Columbia Analytical Services™ 2655 Park Center Drive, Suite A | Simi Valley, CA 93065 | 805.526.7161 | 805.526.7270 fax | www.caslab.com

LABORATORY REPORT

June 16, 2010

Data Coordinator
Environmental Health & Engineering, Inc.
117 Fourth Avenue
Needham, MA 02494

RE: 17131

Dear Data Coordinator:

Enclosed are the results of the samples submitted to our laboratory on May 22, 2010. For your reference, these analyses have been assigned our service request number P1[illegible]1792.

All analyses were performed according to our laboratory NELAP approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein. Your report contains 22 pages.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 2115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #[illegible]; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; United States Department of Defense Environmental Laboratory Accreditation Program (DoD-ELAP), Certificate No. L10-3; Pennsylvania Registration No. 68-03307; TX Commission of Environmental Quality, NELAP ID T104704413-09-TX; Minnesota Department of Health, Certificate No. 11495AA; Washington State Department of Ecology, ELAP Lab ID: C946. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

Columbia Analytical Services, Inc.

Kate Aguilera

Kate Aguilera
Project Manager

VOID

Client: Environmental Health & Engineering, Inc. CAS Project No: P1001792
Project: 17131

CASE NARRATIVE

The samples were received intact under chain of custody on May 22, 2010 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Hydrogen Sulfide in Air (H_2S) Analysis

The samples were prepared in accordance with CAS AQL 1[illegible] for hydro[illegible] sulfide in air and analyzed by colorimetric method using a spectrophotometer.

The results were calculated based on the default temper[illegible]re of 2[illegible]

The results of analyses are given in the att[illegible]ed laborato[illegible]report. [illegible]ll results are intended to be considered in their entirety, and Columbia Analytical S[illegible]ices, Inc. (CA[illegible] is not responsible for utilization of less than the complete report.

VOID

Client: Environmental Health & Engineering, Inc.
Project: 17131

Service Request: P1001792

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
P1001792-001	110293	5/21/10	00:00
P1001792-002	110295	5/21/10	00:00
P1001792-003	110296	5/21/10	00:00
P1001792-004	110298	5/21/10	00:00
P1001792-005	110299	5/21/10	00:00
P1001792-006	110300	5/21/10	00:00
P1001792-007	110447	5/21/10	00:00
P1001792-008	110448	5/21/10	00:00
P1001792-009	110449	5/21/10	00:00
P1001792-010	110450	5/21/10	00:00
P1001792-011	110451	5/21/10	00:00
P1001792-012	110452	5/21/10	00:00
P1001792-013	110500	5/21/10	00:00
P1001792-014	110501	5/21/10	00:00
P1001792-015	110502	5/21/10	00:00
P1001792-016	110503	5/21/10	00:00
P1001792-017	110509	5/21/10	00:00
P1001792-018	110510	5/21/10	00:00
P1001792-019	110528	5/21/10	00:00
P1001792-020	110529	5/21/10	00:00
P1001792-021	110530	5/21/10	00:00
P1001792-022	110531	5/21/10	00:00
P1001792-023	110532	5/21/10	00:00
P1001792-024	110533	5/21/10	00:00
P1001792-025	110390	5/21/10	00:00
P1001792-026	110392	5/21/10	00:00
P1001792-027	110393	5/21/10	00:00
P1001792-028	110394	5/21/10	00:00
P1001792-029	110395	5/21/10	00:00
P1001792-030	110396	5/21/10	00:00
P1001792-031	110333	5/21/10	00:00
P1001792-032	110334	5/21/10	00:00
P1001792-033	110335	5/21/10	00:00
P1001792-034	110336	5/21/10	00:00
P1001792-035	110338	5/21/10	00:00
P1001792-036	110339	5/21/10	00:00

VOID

Environmental Health & Engineering, Inc.

CHAIN OF CUSTODY FORM

DATE: 5/21/10

FROM: Environmental Health and Engineering, Inc.
117 Fourth Avenue
Needham, MA 02494-2725

P1001792

TO: CAS

Please send invoices to ATTN: Accounts Payable
Please send reports to ATTN: Data Coordinator

In all correspondence regarding this matter, please refer to EH&E Project # 17131

The cost of this analysis will be covered by EH&E Purchase Order # 17131

For EH & E Data Coordinator - URGENT DATA ☐

	SAMPLE ID	SAMPLE TYPE	ANALYTICAL METHOD/NUMBER	OTHER:Time/Date/Vol.
1	110293	AIR/PASSIVE	H_2S ANALYSIS	14 DAYS 21HRS 30MIN
2	110295			↓
3	110296			
4	110298			↓
5	110299			0
6	110300			0
7	110447			14 DAYS 5HRS 13MIN
8	110448			↓
9	110449			
10	110450			↓
11	110451			0
12	110452			0
13	110500			14 DAYS 2HRS 39MIN
14	110501			↓
15	110502			
16	110503			↓

VOID

Special instructions:

☒ Standard turn around time ☐ Rush by _____ date/time ☐ Other _____ 4°C

☐ Fax results 781-247-4305

☐ **RETURN SAMPLES** ☒ Electronic transfer - datacoordinator@eheinc.com

☒ Additional report recipient BBAKER@EHEINC.com

Each signatory please return one copy of this form to the above address

Relinquished by: [signature] of Environmental Health & Engineering, Inc. Date: 5/21/10

Received by: [signature] of (company name) CAS Date: 5/22/10 1000

Relinquished by: _____ of (company name) _____ Date: _____

Received by: _____ of (company name) _____ Date: _____

Relinquished by: _____ of (company name) _____ Date: _____

Received by: _____ of (company name) _____ Date: _____

Lab Data
Received by: _____ of Environmental Health & Engineering, Inc. Date: _____

Page 1 of 3

WHITE-EH&E FILE COPY YELLOW-LAB COPY PINK-PROJECT MANAGER COPY GOLD-DATA COORDINATOR COPY

Environmental Health & Engineering, Inc.

CHAIN OF CUSTODY FORM

DATE: 5/21/10

FROM: Environmental Health and Engineering, Inc.
117 Fourth Avenue
Needham, MA 02494-2725

P1001792

TO: CAS

Please send invoices to ATTN: Accounts Payable
Please send reports to ATTN: Data Coordinator

In all correspondence regarding this matter, please refer to EH&E Project # 17131

The cost of this analysis will be covered by EH&E Purchase Order # 17131

For EH & E Data Coordinator - URGENT DATA ☐

	SAMPLE ID	SAMPLE TYPE	ANALYTICAL METHOD/NUMBER	OTHER:Time/Date/Vol.
17	110509	AIR/PASSIVE	H_2S ANALYSIS	0
18	110510			0
19	110528			12 DAYS 4HRS
20	110529			↓
21	110530			↓
22	110531			↓
23	110532			0
24	110533			0
25	110390			12 DAYS 17HR 45MIN
26	110392			0
27	110393			0
28	110394			12 DAYS 17HR 45 MIN
29	110395			↓
30	110396			↓

VOID

Special instructions:

☒ Standard turn around time ☐ Rush by _____ date/time ☐ Other _____

☐ Fax results 781-247-4305

☐ **RETURN SAMPLES** ☒ Electronic transfer - datacoordinator@eheinc.com

☒ Additional report recipient BBAKER@EHEINC.com

Each signatory please return one copy of this form to the above address

Relinquished by: W. Carlson of Environmental Health & Engineering, Inc. Date: 5/21/10

Received by: [illegible] of (company name) CAS Date: 5/26/2010

Relinquished by: _____ of (company name) _____ Date: _____

Received by: _____ of (company name) _____ Date: _____

Relinquished by: _____ of (company name) _____ Date: _____

Received by: _____ of (company name) _____ Date: _____

Lab Data
Received by: _____ of Environmental Health & Engineering, Inc. Date: _____

Page 2 of 3

WHITE-EH&E FILE COPY YELLOW-LAB COPY PINK-PROJECT MANAGER COPY GOLD-DATA COORDINATOR COPY

Environmental Health & Engineering, Inc.

CHAIN OF CUSTODY FORM

DATE: 5/21/10

FROM: Environmental Health and Engineering, Inc.
117 Fourth Avenue
Needham, MA 02494-2725

P1001792

TO: CAS

Please send invoices to ATTN: Accounts Payable
Please send reports to ATTN: Data Coordinator

In all correspondence regarding this matter, please refer to EH&E Project # 17131

The cost of this analysis will be covered by EH&E Purchase Order # 17131

For EH & E Data Coordinator - URGENT DATA ☐

	SAMPLE ID	SAMPLE TYPE	ANALYTICAL METHOD/NUMBER	OTHER:Time/Date/Vol.
31	110333	AIR/PASSIVE	H_2S ANALYSIS	0
32	110334			0
33	110335			14 DAYS 20 HR 45 MIN
34	110336			↓
35	110338			
36	110339			

VOID

Special instructions:

☒ Standard turn around time ☐ Rush by _____ date/time ☐ Other _____

☐ Fax results 781-247-4305

☐ **RETURN SAMPLES** ☒ Electronic transfer - datacoordinator@eheinc.com

☒ Additional report recipient BBAKER@EHEINC.COM

Each signatory please return one copy of this form to the above address

Relinquished by: [signature] of Environmental Health & Engineering, Inc. Date: 5/21/10

Received by: [signature] of (company name) CAS Date: 5/22/10 1000

Relinquished by: _____ of (company name) _____ Date: _____

Received by: _____ of (company name) _____ Date: _____

Relinquished by: _____ of (company name) _____ Date: _____

Received by: _____ of (company name) _____ Date: _____

Lab Data
Received by: _____ of Environmental Health & Engineering, Inc. Date: _____

Page 3 of 3

WHITE-EH&E FILE COPY YELLOW-LAB COPY PINK-PROJECT MANAGER COPY GOLD-DATA COORDINATOR COPY

Columbia Analytical Services, Inc.
Sample Acceptance Check Form

Client: Environmental Health & Engineering, Inc. Work order: P1001792

Project: 17131

Sample(s) received on: 05/22/10 Date opened: 05/22/10 by: MZAMORA

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Container(s) **supplied by CAS**?	☐	☒	☐
3	Did **sample containers** arrive in good condition?	☒	☐	☐
4	Was a **chain-of-custody** provided?	☒	☐	☐
5	Was the **chain-of-custody** properly completed?	☒	☐	☐
6	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
7	Was **sample volume** received adequate for analysis?	☒	☐	☐
8	Are samples within specified holding times?	☒	☐	☐
9	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☒	☐	☐
	Cooler Temperature _____ °C Blank Temperature 4 °C			
10	Was a **trip blank** received?	☐	☒	☐
	Trip blank supplied by CAS: _____			
11	Were **custody seals** on outside of cooler/Box?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
	Were custody seals on outside of sample containers?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
12	Do containers have appropriate **preservatives** according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
13	**Tubes:** Are the tubes capped and intact?	☒	☐	☐
	Do they contain moisture?	☐	☒	☐
14	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1001792-001.01	Passive (Radiello H2S)					
P1001792-002.01	Passive (Radiello H2S)					
P1001792-003.01	Passive (Radiello H2S)					
P1001792-004.01	Passive (Radiello H2S)					
P1001792-005.01	Passive (Radiello H2S)					

Explain any discrepancies: (include lab sample ID numbers): _____

*Required pH: Phenols/COD/NH3/TOC/TOX/NO3+NO2/TKN/T.PHOS, H2SO4 (pH<2); Metals, HNO3 (pH<2); CN (NaOH or NaOH/Asc Acid) (pH>12); Diss. Sulfide, NaOH (pH>12); T. Sulfide, NaOH/ZnAc (pH>12) RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

VOID

Columbia Analytical Services, Inc.
Sample Acceptance Check Form

Client: Environmental Health & Engineering, Inc. Work order: P1001792

Project: 17131

Sample(s) received on: 05/22/10 Date opened: 05/22/10 by: MZAMORA

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1001792-006.01	Passive (Radiello H2S)					
P1001792-007.01	Passive (Radiello H2S)					
P1001792-008.01	Passive (Radiello H2S)					
P1001792-009.01	Passive (Radiello H2S)					
P1001792-010.01	Passive (Radiello H2S)					
P1001792-011.01	Passive (Radiello H2S)					
P1001792-012.01	Passive (Radiello H2S)					
P1001792-013.01	Passive (Radiello H2S)					
P1001792-014.01	Passive (Radiello H2S)					
P1001792-015.01	Passive (Radiello H2S)					
P1001792-016.01	Passive (Radiello H2S)					
P1001792-017.01	Passive (Radiello H2S)					
P1001792-018.01	Passive (Radiello H2S)					
P1001792-019.01	Passive (Radiello H2S)					
P1001792-020.01	Passive (Radiello H2S)					
P1001792-021.01	Passive (Radiello H2S)					
P1001792-022.01	Passive (Radiello H2S)					
P1001792-023.01	Passive (Radiello H2S)					
P1001792-024.01	Passive (Radiello H2S)					
P1001792-025.01	Passive (Radiello H2S)					
P1001792-026.01	Passive (Radiello H2S)					
P1001792-027.01	Passive (Radiello H2S)					
P1001792-028.01	Passive (Radiello H2S)					
P1001792-029.01	Passive (Radiello H2S)					
P1001792-030.01	Passive (Radiello H2S)					
P1001792-031.01	Passive (Radiello					
P1001792-032.01	Passive (Radiello H2S)					
P1001792-033.01	Passive (Radiello H2S)					
P1001792-034.01	Passive (Radiello H2S)					
P1001792-035.01	Passive (Radiello H2S)					
P1001792-036.01	Passive (Radiello H2S)					

VOID

Explain any discrepancies: (include lab sample ID numbers):

*Required pH: Phenols/COD/NH3/TOC/TOX/NO3+NO2/TKN/T.PHOS, H2SO4 (pH<2); Metals, HNO3 (pH<2); CN (NaOH or NaOH/Asc Acid) (pH>12); Diss. Sulfide, NaOH (pH>12); T. Sulfide, NaOH/ZnAc (pH>12) RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **Environmental Health & Engineering, Inc.**
Client Project ID: **17131**

CAS Project ID: P1001792

Hydrogen Sulfide

Test Code: CAS AQL 110
Instrument ID: P-UV-Vis-01
Analyst: Sue Anderson
Sampling Media: Radiello Tube(s)
Test Notes: **DE**

Date(s) Collected: 5/21/10
Date Received: 5/22/10
Date Extracted: 5/24/10
Date Analyzed: 5/24/10
Desorption Volume: 0.010 Liter(s)

Client Sample ID	CAS Sample ID	Sampling Time Minutes	Dilution Factor	Result ng/Sample	Result µg/m³	MRL µg/m³	Result ppbV	MRL ppbV	Data Qualifier
110293	P1001792-001	21450	1.0	**740**	**0.50**	[illegible]	**0.36**	0.19	
110295	P1001792-002	21450	1.0	**4,200**	[illegible]	0.2[illegible]	**2.1**	0.19	
110296	P1001792-003	21450	1.0	**4,200**	[illegible]8	0.26	**2.0**	0.19	
110298	P1001792-004	21450	1.0	**4,200**	[illegible]	0.26	**2.0**	0.19	
110299	P1001792-005	NA	1.0	< 380	[illegible]A	NA	NA	NA	
110300	P1001792-006	NA	1.0	< 380	[illegible]	NA	NA	NA	
110447	P1001792-007	20473	1.0	**2,500**	**1.8**	0.27	**1.3**	0.19	
110448	P1001792-008	20473	1.0	**2,500**	[illegible]8	[illegible]	**1.3**	0.19	
110449	P1001792-009	20473	1.0	**4,6[illegible]**	[illegible]	[illegible]27	**2.3**	0.19	
110450	P1001792-010	20473	1.0	[illegible]00	**5.2**	0.27	**3.7**	0.19	
110451	P1001792-011	NA	1.0	[illegible]380	N[illegible]	NA	NA	NA	
110452	P1001792-012	NA	1.0	[illegible]380	NA	NA	NA	NA	
110500	P1001792-013	20319	1.0	[illegible]200	**1.6**	0.27	**1.1**	0.20	
110501	P1001792-014	20319	[illegible]	[illegible]00	**1.5**	0.27	**1.1**	0.20	
110502	P1001792-015	20319	[illegible]	[illegible]	**1.8**	0.27	**1.3**	0.20	
110503	P1001792-016	20319	1.[illegible]	**2,30[illegible]**	**1.6**	0.27	**1.2**	0.20	
110509	P1001792-017	NA	1.0	< 380	NA	NA	NA	NA	
110510	P1001792-018	NA	1.0	< 380	NA	NA	NA	NA	
110528	P1001792-019	[illegible]	1.0	**1,300**	**1.1**	0.32	**0.77**	0.23	
110529	P1001792-020	17520	[illegible]	**[illegible],400**	**1.1**	0.32	**0.80**	0.23	
110530	P1001792-021	17520	1.[illegible]	**[illegible]60**	**0.63**	0.32	**0.45**	0.23	
110531	P1001792-022	17520	1.0	**2,000**	**1.7**	0.32	**1.2**	0.23	
110532	P1001792-023	NA	1.0	< 380	NA	NA	NA	NA	
110533	P1001792-024	NA	1.0	< 380	NA	NA	NA	NA	
110390	P1001792-025	18345	1.0	**1,400**	**1.1**	0.30	**0.81**	0.22	
110392	P1001792-026	NA	1.0	< 380	NA	NA	NA	NA	
110393	P1001792-027	NA	1.0	< 380	NA	NA	NA	NA	
110394	P1001792-028	18345	1.0	**1,100**	**0.85**	0.30	**0.61**	0.22	
110395	P1001792-029	18345	1.0	**1,200**	**0.96**	0.30	**0.69**	0.22	
110396	P1001792-030	18345	1.0	**580**	**0.46**	0.30	**0.33**	0.22	
110333	P1001792-031	NA	1.0	< 380	NA	NA	NA	NA	
110334	P1001792-032	NA	1.0	< 380	NA	NA	NA	NA	
110335	P1001792-033	21405	1.0	**530**	**0.36**	0.26	**0.26**	0.19	
110336	P1001792-034	21405	1.0	**570**	**0.38**	0.26	**0.28**	0.19	
110338	P1001792-035	21405	1.0	**600**	**0.41**	0.26	**0.29**	0.19	
110339	P1001792-036	21405	1.0	**1,700**	**1.2**	0.26	**0.84**	0.19	
Method Blank	P100524-MB	NA	1.0	< 380	NA	NA	NA	NA	
Method Blank	P100524-MB	NA	1.0	< 380	NA	NA	NA	NA	

VOID

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.
NA = Not applicable.
DE = Results reported are corrected for desorption efficiency.

Verified By: _____ Date: 6/4/10

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **Environmental Health & Engineering, Inc.**
Client Sample ID: **Duplicate Lab Control Sample**
Client Project ID: **17131**

CAS Project ID: P1001792
CAS Sample ID: P100524-LCS, P100524-DLCS

Laboratory Control Sample/Duplicate Laboratory Control Sample Summary

Test Code: CAS AQL 110
Instrument ID: P-UV-Vis-01
Analyst: Sue Anderson
Sampling Media: Radiello Tube(s)
Test Notes:

Date Sampled: NA
Date Received: NA
Date Analyzed: 5/24/10
Volume(s) Analyzed: NA

Compound	Spike Amount LCS / DLCS mg/L	Result LCS mg/L	Result DLCS mg/L	% Recovery LCS	% Recovery DLCS	CAS Acceptance Limits	Relative Percent Difference	RPD Limit	Data Qualifier
Hydrogen Sulfide	1.14	1.02	1.03	89	90	80-[illegible]0	1	20	

VOID

Verified By: _____ Date: 6/4/10

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **Environmental Health & Engineering, Inc.**
Client Sample ID: **Duplicate Lab Control Sample**
Client Project ID: **17131**

CAS Project ID: P1001792
CAS Sample ID: P100524-LCS, P100524-DLCS

Laboratory Control Sample/Duplicate Laboratory Control Sample Summary

Test Code: CAS AQL 110
Instrument ID: P-UV-Vis-01
Analyst: Sue Anderson
Sampling Media: Radiello Tube(s)
Test Notes:

Date Sampled: NA
Date Received: NA
Date Analyzed: 5/24/10
Volume(s) Analyzed: NA

Compound	Spike Amount LCS / DLCS mg/L	Result LCS mg/L	Result DLCS mg/L	% Recovery LCS	% Recovery DLCS	QC Acceptance Limits	Relative Percent Difference	RPD Limit	Data Qualifier
Hydrogen Sulfide	1.14	1.01	1.02	89	89	80-[illegible]	0	20	

VOID

Verified By: [illegible] Date: 6/4/10

Columbia Analytical Services

Hydrogen Sulfide (H_2S) in Air Bench Sheet

CAS AQL 110

Service Request#: 1640 1792 Prep Run #: 110736 Run #: 202050

Page 1 of 3

	Ref #	Concentration ug/L of H_2S	Exp. Date
Sulfide Stock	524-04191005B	571000	10/19/10
Sulfide ICV/CCV	524-04191006B	532000	10/19/10
2N NaOH Solution	524-05241001	--	5/24/11

BATCH #1

Reagents	Reference or Lot #	Exp. Date	Coloring Solution
Ferric Chloride	519-09300903	9/28/10	10 mL Ferric Cl + 50 mL Amino Sulfuric prepped prior to coloring step
Amino Sulfuric	524-04191004	10/19/10	
radiello Tube	10051	3/11	

DE = 0.915

Standardization	Ref#	Concentration	Exp. Date
A. Iodine Solution	519-08060904	0.028 N	11/30/10
B. $Na_2S_2O_3$ Solution	519-08120902A	0.02 N	10/31/10

I_2 25 mLs

$Na_2S_2O_3$ titration: 14.84 mls (stock) 15.75 mls (ICV/CCV)

$$\frac{mg\ H_2S}{L} = \frac{[(A_{Vol} \times Aconc) - (B_{Vol} \times B_{conc})] \times 16000 \times 1.069}{10 \text{ mls of Sulfide Solution}}$$

Calibration Curve:

10 mL aliquot of each Prep run	NA	0.1	0.2	0.05/100	0.2/100	0.4/100	0.5/100	Corr. Coeff
ug/L (ppb)	0	28.6	[illegible]4	286	1142	2284	2855	0.999915758
Abs. @ 665 nm	0.000	0.018	0.072	0.176	0.698	1.440	1.770	
						DE CORRECTED		DE & TEMP CORRECTED

Sample ID	Extract Volume (L)	Dilution	Blank Subtract Abs.	Absorbance @ 665 nm	Corrected	Result ug/L (ppb)	Result ng/sample	Result H_2S ppbV**	Result ug/m³***
ICB	—	—	—	0.[illegible]	0.[illegible]	[illegible]2 / <35			
ICV 1064 ug/L	—	—	—	0.702	[illegible]702	[illegible]			
MB1	0.010	—	—	0.000	0.00[illegible]	2.17 / <35.	<383		
MB2		—	—	0.000	0.[illegible]	2.17 / <35.	<383		
LCS 1142 ug/L		—	0.000	0.636	[illegible]36	1022.	11172.		
DLCS		—	0.000	0.640	0.[illegible]40	102[illegible]63	11242.		
1640-1.01		—	0.000	0.005	0.00[illegible]	[illegible] / <35.	<383	<2.87	<4.00
-3.01		—	0.000	0.004	0.004	8.58 / <35.	<383	<3.22	<4.49
-5.01		—	0.000	0.008	0.008	15.00 / <35.	<383	<2.76	<3.84
-7.01		—	0.000	0.006	0.006	11.79 / <35.	<383	0.360	0.502
1792-1.01		—	0.000	0.041	0.041	67.923	742.33	~~0.038~~	~~0.053~~

VOID

AS TEMP

447 22°C
450 13°C
450 25°C
BIK
1450
5/25/10

106%

89% 90% } <1% RPD

SN 5/25/10

*Concentration after blank subtraction (if applicable)

Comments: **H_2S in ppbV = ng H_2S / (0.096 ng/ppb · min) x time in minutes; ***ug/m³ = ppbV H_2S x (34.09 MW of H2S / 24.46 gas constant)

TEMP CORRECTION FACTOR $= (K/298)^{3.8}$

Note: use 25°C default temp for P1001792 calculations

Prepped By: [signature] Date: 5/24/10 @ 1245

Analyzed By: [signature] Date: 5/24/10 @ 1340

Reviewed By: MN Date: 5/25/10

Columbia Analytical Services™

Hydrogen Sulfide (H_2S) in Air Bench Sheet

CAS AQL 110

Service Request#: 1792 Prep Run #: 110736 Run #: 262050

BATCH #1 page 2 of 3

	Ref #	Concentration ug/L of H_2S	Exp. Date
Sulfide Stock	S24-0419100SB	571000	10/19/10
Sulfide ICV/CCV	S24-0419100GB	532000	10/19/10
2N NaOH Solution	S24-0524100	--	5/24/11

Reagents	Reference or Lot #	Exp. Date	Coloring Solution
Ferric Chloride	S19-09300903	9/28/10	10 mL Ferric Cl + 50 mL Amino Sulfuric prepped prior to coloring step
Amino Sulfuric	S24-0419100	10/19/10	
radiello Tube	10051	3/11	

Standardization	Ref#	Concentration	Exp. Date
A. Iodine Solution	S19-08060904	0.0282	11/30/10
B. $Na_2S_2O_3$ Solution	S19-08120902A	0.025 N	10/31/10

DE = 0.915

I_2 25 mLs

mg H_2S / L = $[(A_{Vol} \times A_{conc}) - (B_{Vol} \times B_{conc})] \times 16000 \times 1.069$ / 10 mls of Sulfide Solution

$Na_2S_2O_3$ titration: 14.84 mls (stock) 15.75 mls (ICV/CCV)

Calibration Curve:

10 mL aliquot of each Prep run	NA	0.1/100	0.2/100	0.05/100	0.2/100	0.4/100	0.5/100	Corr. Coeff
ug/L (ppb)	0	20.6	[illegible]	286	1142	2284	2855	0.999915758
Abs. @ 665 nm	0.000	0.018	0.072	0.176	0.698	1.440	1.770	
						DE CORRECTED	DE & TEMP CORRECTED	

Sample ID	Extract Volume (L)	Dilution	Blank Subtract Abs.	Absorbance @ 665 nm	Corrected Abs.	Result ug/L (ppb)	Result ng/sample	Result H_2S ppbV**	Result ug/m³***
1792-2.01	0.010	—	0.000	0.0[illegible]	0.2[illegible]	97.09	4230.47	~~0.219~~ 2.05	~~0.305~~ 2.86
CCV1 1064 ug/L	—	—	—	0.686	0.686	1142			
CCB1	—	—	—	0.000	0.000	2.17			
1792-3.01	0.010	—	0.000	0.238	0.2[illegible]	383.2	4195.41	~~0.217~~ 2.04	~~0.302~~ 2.84
-4.01		—	0.000	0.236	0.236	380.[illegible]	4160.36	~~0.215~~ 2.02	~~0.300~~ 2.82
-5.01		—	0.000	0.001	0.0[illegible]	3.77 ~~383~~	<383		
-6.01		—	0.000	0.002	0.002	1.235	<383		
-7.01		—	0.000	0.142	0.142	229.91	2512.69	1.28	1.78
-8.01		—	0.000	0.144	0.144	233.12	2547.75	1.30	1.81
-9.01		—	0.000	0.262	0.262	422.37	4616.09	2.35	3.27
-10.01		—	0.000	0.418	0.418	672.57	7350.51	3.74	5.21

*Concentration after blank subtraction (if applicable)

Comments: **H_2S in ppbV = ng H_2S / (0.096 ng/ppb min) x time in minutes; ***ug/m³ = ppbV H_2S x (34.09 MW of H2S / 24.46 gas constant)

Prepped By: [signature] Date: 5/24/10 @ 1245

Analyzed By: [signature] Date: 5/24/10 @ 1340

Reviewed By: [signature] Date: 5/25/10

Columbia Analytical Services™

Hydrogen Sulfide (H_2S) in Air Bench Sheet

CAS AQL 110

Service Request#: 1792 Prep Run #: 110736 Run #: 202050

BATCH #1 page 3 of 3

	Ref #	Concentration ug/L of H_2S	Exp. Date
Sulfide Stock	524-04191005B	571000	10/19/10
Sulfide ICV/CCV	524-04191006B	532000	10/19/10
2N NaOH Solution	524-0524100/	--	5/24/11

Reagents	Reference or Lot #	Exp. Date	Coloring Solution
Ferric Chloride	519-09300903	9/28/10	10 mL Ferric Cl + 50 mL Amino Sulfuric prepped prior to coloring step
Amino Sulfuric	524-04191001	10/19/10	
radiello Tube	10051	3/11	

Standardization	Ref#	Concentration	Exp. Date
A. Iodine Solution	519-08060904	0.028 N	11/30/10
B. $Na_2S_2O_3$ Solution	519-08120902A	0.02 N	10/31/10

DE = 0.915

I_2 25 mLs

mg H_2S / L = $[(A_{Vol} \times A_{conc}) - (B_{Vol} \times B_{conc})] \times 16000 \times 1.069$ / 10 mls of Sulfide Solution

$Na_2S_2O_3$ titration: 14.84 mls (stock) 15.75 mls (ICV/CCV)

Calibration Curve:

10 mL aliquot of each Prep run	NA	STOCK	0.2/100	0.05/100	0.2/100	0.4/100	0.5/100	Corr. Coeff
ug/L (ppb)	0	28.6	[illegible]	286	1142	2284	2855	0.999915758
Abs. @ 665 nm	0.000	0.018	0.072	0.176	0.698	1.440	1.770	

Sample ID	Extract Volume (L)	Dilution	Blank Subtract Abs.	Absorbance @ 665 nm	Corrected	Result ug/L (ppb)	Result ng/sample (DE CORRECTED)	Result H_2S ppbV** (DE & TEMP CORRECTED)	Result ug/m³*** (DE & TEMP CORRECTED)
1792-11.01	0.010	—	0.000	[illegible]	[illegible]	[illegible]/1.35	1383		
-12.01	0.010	—	0.000	0.003	[illegible]	[illegible]/1.35	1383		
CCV2 1064 ug/L	—	—	—	0.712	0.712	1142			
CCB2	—	—	—	0.000	0.000	2.17/1.35			
1792-13.01	0.010	—	0.000	0.125	[illegible]	202.[illegible]5	2214.71	1.14	1.58
-14.01		—	0.000	0.121	[illegible]	19[illegible].23	2144.60	1.10	1.53
-15.01		—	0.000	0.139	0.139	[illegible]5.10	2460.11	1.26	1.76
-16.01		—	0.000	0.128	0.128	207.46	2267.30	1.16	1.62
CCV3 1064 ug/L	—	—	—	0.706	0.706	1134			
CCB3	—	—	—	0.000	0.000	2.17/1.35			

ins temp

1K

1K

0319

108%

107%

*Concentration after blank subtraction

Comments: **H_2S in ppbV = ng H_2S / (0.096 ng/ppb min) x time in minutes; ***ug/m³ = ppbV H_2S x (34.09 MW of H2S / 24.46 gas constant)

Prepped By: [signature] Date: 5/24/10 @ 1245

Analyzed By: [signature] Date: 5/24/10 @ 1340

Reviewed By: MW Date: 5/25/10

VOID

Columbia Analytical Services™

Hydrogen Sulfide (H_2S) in Air Bench Sheet

CAS AQL 110

Service Request#: 1792 Prep Run #: 112133 Run #: 202051

BATCH #2 page 1 of 3

	Ref #	Concentration ug/L of H_2S	Exp. Date
Sulfide Stock	S24-04191005B	571000	10/19/10
Sulfide ICV/CCV	S24-04191006B	532000	10/19/10
2N NaOH Solution	S24-05241001	--	5/24/11

Reagents	Reference or Lot #	Exp. Date	Coloring Solution
Ferric Chloride	S19-09300903	9/28/10	10 mL Ferric Cl + 50 mL Amino Sulfuric prepped prior to coloring step
Amino Sulfuric	S24-04191001	10/19/10	
radiello Tube	10051	3/11	

Standardization	Ref#	Concentration	Exp. Date
A. Iodine Solution	S19-08060904	0.0282	11/30/10
B. $Na_2S_2O_3$ Solution	S19-08120902A	0.025 N	10/31/10

DE = 0.915

I_2 25 mLs

$\frac{mg\ H_2S}{L} = \frac{[(A_{Vol} \times Aconc) - (B_{Vol} \times B_{conc})] \times 16000 \times 1.069}{10 \text{ mls of Sulfide Solution}}$

$Na_2S_2O_3$ titration: 14.84 mls (stock) 15.75 mls (ICV/CCV)

Calibration Curve:

10 mL aliquot of each Prep run	NA	0.05/100	0.2/100	0.05/100	0.2/100	0.4/100	0.5/100	Corr. Coeff
ug/L (ppb)	0	28.6	[illegible]	286	1142	2284	2855	0.99991578
Abs. @ 665 nm	0.000	0.018	0.072	0.176	0.698	1.440	1.770	
						DE CORRECTED		DE & TEMP CORRECTED

Sample ID	Extract Volume (L)	Dilution	Blank Subtract Abs.	Absorbance @ 665 nm	Corrected Abs.	Result ug/L (ppb)	Result ng/sample	Result H_2S ppbV**	Result ug/m³***
ICB2	—	—	—	0.000	0.0[illegible]	2.17 / <35			
ICV2 1064 ug/L	—	—	—	0.706	0.706	[illegible]34			
MB1-2	0.010	—	0.000	0.000	0.000	2.17 / <35			
MB2-2		—		0.000	0.0[illegible]	2.17 / <35			
LCS2 1142 ug/L		—		0.630	0.630	1017.59	11067		
DLS2		—		0.636	0.636	10[illegible]2.21	10749		
1792-17.01		—		0.003	0.00[illegible]	[illegible]/<35	<383		
-18.01		—		0.002	0.002	5.37 / <35	<383		
-19.01		—		0.073	0.073	119.25	1303.24	0.775	1.08
-20.01		—		0.076	0.076	124.06	1355.82	0.806	1.12
-21.01		—		0.042	0.042	69.53	~~731.09~~ 759.89	~~0.435~~ 0.452	~~0.606~~ 0.630

107%

89% 89 ~~96%~~ L RPD

*Concentration after blank subtraction

Comments: **H_2S in ppbV = ng H_2S / (0.096 ng/ppb min) x time in minutes; ***ug/m³ = ppbV H_2S x (34.09 MW of H2S / 24.46 gas constant)

Note: use 25°C default temp for P1001792 calculations

TEMP CORRECTION FACTOR: $= \left(\frac{K}{298}\right)^{3.8}$

Prepped By: [signature] Date: 5/24/10 @ 1400

Analyzed By: [signature] Date: 5/24/10 @ 1440

Reviewed By: [signature] Date: 5/25/10

VOID

15

Columbia Analytical Services™

Hydrogen Sulfide (H_2S) in Air Bench Sheet

CAS AQL 110

Service Request#: 1792 Prep Run #: 112133 Run #: 202051

page 2 of 3

	Ref #	Concentration ug/L of H_2S	Exp. Date
Sulfide Stock	524-04191005B	571000	10/19/10
Sulfide ICV/CCV	524-04191006B	532000	10/19/10
2N NaOH Solution	524-05241001	--	5/24/11

Reagents	Reference or Lot #	Exp. Date	Coloring Solution
Ferric Chloride	519-09300903	9/28/10	10 mL Ferric Cl + 50 mL Amino Sulfuric prepped prior to coloring step
Amino Sulfuric	524-04191001	10/19/10	
radiello Tube	10051	3/11	

Standardization	Ref#	Concentration	Exp. Date
A. Iodine Solution	519-08060904	0.028 N	11/30/10
B. $Na_2S_2O_3$ Solution	519-08120902A	0.02 N	10/31/10

DE = 0.915

I_2 25 mLs

mg H_2S / L = $[(A_{Vol} \times Aconc) - (B_{Vol} \times B_{conc})] \times 16000 \times 1.069$ / 10 mls of Sulfide Solution

$Na_2S_2O_3$ titration: 14.84 mls (stock) 15.75 mls (ICV/CCV)

Calibration Curve:

10 mL aliquot of each Prep run	NA	STOCK @	0.2/100	0.05/100	0.2/100	0.4/100	0.5/100	Corr. Coeff
ug/L (ppb)	0	8.6		286	1142	2284	2855	0.99991578
Abs. @ 665 nm	0.000	0.018	0.072	176	0.698	1.440	1.770	
						DE CORRECTED	DE & TEMP CORRECTED	

Sample ID	Extract Volume (L)	Dilution	Blank Subtract Abs.	Absorbance @ 665 nm	Corrected	Result ug/L (ppb)	Result ng/sample	Result H_2S ppbV**	Result ug/m³***
1792-22.01	0.010	0.010	0.000	[illegible]	[illegible]	85.00	2021.90	1.20	1.68
ccv1-2 1064	—	—	—	0.698	0.698	[illegible]			
ccb1-2	—	—	—	0.000	0.0[illegible]	2.1[illegible]/135			
1792-23.01	0.010	~~0.010~~	0.000	0.007	0.[illegible]7	13.39/135	< 383		
-24.01				0.003	0.03	6.98/135	< 383		
-25.01				0.080	0.080	1[illegible]47	1425.94	0.810	1.13
-26.01				0.002	0.00[illegible]	[illegible]/135	< 383		
-27.01				0.001	0.001	3.77/135	< 383		
-28.01				0.060	0.060	98.40	1075.37	0.611	0.851
-29.01				0.068	0.068	111.23	1215.60	0.690	0.962
-30.01				0.032	0.032	53.49	584.58	0.332	0.463

mins TEMP

1520

BLK

BLK

8345

BLK

BLK

8345

105%

*Concentration after blank subtraction

Comments: **H_2S in ppbV = ng H_2S / (0.096 ng/ppb · min) x time in minutes; ***ug/m³ = ppbV H_2S x (34.09 MW of H2S / 24.46 gas constant)

Prepped By: [signature] Date: 5/24/10 @ 1400

Analyzed By: [signature] Date: 5/24/10 @ 1440

Reviewed By: [signature] Date: 5/25/10

Columbia Analytical Services™

Hydrogen Sulfide (H_2S) in Air Bench Sheet

CAS AQL 110

Service Request#: 1792 Prep Run #: 112133 Run #: 202051

page 38 3

	Ref #	Concentration ug/L of H_2S	Exp. Date
Sulfide Stock	524-04191005B	57100	10/19/10
Sulfide ICV/CCV	524-04191006B	532000	10/19/10
2N NaOH Solution	524-05241001	--	5/24/11

Reagents	Reference or Lot #	Exp. Date	Coloring Solution
Ferric Chloride	519-09200903	9/28/10	10 mL Ferric Cl + 50 mL Amino Sulfuric prepped prior to coloring step
Amino Sulfuric	524-04191001	10/19/10	
radiello Tube	10051	3/11	

Standardization	Ref#	Concentration	Exp. Date
A. Iodine Solution	519-08060904	0.028 N	11/30/10
B. $Na_2S_2O_3$ Solution	519-08120902A	0.02 N	10/31/10

DE = 0.915

I_2 25 mLs

mg H_2S / L = $[(A_{Vol} \times Aconc) - (B_{Vol} \times B_{conc})] \times 16000 \times 1.069$ / 10 mls of Sulfide Solution

$Na_2S_2O_3$ titration: 14.84 mls (stock) 15.75 mls (ICV/CCV)

Calibration Curve:

10 mL aliquot of each Prep run	NA	STOCK	0.2/100	0.05/100	0.2/100	0.4/100	0.5/100	Corr. Coeff
ug/L (ppb)	0	28.6	4	286	1142	2284	2855	0.99991578
Abs. @ 665 nm	0.000	0.018	0.072	176	0.698	1.440	1.770	
						DE CORRECTED	DE & TEMP CORRECTED	

Sample ID	Extract Volume (L)	Dilution	Blank Subtract Abs.	Absorbance @ 665 nm	Corrected	Result ug/L (ppb)	Result ng/sample	Result H_2S ppbV**	Result ug/m³***
1792-31.01	0.010	—	0.000	[illegible]	0.0[illegible]	2.17/235	2383		
-32.01	0.010	—	0.000	0.004	0.004	2.17/235	2383		
CCV2-2 1064 ng/L	—	—	—	0.680	0.68[illegible]	10[illegible]			103%
CCB2-2	—	—	—	0.000	0.000	2.17/235			
1792-33.01	0.010	—	0.000	0.029	0.029	48.[illegible]	532.00	0.259	0.361
-34.01		—		0.031	0.0[illegible]	5[illegible]8	567.05	0.276	0.385
-35.01		—		0.033	0.0[illegible]	[illegible]5.09	602.10	0.293	0.408
-36.01		—		0.097	0.097	157.74	1723.92	0.839	1.17
CCV3-2 1064 ng/L	—	—	—	0.702	0.702	1128			106%
CCB3-2	—	—	—	0.000	0.000	2.17/235			

*Concentration after blank subtraction

Comments: **H_2S in ppbV = ng H_2S / (0.096 ng/ppb min) x time in minutes; ***ug/m³ = ppbV H_2S x (34.09 MW of H2S / 24.46 gas constant)

Prepped By: Date: 5/24/10 @ 1400

Analyzed By: Date: 5/24/10 @ 1440

Reviewed By: MW Date: 5/25/10

* 8/6/09 SIG-08060904 0.0282N IODINE SOLN
Purchased BDH LOT 9141
EXP: 11/30/10

8/6/09 SIG-08060903 A→E ISE FILLING SOLN
PURCHASED
THERMO SCIENTIFIC LOT Code: NNW1
EXP: 8/6/10
* DID NOT LOG ON 8/6/09 Added 8/11/09

8/11/09 SIG-08110901 ICO2 ELVENT
100 ml SIG-04060901 (10x conc elvent; EXP: 4/6/10) ↑ 1L
W/DI. DEGASSED.
EXP: 8/25/09

8/11/09 SIG-08110902 1412 µmhos/cm ICV/CCV Soln
0.7456g KCl (EMD LOT# 07[illegible]29; EXP: 12/7/~~2014~~ 2009)
↑ 1L W/DI H2O
EXP: 8/11/10
9/22/09

8/12/09 SIG-08120901 A→F 5000 [illegible] SO3 Stds
PURCHASED ACH (16, 10ml ampules)
LOT A9218
EXP: 8/20[illegible]

8/12/09 SIG-08120902 A&B 0.0250N $Na_2S_2O_3$ Soln
PURCHASED
EMD LOT # 9098
EXP: 10/31/10

8/12/09 SIG-08120903 REFERENCE ELECTRODE FILLING SOLN
PURCHASED THERMO ORION 900061 (Received 8/7/09 w/ELECTRODE)
LOT CODE: MP1 P/N: 223228-A01
EXP: 8/7/10

8/13/09 SIG-08130901 MBTH Soln for O3-AIR
1.00g MBTH (ALDRICH LOT 54696EK; EXP: 8/7/14) ↑ 200ml W/DI.
Plus ~~0.4~~ 1.0 ml conc H2SO4 (EMD: 470570; EXP: 9/13/10) 8/13/10
EXP: 8/14/09

VOID

9/30/09 S19-09300902 1000 PPM SO_3
Sv 0.1607g Na_2SO_3 (Mallinckrodt; H25469 EXP: 8/11/14)
↑ 100ml w/ DI
EXP: 9/30/10

9/30/09 S19-09300903 Ferric Chloride Soln (FOR H_2S Analysis)
Sv 100.00g $FeCl_3 \cdot 6H_2O$ + 40ml DI H_2O
EXP: 9/~~30~~ 28/10 (Mallinckrodt: 5029 A11595 EXP: 9/28/10)

9/30/09 S19-09300904 Sulfuric DILUTION SOLN (FOR H_2S ANALYSIS)
Sv 40ml Conc H_2SO_4 (EMD 47050; EXP: 9/13/12)
EXP: 9/30/10

10/1/09 S19-10010901 AMINE SOLUTION (FOR H_2S ANALYSIS)
Sv ADD 125ml Conc H_2SO_4 (EMD 47050; EXP: 9/13/12) TO 5 ml DI.
LET COOL. THEN ADD 0.3749 (4-AMINO-N,N-DIMETHYL ANILINE / N-Dimethyl-p-Phenylenediamine)
Sv 10/1/09 (~~SIGMA ALDRICH~~ FLUKA ANALYTICAL LOT 1363386; EXP: 8/7/14)
TO COOLED SULFURIC MIXTURE AND DISSOLVE
ONCE DISSOLVED BRING UP TO 500ml w/ 1:1 cooled H_2SO_4.
Store in Amber Glass in dark.
EXP: 10/29/09

VOID

10/2/09 S19-10020901 1000 PPM SO_3 Solution
Sv 0.1591g (Na_2SO_3) (JT Baker H10627; EXP: 8/31/14) ↑ 100ml
w/ DI H_2O
EXP: 4/~~02~~ 02/10
Sv 10/2/09

10/2/09 S19-10020902 1000 PPM SO_3 Solution
Sv 0.1607g Na_2SO_3 (Mallinckrodt; H25469 EXP 8/11/14)
↑ 100ml w/ DI H_2O
EXP: 4/02/10

4/16/10 S24-04161001 0.1 N H_2SO_4
5.6ml Conc H_2SO_4 (EMD 47050; EXP: 9/13/10)
↑ 2L W/ DI H_2O
EXP: 9/13/10

4/19/10 S24-04191001 Amine Soln
Add 12.5ml Conc H_2SO_4 (EMD 97050; EXP: 9/13/10) TO
5ml DI H_2O. LET COOL
DISSOLVE 3.375g 4AMINO-N,N-DIMETHYLANILINE (FLUKA
ANALYTICAL; LOT 1363386; EXP: 8/7/14) IN COOLED
SULFURIC SOLN AND DILUTE W/ 1:1 (H_2SO_4:DI) COOL
EMD 47050 EXP: 9/13/10
UP TO 500ml. Store in amber glass
EXP: ~~5/17/10~~ 10/19/10 4/19/10
4/19/10 changed to 07 due to mistake. Easier to fix this one than all

4/19/10 S24-04191002 1N NaOH
4.00g NaOH (EMD 47022713; EXP: 10/11/12)
↑ 2L W/ DI
4/19/10

4/19/10 S24-04191002 Saturated Na_2S for ICV/CCV (H_2S)
WASHED SODIUM SULFIDE CRYSTALS (EMD 4820930
EXP: 8/11/14) IN VOA VIAL W/ ~20ml DI H_2O
EXP: 10/19/10

4/19/10 S24-04191003 Saturated Na_2S FOR STOCK (H_2S)
WASHED SODIUM SULFIDE CRYSTALS (JT BAKER 09598; EXP: 8/6/14)
IN VOA VIAL W/ ~20ml DI H_2O
EXP: 10/19/10

VOID

4/19/10 S24-04191004 0.1N H_2SO_4
5.6ml Conc H_2SO_4 (EMD 47050 EXP: 9/13/
↑ 2L W/DI
EXP: 9/13/10

4/19/10 S24-04191005 STOCK Sulfide Soln (H_2S radi
ADD 20 DROPS S24-04191003 (EXP: 10/19/10) to
500ml S19-04191007 (EXP: 4/19/11)
SM 4/19/10
(*) Note: Standardize prior to each use to determin
true Concentration
EXP: 10/19/10 'B' ADDED 20 more drops & stdized

4/19/10 S24-04191006 ICV/CCV Sulfide Soln (H_2S radie
ADD 20 DROPS S24-04191002 (EXP: 10/19/10)
500ml S19-04191007 (EXP: 4/19/11)
(*) 'B' ADDED 20 more drops THEN STDIZED 5/24/10
EXP: 10/19/10

4/19/10 S24-04191007 2N NaOH (see previous pag

SM 4/26/10
4/26/10 S24-~~10~~ 04261001 ICV/CCV Cr^{6+} T.V = 0.579
0.5ml (S19-04090904) (T.V = 115.8 PPM ; EXP: 12/2010)
100 ml W/DI H_2O
EXP: 5/10/10

VOID

524-0518/001 Cr6+ Coloring reagent

5/18/10 0.2500g 1,5-diphenylcarbohydrazide (EMD 47103721; EXP: 1/30/13) ↑ 50ml w/Acetone (EMD 47154; EXP: 9/
EXP: 6/1/10

5/20/10 524-0520/001 1000 PPM NH3
0.3141g NH4Cl (EMD 49198931; EXP: 10/19/14
↑ 100 ml w/ 524-0513/001 (EXP: 9/13/10)
EXP: 9/13/10

5/20/10 524-0520/0[illegible] 0.1 N H2SO4
5.6ml conc H2SO4 (EMD 4709[illegible] EXP: 9/1[illegible]/10) 2L w/ DI H2O
EXP: 9/3/10

5/24/10 524-0520/001 2N NaOH
[illegible] (EMD 47022713B; EXP: 10/11/1[illegible]
↑ 2L w/ DI
EXP: 5/24/11

VOID