



**Analytical Resources, Incorporated**  
Analytical Chemists and Consultants

October 2, 2008

Joy Dunay  
Anchor Environmental, LLC  
1423 3<sup>rd</sup> Avenue, Suite 300  
Seattle, WA 98101

**RE: Client Project: 000105-01, Kimberly Clark**  
**ARI Job No.: NO68**

Dear Joy:

Please find enclosed the original chain of custody (COC) and the final data package for samples from the project referenced above.

Sample receipt and details of these analyses are discussed in the Case Narrative.

An electronic copy of this package will remain on file with ARI. Should you have any questions or problems, please feel free to contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

A handwritten signature in black ink, appearing to read "Susan Dunninghoo".

Susan Dunninghoo  
Director, Client Services  
sue@arilabs.com  
206-695-6207

Enclosures

cc: eFile NO68

SD/co

**Chain of Custody Documentation**

**Prepared  
for**

**ANCHOR ENVIRONMENTAL, LLC**

**PROJECT: Kimberly Clark, 000105-01**

**ARI JOB NO.: NO68**

**Prepared  
By**

**Analytical Resources, Inc.**

# Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 2062 Turn-around Requested: \_\_\_\_\_ Page: 1 of 1

ARI Client Company: ANCHOR ENVIRONMENTAL, LLC Phone: \_\_\_\_\_ Date: 9/12/08 Ice Present?

Client Contact: JOY DUNAY No. of Coolers: \_\_\_\_\_ Cooler Temps: \_\_\_\_\_

Client Project Name: KIMBERLY CLARK Analysis Requested: \_\_\_\_\_

Client Project #: 000105-01 Samplers: 95/EG

**Analytical Resources, Incorporated**  
 Analytical Chemists and Consultants  
 4611 South 134th Place, Suite 100  
 Tukwila, WA 98168  
 206-695-6200 206-695-6201 (fax)



Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested	Notes/Comments
AN-SB-01-080908	9/11/08	18:15	H <sub>2</sub> O	1	NH <sub>3</sub>	
AN-SB-02-080908	9/11/08	18:16		1	SC	
AN-SB-03-080908	9/12/08	8:10		1		
AN-SB-04-080908	9/11/08	18:17		1		
AN-SB-05-080908	9/12/08	8:11		1		
AN-SB-06-080908	9/12/08	8:15		1		
AN-SB-07-080908	9/12/08	8:12		1		

Comments/Special Instructions: \_\_\_\_\_

Relinquished by: (Signature) \_\_\_\_\_ (Printed Name) Brian Kelso Company: ARI Date & Time: 9/12/08

Received by: (Signature) \_\_\_\_\_ (Printed Name) \_\_\_\_\_ Company: \_\_\_\_\_ Date & Time: \_\_\_\_\_

**Limits of Liability:** ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

**Sample Retention Policy:** All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

**PRESERVATION VERIFICATION 09/12/08**

Page 1 of 1



ARI Job No: **NO68**

PC: Sue D.

VTSR: 09/12/08

Inquiry Number: NONE  
 Analysis Requested: 09/12/08  
 Contact: Dunay, Joy  
 Client: Anchor Environmental, LLC  
 Logged by: BLK  
 Sample Set Used: Yes-473  
 Validatable Package: No  
 Deliverables:

Project #: 000105-01  
 Project: Kimberly Clark  
 Sample Site:  
 SDG No:  
 Analytical Protocol: In-house

LOGNUM ARI ID	CLIENT ID	CN >12	WAD >12	NH3 <2	COD <2	FOG <2	MET <2	PHEN <2	PHOS <2	TKN <2	NO23 <2	TOC <2	S2 >9	DMET DOC FLT FLT	PARAMETER	ADJUSTED TO	LOT NUMBER	AMOUNT ADDED	DATE/BY
08-23563 <b>NO68A</b>	AN-SB-01-080908			SP									UL						
08-23564 <b>NO68B</b>	AN-SB-02-080908																		
08-23565 <b>NO68C</b>	AN-SB-03-080908																		
08-23566 <b>NO68D</b>	AN-SB-04-080908																		
08-23567 <b>NO68E</b>	AN-SB-05-080908																		
08-23568 <b>NO68F</b>	AN-SB-06-080908																		
08-23569 <b>NO68G</b>	AN-SB-07-080908																		

*Samples Unpreserved!*

Checked By SP Date 9/12/08

**Case Narrative**

**Prepared  
for**

**ANCHOR ENVIRONMENTAL, LLC**

**PROJECT: Kimberly Clark, 000105-01**

**ARI JOB NO.: NO68**

**Prepared  
By**

**Analytical Resources, Inc.**



## Case Narrative

**Client: Anchor Environmental**  
**Project: 000105-01, Kimberly Clark**  
**Matrix: Pore Water**  
**ARI Job No.: NO68**

### Sample receipt

Seven pore water samples were received September 12, 2008 under the ARI job number referenced above. Samples were received in unpreserved sample containers. The samples were analyzed for Ammonia and Sulfide as requested on the COC.

### General Chemistry Parameters

The samples were prepared and analyzed within the required holding time.

The method blanks were clean and the LCS had recoveries within limits for both batches. Standard reference recoveries were within limits for both batches.

The matrix replicates had RSD within limits. The matrix spike percent recoveries were within control limits.

**Data Summary Package**

**Prepared  
for**

**ANCHOR ENVIRONMENTAL, LLC**

**PROJECT: Kimberly Clark, 000105-01**

**ARI JOB NO.: NO68**

**Prepared  
By**

**Analytical Resources, Inc.**

SAMPLE RESULTS-CONVENTIONALS  
NO68-Anchor Environmental, LLC



Matrix: Pore Water  
Data Release Authorized: *[Signature]*  
Reported: 10/02/08

Project: Kimberly Clark  
Event: 000105-01  
Date Sampled: 09/11/08  
Date Received: 09/12/08

Client ID: AN-SB-01-080908  
ARI ID: 08-23563 NO68A

Analyte	Date Batch	Method	Units	RL	Sample
N-Ammonia	10/01/08 100108#2	EPA 350.1M	mg-N/L	0.200	10.7
Sulfide	09/12/08 091208#1	EPA 376.2	mg/L	0.500	3.76

RL Analytical reporting limit  
U Undetected at reported detection limit



SAMPLE RESULTS-CONVENTIONALS  
NO68-Anchor Environmental, LLC



Matrix: Pore Water  
Data Release Authorized: *[Signature]*  
Reported: 10/02/08

Project: Kimberly Clark  
Event: 000105-01  
Date Sampled: 09/11/08  
Date Received: 09/12/08

Client ID: AN-SB-02-080908  
ARI ID: 08-23564 NO68B

Analyte	Date Batch	Method	Units	RL	Sample
N-Ammonia	10/01/08 100108#2	EPA 350.1M	mg-N/L	0.100	6.26
Sulfide	09/12/08 091208#1	EPA 376.2	mg/L	2.50	14.8

RL Analytical reporting limit  
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS  
NO68-Anchor Environmental, LLC



Matrix: Pore Water  
Data Release Authorized: *[Signature]*  
Reported: 10/02/08

Project: Kimberly Clark  
Event: 000105-01  
Date Sampled: 09/12/08  
Date Received: 09/12/08

Client ID: AN-SB-03-080908  
ARI ID: 08-23565 NO68C

Analyte	Date Batch	Method	Units	RL	Sample
N-Ammonia	10/01/08 100108#2	EPA 350.1M	mg-N/L	0.200	8.88
Sulfide	09/12/08 091208#1	EPA 376.2	mg/L	2.50	33.8

RL Analytical reporting limit  
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS  
NO68-Anchor Environmental, LLC



Matrix: Pore Water  
Data Release Authorized  
Reported: 10/02/08

A handwritten signature in black ink, appearing to be 'JK' or similar, written over the 'Data Release Authorized' text.

Project: Kimberly Clark  
Event: 000105-01  
Date Sampled: 09/11/08  
Date Received: 09/12/08


Client ID: AN-SB-04-080908  
ARI ID: 08-23566 NO68D

Analyte	Date Batch	Method	Units	RL	Sample
N-Ammonia	10/01/08 100108#2	EPA 350.1M	mg-N/L	0.200	12.4
Sulfide	09/12/08 091208#1	EPA 376.2	mg/L	2.50	31.0

RL Analytical reporting limit  
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS  
NO68-Anchor Environmental, LLC



Matrix: Pore Water  
Data Release Authorized:   
Reported: 10/02/08

Project: Kimberly Clark  
Event: 000105-01  
Date Sampled: 09/12/08  
Date Received: 09/12/08

Client ID: AN-SB-05-080908  
ARI ID: 08-23567 NO68E

Analyte	Date Batch	Method	Units	RL	Sample
N-Ammonia	10/01/08 100108#2	EPA 350.1M	mg-N/L	0.200	14.7
Sulfide	09/12/08 091208#1	EPA 376.2	mg/L	2.50	19.2

RL Analytical reporting limit  
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS  
NO68-Anchor Environmental, LLC



Matrix: Pore Water  
Data Release Authorized: *[Signature]*  
Reported: 10/02/08

Project: Kimberly Clark  
Event: 000105-01  
Date Sampled: 09/12/08  
Date Received: 09/12/08

Client ID: AN-SB-06-080908  
ARI ID: 08-23568 NO68F

Analyte	Date Batch	Method	Units	RL	Sample
N-Ammonia	10/01/08 100108#2	EPA 350.1M	mg-N/L	0.200	9.10
Sulfide	09/12/08 091208#1	EPA 376.2	mg/L	2.50	19.3

RL Analytical reporting limit  
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS  
NO68-Anchor Environmental, LLC



Matrix: Pore Water  
Data Release Authorized: *JK*  
Reported: 10/02/08

Project: Kimberly Clark  
Event: 000105-01  
Date Sampled: 09/12/08  
Date Received: 09/12/08


Client ID: AN-SB-07-080908  
ARI ID: 08-23569 NO68G

Analyte	Date Batch	Method	Units	RL	Sample
N-Ammonia	10/01/08 100108#2	EPA 350.1M	mg-N/L	0.200	6.40
Sulfide	09/12/08 091208#1	EPA 376.2	mg/L	2.50	30.2

RL Analytical reporting limit  
U Undetected at reported detection limit

METHOD BLANK RESULTS-CONVENTIONALS  
NO68-Anchor Environmental, LLC




Matrix: Pore Water  
Data Release Authorized:   
Reported: 10/02/08

Project: Kimberly Clark  
Event: 000105-01  
Date Sampled: NA  
Date Received: NA

Analyte	Method	Date	Units	Blank
N-Ammonia	EPA 350.1M	10/01/08	mg-N/L	< 0.010 U
Sulfide	EPA 376.2	09/12/08	mg/L	< 0.050 U

LAB CONTROL RESULTS-CONVENTIONALS  
NO68-Anchor Environmental, LLC



Matrix: Pore Water  
Data Release Authorized:   
Reported: 10/02/08

Project: Kimberly Clark  
Event: 000105-01  
Date Sampled: NA  
Date Received: NA

Analyte	Method	Date	Units	LCS	Spike Added	Recovery
Sulfide	EPA 376.2	09/12/08	mg/L	0.681	0.672	101.3%



STANDARD REFERENCE RESULTS-CONVENTIONALS  
NO68-Anchor Environmental, LLC



Matrix: Pore Water  
Data Release Authorized *[Signature]*  
Reported: 10/02/08

Project: Kimberly Clark  
Event: 000105-01  
Date Sampled: NA  
Date Received: NA

Analyte/SRM ID	Method	Date	Units	SRM	True Value	Recovery
N-Ammonia ERA #15125	EPA 350.1M	10/01/08	mg-N/L	0.479	0.500	95.8%

REPLICATE RESULTS-CONVENTIONALS  
NO68-Anchor Environmental, LLC



Matrix: Pore Water  
Data Release Authorized *[Signature]*  
Reported: 10/02/08

Project: Kimberly Clark  
Event: 000105-01  
Date Sampled: 09/11/08  
Date Received: 09/12/08

Analyte	Method	Date	Units	Sample	Replicate(s)	RPD/RSD
ARI ID: NO68B Client ID: AN-SB-02-080908						
N-Ammonia	EPA 350.1M	10/01/08	mg-N/L	6.26	6.30	0.6%

MS/MSD RESULTS-CONVENTIONALS  
NO68-Anchor Environmental, LLC



Matrix: Pore Water  
Data Release Authorized: *[Signature]*  
Reported: 10/02/08

Project: Kimberly Clark  
Event: 000105-01  
Date Sampled: 09/11/08  
Date Received: 09/12/08

Analyte	Method	Date	Units	Sample	Spike	Spike Added	Recovery
ARI ID: NO68A		Client ID: AN-SB-01-080908					
Sulfide	EPA 376.2	09/12/08	mg/L	3.76	9.14	6.72	80.1%
Sulfide	EPA 376.2	09/12/08	mg/L	3.76	9.04	6.72	78.6%
ARI ID: NO68B		Client ID: AN-SB-02-080908					
N-Ammonia	EPA 350.1M	10/01/08	mg-N/L	6.26	16.3	10.0	100.4%

**Laboratory Data Package**

**prepared  
for**

**Anchor Environmental, LLC**

**PROJECT: Kimberly Clark, 000105-01**

**ARI JOB NO.: NO68**

**Prepared  
By**

**Analytical Resources, Inc.**

**General Chemistry Analysis  
QC Summary Data**

**Prepared  
for**

**ANCHOR ENVIRONMENTAL, LLC**

**PROJECT: Kimberly Clark, 000105-01**


**ARI JOB NO.: NO68**

**Prepared  
By**

**Analytical Resources, Inc.**

METHOD BLANK RESULTS-CONVENTIONALS  
NO68-Anchor Environmental, LLC



Matrix: Pore Water  
Data Release Authorized:   
Reported: 10/02/08

Project: Kimberly Clark  
Event: 000105-01  
Date Sampled: NA  
Date Received: NA

Analyte	Method	Date	Units	Blank
N-Ammonia	EPA 350.1M	10/01/08	mg-N/L	< 0.010 U
Sulfide	EPA 376.2	09/12/08	mg/L	< 0.050 U

LAB CONTROL RESULTS-CONVENTIONALS  
NO68-Anchor Environmental, LLC



Matrix: Pore Water  
Data Release Authorized: *AL*  
Reported: 10/02/08

Project: Kimberly Clark  
Event: 000105-01  
Date Sampled: NA  
Date Received: NA

Analyte	Method	Date	Units	LCS	Spike Added	Recovery
Sulfide	EPA 376.2	09/12/08	mg/L	0.681	0.672	101.3%

STANDARD REFERENCE RESULTS-CONVENTIONALS  
NO68-Anchor Environmental, LLC



Matrix: Pore Water  
Data Release Authorized *[Signature]*  
Reported: 10/02/08

Project: Kimberly Clark  
Event: 000105-01  
Date Sampled: NA  
Date Received: NA

Analyte/SRM ID	Method	Date	Units	SRM	True Value	Recovery
N-Ammonia ERA #15125	EPA 350.1M	10/01/08	mg-N/L	0.479	0.500	95.8%



REPLICATE RESULTS-CONVENTIONALS  
NO68-Anchor Environmental, LLC



Matrix: Pore Water  
Data Release Authorized *AK*  
Reported: 10/02/08

Project: Kimberly Clark  
Event: 000105-01  
Date Sampled: 09/11/08  
Date Received: 09/12/08

Analyte	Method	Date	Units	Sample	Replicate(s)	RPD/RSD
ARI ID: NO68B    Client ID: AN-SB-02-080908						
N-Ammonia	EPA 350.1M	10/01/08	mg-N/L	6.26	6.30	0.6%

MS/MSD RESULTS-CONVENTIONALS  
NO68-Anchor Environmental, LLC



Matrix: Pore Water  
Data Release Authorized: *[Signature]*  
Reported: 10/02/08

Project: Kimberly Clark  
Event: 000105-01  
Date Sampled: 09/11/08  
Date Received: 09/12/08

Analyte	Method	Date	Units	Sample	Spike	Spike Added	Recovery
ARI ID: NO68A		Client ID: AN-SB-01-080908					
Sulfide	EPA 376.2	09/12/08	mg/L	3.76	9.14	6.72	80.1%
Sulfide	EPA 376.2	09/12/08	mg/L	3.76	9.04	6.72	78.6%
ARI ID: NO68B		Client ID: AN-SB-02-080908					
N-Ammonia	EPA 350.1M	10/01/08	mg-N/L	6.26	16.3	10.0	100.4%

**General Chemistry Analysis  
Sample Data**

**Prepared  
for**

**ANCHOR ENVIRONMENTAL, LLC**

**PROJECT: Kimberly Clark, 000105-01**

**ARI JOB NO.: NO68**

**Prepared  
By**

**Analytical Resources, Inc.**

SAMPLE RESULTS-CONVENTIONALS  
NO68-Anchor Environmental, LLC



Matrix: Pore Water  
Data Release Authorized: *[Signature]*  
Reported: 10/02/08

Project: Kimberly Clark  
Event: 000105-01  
Date Sampled: 09/11/08  
Date Received: 09/12/08

Client ID: AN-SB-01-080908  
ARI ID: 08-23563 NO68A

Analyte	Date Batch	Method	Units	RL	Sample
N-Ammonia	10/01/08 100108#2	EPA 350.1M	mg-N/L	0.200	10.7
Sulfide	09/12/08 091208#1	EPA 376.2	mg/L	0.500	3.76

RL Analytical reporting limit  
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS  
NO68-Anchor Environmental, LLC



Matrix: Pore Water  
Data Release Authorized: *[Signature]*  
Reported: 10/02/08

Project: Kimberly Clark  
Event: 000105-01  
Date Sampled: 09/11/08  
Date Received: 09/12/08

Client ID: AN-SB-02-080908  
ARI ID: 08-23564 NO68B

Analyte	Date Batch	Method	Units	RL	Sample
N-Ammonia	10/01/08 100108#2	EPA 350.1M	mg-N/L	0.100	6.26
Sulfide	09/12/08 091208#1	EPA 376.2	mg/L	2.50	14.8

RL Analytical reporting limit  
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS  
NO68-Anchor Environmental, LLC



Matrix: Pore Water  
Data Release Authorized: *[Signature]*  
Reported: 10/02/08

Project: Kimberly Clark  
Event: 000105-01  
Date Sampled: 09/12/08  
Date Received: 09/12/08

Client ID: AN-SB-03-080908  
ARI ID: 08-23565 NO68C

Analyte	Date Batch	Method	Units	RL	Sample
N-Ammonia	10/01/08 100108#2	EPA 350.1M	mg-N/L	0.200	8.88
Sulfide	09/12/08 091208#1	EPA 376.2	mg/L	2.50	33.8

RL Analytical reporting limit  
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS  
NO68-Anchor Environmental, LLC



Matrix: Pore Water  
Data Release Authorized *JK*  
Reported: 10/02/08

Project: Kimberly Clark  
Event: 000105-01  
Date Sampled: 09/11/08  
Date Received: 09/12/08


Client ID: AN-SB-04-080908  
ARI ID: 08-23566 NO68D

Analyte	Date Batch	Method	Units	RL	Sample
N-Ammonia	10/01/08 100108#2	EPA 350.1M	mg-N/L	0.200	12.4
Sulfide	09/12/08 091208#1	EPA 376.2	mg/L	2.50	31.0

RL Analytical reporting limit  
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS  
NO68-Anchor Environmental, LLC



Matrix: Pore Water  
Data Release Authorized:   
Reported: 10/02/08

Project: Kimberly Clark  
Event: 000105-01  
Date Sampled: 09/12/08  
Date Received: 09/12/08

Client ID: AN-SB-05-080908  
ARI ID: 08-23567 NO68E

Analyte	Date Batch	Method	Units	RL	Sample
N-Ammonia	10/01/08 100108#2	EPA 350.1M	mg-N/L	0.200	14.7
Sulfide	09/12/08 091208#1	EPA 376.2	mg/L	2.50	19.2

RL Analytical reporting limit  
U Undetected at reported detection limit



SAMPLE RESULTS-CONVENTIONALS  
NO68-Anchor Environmental, LLC



Matrix: Pore Water  
Data Release Authorized: *[Signature]*  
Reported: 10/02/08

Project: Kimberly Clark  
Event: 000105-01  
Date Sampled: 09/12/08  
Date Received: 09/12/08

Client ID: AN-SB-06-080908  
ARI ID: 08-23568 NO68F

Analyte	Date Batch	Method	Units	RL	Sample
N-Ammonia	10/01/08 100108#2	EPA 350.1M	mg-N/L	0.200	9.10
Sulfide	09/12/08 091208#1	EPA 376.2	mg/L	2.50	19.3

RL Analytical reporting limit  
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS  
NO68-Anchor Environmental, LLC



Matrix: Pore Water  
Data Release Authorized: *JK*  
Reported: 10/02/08

Project: Kimberly Clark  
Event: 000105-01  
Date Sampled: 09/12/08  
Date Received: 09/12/08

Client ID: AN-SB-07-080908  
ARI ID: 08-23569 NO68G

Analyte	Date Batch	Method	Units	RL	Sample
N-Ammonia	10/01/08 100108#2	EPA 350.1M	mg-N/L	0.200	6.40
Sulfide	09/12/08 091208#1	EPA 376.2	mg/L	2.50	30.2

RL Analytical reporting limit  
U Undetected at reported detection limit

**General Chemistry Analysis  
Instrument Raw Data**

**Prepared  
for**

**ANCHOR ENVIRONMENTAL, LLC**

**PROJECT: Kimberly Clark, 000105-01**

**ARI JOB NO.: NO68**

**Prepared  
By**

**Analytical Resources, Inc.**

9-12-08

SULFIDE BENCHSHEET (Spectrophotometric, EPA 376.2) Aqueous Samples	Date / Time	Analyst
	Distillation	CR/MP
	Finish	

If distilled, specify procedure NA

1. Standardization of sodium thiosulfate titrant		Buret used for titrations:	
Thiosulfate ID:	<u>6352C</u>		
Bi-iodate ID:	<u>0075-2</u>		
Stock bi-iodate =	<u>0.8124</u> grams to <u>1000</u> mL		
Normality =	<u>0.025</u>		
Normality thiosulfate = (mL bi-iodate * normbio) / mL thiosulfate =			

**Titration of bi-iodate with thiosulfate**

mL bi-iodate =	<u>3.000</u>	<u>3.000</u>	<u>3.000</u>	
mL thiosulfate =	<u>3.100</u>	<u>3.050</u>	<u>3.050</u>	<i>nthio</i>
	<u>0.024</u>	<u>0.025</u>	<u>0.025</u>	<b>0.024</b>

2. Normality of Iodine		Titration of Iodine with thiosulfate	
Iodine ID:	<u>6427C</u>		
mL iodine =	<u>3.000</u>	<u>3.000</u>	<u>3.000</u>
mL thiosulfate =	<u>2.950</u>	<u>2.950</u>	<u>2.950</u>
	<u>0.024</u>	<u>0.024</u>	<u>0.024</u>
Normality iodine = (mL thiosulfate * nthio) / mL iodine =		<b>0.024</b>	

3. Standardization of sodium sulfide stock		Titration of standard with Thiosulfate	
Stock ID =	<u>0087-07</u>		
Approx conc in 100ml			
g Na2S	<u>0.5732</u> mg/mL = <u>0.765</u>		
Sulfide (mg/mL) = ((mL iodine * ni) - (mL thio * nthio)) * 16 / mL standard =			

mL Standard =	<u>1.00</u>	<u>1.00</u>	<u>1.00</u>	
mL iodine =	<u>3.00</u>	<u>3.00</u>	<u>3.00</u>	
mL thiosulfate =	<u>1.23</u>	<u>1.23</u>	<u>1.24</u>	<i>stkconc (mg/mL)</i>
	<u>0.67</u>	<u>0.67</u>	<u>0.67</u>	<b>0.672</b>

Intermediate Standard  
Add 12.5 mL stk to 250 mL 0.01M NaOH = 0.034 mg/mL

**5.0 Calibration Standard Curve** spectrophotometer used

Volume Intermediate (ml)	FINAL VOLUME (ml)	CONC (mg S/L)	ABSORBANCE @ 650 nm			REGRESSION DATA
			1	2	Avg	
			0.00	50	0.000	
0.10	50	0.067	0.045	0.045	slope <u>0.666</u>	
0.25	50	0.168	0.115	0.115	r = <u>0.9996</u>	
0.50	50	0.336	0.226	0.226	Comment: <u>Calibration OK!</u>	
1.00	50	0.672	0.428	0.428		
2.00	50	1.344	0.901	0.901	maxabs = <u>0.901</u>	

Calib Verif Std = 1 ml int to 50 ml ZnOAc = 0.672 mg/L  
Distillation Std = 0.5 ml Stk to 50 = 6.718 mg/L

**SAMPLE DATA** enter dilution factor as ml final/mL sample

SAMPLE ID	DISTILL DATA		SPECTROPHOTOMETRIC DATA			SAMPLE DATA	
	Sample Volume	Distill Volume (mL)	Dilution factor	ABS @ 650 nm	BKG ABS	Regressed Conc (mg S/L)	Final Conc mg S/L
Cal Bk		n/a	1.00	0.000		0.002	< 0.07 OK!
ICV		n/a	1.00	0.452		0.681	0.68 101.31%
NO68 A1	50.0		10.00	0.249		0.376	3.76
NO68 B1	50.0		10.00	0.974		1.465	14.65 offscale dilute
NO68 C1	50.0		10.00	2.038		3.063	30.63 offscale dilute
NO68 D1	50.0		10.00	1.897		2.851	28.51 offscale dilute
NO68 E1	50.0		10.00	1.199		1.802	18.02 offscale dilute
NO68 F1	50.0		10.00	1.319		1.983	19.83 offscale dilute
NO68 G1	50.0		10.00	1.892		2.843	28.43 offscale dilute
NO68 C1	50.0		20.00	1.109		1.667	33.35 offscale dilute
NO68 D1	50.0		20.00	1.070		1.609	32.18 offscale dilute
NO68 G1	50.0		20.00	1.046		1.573	31.45 offscale dilute
Cal Bk	50.0	n/a	1.00	0.000		0.002	< 0.07 OK!
CCV	50.0	n/a	1.00	0.433		0.652	0.65 97.07%
NO68 A1			20.00	0.303		0.457	9.14 80.1%
MS at	0.05	ml stk to	5.00	ml sample =		6.72	mg/l
NO68 A1			20.00	0.300		0.452	9.05 78.7%
MSD at	0.05	ml stk to	5.00	ml sample =		6.72	mg/l
NO68 B1	50.0		50.00	0.195		0.295	14.73
NO68 C1	50.0		50.00	0.449		0.676	33.81
NO68 D1	50.0		50.00	0.412		0.621	31.03
NO68 E1	50.0		50.00	0.254		0.383	19.16
NO68 F1	50.0		50.00	0.256		0.386	19.31

<b>SAMPLE DATA</b>							
<i>enter dilution factor as ml final/mL sample</i>							
	<b>DISTILL DATA</b>		<b>SPECTROPHOTOMETRIC DATA</b>				<b>SAMPLE DATA</b>
<b>SAMPLE ID</b>	Sample Volume	Distill Volume (mL)	Dilution factor	ABS @ 650 nm	BKG ABS	Regressed Conc (mg S/L)	<b>Final Conc mg S/L</b>
NO68 G1	50.0		50.00	0.400		0.603	<b>30.13</b>
Cal Bik	50.0	n/a	1.00	-0.006		-0.007	<b>&lt; 0.07</b> OKI
CCV	50.0	n/a	1.00	0.422		0.636	<b>0.64</b> 94.61%

Original Run Filename: OM\_10-1-2008\_11-54-12AM.OMN created 10/1/2008 11:54:12 AM

Original Run Author's Signature: UW

Current Run Filename: 100108NH3A.omn last modified 10/1/2008 2:59:37 PM

Description: LACHAT 1

Standards made from ARI Stock#:0078-01

*MJ*  
10/2/08

Sample	Cup No.	Channel 1		Detection Time	MANUAL DILUTION FACTOR
		NH3			
		Conc. (mg N/L)	Area (Vs)		
STD 1.0	S1	1	41.2212	10/1/2008@11:55:12 AM	
STD 0.8	S2	0.8	32.8609	10/1/2008@11:56:23 AM	
STD 0.5	S3	0.5	20.6616	10/1/2008@11:57:34 AM	
STD 0.2	S4	0.2	7.7586	10/1/2008@11:58:44 AM	
STD 0.05	S5	0.05	1.4006	10/1/2008@11:59:54 AM	
STD 0.02	S6	0.02	0.5641	10/1/2008@12:01:06 PM	
STD 0.01	S7	0.01	0.2026	10/1/2008@12:02:17 PM	
BLANK	S8	0	-0.2895	10/1/2008@12:03:28 PM	
ICV ERA 06107	9	0.4789	19.5544	10/1/2008@12:04:39 PM	
Known Conc:		0.5			
Calibration:		Table/Fig. 1			
ICB	10	0.003	-0.2503	10/1/2008@12:11:27 PM	
Known Conc:		0			
LOW	11	0.0123	0.1388	10/1/2008@12:18:15 PM	
Known Conc:		0.01			
FILTER BLK	12	0.0049	-0.1690	10/1/2008@12:25:03 PM	
NO40-B2	13	18.4354	153.0726	10/1/2008@12:26:14 PM	5.0000
NO40-D2	14	25.4362	211.3441	10/1/2008@12:27:25 PM	5.0000
NO40-E2	15	32.4302	269.5578	10/1/2008@12:28:35 PM	5.0000
NO40-F2	16	26.8189	222.8527	10/1/2008@12:29:47 PM	5.0000

% R = 95.78

% R = 123

NO40 G2	49	40.847	451.0504	10/1/2008@12:30:58 PM	
NO40 G2 DUP	49	40.7814	448.3059	10/1/2008@12:32:09 PM	
NO40 G2	49	40.7847	448.4573	10/1/2008@12:33:20 PM	
NO40 G2 MS	29	40.8633	451.7266	10/1/2008@12:34:31 PM	
Spike Level:		0.5			
CCV	17	0.4609	18.8060	10/1/2008@12:35:42 PM	
Known Conc:		0.5			
CCB	18	0.01	0.0418	10/1/2008@12:42:31 PM	
Known Conc:		0			
NO70 B1	21	2.8185	23.0857	10/1/2008@12:49:20 PM	5.0000
NO70 C1	22	6.7244	55.5966	10/1/2008@12:50:32 PM	5.0000
NO70 D1	23	7.6635	63.4128	10/1/2008@12:51:43 PM	5.0000
NO70 E1	24	12.8227	106.3558	10/1/2008@12:52:54 PM	5.0000
NO40 B2	25	20.51	16.6973	10/1/2008@12:54:05 PM	50.0000
NO40 D2	26	29.1305	23.8726	10/1/2008@12:55:18 PM	50.0000
NO40 E2	27	40.1083	33.0100	10/1/2008@12:56:30 PM	50.0000
NO40 F2	28	30.9807	25.4126	10/1/2008@12:57:41 PM	50.0000
NO40 G2	29	24.9967	51.4535	10/1/2008@12:58:53 PM	20.0000
NO40 G2 DUP	29	24.8452	51.3256	10/1/2008@1:00:04 PM	20.0000
CCV	17	0.4824	19.7005	10/1/2008@1:01:16 PM	
Known Conc:		0.5			
CCB	18	0.0099	0.0366	10/1/2008@1:08:04 PM	
Known Conc:		0			
NO40 G2	30	25.679	20.9997	10/1/2008@1:14:53 PM	50.0000
NO40 G2 DUP	30	25.5805	20.9178	10/1/2008@1:16:04 PM	50.0000
NO40 G2	30	25.6504	20.9760	10/1/2008@1:17:15 PM	50.0000

% R = 92.18

% R = 96.48

% RPD = 0.38

NO40 G2 MS	31	74.574	30.6617	10/1/2008@1:18:28 PM	100.0000
Spike Level:		50			
NO70 C1	32	7.2356	14.6822	10/1/2008@1:19:40 PM	20.0000
NO70 D1	33	8.2821	16.8599	10/1/2008@1:20:52 PM	20.0000
NO70 E1	34	13.8412	28.4277	10/1/2008@1:22:03 PM	20.0000
NO41 A1	35	0.0009	-0.3364	10/1/2008@1:23:15 PM	
NO41 A1 DUP	35	0.0045	-0.1882	10/1/2008@1:24:26 PM	
NO41 A1	35	0.01	0.0410	10/1/2008@1:25:38 PM	
NO41 A1 MS	36	0.5098	20.8434	10/1/2008@1:26:50 PM	
Spike Level:		0.5			
CCV	17	0.4817	19.6725	10/1/2008@1:28:02 PM	
Known Conc:		0.5			
CCB	18	0.0048	-0.1738	10/1/2008@1:34:51 PM	
Known Conc:		0			
NO41 B1	37	0.4049	16.4784	10/1/2008@1:41:40 PM	
NO41 C1	38	0.0403	1.3022	10/1/2008@1:42:52 PM	
NO41 D1	39	0.0035	-0.2304	10/1/2008@1:44:01 PM	
NO41 E1	40	0.0288	0.8238	10/1/2008@1:45:12 PM	
NO42 A2	41	0.0428	1.4086	10/1/2008@1:46:25 PM	
NO42 B2	42	0.309	2.1958	10/1/2008@1:47:37 PM	5.0000
NO42 C2	43	0.0297	0.8619	10/1/2008@1:48:50 PM	
NO42 D2	44	0.0136	0.1922	10/1/2008@1:50:01 PM	
NO21 E2	45	0.0259	0.7044	10/1/2008@1:51:12 PM	
NO42 F2	46	0.0099	0.0389	10/1/2008@1:52:25 PM	
CCV	17	0.4844	19.7874	10/1/2008@1:53:36 PM	
Known Conc:		0.5			

% R = 97.79  
0.5 ml \* 1000 ppm / 10 ml

% RPD = NA

% R = 101.96  
0.25 ml \* 20 ppm / 10 ml

% R = 96.34

% R = 96.88



CCB	18	0.0053	-0.1548	10/1/2008@2:00:24 PM	
Known Conc:		0			
NO42 G2	47	0.0419	1.3682	10/1/2008@2:07:14 PM	
NP94 A4	48	0.0005	-0.3518	10/1/2008@2:08:27 PM	
NP94 A4 DUP	48	0.0023	-0.2766	10/1/2008@2:09:39 PM	
NP94 A4	48	0.0005	-0.3534	10/1/2008@2:10:50 PM	
NP94 A4 MS	49	0.516	21.1020	10/1/2008@2:12:03 PM	
Spike Level:		0.5			
NO68 A1	50	7.5948	345.7005	10/1/2008@2:13:15 PM	
NO68 B1	51	5.4162	225.0358	10/1/2008@2:14:28 PM	
NO68 C1	52	6.68	277.6299	10/1/2008@2:15:41 PM	
NO68 D1	53	8.0573	334.9492	10/1/2008@2:16:53 PM	
NO68 E1	54	8.7658	364.4354	10/1/2008@2:18:06 PM	
CCV	17	0.4628	18.8859	10/1/2008@2:19:17 PM	
Known Conc:		0.5			
CCB	18	0.0018	-0.2980	10/1/2008@2:26:05 PM	
Known Conc:		0			
NO68 F1	55	9.1039	18.5699	10/1/2008@2:32:55 PM	20.0000
NO68 G1	56	6.4009	12.9454	10/1/2008@2:34:08 PM	20.0000
NO68 A1	57	10.6876	21.8654	10/1/2008@2:35:21 PM	20.0000
NO68 B1	58	6.2609	25.6823	10/1/2008@2:36:33 PM	10.0000
NO68 B1 DUP	58	6.2962	25.8291	10/1/2008@2:37:45 PM	10.0000
NO68 B1	58	6.2529	25.6489	10/1/2008@2:38:58 PM	10.0000
NO68 B1 MS	59	16.3399	33.6272	10/1/2008@2:40:10 PM	20.0000
Spike Level:		10			

% RPD = NA

% R = 103.2  
0.25 ml \* 20 ppm / 10 ml

% R = 92.56

% RPD = 0.56

% R = 100.79  
0.1 ml \* 1000 ppm / 10 ml

NO68 C1	60	8.8763	18.0963	10/1/2008@2:41:22 PM	20.0000
NO68 D1	13	12.3914	25.4108	10/1/2008@2:42:34 PM	20.0000
NO68 E1	14	14.692	30.1980	10/1/2008@2:43:45 PM	20.0000
CCV	17	0.4987	20.3825	10/1/2008@2:44:56 PM	
Known Conc:		0.5			
CCB	18	0.0053	-0.1554	10/1/2008@2:51:44 PM	
Known Conc:		0			

% R = 99.74



ANALYST NOTES

ARI Job No: NO68

Client Name: Anchor

Parameter: NH<sub>3</sub>

Client Project: \_\_\_\_\_

Samples in 40 ml vials, unpreserved.

Analyst: W

Date Analyzed: 10-1-08