUB-B136306	24	B_R136306
Arsenic	ND	mg/L		0.002		E200.8	09/21/09 14:21 / eli-b		SUB-B136306	24	B_R136306
Barium	ND	mg/L		0.1		E200.7	09/21/09 16:55 / eli-b		SUB-B136324	16	B_R136324
Beryllium	ND	mg/L		0.001		E200.7	09/21/09 16:55 / eli-b		SUB-B136324	16	B_R136324
Cadmium	ND	mg/L		0.001		E200.7	09/21/09 16:55 / eli-b		SUB-B136324	16	B_R136324
Calcium	ND	mg/L		1		E200.7	09/21/09 16:55 / eli-b		SUB-B136324	16	B_R136324
Chromium	ND	mg/L		0.001		E200.8	09/21/09 14:21 / eli-b		SUB-B136306	24	B_R136306
Cobalt	ND	mg/L		0.01		E200.7	09/21/09 16:55 / eli-b		SUB-B136324	16	B_R136324
Copper	ND	mg/L		0.001		E200.8	09/21/09 14:21 / eli-b		SUB-B136306	24	B_R136306
Gold	ND	mg/L		0.01		E200.7	09/21/09 16:55 / eli-b		SUB-B136324	16	B_R136324
Iron	ND	mg/L		0.02		E200.7	09/21/09 16:55 / eli-b		SUB-B136324	16	B_R136324
Lead	ND	mg/L		0.005		E200.8	09/21/09 14:21 / eli-b		SUB-B136306	24	B_R136306
Magnesium	ND	mg/L		1		E200.7	09/21/09 16:55 / eli-b		SUB-B136324	16	B_R136324
Manganese	ND	mg/L		0.01		E200.7	09/21/09 16:55 / eli-b		SUB-B136324	16	B_R136324
Mercury	ND	mg/L		0.001		E200.8	09/21/09 14:21 / eli-b		SUB-B136306	24	B_R136306
Nickel	ND	mg/L		0.01		E200.7	09/21/09 16:55 / eli-b		SUB-B136324	16	B_R136324
Potassium	ND	mg/L		1		E200.7	09/21/09 16:55 / eli-b		SUB-B136324	16	B_R136324
Selenium	ND	mg/L		0.001		E200.8	09/21/09 14:21 / eli-b		SUB-B136306	24	B_R136306
Silver	ND	mg/L		0.005		E200.7	09/21/09 16:55 / eli-b		SUB-B136324	16	B_R136324

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-202
Lab ID: H09090235-005
Matrix: Aqueous

Project: 1054 Asarco E. Helena
Collection Date: 09/16/09 10:45 **DateReceived:** 09/17/09
Report Date: 09/30/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Sodium	ND	mg/L		1		E200.7	09/21/09 16:55 / eli-b		SUB-B136324	16	B_R136324
Tellurium	ND	mg/L		0.1		E200.7	09/21/09 16:55 / eli-b		SUB-B136324	16	B_R136324
Thallium	ND	mg/L		0.001		E200.8	09/21/09 14:21 / eli-b		SUB-B136306	24	B_R136306
Vanadium	ND	mg/L		0.01		E200.7	09/21/09 16:55 / eli-b		SUB-B136324	16	B_R136324
Zinc	ND	mg/L		0.01		E200.7	09/21/09 16:55 / eli-b		SUB-B136324	16	B_R136324

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-203
Lab ID: H09090235-006
Matrix: Aqueous

Project: 1054 Asarco E. Helena
Collection Date: 09/16/09 11:05 **DateReceived:** 09/17/09
Report Date: 09/30/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.1	s.u.		0.1		A4500-H B	09/17/09 15:35 / hm		PH_090917A	10	090917A-PH-W
Conductivity	574	umhos/cm		1		A2510 B	09/17/09 15:24 / hm		COND_090917A	8	90917A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/18/09 11:16 / hm		SOLIDS_090918C	10	090918A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	372	mg/L		10		A2540 C	09/18/09 10:45 / hm		SOLIDS_090918A	18	090918A-SLDS-TDS-
INORGANICS											
Alkalinity, Total as CaCO3	250	mg/L		1		A2320 B	09/21/09 16:50 / JG		TITTR_090921A	23	090921A-ALK-W
Bicarbonate as HCO3	300	mg/L		1		A2320 B	09/21/09 16:50 / JG		TITTR_090921A	23	090921A-ALK-W
Chloride	9	mg/L		1		E300.0	09/21/09 02:35 / hm		IC101-H_090920A	44	R56766
Sulfate	53	mg/L		1		E300.0	09/21/09 02:35 / hm		IC101-H_090920A	44	R56766
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.1		E200.7	09/21/09 16:59 / eli-b		SUB-B136324	17	B_R136324
Antimony	ND	mg/L		0.003		E200.8	09/21/09 14:25 / eli-b		SUB-B136306	25	B_R136306
Arsenic	0.010	mg/L		0.002		E200.8	09/21/09 14:25 / eli-b		SUB-B136306	25	B_R136306
Barium	ND	mg/L		0.1		E200.7	09/21/09 16:59 / eli-b		SUB-B136324	17	B_R136324
Beryllium	ND	mg/L		0.001		E200.7	09/21/09 16:59 / eli-b		SUB-B136324	17	B_R136324
Cadmium	ND	mg/L		0.001		E200.7	09/21/09 16:59 / eli-b		SUB-B136324	17	B_R136324
Calcium	72	mg/L		1		E200.7	09/21/09 16:59 / eli-b		SUB-B136324	17	B_R136324
Chromium	ND	mg/L		0.001		E200.8	09/21/09 14:25 / eli-b		SUB-B136306	25	B_R136306
Cobalt	ND	mg/L		0.01		E200.7	09/21/09 16:59 / eli-b		SUB-B136324	17	B_R136324
Copper	0.002	mg/L		0.001		E200.8	09/21/09 14:25 / eli-b		SUB-B136306	25	B_R136306
Gold	ND	mg/L		0.01		E200.7	09/21/09 16:59 / eli-b		SUB-B136324	17	B_R136324
Iron	ND	mg/L		0.02		E200.7	09/21/09 16:59 / eli-b		SUB-B136324	17	B_R136324
Lead	ND	mg/L		0.005		E200.8	09/21/09 14:25 / eli-b		SUB-B136306	25	B_R136306
Magnesium	16	mg/L		1		E200.7	09/21/09 16:59 / eli-b		SUB-B136324	17	B_R136324
Manganese	0.02	mg/L		0.01		E200.7	09/21/09 16:59 / eli-b		SUB-B136324	17	B_R136324
Mercury	ND	mg/L		0.001		E200.8	09/21/09 14:25 / eli-b		SUB-B136306	25	B_R136306
Nickel	ND	mg/L		0.01		E200.7	09/21/09 16:59 / eli-b		SUB-B136324	17	B_R136324
Potassium	6	mg/L		1		E200.7	09/21/09 16:59 / eli-b		SUB-B136324	17	B_R136324
Selenium	0.005	mg/L		0.001		E200.8	09/21/09 14:25 / eli-b		SUB-B136306	25	B_R136306
Silver	ND	mg/L		0.005		E200.7	09/21/09 16:59 / eli-b		SUB-B136324	17	B_R136324

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-203
Lab ID: H09090235-006
Matrix: Aqueous

Project: 1054 Asarco E. Helena
Collection Date: 09/16/09 11:05 **DateReceived:** 09/17/09
Report Date: 09/30/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Sodium	22	mg/L		1		E200.7	09/21/09 16:59 / eli-b		SUB-B136324	17	B_R136324
Tellurium	ND	mg/L		0.1		E200.7	09/21/09 16:59 / eli-b		SUB-B136324	17	B_R136324
Thallium	ND	mg/L		0.001		E200.8	09/21/09 14:25 / eli-b		SUB-B136306	25	B_R136306
Vanadium	ND	mg/L		0.01		E200.7	09/21/09 16:59 / eli-b		SUB-B136324	17	B_R136324
Zinc	ND	mg/L		0.01		E200.7	09/21/09 16:59 / eli-b		SUB-B136324	17	B_R136324

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-204
Lab ID: H09090235-007
Matrix: Aqueous

Project: 1054 Asarco E. Helena
Collection Date: 09/16/09 11:20 **DateReceived:** 09/17/09
Report Date: 09/30/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	5.7	s.u.		0.1		A4500-H B	09/17/09 15:35 / hm		PH_090917A	11	090917A-PH-W
Conductivity	2	umhos/cm		1		A2510 B	09/17/09 15:25 / hm		COND_090917A	9	90917A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/18/09 11:17 / hm		SOLIDS_090918C	11	090918A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	09/18/09 10:49 / hm		SOLIDS_090918A	30	090918A-SLDS-TDS-
INORGANICS											
Alkalinity, Total as CaCO3	2	mg/L		1		A2320 B	09/21/09 16:53 / JG		TITTR_090921A	24	090921A-ALK-W
Bicarbonate as HCO3	2	mg/L		1		A2320 B	09/21/09 16:53 / JG		TITTR_090921A	24	090921A-ALK-W
Chloride	ND	mg/L		1		E300.0	09/21/09 02:51 / hm		IC101-H_090920A	45	R56766
Sulfate	ND	mg/L		1		E300.0	09/21/09 02:51 / hm		IC101-H_090920A	45	R56766
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.1		E200.7	09/21/09 17:03 / eli-b		SUB-B136324	18	B_R136324
Antimony	ND	mg/L		0.003		E200.8	09/21/09 14:29 / eli-b		SUB-B136306	26	B_R136306
Arsenic	ND	mg/L		0.002		E200.8	09/21/09 14:29 / eli-b		SUB-B136306	26	B_R136306
Barium	ND	mg/L		0.1		E200.7	09/21/09 17:03 / eli-b		SUB-B136324	18	B_R136324
Beryllium	ND	mg/L		0.001		E200.7	09/21/09 17:03 / eli-b		SUB-B136324	18	B_R136324
Cadmium	ND	mg/L		0.001		E200.7	09/21/09 17:03 / eli-b		SUB-B136324	18	B_R136324
Calcium	ND	mg/L		1		E200.7	09/21/09 17:03 / eli-b		SUB-B136324	18	B_R136324
Chromium	ND	mg/L		0.001		E200.8	09/21/09 14:29 / eli-b		SUB-B136306	26	B_R136306
Cobalt	ND	mg/L		0.01		E200.7	09/21/09 17:03 / eli-b		SUB-B136324	18	B_R136324
Copper	ND	mg/L		0.001		E200.8	09/21/09 14:29 / eli-b		SUB-B136306	26	B_R136306
Gold	ND	mg/L		0.01		E200.7	09/21/09 17:03 / eli-b		SUB-B136324	18	B_R136324
Iron	ND	mg/L		0.02		E200.7	09/21/09 17:03 / eli-b		SUB-B136324	18	B_R136324
Lead	ND	mg/L		0.005		E200.8	09/21/09 14:29 / eli-b		SUB-B136306	26	B_R136306
Magnesium	ND	mg/L		1		E200.7	09/21/09 17:03 / eli-b		SUB-B136324	18	B_R136324
Manganese	ND	mg/L		0.01		E200.7	09/21/09 17:03 / eli-b		SUB-B136324	18	B_R136324
Mercury	ND	mg/L		0.001		E200.8	09/21/09 14:29 / eli-b		SUB-B136306	26	B_R136306
Nickel	ND	mg/L		0.01		E200.7	09/21/09 17:03 / eli-b		SUB-B136324	18	B_R136324
Potassium	ND	mg/L		1		E200.7	09/21/09 17:03 / eli-b		SUB-B136324	18	B_R136324
Selenium	ND	mg/L		0.001		E200.8	09/21/09 14:29 / eli-b		SUB-B136306	26	B_R136306
Silver	ND	mg/L		0.005		E200.7	09/21/09 17:03 / eli-b		SUB-B136324	18	B_R136324

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-204
Lab ID: H09090235-007
Matrix: Aqueous

Project: 1054 Asarco E. Helena
Collection Date: 09/16/09 11:20 **DateReceived:** 09/17/09
Report Date: 09/30/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Sodium	ND	mg/L		1		E200.7	09/21/09 17:03 / eli-b		SUB-B136324	18	B_R136324
Tellurium	ND	mg/L		0.1		E200.7	09/21/09 17:03 / eli-b		SUB-B136324	18	B_R136324
Thallium	ND	mg/L		0.001		E200.8	09/21/09 14:29 / eli-b		SUB-B136306	26	B_R136306
Vanadium	ND	mg/L		0.01		E200.7	09/21/09 17:03 / eli-b		SUB-B136324	18	B_R136324
Zinc	ND	mg/L		0.01		E200.7	09/21/09 17:03 / eli-b		SUB-B136324	18	B_R136324

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-205
Lab ID: H09090235-008
Matrix: Aqueous

Project: 1054 Asarco E. Helena
Collection Date: 09/16/09 11:40 **DateReceived:** 09/17/09
Report Date: 09/30/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.6	s.u.		0.1		A4500-H B	09/17/09 15:35 / hm		PH_090917A	12	090917A-PH-W
Conductivity	420	umhos/cm		1		A2510 B	09/17/09 15:26 / hm		COND_090917A	1	090917A-COND-PROB
Solids, Total Suspended TSS @ 105 C	28	mg/L		10		A2540 D	09/18/09 11:17 / hm		SOLIDS_090918C	12	090918A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	282	mg/L		10		A2540 C	09/18/09 10:49 / hm		SOLIDS_090918A	31	090918A-SLDS-TDS-
INORGANICS											
Alkalinity, Total as CaCO3	150	mg/L		1		A2320 B	09/21/09 17:04 / JG		TITTR_090921A	25	090921A-ALK-W
Bicarbonate as HCO3	180	mg/L		1		A2320 B	09/21/09 17:04 / JG		TITTR_090921A	25	090921A-ALK-W
Chloride	8	mg/L		1		E300.0	09/21/09 03:08 / hm		IC101-H_090920A	46	R56766
Sulfate	54	mg/L		1		E300.0	09/21/09 03:08 / hm		IC101-H_090920A	46	R56766
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.1		E200.7	09/21/09 17:07 / eli-b		SUB-B136324	19	B_R136324
Antimony	ND	mg/L		0.003		E200.8	09/21/09 14:33 / eli-b		SUB-B136306	27	B_R136306
Arsenic	0.006	mg/L		0.002		E200.8	09/21/09 14:33 / eli-b		SUB-B136306	27	B_R136306
Barium	ND	mg/L		0.1		E200.7	09/21/09 17:07 / eli-b		SUB-B136324	19	B_R136324
Beryllium	ND	mg/L		0.001		E200.7	09/21/09 17:07 / eli-b		SUB-B136324	19	B_R136324
Cadmium	ND	mg/L		0.001		E200.7	09/21/09 17:07 / eli-b		SUB-B136324	19	B_R136324
Calcium	45	mg/L		1		E200.7	09/21/09 17:07 / eli-b		SUB-B136324	19	B_R136324
Chromium	ND	mg/L		0.001		E200.8	09/21/09 14:33 / eli-b		SUB-B136306	27	B_R136306
Cobalt	ND	mg/L		0.01		E200.7	09/21/09 17:07 / eli-b		SUB-B136324	19	B_R136324
Copper	ND	mg/L		0.001		E200.8	09/21/09 14:33 / eli-b		SUB-B136306	27	B_R136306
Gold	ND	mg/L		0.01		E200.7	09/21/09 17:07 / eli-b		SUB-B136324	19	B_R136324
Iron	ND	mg/L		0.02		E200.7	09/21/09 17:07 / eli-b		SUB-B136324	19	B_R136324
Lead	ND	mg/L		0.005		E200.8	09/21/09 14:33 / eli-b		SUB-B136306	27	B_R136306
Magnesium	9	mg/L		1		E200.7	09/21/09 17:07 / eli-b		SUB-B136324	19	B_R136324
Manganese	ND	mg/L		0.01		E200.7	09/21/09 17:07 / eli-b		SUB-B136324	19	B_R136324
Mercury	ND	mg/L		0.001		E200.8	09/21/09 14:33 / eli-b		SUB-B136306	27	B_R136306
Nickel	ND	mg/L		0.01		E200.7	09/21/09 17:07 / eli-b		SUB-B136324	19	B_R136324
Potassium	5	mg/L		1		E200.7	09/21/09 17:07 / eli-b		SUB-B136324	19	B_R136324
Selenium	0.001	mg/L		0.001		E200.8	09/21/09 14:33 / eli-b		SUB-B136306	27	B_R136306
Silver	ND	mg/L		0.005		E200.7	09/21/09 17:07 / eli-b		SUB-B136324	19	B_R136324

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-205
Lab ID: H09090235-008
Matrix: Aqueous

Project: 1054 Asarco E. Helena
Collection Date: 09/16/09 11:40 **DateReceived:** 09/17/09
Report Date: 09/30/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Sodium	23	mg/L		1		E200.7	09/21/09 17:07 / eli-b		SUB-B136324	19	B_R136324
Tellurium	ND	mg/L		0.1		E200.7	09/21/09 17:07 / eli-b		SUB-B136324	19	B_R136324
Thallium	ND	mg/L		0.001		E200.8	09/21/09 14:33 / eli-b		SUB-B136306	27	B_R136306
Vanadium	ND	mg/L		0.01		E200.7	09/21/09 17:07 / eli-b		SUB-B136324	19	B_R136324
Zinc	ND	mg/L		0.01		E200.7	09/21/09 17:07 / eli-b		SUB-B136324	19	B_R136324

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-206
Lab ID: H09090235-009
Matrix: Aqueous

Project: 1054 Asarco E. Helena
Collection Date: 09/16/09 12:15 **DateReceived:** 09/17/09
Report Date: 09/30/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.6	s.u.		0.1		A4500-H B	09/17/09 15:35 / hm		PH_090917A	14	090917A-PH-W
Conductivity	355	umhos/cm		1		A2510 B	09/17/09 15:28 / hm		COND_090917A	1	190917A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/18/09 11:17 / hm		SOLIDS_090918C	13	090918A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	237	mg/L		10		A2540 C	09/18/09 10:49 / hm		SOLIDS_090918A	32	090918A-SLDS-TDS-
INORGANICS											
Alkalinity, Total as CaCO3	140	mg/L		1		A2320 B	09/21/09 17:30 / JG		TITTR_090921A	28	090921A-ALK-W
Bicarbonate as HCO3	170	mg/L		1		A2320 B	09/21/09 17:30 / JG		TITTR_090921A	28	090921A-ALK-W
Chloride	6	mg/L		1		E300.0	09/21/09 03:57 / hm		IC101-H_090920A	49	R56766
Sulfate	33	mg/L		1		E300.0	09/21/09 03:57 / hm		IC101-H_090920A	49	R56766
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.1		E200.7	09/21/09 17:11 / eli-b		SUB-B136324	20	B_R136324
Antimony	ND	mg/L		0.003		E200.8	09/21/09 14:37 / eli-b		SUB-B136306	28	B_R136306
Arsenic	0.005	mg/L		0.002		E200.8	09/21/09 14:37 / eli-b		SUB-B136306	28	B_R136306
Barium	ND	mg/L		0.1		E200.7	09/21/09 17:11 / eli-b		SUB-B136324	20	B_R136324
Beryllium	ND	mg/L		0.001		E200.7	09/21/09 17:11 / eli-b		SUB-B136324	20	B_R136324
Cadmium	ND	mg/L		0.001		E200.7	09/21/09 17:11 / eli-b		SUB-B136324	20	B_R136324
Calcium	37	mg/L		1		E200.7	09/21/09 17:11 / eli-b		SUB-B136324	20	B_R136324
Chromium	ND	mg/L		0.001		E200.8	09/21/09 14:37 / eli-b		SUB-B136306	28	B_R136306
Cobalt	ND	mg/L		0.01		E200.7	09/21/09 17:11 / eli-b		SUB-B136324	20	B_R136324
Copper	ND	mg/L		0.001		E200.8	09/21/09 14:37 / eli-b		SUB-B136306	28	B_R136306
Gold	ND	mg/L		0.01		E200.7	09/21/09 17:11 / eli-b		SUB-B136324	20	B_R136324
Iron	ND	mg/L		0.02		E200.7	09/21/09 17:11 / eli-b		SUB-B136324	20	B_R136324
Lead	ND	mg/L		0.005		E200.8	09/21/09 14:37 / eli-b		SUB-B136306	28	B_R136306
Magnesium	8	mg/L		1		E200.7	09/21/09 17:11 / eli-b		SUB-B136324	20	B_R136324
Manganese	ND	mg/L		0.01		E200.7	09/21/09 17:11 / eli-b		SUB-B136324	20	B_R136324
Mercury	ND	mg/L		0.001		E200.8	09/21/09 14:37 / eli-b		SUB-B136306	28	B_R136306
Nickel	ND	mg/L		0.01		E200.7	09/21/09 17:11 / eli-b		SUB-B136324	20	B_R136324
Potassium	4	mg/L		1		E200.7	09/21/09 17:11 / eli-b		SUB-B136324	20	B_R136324
Selenium	0.001	mg/L		0.001		E200.8	09/21/09 14:37 / eli-b		SUB-B136306	28	B_R136306
Silver	ND	mg/L		0.005		E200.7	09/21/09 17:11 / eli-b		SUB-B136324	20	B_R136324

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-206
Lab ID: H09090235-009
Matrix: Aqueous

Project: 1054 Asarco E. Helena
Collection Date: 09/16/09 12:15 **DateReceived:** 09/17/09
Report Date: 09/30/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Sodium	20	mg/L		1		E200.7	09/21/09 17:11 / eli-b		SUB-B136324	20	B_R136324
Tellurium	ND	mg/L		0.1		E200.7	09/21/09 17:11 / eli-b		SUB-B136324	20	B_R136324
Thallium	ND	mg/L		0.001		E200.8	09/21/09 14:37 / eli-b		SUB-B136306	28	B_R136306
Vanadium	ND	mg/L		0.01		E200.7	09/21/09 17:11 / eli-b		SUB-B136324	20	B_R136324
Zinc	ND	mg/L		0.01		E200.7	09/21/09 17:11 / eli-b		SUB-B136324	20	B_R136324

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-207
Lab ID: H09090235-010
Matrix: Aqueous

Project: 1054 Asarco E. Helena
Collection Date: 09/16/09 14:00 **DateReceived:** 09/17/09
Report Date: 09/30/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.5	s.u.		0.1		A4500-H B	09/17/09 15:39 / hm		PH_090917A	15	090917A-PH-W
Conductivity	459	umhos/cm		1		A2510 B	09/17/09 15:29 / hm		COND_090917A	1	290917A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/18/09 11:18 / hm		SOLIDS_090918C	14	090918A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	315	mg/L		10		A2540 C	09/18/09 10:50 / hm		SOLIDS_090918A	33	090918A-SLDS-TDS-
INORGANICS											
Alkalinity, Total as CaCO3	150	mg/L		1		A2320 B	09/21/09 17:38 / JG		TITTR_090921A	29	090921A-ALK-W
Bicarbonate as HCO3	190	mg/L		1		A2320 B	09/21/09 17:38 / JG		TITTR_090921A	29	090921A-ALK-W
Chloride	9	mg/L		1		E300.0	09/21/09 04:13 / hm		IC101-H_090920A	50	R56766
Sulfate	69	mg/L		1		E300.0	09/21/09 04:13 / hm		IC101-H_090920A	50	R56766
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.1		E200.7	09/21/09 17:15 / eli-b		SUB-B136324	21	B_R136324
Antimony	ND	mg/L		0.003		E200.8	09/21/09 14:41 / eli-b		SUB-B136306	29	B_R136306
Arsenic	0.007	mg/L		0.002		E200.8	09/21/09 14:41 / eli-b		SUB-B136306	29	B_R136306
Barium	ND	mg/L		0.1		E200.7	09/21/09 17:15 / eli-b		SUB-B136324	21	B_R136324
Beryllium	ND	mg/L		0.001		E200.7	09/21/09 17:15 / eli-b		SUB-B136324	21	B_R136324
Cadmium	ND	mg/L		0.001		E200.7	09/21/09 17:15 / eli-b		SUB-B136324	21	B_R136324
Calcium	51	mg/L		1		E200.7	09/21/09 17:15 / eli-b		SUB-B136324	21	B_R136324
Chromium	0.001	mg/L		0.001		E200.8	09/21/09 14:41 / eli-b		SUB-B136306	29	B_R136306
Cobalt	ND	mg/L		0.01		E200.7	09/21/09 17:15 / eli-b		SUB-B136324	21	B_R136324
Copper	ND	mg/L		0.001		E200.8	09/21/09 14:41 / eli-b		SUB-B136306	29	B_R136306
Gold	ND	mg/L		0.01		E200.7	09/21/09 17:15 / eli-b		SUB-B136324	21	B_R136324
Iron	ND	mg/L		0.02		E200.7	09/21/09 17:15 / eli-b		SUB-B136324	21	B_R136324
Lead	ND	mg/L		0.005		E200.8	09/21/09 14:41 / eli-b		SUB-B136306	29	B_R136306
Magnesium	10	mg/L		1		E200.7	09/21/09 17:15 / eli-b		SUB-B136324	21	B_R136324
Manganese	ND	mg/L		0.01		E200.7	09/21/09 17:15 / eli-b		SUB-B136324	21	B_R136324
Mercury	ND	mg/L		0.001		E200.8	09/21/09 14:41 / eli-b		SUB-B136306	29	B_R136306
Nickel	ND	mg/L		0.01		E200.7	09/21/09 17:15 / eli-b		SUB-B136324	21	B_R136324
Potassium	6	mg/L		1		E200.7	09/21/09 17:15 / eli-b		SUB-B136324	21	B_R136324
Selenium	0.001	mg/L		0.001		E200.8	09/21/09 14:41 / eli-b		SUB-B136306	29	B_R136306
Silver	ND	mg/L		0.005		E200.7	09/21/09 17:15 / eli-b		SUB-B136324	21	B_R136324

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-207
Lab ID: H09090235-010
Matrix: Aqueous

Project: 1054 Asarco E. Helena
Collection Date: 09/16/09 14:00 **DateReceived:** 09/17/09
Report Date: 09/30/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Sodium	22	mg/L		1		E200.7	09/21/09 17:15 / eli-b		SUB-B136324	21	B_R136324
Tellurium	ND	mg/L		0.1		E200.7	09/21/09 17:15 / eli-b		SUB-B136324	21	B_R136324
Thallium	ND	mg/L		0.001		E200.8	09/21/09 14:41 / eli-b		SUB-B136306	29	B_R136306
Vanadium	ND	mg/L		0.01		E200.7	09/21/09 17:15 / eli-b		SUB-B136324	21	B_R136324
Zinc	ND	mg/L		0.01		E200.7	09/21/09 17:15 / eli-b		SUB-B136324	21	B_R136324

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-208
Lab ID: H09090235-011
Matrix: Aqueous

Project: 1054 Asarco E. Helena
Collection Date: 09/16/09 14:40 **DateReceived:** 09/17/09
Report Date: 09/30/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.5	s.u.		0.1		A4500-H B	09/17/09 15:41 / hm		PH_090917A	16	090917A-PH-W
Conductivity	815	umhos/cm		1		A2510 B	09/17/09 15:32 / hm		COND_090917A	1	490917A-COND-PROB
Solids, Total Suspended TSS @ 105 C	23	mg/L		10		A2540 D	09/18/09 11:18 / hm		SOLIDS_090918C	15	090918A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	563	mg/L		10		A2540 C	09/18/09 10:50 / hm		SOLIDS_090918A	34	090918A-SLDS-TDS-
INORGANICS											
Alkalinity, Total as CaCO3	250	mg/L		1		A2320 B	09/23/09 17:09 / JG		TITTR_090923A	3	090923A-ALK-W
Bicarbonate as HCO3	300	mg/L		1		A2320 B	09/23/09 17:09 / JG		TITTR_090923A	3	090923A-ALK-W
Chloride	25	mg/L		1		E300.0	09/21/09 04:30 / hm		IC101-H_090920A	51	R56766
Sulfate	170	mg/L		1		E300.0	09/21/09 04:30 / hm		IC101-H_090920A	51	R56766
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.1		E200.7	09/21/09 17:19 / eli-b		SUB-B136324	22	B_R136324
Antimony	ND	mg/L		0.003		E200.8	09/21/09 14:45 / eli-b		SUB-B136306	30	B_R136306
Arsenic	0.010	mg/L		0.002		E200.8	09/21/09 14:45 / eli-b		SUB-B136306	30	B_R136306
Barium	ND	mg/L		0.1		E200.7	09/21/09 17:19 / eli-b		SUB-B136324	22	B_R136324
Beryllium	ND	mg/L		0.001		E200.7	09/21/09 17:19 / eli-b		SUB-B136324	22	B_R136324
Cadmium	ND	mg/L		0.001		E200.7	09/21/09 17:19 / eli-b		SUB-B136324	22	B_R136324
Calcium	96	mg/L		1		E200.7	09/21/09 17:19 / eli-b		SUB-B136324	22	B_R136324
Chromium	0.003	mg/L		0.001		E200.8	09/21/09 14:45 / eli-b		SUB-B136306	30	B_R136306
Cobalt	ND	mg/L		0.01		E200.7	09/21/09 17:19 / eli-b		SUB-B136324	22	B_R136324
Copper	ND	mg/L		0.001		E200.8	09/21/09 14:45 / eli-b		SUB-B136306	30	B_R136306
Gold	ND	mg/L		0.01		E200.7	09/21/09 17:19 / eli-b		SUB-B136324	22	B_R136324
Iron	ND	mg/L		0.02		E200.7	09/21/09 17:19 / eli-b		SUB-B136324	22	B_R136324
Lead	ND	mg/L		0.005		E200.8	09/21/09 14:45 / eli-b		SUB-B136306	30	B_R136306
Magnesium	24	mg/L		1		E200.7	09/21/09 17:19 / eli-b		SUB-B136324	22	B_R136324
Manganese	ND	mg/L		0.01		E200.7	09/21/09 17:19 / eli-b		SUB-B136324	22	B_R136324
Mercury	ND	mg/L		0.001		E200.8	09/21/09 14:45 / eli-b		SUB-B136306	30	B_R136306
Nickel	ND	mg/L		0.01		E200.7	09/21/09 17:19 / eli-b		SUB-B136324	22	B_R136324
Potassium	7	mg/L		1		E200.7	09/21/09 17:19 / eli-b		SUB-B136324	22	B_R136324
Selenium	0.003	mg/L		0.001		E200.8	09/21/09 14:45 / eli-b		SUB-B136306	30	B_R136306
Silver	ND	mg/L		0.005		E200.7	09/21/09 17:19 / eli-b		SUB-B136324	22	B_R136324

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-208
Lab ID: H09090235-011
Matrix: Aqueous

Project: 1054 Asarco E. Helena
Collection Date: 09/16/09 14:40 **DateReceived:** 09/17/09
Report Date: 09/30/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Sodium	35	mg/L		1		E200.7	09/21/09 17:19 / eli-b		SUB-B136324	22	B_R136324
Tellurium	ND	mg/L		0.1		E200.7	09/21/09 17:19 / eli-b		SUB-B136324	22	B_R136324
Thallium	ND	mg/L		0.001		E200.8	09/21/09 14:45 / eli-b		SUB-B136306	30	B_R136306
Vanadium	ND	mg/L		0.01		E200.7	09/21/09 17:19 / eli-b		SUB-B136324	22	B_R136324
Zinc	ND	mg/L		0.01		E200.7	09/21/09 17:19 / eli-b		SUB-B136324	22	B_R136324

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-210
Lab ID: H09090235-012
Matrix: Aqueous

Project: 1054 Asarco E. Helena
Collection Date: 09/16/09 15:50 **DateReceived:** 09/17/09
Report Date: 09/30/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.8	s.u.		0.1		A4500-H B	09/17/09 15:44 / hm		PH_090917A	17	090917A-PH-W
Conductivity	632	umhos/cm		1		A2510 B	09/17/09 15:34 / hm		COND_090917A	1	590917A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/18/09 11:19 / hm		SOLIDS_090918C	16	090918A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	444	mg/L		10		A2540 C	09/18/09 10:51 / hm		SOLIDS_090918A	35	090918A-SLDS-TDS-
INORGANICS											
Alkalinity, Total as CaCO3	110	mg/L		1		A2320 B	09/23/09 17:22 / JG		TITTR_090923A	5	090923A-ALK-W
Bicarbonate as HCO3	140	mg/L		1		A2320 B	09/23/09 17:22 / JG		TITTR_090923A	5	090923A-ALK-W
Chloride	27	mg/L		1		E300.0	09/21/09 04:46 / hm		IC101-H_090920A	52	R56766
Sulfate	160	mg/L		1		E300.0	09/21/09 04:46 / hm		IC101-H_090920A	52	R56766
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.1		E200.8	09/21/09 14:49 / eli-b		SUB-B136306	31	B_R136306
Antimony	ND	mg/L		0.003		E200.8	09/21/09 14:49 / eli-b		SUB-B136306	31	B_R136306
Arsenic	0.017	mg/L		0.002		E200.8	09/21/09 14:49 / eli-b		SUB-B136306	31	B_R136306
Barium	ND	mg/L		0.1		E200.7	09/21/09 17:39 / eli-b		SUB-B136324	23	B_R136324
Beryllium	ND	mg/L		0.001		E200.7	09/21/09 17:39 / eli-b		SUB-B136324	23	B_R136324
Cadmium	ND	mg/L		0.001		E200.7	09/21/09 17:39 / eli-b		SUB-B136324	23	B_R136324
Calcium	47	mg/L		1		E200.7	09/21/09 17:39 / eli-b		SUB-B136324	23	B_R136324
Chromium	ND	mg/L		0.001		E200.8	09/21/09 14:49 / eli-b		SUB-B136306	31	B_R136306
Cobalt	ND	mg/L		0.01		E200.7	09/21/09 17:39 / eli-b		SUB-B136324	23	B_R136324
Copper	ND	mg/L		0.001		E200.8	09/21/09 14:49 / eli-b		SUB-B136306	31	B_R136306
Gold	ND	mg/L		0.01		E200.7	09/22/09 18:17 / eli-b		SUB-B136371	20	B_R136371
Iron	ND	mg/L		0.02		E200.7	09/21/09 17:39 / eli-b		SUB-B136324	23	B_R136324
Lead	ND	mg/L		0.005		E200.8	09/21/09 14:49 / eli-b		SUB-B136306	31	B_R136306
Magnesium	11	mg/L		1		E200.7	09/21/09 17:39 / eli-b		SUB-B136324	23	B_R136324
Manganese	ND	mg/L		0.01		E200.7	09/21/09 17:39 / eli-b		SUB-B136324	23	B_R136324
Mercury	ND	mg/L		0.001		E200.8	09/21/09 14:49 / eli-b		SUB-B136306	31	B_R136306
Nickel	ND	mg/L		0.01		E200.7	09/21/09 17:39 / eli-b		SUB-B136324	23	B_R136324
Potassium	10	mg/L		1		E200.7	09/21/09 17:39 / eli-b		SUB-B136324	23	B_R136324
Selenium	0.004	mg/L		0.001		E200.8	09/21/09 14:49 / eli-b		SUB-B136306	31	B_R136306
Silver	ND	mg/L		0.005		E200.8	09/21/09 14:49 / eli-b		SUB-B136306	31	B_R136306

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-210
Lab ID: H09090235-012
Matrix: Aqueous

Project: 1054 Asarco E. Helena
Collection Date: 09/16/09 15:50 **DateReceived:** 09/17/09
Report Date: 09/30/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Sodium	53	mg/L		1		E200.7	09/21/09 17:39 / eli-b		SUB-B136324	23	B_R136324
Tellurium	ND	mg/L		0.1		E200.7	09/21/09 17:39 / eli-b		SUB-B136324	23	B_R136324
Thallium	ND	mg/L		0.001		E200.8	09/21/09 14:49 / eli-b		SUB-B136306	31	B_R136306
Vanadium	ND	mg/L		0.01		E200.7	09/21/09 17:39 / eli-b		SUB-B136324	23	B_R136324
Zinc	ND	mg/L		0.01		E200.7	09/21/09 17:39 / eli-b		SUB-B136324	23	B_R136324

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-211
Lab ID: H09090235-013
Matrix: Aqueous

Project: 1054 Asarco E. Helena
Collection Date: 09/16/09 16:20 **DateReceived:** 09/17/09
Report Date: 09/30/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
PHYSICAL PROPERTIES											
pH	7.4	s.u.		0.1		A4500-H B	09/17/09 15:46 / hm		PH_090917A	19	090917A-PH-W
Conductivity	752	umhos/cm		1		A2510 B	09/17/09 15:38 / hm		COND_090917A	1	790917A-COND-PROB
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/18/09 14:17 / JG		SOLIDS_090918D	3	090918A-SLDS-TSS-
Solids, Total Dissolved TDS @ 180 C	499	mg/L		10		A2540 C	09/18/09 14:28 / JG		SOLIDS_090918B	3	090918A-SLDS-TDS-
INORGANICS											
Alkalinity, Total as CaCO3	230	mg/L		1		A2320 B	09/23/09 17:37 / JG		TITTR_090923A	6	090923A-ALK-W
Bicarbonate as HCO3	280	mg/L		1		A2320 B	09/23/09 17:37 / JG		TITTR_090923A	6	090923A-ALK-W
Chloride	22	mg/L		1		E300.0	09/21/09 05:03 / hm		IC101-H_090920A	53	R56766
Sulfate	150	mg/L		1		E300.0	09/21/09 05:03 / hm		IC101-H_090920A	53	R56766
METALS, DISSOLVED											
Aluminum	ND	mg/L		0.1		E200.8	09/21/09 16:04 / eli-b		SUB-B136306	20	B_R136306
Antimony	ND	mg/L		0.003		E200.8	09/21/09 16:04 / eli-b		SUB-B136306	20	B_R136306
Arsenic	0.053	mg/L		0.002		E200.8	09/21/09 16:04 / eli-b		SUB-B136306	20	B_R136306
Barium	0.1	mg/L		0.1		E200.7	09/21/09 17:43 / eli-b		SUB-B136324	24	B_R136324
Beryllium	ND	mg/L		0.001		E200.7	09/21/09 17:43 / eli-b		SUB-B136324	24	B_R136324
Cadmium	ND	mg/L		0.001		E200.7	09/21/09 17:43 / eli-b		SUB-B136324	24	B_R136324
Calcium	94	mg/L		1		E200.7	09/21/09 17:43 / eli-b		SUB-B136324	24	B_R136324
Chromium	0.003	mg/L		0.001		E200.8	09/21/09 16:04 / eli-b		SUB-B136306	20	B_R136306
Cobalt	ND	mg/L		0.01		E200.7	09/21/09 17:43 / eli-b		SUB-B136324	24	B_R136324
Copper	ND	mg/L		0.001		E200.8	09/21/09 16:04 / eli-b		SUB-B136306	20	B_R136306
Gold	ND	mg/L		0.01		E200.7	09/22/09 18:21 / eli-b		SUB-B136371	19	B_R136371
Iron	0.06	mg/L		0.02		E200.7	09/21/09 17:43 / eli-b		SUB-B136324	24	B_R136324
Lead	ND	mg/L		0.005		E200.8	09/21/09 16:04 / eli-b		SUB-B136306	20	B_R136306
Magnesium	20	mg/L		1		E200.7	09/21/09 17:43 / eli-b		SUB-B136324	24	B_R136324
Manganese	3.54	mg/L		0.01		E200.7	09/21/09 17:43 / eli-b		SUB-B136324	24	B_R136324
Mercury	ND	mg/L		0.001		E200.8	09/21/09 16:04 / eli-b		SUB-B136306	20	B_R136306
Nickel	ND	mg/L		0.01		E200.7	09/21/09 17:43 / eli-b		SUB-B136324	24	B_R136324
Potassium	5	mg/L		1		E200.7	09/21/09 17:43 / eli-b		SUB-B136324	24	B_R136324
Selenium	0.004	mg/L		0.001		E200.8	09/21/09 16:04 / eli-b		SUB-B136306	20	B_R136306
Silver	ND	mg/L		0.005		E200.8	09/21/09 16:04 / eli-b		SUB-B136306	20	B_R136306

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco Consulting
Client Sample ID: AEH-0908-211
Lab ID: H09090235-013
Matrix: Aqueous

Project: 1054 Asarco E. Helena
Collection Date: 09/16/09 16:20 **DateReceived:** 09/17/09
Report Date: 09/30/09

Analyses	Result	Units	Qualifiers	RL	MDL	Method	Analysis Date / By	Prep Date	RunID	Run Order	BatchID
METALS, DISSOLVED											
Sodium	25	mg/L		1		E200.7	09/21/09 17:43 / eli-b		SUB-B136324	24	B_R136324
Tellurium	ND	mg/L		0.1		E200.7	09/21/09 17:43 / eli-b		SUB-B136324	24	B_R136324
Thallium	ND	mg/L		0.001		E200.8	09/21/09 16:04 / eli-b		SUB-B136306	20	B_R136306
Vanadium	ND	mg/L		0.01		E200.7	09/21/09 17:43 / eli-b		SUB-B136324	24	B_R136324
Zinc	ND	mg/L		0.01		E200.7	09/21/09 17:43 / eli-b		SUB-B136324	24	B_R136324

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level. ND - Not detected at the reporting limit.

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Client: Asarco Consulting
Work Order: H09090235
Project: 1054 Asarco E. Helena

ANALYTICAL QC SUMMARY REPORT

Date: *30-Sep-09*

BatchID: 090917A-COND-PROBE

Run ID :Run Order: **COND_090917A: 1** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090917A** Method: **A2510 B**
Analysis Date: **09/17/09 15:17** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	1400	1.0	1412		**99**	90	110				

Associated samples: H09090235-001A; H09090235-002A; H09090235-003A; H09090235-004A; H09090235-005A; H09090235-006A; H09090235-007A; H09090235-008A; H09090235-009A; H09090235-010A; H09090235-011A; H09090235-012A; H09090235-013A

Run ID :Run Order: **COND_090917A: 6** SampType: **Sample Duplicate** Sample ID: **H09090235-004ADUP** Method: **A2510 B**
Analysis Date: **09/17/09 15:22** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	489	1.0						493.4	**1**	10	

Associated samples: H09090235-001A; H09090235-002A; H09090235-003A; H09090235-004A; H09090235-005A; H09090235-006A; H09090235-007A; H09090235-008A; H09090235-009A; H09090235-010A; H09090235-011A; H09090235-012A; H09090235-013A

Run ID :Run Order: **COND_090917A: 13** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV1_090917A** Method: **A2510 B**
Analysis Date: **09/17/09 15:30** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	722	1.0	718		**101**	90	110				

Associated samples: H09090235-011A; H09090235-012A; H09090235-013A

Run ID :Run Order: **COND_090917A: 16** SampType: **Sample Duplicate** Sample ID: **H09090235-012ADUP** Method: **A2510 B**
Analysis Date: **09/17/09 15:37** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	631	1.0						632.1	**0.1**	10	

Associated samples: H09090235-001A; H09090235-002A; H09090235-003A; H09090235-004A; H09090235-005A; H09090235-006A; H09090235-007A; H09090235-008A; H09090235-009A; H09090235-010A; H09090235-011A; H09090235-012A; H09090235-013A

Run ID :Run Order: **COND_090917A: 25** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV2_090917A** Method: **A2510 B**
Analysis Date: **09/17/09 15:54** Units: **umhos/cm** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Conductivity	722	1.0	718		**101**	90	110				

Associated samples:

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09090235
Project: 1054 Asarco E. Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: 090917A-PH-W

Date: *30-Sep-09*

Run ID :Run Order: **PH_090917A: 1** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090917A** Method: **A4500-H B**
Analysis Date: **09/17/09 15:11** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.04	0.10	7		**101**	99	101				

Associated samples: H09090235-001A; H09090235-002A; H09090235-003A; H09090235-004A; H09090235-005A; H09090235-006A; H09090235-007A; H09090235-008A; H09090235-009A; H09090235-010A; H09090235-011A; H09090235-012A; H09090235-013A

Run ID :Run Order: **PH_090917A: 8** SampType: **Sample Duplicate** Sample ID: **H09090235-004ADUP** Method: **A4500-H B**
Analysis Date: **09/17/09 15:35** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.24	0.10						7.25	**0.1**	2	

Associated samples: H09090235-001A; H09090235-002A; H09090235-003A; H09090235-004A; H09090235-005A; H09090235-006A; H09090235-007A; H09090235-008A; H09090235-009A; H09090235-010A; H09090235-011A; H09090235-012A; H09090235-013A

Run ID :Run Order: **PH_090917A: 13** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV1_090917A** Method: **A4500-H B**
Analysis Date: **09/17/09 15:38** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	10.0	0.10	10		**100**	99	101				

Associated samples: H09090235-009A; H09090235-010A; H09090235-011A; H09090235-012A; H09090235-013A

Run ID :Run Order: **PH_090917A: 18** SampType: **Sample Duplicate** Sample ID: **H09090235-012ADUP** Method: **A4500-H B**
Analysis Date: **09/17/09 15:45** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.76	0.10						7.79	**0.4**	2	

Associated samples: H09090235-001A; H09090235-002A; H09090235-003A; H09090235-004A; H09090235-005A; H09090235-006A; H09090235-007A; H09090235-008A; H09090235-009A; H09090235-010A; H09090235-011A; H09090235-012A; H09090235-013A

Run ID :Run Order: **PH_090917A: 25** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV2_090917A** Method: **A4500-H B**
Analysis Date: **09/17/09 15:54** Units: **s.u.** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	10.0	0.10	10		**100**	99	101				

Associated samples:

Qualifiers:
ND - Not Detected at the Reporting Limit
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09090235
Project: 1054 Asarco E. Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: 090918A-SLDS-TDS-W

Date: *30-Sep-09*

Run ID :Run Order: **SOLIDS_090918A: 1** SampType: **Method Blank** Sample ID: **MBLK1_090918A** Method: **A2540 C**
Analysis Date: **09/18/09 10:19** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	ND	1.0									

Associated samples: H09090235-001A; H09090235-002A; H09090235-003A; H09090235-004A; H09090235-005A; H09090235-006A; H09090235-007A; H09090235-008A; H09090235-009A; H09090235-010A; H09090235-011A; H09090235-012A; H09090235-013A

Run ID :Run Order: **SOLIDS_090918A: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090918A** Method: **A2540 C**
Analysis Date: **09/18/09 10:21** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	986	10	1000		**99**	90	110				

Associated samples: H09090235-001A; H09090235-002A; H09090235-003A; H09090235-004A; H09090235-005A; H09090235-006A; H09090235-007A; H09090235-008A; H09090235-009A; H09090235-010A; H09090235-011A; H09090235-012A; H09090235-013A

Run ID :Run Order: **SOLIDS_090918A: 8** SampType: **Sample Duplicate** Sample ID: **H09090231-003ADUP** Method: **A2540 C**
Analysis Date: **09/18/09 10:40** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	66100	10						65300	**1.3**	20	

Associated samples: H09090235-001A; H09090235-002A; H09090235-003A; H09090235-004A; H09090235-005A; H09090235-006A; H09090235-007A; H09090235-008A; H09090235-009A; H09090235-010A; H09090235-011A; H09090235-012A; H09090235-013A

Run ID :Run Order: **SOLIDS_090918A: 14** SampType: **Sample Matrix Spike** Sample ID: **H09090235-003AMS** Method: **A2540 C**
Analysis Date: **09/18/09 10:43** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2290	10	2000	296	**100**	80	120				

Associated samples: H09090235-001A; H09090235-002A; H09090235-003A; H09090235-004A; H09090235-005A; H09090235-006A; H09090235-007A; H09090235-008A; H09090235-009A; H09090235-010A; H09090235-011A; H09090235-012A; H09090235-013A

Run ID :Run Order: **SOLIDS_090918A: 15** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09090235-003AMSD** Method: **A2540 C**
Analysis Date: **09/18/09 10:44** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2280	10	2000	296	**99**	80	120	2290	**0.3**	10	

Associated samples: H09090235-001A; H09090235-002A; H09090235-003A; H09090235-004A; H09090235-005A; H09090235-006A; H09090235-007A; H09090235-008A; H09090235-009A; H09090235-010A; H09090235-011A; H09090235-012A; H09090235-013A

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09090235
Project: 1054 Asarco E. Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: 090918A-SLDS-TDS-W

Date: *30-Sep-09*

Run ID :Run Order: **SOLIDS_090918A: 27** SampType: **Sample Matrix Spike** Sample ID: **H09090244-008AMS** Method: **A2540 C**
Analysis Date: **09/18/09 10:48** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2500	10	2000	518	**99**	80	120				

Associated samples: H09090235-001A; H09090235-002A; H09090235-003A; H09090235-004A; H09090235-005A; H09090235-006A; H09090235-007A; H09090235-008A; H09090235-009A; H09090235-010A; H09090235-011A; H09090235-012A; H09090235-013A

Run ID :Run Order: **SOLIDS_090918A: 28** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09090244-008AMSD** Method: **A2540 C**
Analysis Date: **09/18/09 10:48** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2510	10	2000	518	**100**	80	120	2500	**0.6**	10	

Associated samples: H09090235-001A; H09090235-002A; H09090235-003A; H09090235-004A; H09090235-005A; H09090235-006A; H09090235-007A; H09090235-008A; H09090235-009A; H09090235-010A; H09090235-011A; H09090235-012A; H09090235-013A

Run ID :Run Order: **SOLIDS_090918B: 1** SampType: **Method Blank** Sample ID: **MBLK1_090918A** Method: **A2540 C**
Analysis Date: **09/18/09 14:27** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	ND	1.0									

Associated samples: H09090235-001A; H09090235-002A; H09090235-003A; H09090235-004A; H09090235-005A; H09090235-006A; H09090235-007A; H09090235-008A; H09090235-009A; H09090235-010A; H09090235-011A; H09090235-012A; H09090235-013A

Run ID :Run Order: **SOLIDS_090918B: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090918A** Method: **A2540 C**
Analysis Date: **09/18/09 14:27** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	990	10	1000		**99**	90	110				

Associated samples: H09090235-001A; H09090235-002A; H09090235-003A; H09090235-004A; H09090235-005A; H09090235-006A; H09090235-007A; H09090235-008A; H09090235-009A; H09090235-010A; H09090235-011A; H09090235-012A; H09090235-013A

Run ID :Run Order: **SOLIDS_090918B: 8** SampType: **Sample Matrix Spike** Sample ID: **H09090254-004AMS** Method: **A2540 C**
Analysis Date: **09/18/09 14:30** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2020	10	2000	46	**99**	80	120				

Associated samples: H09090235-001A; H09090235-002A; H09090235-003A; H09090235-004A; H09090235-005A; H09090235-006A; H09090235-007A; H09090235-008A; H09090235-009A; H09090235-010A; H09090235-011A; H09090235-012A; H09090235-013A

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09090235
Project: 1054 Asarco E. Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: 090918A-SLDS-TDS-W

Date: *30-Sep-09*

Run ID :Run Order: **SOLIDS_090918B: 9** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09090254-004AMSD** Method: **A2540 C**

Analysis Date: **09/18/09 14:31** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Dissolved TDS @ 180 C	2030	10	2000	46	**99**	80	120	2020	**0.6**	10	

Associated samples: H09090235-001A; H09090235-002A; H09090235-003A; H09090235-004A; H09090235-005A; H09090235-006A; H09090235-007A; H09090235-008A; H09090235-009A; H09090235-010A; H09090235-011A; H09090235-012A; H09090235-013A

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09090235
Project: 1054 Asarco E. Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: 090918A-SLDS-TSS-W

Date: *30-Sep-09*

Run ID :Run Order: **SOLIDS_090918C: 1** SampType: **Method Blank** Sample ID: **MBLK1_090918A** Method: **A2540 D**
Analysis Date: **09/18/09 11:14** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	ND	1									

Associated samples: H09090235-001A; H09090235-002A; H09090235-003A; H09090235-004A; H09090235-005A; H09090235-006A; H09090235-007A; H09090235-008A; H09090235-009A; H09090235-010A; H09090235-011A; H09090235-012A; H09090235-013A

Run ID :Run Order: **SOLIDS_090918C: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090918A** Method: **A2540 D**
Analysis Date: **09/18/09 11:14** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	2000	10	2000		**100**	70	130				

Associated samples: H09090235-001A; H09090235-002A; H09090235-003A; H09090235-004A; H09090235-005A; H09090235-006A; H09090235-007A; H09090235-008A; H09090235-009A; H09090235-010A; H09090235-011A; H09090235-012A; H09090235-013A

Run ID :Run Order: **SOLIDS_090918C: 7** SampType: **Sample Duplicate** Sample ID: **H09090235-003ADUP** Method: **A2540 D**
Analysis Date: **09/18/09 11:16** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	2.00	10								10	

Associated samples: H09090235-001A; H09090235-002A; H09090235-003A; H09090235-004A; H09090235-005A; H09090235-006A; H09090235-007A; H09090235-008A; H09090235-009A; H09090235-010A; H09090235-011A; H09090235-012A; H09090235-013A

Run ID :Run Order: **SOLIDS_090918D: 1** SampType: **Method Blank** Sample ID: **MBLK1_090918A** Method: **A2540 D**
Analysis Date: **09/18/09 14:16** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	ND	1									

Associated samples: H09090235-001A; H09090235-002A; H09090235-003A; H09090235-004A; H09090235-005A; H09090235-006A; H09090235-007A; H09090235-008A; H09090235-009A; H09090235-010A; H09090235-011A; H09090235-012A; H09090235-013A

Run ID :Run Order: **SOLIDS_090918D: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090918A** Method: **A2540 D**
Analysis Date: **09/18/09 14:16** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	1700	10	2000		**85**	70	130				

Associated samples: H09090235-001A; H09090235-002A; H09090235-003A; H09090235-004A; H09090235-005A; H09090235-006A; H09090235-007A; H09090235-008A; H09090235-009A; H09090235-010A; H09090235-011A; H09090235-012A; H09090235-013A

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09090235
Project: 1054 Asarco E. Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: 090918A-SLDS-TSS-W

Date: *30-Sep-09*

Run ID :Run Order: **SOLIDS_090918D: 8** SampType: **Sample Duplicate** Sample ID: **H09090254-004ADUP** Method: **A2540 D**

Analysis Date: **09/18/09 14:19** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Solids, Total Suspended TSS @ 105 C	4.00	10						2		10	

Associated samples: H09090235-001A; H09090235-002A; H09090235-003A; H09090235-004A; H09090235-005A; H09090235-006A; H09090235-007A; H09090235-008A; H09090235-009A; H09090235-010A; H09090235-011A; H09090235-012A; H09090235-013A

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Work Order: H09090235
Project: 1054 Asarco E. Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: 090921A-ALK-W

Date: *30-Sep-09*

Run ID :Run Order: **TITTR_090921A: 1** SampType: **Method Blank** Sample ID: **MBLK1_090921A** Method: **A2320 B**
Analysis Date: **09/21/09 13:50** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	ND	1									

Associated samples: H09090235-001A; H09090235-002A; H09090235-003A; H09090235-004A; H09090235-005A; H09090235-006A; H09090235-007A; H09090235-008A; H09090235-009A; H09090235-010A

Run ID :Run Order: **TITTR_090921A: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090921A** Method: **A2320 B**
Analysis Date: **09/21/09 13:57** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	580	4.0	600		96	90	110				

Associated samples: H09090235-001A; H09090235-002A; H09090235-003A; H09090235-004A; H09090235-005A; H09090235-006A; H09090235-007A; H09090235-008A; H09090235-009A; H09090235-010A

Run ID :Run Order: **TITTR_090921A: 11** SampType: **Sample Matrix Spike** Sample ID: **H09090231-002AMS** Method: **A2320 B**
Analysis Date: **09/21/09 15:24** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	1200	4.0	600	667.8	84	90	110				S

Associated samples: H09090235-001A; H09090235-002A; H09090235-003A; H09090235-004A; H09090235-005A; H09090235-006A; H09090235-007A; H09090235-008A; H09090235-009A; H09090235-010A

Run ID :Run Order: **TITTR_090921A: 12** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09090231-002AMSD** Method: **A2320 B**
Analysis Date: **09/21/09 17:04** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	1200	4.0	600	667.8	83	90	110	1171	0.2	20	S

Associated samples: H09090235-001A; H09090235-002A; H09090235-003A; H09090235-004A; H09090235-005A; H09090235-006A; H09090235-007A; H09090235-008A; H09090235-009A; H09090235-010A

Run ID :Run Order: **TITTR_090921A: 16** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV1_090921A** Method: **A2320 B**
Analysis Date: **09/21/09 16:06** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	1100	4.0	1000		105	90	110				

Associated samples: H09090235-001A; H09090235-002A; H09090235-003A; H09090235-004A; H09090235-005A; H09090235-006A; H09090235-007A; H09090235-008A; H09090235-009A; H09090235-010A

Qualifiers:
ND - Not Detected at the Reporting Limit
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09090235
Project: 1054 Asarco E. Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: 090921A-ALK-W

Date: *30-Sep-09*

Run ID :Run Order: **TITTR_090921A: 20** SampType: **Sample Duplicate** Sample ID: **H09090235-003ADUP** Method: **A2320 B**

Analysis Date: **09/21/09 16:31** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	120	4.0						113.9	1.7	20	
Bicarbonate as HCO3	140	4.0						139	1.7	20	

Associated samples: H09090235-001A; H09090235-002A; H09090235-003A; H09090235-004A; H09090235-005A; H09090235-006A; H09090235-007A; H09090235-008A; H09090235-009A; H09090235-010A

Run ID :Run Order: **TITTR_090921A: 26** SampType: **Sample Matrix Spike** Sample ID: **H09090235-008AMS** Method: **A2320 B**

Analysis Date: **09/21/09 17:20** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	710	4.0	600	150.2	94	90	110				

Associated samples: H09090235-001A; H09090235-002A; H09090235-003A; H09090235-004A; H09090235-005A; H09090235-006A; H09090235-007A; H09090235-008A; H09090235-009A; H09090235-010A

Run ID :Run Order: **TITTR_090921A: 27** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09090235-008AMSD** Method: **A2320 B**

Analysis Date: **09/21/09 17:25** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	710	4.0	600	150.2	93	90	110	714.9	1.1	20	

Associated samples: H09090235-001A; H09090235-002A; H09090235-003A; H09090235-004A; H09090235-005A; H09090235-006A; H09090235-007A; H09090235-008A; H09090235-009A; H09090235-010A

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Work Order: H09090235
Project: 1054 Asarco E. Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: 090923A-ALK-W

Date: *30-Sep-09*

Run ID :Run Order: **TITTR_090923A: 1** SampType: **Method Blank** Sample ID: **MBLK1_090923A** Method: **A2320 B**
Analysis Date: **09/23/09 16:54** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	2	1									

Associated samples: H09090235-011A; H09090235-012A; H09090235-013A

Run ID :Run Order: **TITTR_090923A: 2** SampType: **Laboratory Control Sample** Sample ID: **LCS1_090923A** Method: **A2320 B**
Analysis Date: **09/23/09 17:01** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	580	4.0	600	1.964	**96**	90	110				

Associated samples: H09090235-011A; H09090235-012A; H09090235-013A

Run ID :Run Order: **TITTR_090923A: 4** SampType: **Sample Duplicate** Sample ID: **H09090235-011ADUP** Method: **A2320 B**
Analysis Date: **09/23/09 17:14** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	250	4.0						247.5	**0.8**	20	
Bicarbonate as HCO3	300	4.0						301.9	**0.8**	20	

Associated samples: H09090235-011A; H09090235-012A; H09090235-013A

Run ID :Run Order: **TITTR_090923A: 7** SampType: **Sample Matrix Spike** Sample ID: **H09090235-013AMS** Method: **A2320 B**
Analysis Date: **09/23/09 17:47** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	790	4.0	600	230.8	**94**	90	110				

Associated samples: H09090235-011A; H09090235-012A; H09090235-013A

Run ID :Run Order: **TITTR_090923A: 8** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09090235-013AMSD** Method: **A2320 B**
Analysis Date: **09/23/09 17:52** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	790	4.0	600	230.8	**93**	90	110	793.5	**0.6**	20	

Associated samples: H09090235-011A; H09090235-012A; H09090235-013A

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Work Order: H09090235
Project: 1054 Asarco E. Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: 090923A-ALK-W

Date: *30-Sep-09*

Run ID :Run Order: **TITTR_090923A: 9** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV1_090923A** Method: **A2320 B**

Analysis Date: **09/23/09 17:56** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total as CaCO3	1100	4.0	1000		105	90	110				

Associated samples:

Qualifiers: ND - Not Detected at the Reporting Limit
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Work Order: H09090235
Project: 1054 Asarco E. Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R136306

Date: *30-Sep-09*

Run ID :Run Order: **SUB-B136306: 10** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090609B, 080814C** Method: **E200.8**

Analysis Date: **09/21/09 10:01** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 10	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.255	0.10	0.25		**102**	90	110				
Antimony	0.0462	0.050	0.05		**92**	90	110				
Arsenic	0.0503	0.0050	0.05		**100**	90	110				
Chromium	0.0510	0.010	0.05		**102**	90	110				
Copper	0.0518	0.010	0.05		**104**	90	110				
Lead	0.0504	0.010	0.05		**101**	90	110				
Mercury	0.00185	0.0010	0.002		**93**	90	110				
Selenium	0.0507	0.0050	0.05		**101**	90	110				
Silver	0.0251	0.0050	0.025		**100**	90	110				
Thallium	0.0514	0.10	0.05		**103**	90	110				

Associated samples: H09090235-001B; H09090235-002B; H09090235-003B; H09090235-004B; H09090235-005B; H09090235-006B; H09090235-007B; H09090235-008B; H09090235-009B; H09090235-010B; H09090235-011B; H09090235-012B; H09090235-013B

Run ID :Run Order: **SUB-B136306: 11** SampType: **Method Blank** Sample ID: **LRB** Method: **E200.8**

Analysis Date: **09/21/09 10:38** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 10	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	ND	0.0001									
Antimony	ND	5E-05									
Arsenic	ND	3E-05									
Chromium	ND	0.0002									
Copper	ND	8E-05									
Lead	ND	8E-06									
Mercury	1E-05	8E-06									
Selenium	ND	0.0002									
Silver	4E-05	2E-05									
Thallium	ND	8E-06									

Associated samples: H09090235-001B; H09090235-002B; H09090235-003B; H09090235-004B; H09090235-005B; H09090235-006B; H09090235-007B; H09090235-008B; H09090235-009B; H09090235-010B; H09090235-011B; H09090235-012B; H09090235-013B

Run ID :Run Order: **SUB-B136306: 14** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**

Analysis Date: **09/21/09 12:09** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 10	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0488	0.10	0.05		**98**	85	115				

Qualifiers:
ND - Not Detected at the Reporting Limit
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R - RPD outside accepted recovery limits
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A - Analyte concentration greater than three times the spike amount

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Work Order: H09090235
Project: 1054 Asarco E. Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R136306

Date: *30-Sep-09*

Run ID :Run Order: **SUB-B136306: 14** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E200.8**

Analysis Date: **09/21/09 12:09** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 10	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	0.0490	0.050	0.05		98	85	115				
Arsenic	0.0491	0.0050	0.05		98	85	115				
Chromium	0.0489	0.010	0.05		98	85	115				
Copper	0.0523	0.010	0.05		105	85	115				
Lead	0.0508	0.010	0.05		102	85	115				
Mercury	0.00100	0.0010	0.001	0.00001	99	85	115				
Selenium	0.0497	0.0050	0.05		99	85	115				
Silver	0.0184	0.0050	0.02	0.00004	92	85	115				
Thallium	0.0518	0.10	0.05		104	85	115				

Associated samples: H09090235-001B; H09090235-002B; H09090235-003B; H09090235-004B; H09090235-005B; H09090235-006B; H09090235-007B; H09090235-008B; H09090235-009B; H09090235-010B; H09090235-011B; H09090235-012B; H09090235-013B

Run ID :Run Order: **SUB-B136306: 16** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090609B, ME080814C** Method: **E200.8**

Analysis Date: **09/21/09 12:57** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 10	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.253	0.10	0.25		101	90	110				
Antimony	0.0464	0.050	0.05		93	90	110				
Arsenic	0.0499	0.0050	0.05		100	90	110				
Chromium	0.0510	0.010	0.05		102	90	110				
Copper	0.0512	0.010	0.05		102	90	110				
Lead	0.0502	0.010	0.05		100	90	110				
Mercury	0.00183	0.0010	0.002		92	90	110				
Selenium	0.0501	0.0050	0.05		100	90	110				
Silver	0.0251	0.0050	0.025		101	90	110				
Thallium	0.0513	0.10	0.05		103	90	110				

Associated samples: H09090235-001B; H09090235-002B; H09090235-003B; H09090235-004B; H09090235-005B; H09090235-006B; H09090235-007B; H09090235-008B; H09090235-009B; H09090235-010B; H09090235-011B; H09090235-012B; H09090235-013B

Run ID :Run Order: **SUB-B136306: 17** SampType: **Sample Matrix Spike** Sample ID: **B09091787-001AMS** Method: **E200.8**

Analysis Date: **09/22/09 01:27** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 10	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0495	0.10	0.05		99	70	130				
Antimony	0.0526	0.0030	0.05	0.00019	105	70	130				

Qualifiers: ND - Not Detected at the Reporting Limit; S - Spike Recovery outside accepted recovery limits; N - Analyte concentration was not sufficiently high to calculate RPD; J - Analyte detected below quantitation limits; R - RPD outside accepted recovery limits; A - Analyte concentration greater than three times the spike amount

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Project: 1054 Asarco E. Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R136306

Date: *30-Sep-09*

Run ID :Run Order: **SUB-B136306: 17** SampType: **Sample Matrix Spike** Sample ID: **B09091787-001AMS** Method: **E200.8**

Analysis Date: **09/22/09 01:27** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 10	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0532	0.0010	0.05	0.00157	**103**	70	130				
Chromium	0.0534	0.010	0.05	0.00032	**106**	70	130				
Copper	0.0695	0.010	0.05	0.01774	**104**	70	130				
Lead	0.0512	0.0010	0.05	0.00041	**102**	70	130				
Mercury	0.000960	0.00020	0.001		**96**	70	130				
Selenium	0.0539	0.0050	0.05	0.00036	**107**	70	130				
Silver	0.0183	0.0050	0.02		**92**	70	130				
Thallium	0.0523	0.0010	0.05	0.00001	**105**	70	130				

Associated samples: H09090235-001B; H09090235-002B; H09090235-003B; H09090235-004B; H09090235-005B; H09090235-006B; H09090235-007B; H09090235-008B; H09090235-009B; H09090235-010B; H09090235-011B; H09090235-012B; H09090235-013B

Run ID :Run Order: **SUB-B136306: 18** SampType: **Sample Matrix Spike Duplicate** Sample ID: **B09091787-001AMSD** Method: **E200.8**

Analysis Date: **09/22/09 01:31** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 10	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0512	0.10	0.05		**102**	70	130	0.04952		20	
Antimony	0.0539	0.0030	0.05	0.00019	**107**	70	130	0.0526	**2.4**	20	
Arsenic	0.0537	0.0010	0.05	0.00157	**104**	70	130	0.05321	**0.9**	20	
Chromium	0.0544	0.010	0.05	0.00032	**108**	70	130	0.05338	**1.9**	20	
Copper	0.0702	0.010	0.05	0.01774	**105**	70	130	0.06954	**1**	20	
Lead	0.0521	0.0010	0.05	0.00041	**103**	70	130	0.05117	**1.8**	20	
Mercury	0.00100	0.00020	0.001		**100**	70	130	0.00096	**4.2**	20	
Selenium	0.0548	0.0050	0.05	0.00036	**109**	70	130	0.05386	**1.7**	20	
Silver	0.0196	0.0050	0.02		**98**	70	130	0.01833	**6.5**	20	
Thallium	0.0531	0.0010	0.05	0.00001	**106**	70	130	0.0523	**1.5**	20	

Associated samples: H09090235-001B; H09090235-002B; H09090235-003B; H09090235-004B; H09090235-005B; H09090235-006B; H09090235-007B; H09090235-008B; H09090235-009B; H09090235-010B; H09090235-011B; H09090235-012B; H09090235-013B

Run ID :Run Order: **SUB-B136306: 32** SampType: **Sample Matrix Spike** Sample ID: **H09090235-002B** Method: **E200.8**

Analysis Date: **09/21/09 13:45** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 10	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0522	0.10	0.05	0.0014	**101**	70	130				
Antimony	0.0531	0.0050	0.05	0.00012	**106**	70	130				
Arsenic	0.0567	0.0050	0.05	0.00395	**105**	70	130				
Chromium	0.0522	0.010	0.05	0.00077	**103**	70	130				

Qualifiers:
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A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09090235
Project: 1054 Asarco E. Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R136306

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Run ID :Run Order: **SUB-B136306: 32** SampType: **Sample Matrix Spike** Sample ID: **H09090235-002B** Method: **E200.8**

Analysis Date: **09/21/09 13:45** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 10	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	0.0537	0.010	0.05	0.00034	**107**	70	130				
Lead	0.0524	0.010	0.05	0.00004	**105**	70	130				
Mercury	0.00101	0.0010	0.001		**101**	70	130				
Selenium	0.0556	0.0050	0.05	0.00187	**107**	70	130				
Silver	0.0179	0.0050	0.02		**90**	70	130				
Thallium	0.0535	0.0050	0.05	0.0002	**107**	70	130				

Associated samples: H09090235-001B; H09090235-002B; H09090235-003B; H09090235-004B; H09090235-005B; H09090235-006B; H09090235-007B; H09090235-008B; H09090235-009B; H09090235-010B; H09090235-011B; H09090235-012B; H09090235-013B

Run ID :Run Order: **SUB-B136306: 33** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09090235-002B** Method: **E200.8**

Analysis Date: **09/21/09 13:49** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 10	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0513	0.10	0.05	0.0014	**100**	70	130	0.05215		20	
Antimony	0.0527	0.0050	0.05	0.00012	**105**	70	130	0.05307	**0.6**	20	
Arsenic	0.0554	0.0050	0.05	0.00395	**103**	70	130	0.05669	**2.3**	20	
Chromium	0.0505	0.010	0.05	0.00077	**99**	70	130	0.05221	**3.4**	20	
Copper	0.0525	0.010	0.05	0.00034	**104**	70	130	0.05371	**2.2**	20	
Lead	0.0521	0.010	0.05	0.00004	**104**	70	130	0.05235	**0.4**	20	
Mercury	0.00101	0.0010	0.001		**101**	70	130	0.00101	**0.1**	20	
Selenium	0.0539	0.0050	0.05	0.00187	**104**	70	130	0.05558	**3.1**	20	
Silver	0.0181	0.0050	0.02		**90**	70	130	0.01791	**1**	20	
Thallium	0.0530	0.0050	0.05	0.0002	**106**	70	130	0.05354	**1**	20	

Associated samples: H09090235-001B; H09090235-002B; H09090235-003B; H09090235-004B; H09090235-005B; H09090235-006B; H09090235-007B; H09090235-008B; H09090235-009B; H09090235-010B; H09090235-011B; H09090235-012B; H09090235-013B

Run ID :Run Order: **SUB-B136306: 34** SampType: **Sample Matrix Spike** Sample ID: **H09090235-012B** Method: **E200.8**

Analysis Date: **09/21/09 15:09** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 10	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0503	0.10	0.05	0.00125	**98**	70	130				
Antimony	0.0539	0.0050	0.05	0.00007	**108**	70	130				
Arsenic	0.0689	0.0050	0.05	0.01676	**104**	70	130				
Chromium	0.0513	0.010	0.05	0.00047	**102**	70	130				
Copper	0.0533	0.010	0.05	0.0004	**106**	70	130				
Lead	0.0532	0.010	0.05	0.00003	**106**	70	130				

Qualifiers: ND - Not Detected at the Reporting Limit; S - Spike Recovery outside accepted recovery limits; N - Analyte concentration was not sufficiently high to calculate RPD; J - Analyte detected below quantitation limits; R - RPD outside accepted recovery limits; A - Analyte concentration greater than three times the spike amount

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Work Order: H09090235
Project: 1054 Asarco E. Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R136306

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Run ID :Run Order: **SUB-B136306: 34** SampType: **Sample Matrix Spike** Sample ID: **H09090235-012B** Method: **E200.8**

Analysis Date: **09/21/09 15:09** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 10	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00105	0.0010	0.001		**105**	70	130				
Selenium	0.0562	0.0050	0.05	0.00354	**105**	70	130				
Silver	0.0174	0.0050	0.02		**87**	70	130				
Thallium	0.0541	0.0050	0.05	0.00006	**108**	70	130				

Associated samples: H09090235-001B; H09090235-002B; H09090235-003B; H09090235-004B; H09090235-005B; H09090235-006B; H09090235-007B; H09090235-008B; H09090235-009B; H09090235-010B; H09090235-011B; H09090235-012B; H09090235-013B

Run ID :Run Order: **SUB-B136306: 35** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09090235-012B** Method: **E200.8**

Analysis Date: **09/21/09 15:13** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 10	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.0497	0.10	0.05	0.00125	**97**	70	130	0.05031		20	
Antimony	0.0528	0.0050	0.05	0.00007	**105**	70	130	0.05391	**2.2**	20	
Arsenic	0.0678	0.0050	0.05	0.01676	**102**	70	130	0.06886	**1.5**	20	
Chromium	0.0503	0.010	0.05	0.00047	**100**	70	130	0.05127	**2**	20	
Copper	0.0518	0.010	0.05	0.0004	**103**	70	130	0.05329	**2.9**	20	
Lead	0.0526	0.010	0.05	0.00003	**105**	70	130	0.05319	**1.1**	20	
Mercury	0.00106	0.0010	0.001		**106**	70	130	0.00105	**0.8**	20	
Selenium	0.0553	0.0050	0.05	0.00354	**103**	70	130	0.0562	**1.6**	20	
Silver	0.0164	0.0050	0.02		**82**	70	130	0.01742	**5.9**	20	
Thallium	0.0529	0.0050	0.05	0.00006	**106**	70	130	0.05415	**2.3**	20	

Associated samples: H09090235-001B; H09090235-002B; H09090235-003B; H09090235-004B; H09090235-005B; H09090235-006B; H09090235-007B; H09090235-008B; H09090235-009B; H09090235-010B; H09090235-011B; H09090235-012B; H09090235-013B

Run ID :Run Order: **SUB-B136306: 36** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090609B, ME080814C** Method: **E200.8**

Analysis Date: **09/22/09 04:21** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 10	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	0.245	0.10	0.25		**98**	90	110				
Antimony	0.0468	0.050	0.05		**94**	90	110				
Arsenic	0.0501	0.0050	0.05		**100**	90	110				
Chromium	0.0505	0.010	0.05		**101**	90	110				
Copper	0.0514	0.010	0.05		**103**	90	110				
Lead	0.0510	0.010	0.05		**102**	90	110				
Mercury	0.00187	0.0010	0.002		**93**	90	110				

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Work Order: H09090235
Project: 1054 Asarco E. Helena

ANALYTICAL QC SUMMARY REPORT

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Run ID :Run Order: **SUB-B136306: 36** SampType: **Initial Calibration Verification Standard** Sample ID: **QCS - 090602A,090609B, ME080814C** Method: **E200.8**

Analysis Date: **09/22/09 04:21** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 10	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	0.0512	0.0050	0.05		**102**	90	110				
Silver	0.0254	0.0050	0.025		**101**	90	110				
Thallium	0.0519	0.10	0.05		**104**	90	110				

Associated samples: H09090235-001B; H09090235-002B; H09090235-003B; H09090235-004B; H09090235-005B; H09090235-006B; H09090235-007B; H09090235-008B; H09090235-009B; H09090235-010B; H09090235-011B; H09090235-012B; H09090235-013B

Qualifiers: ND - Not Detected at the Reporting Limit
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ANALYTICAL QC SUMMARY REPORT

BatchID: B_R136324

Date: *30-Sep-09*

Run ID :Run Order: **SUB-B136324: 2** SampType: **Continuing Calibration Verification Standard** Sample ID: **ICV** Method: **E200.7**

Analysis Date: **09/21/09 11:39** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 17	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Tellurium	2.59	0.10	2.5		104	95	105				
Aluminum	2.52	0.10	2.5		101	95	105				
Barium	2.53	0.10	2.5		101	95	105				
Beryllium	1.28	0.010	1.25		102	95	105				
Cadmium	2.52	0.010	2.5		101	95	105				
Calcium	25.6	1.0	25		102	95	105				
Cobalt	2.53	0.020	2.5		101	95	105				
Gold	2.50	0.0043	2.5		100	95	105				
Iron	2.55	0.030	2.5		102	95	105				
Magnesium	24.9	1.0	25		100	95	105				
Manganese	2.55	0.010	2.5		102	95	105				
Nickel	2.53	0.050	2.5		101	95	105				
Potassium	25.4	1.0	25		102	95	105				
Silver	0.502	0.010	0.5		100	95	105				
Sodium	25.2	1.0	25		101	95	105				
Vanadium	2.53	0.10	2.5		101	95	105				
Zinc	2.54	0.010	2.5		101	95	105				

Associated samples: H09090235-001B; H09090235-002B; H09090235-003B; H09090235-004B; H09090235-005B; H09090235-006B; H09090235-007B; H09090235-008B; H09090235-009B; H09090235-010B; H09090235-011B; H09090235-012B; H09090235-013B

Run ID :Run Order: **SUB-B136324: 3** SampType: **Method Blank** Sample ID: **MB-SPDIS090921A** Method: **E200.7**

Analysis Date: **09/21/09 12:28** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 17	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Tellurium	ND	0.02									
Aluminum	ND	0.008									
Barium	0.0005	0.0001									
Beryllium	0.0004	9E-05									
Cadmium	ND	0.0009									
Calcium	0.02	0.009									
Cobalt	ND	0.001									
Gold	ND	0.004									
Iron	ND	0.002									
Magnesium	ND	0.01									
Manganese	ND	0.0003									

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ANALYTICAL QC SUMMARY REPORT

BatchID: B_R136324

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Run ID :Run Order: **SUB-B136324: 3** SampType: **Method Blank** Sample ID: **MB-SPDIS090921A** Method: **E200.7**

Analysis Date: **09/21/09 12:28** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 17	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nickel	ND	0.002									
Potassium	0.02	0.01									
Silver	ND	0.002									
Sodium	ND	0.03									
Vanadium	ND	0.003									
Zinc	0.002	0.002									

Associated samples: H09090235-001B; H09090235-002B; H09090235-003B; H09090235-004B; H09090235-005B; H09090235-006B; H09090235-007B; H09090235-008B; H09090235-009B; H09090235-010B; H09090235-011B; H09090235-012B; H09090235-013B

Run ID :Run Order: **SUB-B136324: 4** SampType: **Laboratory Fortified Blank** Sample ID: **LFB-SPDIS090921A** Method: **E200.7**

Analysis Date: **09/21/09 12:32** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 17	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Tellurium	1.03	0.10	1		**103**	85	115				
Aluminum	4.98	0.10	5		**100**	85	115				
Barium	1.02	0.10	1	0.00046	**102**	85	115				
Beryllium	0.516	0.010	0.5	0.00035	**103**	85	115				
Cadmium	0.502	0.010	0.5		**100**	85	115				
Calcium	51.0	1.0	50	0.0192	**102**	85	115				
Cobalt	1.02	0.020	1		**102**	85	115				
Gold	0.956	0.0045	1		**96**	85	115				
Iron	5.04	0.030	5		**101**	85	115				
Magnesium	50.2	1.0	50		**100**	85	115				
Manganese	5.11	0.010	5		**102**	85	115				
Nickel	1.01	0.050	1		**101**	85	115				
Potassium	50.4	1.0	50	0.02143	**101**	85	115				
Silver	0.487	0.010	0.5		**97**	85	115				
Sodium	50.3	1.0	50		**101**	85	115				
Vanadium	1.01	0.10	1		**101**	85	115				
Zinc	0.989	0.010	1	0.00171	**99**	85	115				

Associated samples: H09090235-001B; H09090235-002B; H09090235-003B; H09090235-004B; H09090235-005B; H09090235-006B; H09090235-007B; H09090235-008B; H09090235-009B; H09090235-010B; H09090235-011B; H09090235-012B; H09090235-013B

Qualifiers: ND - Not Detected at the Reporting Limit
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ANALYTICAL QC SUMMARY REPORT

BatchID: B_R136324

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Run ID :Run Order: **SUB-B136324: 5** SampType: **Sample Matrix Spike** Sample ID: **B09091829-005CMS2** Method: **E200.7**

Analysis Date: **09/21/09 13:40** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 17	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	48.2	0.44	50		96	70	130				
Barium	11.3	0.10	10	1.477	98	70	130				
Beryllium	4.87	0.011	5		97	70	130				
Cadmium	4.83	0.011	5		97	70	130				
Calcium	486	1.8	500	4.137	96	70	130				
Cobalt	9.72	0.055	10		97	70	130				
Gold	9.66	0.045	10		97	70	130				
Iron	48.2	0.078	50		96	70	130				
Magnesium	479	1.5	500	2.164	95	70	130				
Manganese	48.4	0.016	50		97	70	130				
Nickel	9.76	0.062	10		98	70	130				
Potassium	481	8.2	500	6.67	95	70	130				
Silver	3.28	0.024	5		66	70	130				S
Sodium	2660	4.3	500	2032		70	130				A
Tellurium	9.70	0.37	10		97	70	130				
Vanadium	9.65	0.17	10		97	70	130				
Zinc	10.4	0.038	10	0.8794	96	70	130				

Associated samples: H09090235-001B; H09090235-002B; H09090235-003B; H09090235-004B; H09090235-005B; H09090235-006B; H09090235-007B; H09090235-008B; H09090235-009B; H09090235-010B; H09090235-011B; H09090235-012B; H09090235-013B

Run ID :Run Order: **SUB-B136324: 6** SampType: **Sample Matrix Spike Duplicate** Sample ID: **B09091829-005CMSD2** Method: **E200.7**

Analysis Date: **09/21/09 13:44** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 17	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	49.0	0.44	50		98	70	130	48.18	1.8	20	
Barium	11.3	0.10	10	1.477	98	70	130	11.26	0.5	20	
Beryllium	4.88	0.011	5		98	70	130	4.87	0.2	20	
Cadmium	4.87	0.011	5		97	70	130	4.826	0.9	20	
Calcium	488	1.8	500	4.137	97	70	130	485.5	0.5	20	
Cobalt	9.82	0.055	10		98	70	130	9.723	0.9	20	
Gold	9.55	0.045	10		95	70	130	9.661	1.2	20	
Iron	48.5	0.078	50		97	70	130	48.16	0.8	20	
Magnesium	481	1.5	500	2.164	96	70	130	479.5	0.4	20	
Manganese	47.8	0.016	50		96	70	130	48.39	1.3	20	
Nickel	9.83	0.062	10		98	70	130	9.764	0.6	20	

Qualifiers:
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Project: 1054 Asarco E. Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R136324

Date: *30-Sep-09*

Run ID :Run Order: **SUB-B136324: 6** SampType: **Sample Matrix Spike Duplicate** Sample ID: **B09091829-005CMSD2** Method: **E200.7**

Analysis Date: **09/21/09 13:44** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 17	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	488	8.2	500	6.67	**96**	70	130	481.3	**1.3**	20	
Silver	3.37	0.024	5		67	70	130	3.276	**2.7**	20	S
Sodium	2700	4.3	500	2032		70	130	2660	**1.5**	20	A
Tellurium	9.98	0.37	10		**100**	70	130	9.703	**2.8**	20	
Vanadium	9.72	0.17	10		**97**	70	130	9.651	**0.7**	20	
Zinc	10.5	0.038	10	0.8794	**96**	70	130	10.44	**0.7**	20	

Associated samples: H09090235-001B; H09090235-002B; H09090235-003B; H09090235-004B; H09090235-005B; H09090235-006B; H09090235-007B; H09090235-008B; H09090235-009B; H09090235-010B; H09090235-011B; H09090235-012B; H09090235-013B

Run ID :Run Order: **SUB-B136324: 25** SampType: **Sample Matrix Spike** Sample ID: **H09090235-001B** Method: **E200.7**

Analysis Date: **09/21/09 16:22** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 17	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	4.95	0.10	5		**99**	70	130				
Barium	1.04	0.10	1	0.04134	**100**	70	130				
Beryllium	0.499	0.0010	0.5		**100**	70	130				
Cadmium	0.493	0.0010	0.5		**99**	70	130				
Calcium	102	1.0	50	53.1	**99**	70	130				
Cobalt	0.999	0.010	1		**100**	70	130				
Gold	0.933	0.010	1		**93**	70	130				
Iron	4.90	0.030	5		**98**	70	130				
Magnesium	61.2	1.0	50	11.35	**100**	70	130				
Manganese	4.96	0.010	5		**99**	70	130				
Nickel	1.00	0.010	1		**100**	70	130				
Potassium	54.3	1.0	50	6.45	**96**	70	130				
Silver	0.259	0.0050	0.5		52	70	130				S
Sodium	76.0	1.0	50	26.49	**99**	70	130				
Tellurium	1.02	0.021	1		**102**	70	130				
Vanadium	0.991	0.10	1		**99**	70	130				
Zinc	0.985	0.010	1		**98**	70	130				

Associated samples: H09090235-001B; H09090235-002B; H09090235-003B; H09090235-004B; H09090235-005B; H09090235-006B; H09090235-007B; H09090235-008B; H09090235-009B; H09090235-010B; H09090235-011B; H09090235-012B; H09090235-013B

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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* 406.442.0711 * FAX 406.442.0712 * helena@energylab.com

Client: Asarco Consulting
Work Order: H09090235
Project: 1054 Asarco E. Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R136324

Date: *30-Sep-09*

Run ID :Run Order: **SUB-B136324: 26** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09090235-001B** Method: **E200.7**

Analysis Date: **09/21/09 16:26** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 17	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	4.98	0.10	5		**100**	70	130	4.953	**0.5**	20	
Barium	1.04	0.10	1	0.04134	**99**	70	130	1.037	**0.1**	20	
Beryllium	0.497	0.0010	0.5		**99**	70	130	0.4991	**0.5**	20	
Cadmium	0.496	0.0010	0.5		**99**	70	130	0.4925	**0.7**	20	
Calcium	102	1.0	50	53.1	**98**	70	130	102.5	**0.3**	20	
Cobalt	1.00	0.010	1		**100**	70	130	0.9991	**0.4**	20	
Gold	0.935	0.010	1		**94**	70	130	0.9332	**0.2**	20	
Iron	4.88	0.030	5		**98**	70	130	4.896	**0.2**	20	
Magnesium	60.5	1.0	50	11.35	**98**	70	130	61.18	**1.2**	20	
Manganese	4.89	0.010	5		**98**	70	130	4.96	**1.4**	20	
Nickel	1.01	0.010	1		**101**	70	130	1.001	**0.6**	20	
Potassium	55.6	1.0	50	6.45	**98**	70	130	54.28	**2.4**	20	
Silver	0.217	0.0050	0.5		**43**	70	130	0.2591	**18**	20	S
Sodium	76.4	1.0	50	26.49	**100**	70	130	76.01	**0.5**	20	
Tellurium	1.00	0.021	1		**100**	70	130	1.019	**1.6**	20	
Vanadium	0.984	0.10	1		**98**	70	130	0.9909	**0.7**	20	
Zinc	0.986	0.010	1		**99**	70	130	0.9847	**0.1**	20	

Associated samples: H09090235-001B; H09090235-002B; H09090235-003B; H09090235-004B; H09090235-005B; H09090235-006B; H09090235-007B; H09090235-008B; H09090235-009B; H09090235-010B; H09090235-011B; H09090235-012B; H09090235-013B

Run ID :Run Order: **SUB-B136324: 27** SampType: **Sample Matrix Spike** Sample ID: **H09090235-011B** Method: **E200.7**

Analysis Date: **09/21/09 17:23** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 17	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	4.78	0.10	5		**96**	70	130				
Barium	1.04	0.10	1	0.06623	**98**	70	130				
Beryllium	0.477	0.0010	0.5		**95**	70	130				
Cadmium	0.472	0.0010	0.5		**94**	70	130				
Calcium	141	1.0	50	95.6	**92**	70	130				
Cobalt	0.960	0.010	1		**96**	70	130				
Gold	0.884	0.010	1		**88**	70	130				
Iron	4.73	0.030	5		**95**	70	130				
Magnesium	70.9	1.0	50	23.59	**95**	70	130				
Manganese	4.70	0.010	5	0.00037	**94**	70	130				
Nickel	0.957	0.010	1		**96**	70	130				

Qualifiers:
ND - Not Detected at the Reporting Limit
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S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09090235
Project: 1054 Asarco E. Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R136324

Date: *30-Sep-09*

Run ID :Run Order: **SUB-B136324: 27** SampType: **Sample Matrix Spike** Sample ID: **H09090235-011B** Method: **E200.7**

Analysis Date: **09/21/09 17:23** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 17	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	53.8	1.0	50	7.32	93	70	130				
Silver	0.228	0.0050	0.5		46	70	130				S
Sodium	82.0	1.0	50	35.48	93	70	130				
Tellurium	0.966	0.021	1		97	70	130				
Vanadium	0.955	0.10	1		95	70	130				
Zinc	0.953	0.010	1		95	70	130				

Associated samples: H09090235-001B; H09090235-002B; H09090235-003B; H09090235-004B; H09090235-005B; H09090235-006B; H09090235-007B; H09090235-008B; H09090235-009B; H09090235-010B; H09090235-011B; H09090235-012B; H09090235-013B

Run ID :Run Order: **SUB-B136324: 28** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09090235-011B** Method: **E200.7**

Analysis Date: **09/21/09 17:27** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 17	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	4.85	0.10	5		97	70	130	4.776	1.5	20	
Barium	1.07	0.10	1	0.06623	101	70	130	1.041	3.1	20	
Beryllium	0.473	0.0010	0.5		95	70	130	0.4771	0.9	20	
Cadmium	0.471	0.0010	0.5		94	70	130	0.4716	0.2	20	
Calcium	141	1.0	50	95.6	91	70	130	141.4	0.2	20	
Cobalt	0.955	0.010	1		95	70	130	0.96	0.5	20	
Gold	0.896	0.010	1		90	70	130	0.8837	1.4	20	
Iron	4.68	0.030	5		94	70	130	4.727	1	20	
Magnesium	70.1	1.0	50	23.59	93	70	130	70.86	1	20	
Manganese	4.72	0.010	5	0.00037	94	70	130	4.7	0.4	20	
Nickel	0.954	0.010	1		95	70	130	0.9569	0.3	20	
Potassium	54.4	1.0	50	7.32	94	70	130	53.77	1.1	20	
Silver	0.227	0.0050	0.5		45	70	130	0.228	0.5	20	S
Sodium	82.9	1.0	50	35.48	95	70	130	81.99	1.1	20	
Tellurium	0.970	0.021	1		97	70	130	0.9661	0.4	20	
Vanadium	0.943	0.10	1		94	70	130	0.9548	1.2	20	
Zinc	0.941	0.010	1		94	70	130	0.9528	1.2	20	

Associated samples: H09090235-001B; H09090235-002B; H09090235-003B; H09090235-004B; H09090235-005B; H09090235-006B; H09090235-007B; H09090235-008B; H09090235-009B; H09090235-010B; H09090235-011B; H09090235-012B; H09090235-013B

Qualifiers: ND - Not Detected at the Reporting Limit; S - Spike Recovery outside accepted recovery limits; N - Analyte concentration was not sufficiently high to calculate RPD; J - Analyte detected below quantitation limits; R - RPD outside accepted recovery limits; A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09090235
Project: 1054 Asarco E. Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: B_R136371

Date: *30-Sep-09*

Run ID :Run Order: **SUB-B136371: 21** SampType: **Continuing Calibration Verification Standard** Sample ID: **ICV** Method: **E200.7**
Analysis Date: **09/22/09 11:10** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gold	2.50	0.0043	2.5		**100**	95	105				

Associated samples: H09090235-012B; H09090235-013B

Run ID :Run Order: **SUB-B136371: 22** SampType: **Method Blank** Sample ID: **MB-SPDIS090922A** Method: **E200.7**
Analysis Date: **09/22/09 11:59** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gold	ND	0.004									

Associated samples: H09090235-012B; H09090235-013B

Run ID :Run Order: **SUB-B136371: 23** SampType: **Laboratory Fortified Blank** Sample ID: **LFB-SPDIS090922A** Method: **E200.7**
Analysis Date: **09/22/09 12:04** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gold	0.995	0.0045	1		**99**	85	115				

Associated samples: H09090235-012B; H09090235-013B

Run ID :Run Order: **SUB-B136371: 24** SampType: **Sample Matrix Spike** Sample ID: **H09090235-013B** Method: **E200.7**
Analysis Date: **09/22/09 18:25** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gold	0.459	0.010	1		46	70	130				S

Associated samples: H09090235-012B; H09090235-013B

Run ID :Run Order: **SUB-B136371: 25** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09090235-013B** Method: **E200.7**
Analysis Date: **09/22/09 18:29** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Gold	0.469	0.010	1		47	70	130	0.4588	**2.1**	20	S

Associated samples: H09090235-012B; H09090235-013B

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Client: Asarco Consulting
Work Order: H09090235
Project: 1054 Asarco E. Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: R56766

Date: *30-Sep-09*

Run ID :Run Order: **IC101-H_090920A: 12** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV** Method: **E300.0**

Analysis Date: **09/20/09 15:05** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	24	1.0	25		97	90	110				
Sulfate	51	1.0	50		102	90	110				

Associated samples: H09090235-001A

Run ID :Run Order: **IC101-H_090920A: 13** SampType: **Initial Calibration Verification Standard** Sample ID: **ICV** Method: **E300.0**

Analysis Date: **09/20/09 15:22** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.6	1.0	2.5		103	90	110				
Sulfate	10	1.0	10		102	90	110				

Associated samples: H09090235-001A; H09090235-002A; H09090235-003A; H09090235-004A; H09090235-005A; H09090235-006A; H09090235-007A; H09090235-008A; H09090235-009A; H09090235-010A; H09090235-011A; H09090235-012A; H09090235-013A

Run ID :Run Order: **IC101-H_090920A: 14** SampType: **Laboratory Control Sample** Sample ID: **LCS** Method: **E300.0**

Analysis Date: **09/20/09 15:38** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	88	1.0	87.47		100	90	110				
Sulfate	28	1.0	28.53		97	90	110				

Associated samples: H09090235-001A; H09090235-002A; H09090235-003A; H09090235-004A; H09090235-005A; H09090235-006A; H09090235-007A; H09090235-008A; H09090235-009A; H09090235-010A; H09090235-011A; H09090235-012A; H09090235-013A

Run ID :Run Order: **IC101-H_090920A: 15** SampType: **Laboratory Fortified Blank** Sample ID: **LFB** Method: **E300.0**

Analysis Date: **09/20/09 15:54** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	4.6	1.0	5		92	90	110				
Sulfate	9.6	1.0	10		96	90	110				

Associated samples: H09090235-001A; H09090235-002A; H09090235-003A; H09090235-004A; H09090235-005A; H09090235-006A; H09090235-007A; H09090235-008A; H09090235-009A; H09090235-010A; H09090235-011A; H09090235-012A; H09090235-013A

Run ID :Run Order: **IC101-H_090920A: 16** SampType: **Method Blank** Sample ID: **MBLK** Method: **E300.0**

Analysis Date: **09/20/09 16:11** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.05									
Sulfate	ND	0.1									

Qualifiers: ND - Not Detected at the Reporting Limit; S - Spike Recovery outside accepted recovery limits; N - Analyte concentration was not sufficiently high to calculate RPD; J - Analyte detected below quantitation limits; R - RPD outside accepted recovery limits; A - Analyte concentration greater than three times the spike amount

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Work Order: H09090235
Project: 1054 Asarco E. Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: R56766

Date: *30-Sep-09*

Run ID :Run Order: **IC101-H_090920A: 16** SampType: **Method Blank** Sample ID: **MBLK** Method: **E300.0**

Analysis Date: **09/20/09 16:11** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Associated samples: H09090235-001A; H09090235-002A; H09090235-003A; H09090235-004A; H09090235-005A; H09090235-006A; H09090235-007A; H09090235-008A; H09090235-009A; H09090235-010A; H09090235-011A; H09090235-012A; H09090235-013A

Run ID :Run Order: **IC101-H_090920A: 28** SampType: **Sample Matrix Spike** Sample ID: **H09090235-001A MS** Method: **E300.0**

Analysis Date: **09/20/09 19:28** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	33	1.0	25	8.369	**99**	90	110				
Sulfate	120	1.0	50	70.96	**105**	90	110				

Associated samples: H09090235-001A; H09090235-002A; H09090235-003A; H09090235-004A; H09090235-005A; H09090235-006A; H09090235-007A; H09090235-008A; H09090235-009A; H09090235-010A; H09090235-011A; H09090235-012A; H09090235-013A

Run ID :Run Order: **IC101-H_090920A: 29** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09090235-001A MSD** Method: **E300.0**

Analysis Date: **09/20/09 19:44** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	33	1.0	25	8.369	**100**	90	110	33.2	**0.2**	20	
Sulfate	120	1.0	50	70.96	**104**	90	110	123.3	**0.2**	20	

Associated samples: H09090235-001A; H09090235-002A; H09090235-003A; H09090235-004A; H09090235-005A; H09090235-006A; H09090235-007A; H09090235-008A; H09090235-009A; H09090235-010A; H09090235-011A; H09090235-012A; H09090235-013A

Run ID :Run Order: **IC101-H_090920A: 30** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV** Method: **E300.0**

Analysis Date: **09/20/09 20:01** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	24	1.0	25		**97**	90	110				
Sulfate	51	1.0	50		**102**	90	110				

Associated samples: H09090235-002A; H09090235-003A; H09090235-004A

Run ID :Run Order: **IC101-H_090920A: 38** SampType: **Sample Matrix Spike** Sample ID: **H09090235-003A MS** Method: **E300.0**

Analysis Date: **09/21/09 00:56** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	38	1.0	25	12.31	**102**	90	110				
Sulfate	130	1.0	50	80.6	**106**	90	110				

Associated samples: H09090235-001A; H09090235-002A; H09090235-003A; H09090235-004A; H09090235-005A; H09090235-006A; H09090235-007A; H09090235-008A; H09090235-009A; H09090235-010A; H09090235-011A; H09090235-012A; H09090235-013A

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount

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Project: 1054 Asarco E. Helena

ANALYTICAL QC SUMMARY REPORT

BatchID: R56766

Date: *30-Sep-09*

Run ID :Run Order: **IC101-H_090920A: 39** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09090235-003A MSD** Method: **E300.0**

Analysis Date: **09/21/09 01:13** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	38	1.0	25	12.31	**103**	90	110	37.82	**0.7**	20	
Sulfate	140	1.0	50	80.6	**109**	90	110	133.6	**1.2**	20	

Associated samples: H09090235-001A; H09090235-002A; H09090235-003A; H09090235-004A; H09090235-005A; H09090235-006A; H09090235-007A; H09090235-008A; H09090235-009A; H09090235-010A; H09090235-011A; H09090235-012A; H09090235-013A

Run ID :Run Order: **IC101-H_090920A: 41** SampType: **Continuing Calibration Verification Standard** Sample ID: **CCV** Method: **E300.0**

Analysis Date: **09/21/09 01:46** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	25	1.0	25		**99**	90	110				
Sulfate	52	1.0	50		**104**	90	110				

Associated samples: H09090235-005A; H09090235-006A; H09090235-007A; H09090235-008A; H09090235-009A; H09090235-010A; H09090235-011A; H09090235-012A; H09090235-013A

Run ID :Run Order: **IC101-H_090920A: 47** SampType: **Sample Matrix Spike** Sample ID: **H09090235-008A MS** Method: **E300.0**

Analysis Date: **09/21/09 03:24** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	33	1.0	25	7.59	**103**	90	110				
Sulfate	110	1.0	50	53.78	**108**	90	110				

Associated samples: H09090235-001A; H09090235-002A; H09090235-003A; H09090235-004A; H09090235-005A; H09090235-006A; H09090235-007A; H09090235-008A; H09090235-009A; H09090235-010A; H09090235-011A; H09090235-012A; H09090235-013A

Run ID :Run Order: **IC101-H_090920A: 48** SampType: **Sample Matrix Spike Duplicate** Sample ID: **H09090235-008A MSD** Method: **E300.0**

Analysis Date: **09/21/09 03:41** Units: **mg/L** **Prep Info:** Prep Date: Prep Method:

Analytes 2	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	33	1.0	25	7.59	**103**	90	110	33.41	**0.3**	20	
Sulfate	110	1.0	50	53.78	**108**	90	110	108	**0.1**	20	

Associated samples: H09090235-001A; H09090235-002A; H09090235-003A; H09090235-004A; H09090235-005A; H09090235-006A; H09090235-007A; H09090235-008A; H09090235-009A; H09090235-010A; H09090235-011A; H09090235-012A; H09090235-013A

Qualifiers: ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
N - Analyte concentration was not sufficiently high to calculate RPD
A - Analyte concentration greater than three times the spike amount