

From: Halbur, Kathy <halbur.kathy@epa.gov>
Sent: Wednesday, March 25, 2015 11:21 AM
To: Beggs, Tauren R - DNR
Cc: Evans, Elizabeth - DHS; Bodden, Jaime; Merry, JaNelle P - DNR
Subject: RE: Aniwa Arsenic Site

Thanks everyone for the quick response. I spoke with Mr. Timm this morning and notified him of the results. He turned down my offer to provide water – he said he already uses bottled water and will continue to do so. I told him to give me a call any time if he changes his mind. He also turned down my offer to put him in touch with Jaime/Liz regarding health concerns, saying he doesn't have any. I will provide him with the brochure regarding Chlorination in Arsenic Sensitive Areas and will continue to expedite the POE system.

Kathy

From: Beggs, Tauren R - DNR [<mailto:Tauren.Beggs@wisconsin.gov>]
Sent: Wednesday, March 25, 2015 10:02 AM
To: Halbur, Kathy
Cc: Evans, Elizabeth - DHS; Bodden, Jaime; Merry, JaNelle P - DNR
Subject: RE: Aniwa Arsenic Site

Hi Kathy,

I spoke with Janelle and she said that excessive chlorination can exacerbate the arsenic problem. She provided me some guidance information on Well Chlorination in Arsenic Sensitive Areas (see brochure attached). You could provide this brochure to Mr. Timm with the notification of results so he is aware of this as well.

She said it is no problem to wait to take another sample until after the POE system is in place. She also notified me that the DNR process has just recently changed in the past month for the health advisory letter/notification of results. The DNR no longer sends out health advisory letters, just a notification of the results. Health advisory letters are now sent by DHS, if they choose to do so. She said that since you plan on notifying the owner of the results already, it would be redundant for DNR to as well, so we should be all good to go on everything for this now.

Thanks,

We are committed to service excellence.

Visit our survey at <http://dnr.wi.gov/customersurvey> to evaluate how I did.

Tauren Beggs

Phone: (920) 662-5178

Tauren.Beggs@wisconsin.gov

From: Beggs, Tauren R - DNR
Sent: Wednesday, March 25, 2015 9:07 AM
To: 'Halbur, Kathy'

Cc: Evans, Elizabeth - DHS (Elizabeth.Evans@dhs.wisconsin.gov); Bodden, Jaime (Jaime.bodden@co.shawano.wi.us); Merry, JaNelle P - DNR
Subject: RE: Aniwa Arsenic Site

Hi Kathy,

You can proceed with notifying Mr. Timm and providing the water. My question for Janelle is whether or not we can hold off on the confirmation sample until the POE system is in place or do we have to do that right away.

Thanks,

We are committed to service excellence.

Visit our survey at <http://dnr.wi.gov/customersurvey> to evaluate how I did.

Tauren Beggs

Phone: (920) 662-5178

Tauren.Beggs@wisconsin.gov

From: Halbur, Kathy [<mailto:halbur.kathy@epa.gov>]

Sent: Wednesday, March 25, 2015 9:03 AM

To: Beggs, Tauren R - DNR

Subject: RE: Aniwa Arsenic Site

Is there any down side to my proceeding with providing water to Mr. Timm? We all agree on that part of the plan, correct?

kch

From: Beggs, Tauren R - DNR [<mailto:Tauren.Beggs@wisconsin.gov>]

Sent: Wednesday, March 25, 2015 8:43 AM

To: Halbur, Kathy

Subject: RE: Aniwa Arsenic Site

Janelle is in the field the rest of the week. I tried calling her on her work cell phone and left a voicemail, so I hope to hear back from her today.

We are committed to service excellence.

Visit our survey at <http://dnr.wi.gov/customersurvey> to evaluate how I did.

Tauren Beggs

Phone: (920) 662-5178

Tauren.Beggs@wisconsin.gov

From: Evans, Elizabeth - DHS

Sent: Tuesday, March 24, 2015 12:39 PM

To: 'Halbur, Kathy'; Beggs, Tauren R - DNR; Bodden, Jaime

Cc: Merry, JaNelle P - DNR

Subject: RE: Aniwa Arsenic Site

Kathy,

Thank you for keeping DHS in the loop. I agree with the approach you've proposed below. When you talk to Mr. Timm, please let him know he can call me at (608) 266-3393 if he has any health-related questions, if Jamie Bodden is not available.

Liz

Elizabeth Truslow-Evans, MPH
Epidemiologist
Bureau of Environmental and Occupational Health
Division of Public Health, Wisconsin Dept of Health Services
1 W Wilson St, Rm 150
Madison, WI 53701
(608) 266-3393
<http://dhs.wisconsin.gov/eh/>

Protect our children and their future from lead poisoning—Get your home tested. Get your kids tested. [Get the Facts!](#)

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From: Halbur, Kathy [<mailto:halbur.kathy@epa.gov>]
Sent: Tuesday, March 24, 2015 12:23 PM
To: Beggs, Tauren R - DNR; Evans, Elizabeth - DHS; Bodden, Jaime
Cc: Merry, JaNelle P - DNR
Subject: Aniwa Arsenic Site

Hello:

As previously discussed, EPA collected water samples at the Timm residence (W19146 Marsh Road, Birnamwood, Shawano County) on 3/4/15 as part of the Aniwa Arsenic Site removal action. The purpose of the sampling was to collect additional data needed to design a Point of Entry treatment system. The results of our sampling are attached. Sample 1 was collected in the basement prior to the pressure tank. Sample 2 was collected from the kitchen faucet. Both samples were collected after 15 minutes of flushing. There is a water softener in the home. Arsenic was detected >10 µg/L in sample 1, but <10 µg/L in sample 2; coliform is absent in sample 1, but present in sample 2.

I propose that I call Mr. Timm this afternoon, inform him of the results, encourage him to chlorinate his well asap (he told us he routinely does this every spring), and offer to provide drinking water as a precautionary measure (water cooler from culligan ready to be delivered) until the POE treatment is in place and proven effective. I don't see the need to collect any additional sampling until the POE system

is in place. I also don't think a formal advisory letter is appropriate in this case since EPA conducted the sampling and is providing a remedy as part of a removal action.

I would like to act on this today still if possible, so please advise as to your concurrence or concerns with this approach asap. I can be reached at 920-634-9072.

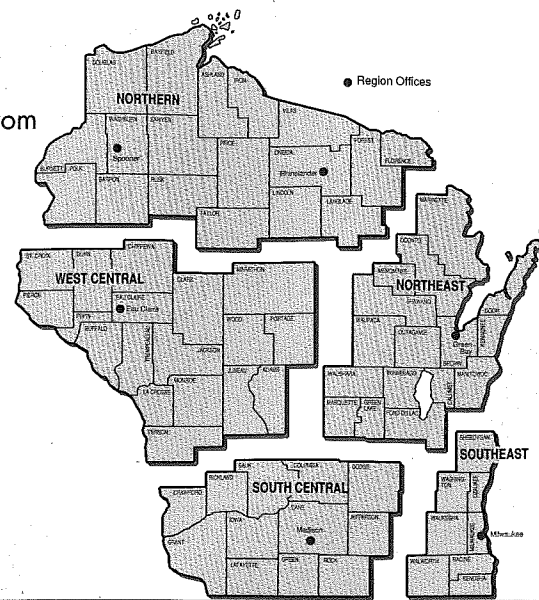
Thanks!
Kathy

Kathy Halbur, On-Scene Coordinator
U.S. EPA Region 5
Emergency Response Branch
c/o WDNR
2984 Shawano Ave
Green Bay, WI 54313-6727
Phone: 920-662-5424
Cell: 920-634-9072
Email: halbur.kathy@epa.gov

The DNR has five regional offices statewide to serve you. Talk to your drinking water & groundwater specialist, at one of the DNR regional offices or visit the DNR web site at <http://www.dnr.state.wi.us>. Choose "Drinking Water & Groundwater from the drop-down menu, and select from a variety of listed topics.

Region Offices:

Northern Region Department of Natural Resources 810 W. Maple Street Spooner, WI 54801 (715) 635-2101 OR Department of Natural Resources 107 Sutcliff Ave. Rhinelander, WI 54501 (715) 365-8900	West Central Region Department of Natural Resources 1300 W. Clairemont P.O. Box 4001 Eau Claire, WI 54702-4001 (715) 839-3700	Southeast Region Department of Natural Resources 2300 N. Dr. Martin Luther King Jr. Dr. P.O. Box 12436 Milwaukee, WI 53212 (414) 263-8500
	Northeast Region Department of Natural Resources 1125 N. Military Avenue P.O. Box 10448 Green Bay, WI 54307-0448 (920) 492-5800	South Central Region Department of Natural Resources 3911 Fish Hatchery Road Fitchburg, WI 53711 (608) 275-3266



GP3/02



Central Office:

Street Address Department of Natural Resources 101 S. Webster Street Madison, WI (608) 266-0821	Mailing Address Department of Natural Resources PO Box 7921 Madison, WI 53707-7921
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PUB-DG-069 2002

Department of Natural Resources
Bureau of Drinking Water & Groundwater
PO Box 7921
Madison, WI 53707-7921

Well Chlorination in Arsenic Sensitive Areas

Too much of a good thing?

When private well owners experience recurring problems with bacteria, or when other circumstances (such as flooding) expose well components to unsanitary conditions, staff with the Wisconsin Department of Natural Resources (DNR) recommend the well and water system be chlorinated. It may be tempting to use larger or more concentrated batches of chlorine solution, or to chlorinate more frequently than would normally be recommended. However, using too much of a good thing may actually be less effective and it may also add unneeded costs to the well-chlorination process. Just as important, there may also be special concerns in areas where arsenic contamination is present.

Why is well chlorination of special concern in areas of Wisconsin with the potential for the presence of arsenic in groundwater?

Arsenic is an element that occurs naturally in some soil, bedrock, groundwater and ocean water. High levels of inorganic arsenic, the most toxic form, have been found in hundreds of private drinking water wells, primarily in Northeastern Wisconsin. Scientists think one way arsenic is released into the groundwater is due to increased water demands that have lowered the water table allowing oxygen to get into arsenic-rich zones of the aquifer. This exposure to oxygen causes chemical reactions that release arsenic into the groundwater.

There have been reports from private well owners, with levels of arsenic below the recommended maximum contaminant level (MCL) of 10 ppb (parts per billion), that indicate the concentration of arsenic in their drinking water increased after excessive chlorination was used to combat a bacteriological problem. While a direct link to well chlorination and increased incidences of high levels of arsenic in private drinking water wells has not been scientifically confirmed, preliminary information seems to point to that conclusion. Scientists are still studying this and other possible reasons arsenic contamination is on the rise.

Why would my well need to be disinfected with a chlorine solution?

DNR staff commonly recommend well chlorination, when a private well owner experiences recurring problems with bacteria, or when other circumstances (such as flooding) expose well components to unsanitary conditions. You can find a list at the end of this fact sheet with instructions and other information on resources for your specific situation.

Should I include chlorination as part of my regular well maintenance even if I have not had any problems?

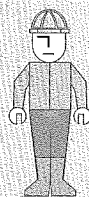
Not Necessarily. It is not always necessary to open your well and expose its components, unless you are experiencing problems, such as a positive test for bacteria, or if the well has iron bacteria or sulfur reducing bacteria symptoms like odor or slime. When wells are installed by a licensed well driller or pump installer, the casing and other well components are required to be disinfected during the final installation process.

If you have been chlorinating your well more than once each year, or have needed to use more than double the recommended chlorine solution to maintain your water supply, contact a licensed well driller or pump installer or your regional DNR drinking water specialist to discuss alternatives. These alternatives may include mechanical (physical) cleaning methods and the use of acid and surfactant products to break up the biofilm (slime).

How much is too much?

In certain situations, the chlorine concentration can be doubled, however this should only be done if the pH of the chlorine solution is controlled. Chlorine solutions are most effective at a pH between 6 and 7, but chlorine products can quickly raise the pH of the water, especially in hard water, to a level where the chlorine solution becomes ineffective. To counteract this effect, the pH may be adjusted with an acid product that has been approved by Bureau of Drinking Water and Groundwater staff. A licensed professional should administer these acid products.

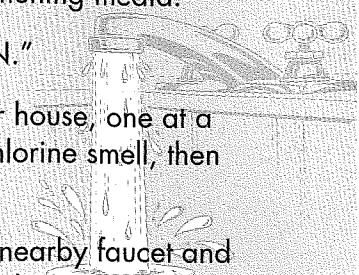
What is the recommended well chlorination procedure?



NOTE: There is an electrical shock hazard when working on a well. If you are not familiar with plumbing and electrical circuits, you may want to hire a licensed well driller or pump installer to chlorinate your well.

1. Have your well construction information ready. Well construction information can be found on your well construction report submitted by your well driller. Copies of this report are available from your well driller or by contacting your drinking water and groundwater specialist at your local DNR Service Center. This information is useful for regular well maintenance or drinking water testing, and may be helpful in preparing the chlorine solution. (For example: A six-inch diameter well holds about 1.5 gallons of water per foot of water within the well column.)
2. Prepare the chlorine solution. Multiple 30-gallon plastic garbage cans may make it easier to handle.

Use approximately 1 1/2 quarts (48 ounces) of 5.25% or 3/4 quart (24 ounces) of 10% *approved* chlorine bleach product having no additives. Mix the bleach with 100 gallons of water. You may also use other approved liquid chlorine products (sodium hypochlorite) as long as the concentration of the solution is not more than 100 mg/l (ppm).
3. Make sure the electrical power to the pump is "OFF."
4. Pour or pump the solution into the well in one rapid, continuous flow, avoiding electrical connections.
5. Bypass your water softener if you have one. Failure to do so could result in a breakdown of the softening media.
6. Turn the power back "ON."
7. Open each faucet in your house, one at a time, until you detect a chlorine smell, then close them.
8. Attach a clean hose to a nearby faucet and place the other end of the hose into the top of the well. Open the faucet and recirculate the chlorinated water for one hour - washing down the entire inside of the well casing and the pump piping.
9. Allow the chlorine solution to remain in the well and plumbing system for at least 30 minutes. Then flush the entire system until you can no longer smell chlorine. Run the chlorinated water outdoors, but be careful to avoid areas that drain into lakes or streams because it can kill fish and other aquatic life. Likewise, the solution can kill grass and shrubs, as well as disrupt septic systems. A good choice may be a backyard ditch or side area that will partially contain the solution while it is absorbed by the soil but make sure the ditch is not connected to a lake or stream.
10. You may need to repeat this process if, subsequently, water sample results are positive for coliform or other nuisance bacteria.



Where can I get more information?

The Wisconsin Department of Natural Resources Bureau of Drinking Water and Groundwater has several publications available, which include information on private well testing, disinfection (chlorination) or specific contaminant information. Contact your regional DNR office for a complete list and ordering information. Some of the most popular publications are:

Approved Chlorine Products for use in Disinfecting Wells & Water Systems (Contact the Department of Commerce or visit www.dnr.state.wi.us to search for an electronic copy of the list.)

Arsenic in Drinking Water - PUB-DG-062 00

Iron Bacteria in Drinking Water - PUB-DG-004 01

Sulfur Bacteria in Drinking Water - PUB-DG-005 99

Tests for Drinking Water from Private Wells
- PUB-DG-023 00

You & Your Well - PUB-DG-002 01

Wisconsin's Arsenic in Drinking Water & Groundwater Information Pages

As part of a cooperative effort involving Department of Natural Resources Bureau of Drinking Water & Groundwater staff, additional state and federal agencies, and interested research and higher learning institutions, we would like to introduce Wisconsin's Arsenic in Drinking Water & Groundwater Information Pages!

[www.dnr.state.wi.us/
org/water/dwg/arsenic/index.htm](http://www.dnr.state.wi.us/org/water/dwg/arsenic/index.htm)

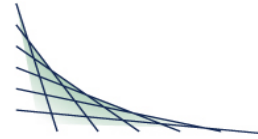
Visit these pages to view:

- Brochures & Fact Sheets Online
- Data outlining where arsenic is occurring in Wisconsin
- Recommendations for well-drilling, treatment options and maintenance
- Recently published magazine articles on arsenic
- Summaries of studies from researchers worldwide

...and more!

CT LABORATORIES

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ANALYTICAL REPORT

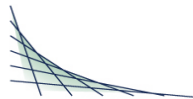
This report at a minimum contains the following information:

- Analytical Report of Test Results
- Description of QC Qualifiers
- Chain of Custody (copy)
- Quality Control Summary
- Case Narrative (if applicable)
- Correspondence with Client (if applicable)

This report has been specifically prepared to satisfy project or program requirements. These results are in compliance with NELAC requirements for parameters where accreditation is required or available, unless otherwise noted in the case narrative.



CT Laboratories LLC • 1230 Lange Court • Baraboo, WI 53913 • 608-356-2760
www.ctlaboratories.com



**PRELIMINARY
ANALYTICAL REPORT**

TETRA TECH
 ROB KONDRECK
 1 S WACKER DRIVE
 SUITE 3700
 CHICAGO, IL 60606

Project Name: ANIWA ARSENIC
 Project Phase:
 Contract #: 2767
 Project #: 103X9026000150515020
 Folder #: 109795
 Purchase Order #:

Page 1 of 7
 Arrival Temperature: 4.4
 Report Date:
 Date Received: 3/4/2015
 Reprint Date: 3/19/2015

CT LAB#: 559224	Sample Description: TIMM-0315A	Client Sample #:	Sampled: 3/4/2015 1330
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Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Inorganic Results												
E. coli	ABSENT						1.00			3/5/15 12:00	LJS	SM 9223B
Total Coliform Bacteria	ABSENT						1.00	E		3/5/15 12:00	LJS	SM 9223B
pH	7.50	S.U.					1.00			3/6/15 12:30	LJS	EPA 9040C ^
Nitrate Nitrogen Total	0.16	mg/L	0.040			0.040	1.00			3/5/15 14:14	JJF	EPA 300.0
Metals Results												
Total Mercury	<0.030	ug/L	0.030	0.060	0.12	0.12	1.00	U	3/6/2015 08:30	3/9/15 08:51	LJF	EPA 7470A ^
Total Aluminum	<6.0	ug/L	6.0	18	36	36	1.00	U	3/9/2015 08:00	3/10/15 11:46	NAH	EPA 200.7 ^
Total Antimony	<2.0	ug/L	2.0	6.0	12	12	1.00	U	3/9/2015 08:00	3/10/15 11:46	NAH	EPA 200.7 ^
Total Arsenic	11.2	ug/L	4.0	12	24	24	1.00	J	3/9/2015 08:00	3/10/15 11:46	NAH	EPA 200.7 ^
Total Barium	20.3	ug/L	0.29	0.90	1.8	1.8	1.00		3/9/2015 08:00	3/10/15 11:46	NAH	EPA 200.7 ^
Total Beryllium	<0.10	ug/L	0.10	0.30	0.60	0.60	1.00	U	3/9/2015 08:00	3/10/15 11:46	NAH	EPA 200.7 ^
Total Cadmium	<0.30	ug/L	0.30	1.0	2.0	2.0	1.00	U M	3/9/2015 08:00	3/10/15 11:46	NAH	EPA 200.7 ^
Total Calcium	58700	ug/L	17	50	100	100	1.00		3/9/2015 08:00	3/10/15 11:46	NAH	EPA 200.7 ^
Total Chromium	<0.60	ug/L	0.60	2.0	4.0	4.0	1.00	U	3/9/2015 08:00	3/10/15 11:46	NAH	EPA 200.7 ^
Total Cobalt	<0.70	ug/L	0.70	2.0	4.0	4.0	1.00	U M	3/9/2015 08:00	3/10/15 11:46	NAH	EPA 200.7 ^
Total Copper	3.8	ug/L	1.2	3.5	7.0	7.0	1.00	J	3/9/2015 08:00	3/10/15 11:46	NAH	EPA 200.7 ^

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis



CT LAB#: 559224	Sample Description: TIMM-0315A	Client Sample #:	Sampled: 3/4/2015 1330
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Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Total Iron	3100	ug/L	16	50	100	100	1.00		3/9/2015 08:00	3/10/15 11:46	NAH	EPA 200.7 ^
Total Lead	<1.4	ug/L	1.4	2.0	4.0	4.0	1.00	U M	3/9/2015 08:00	3/10/15 11:46	NAH	EPA 200.7 ^
Total Magnesium	29300	ug/L	6.0	20	40	40	1.00		3/9/2015 08:00	3/10/15 11:46	NAH	EPA 200.7 ^
Total Manganese	190	ug/L	0.70	2.0	4.0	4.0	1.00		3/9/2015 08:00	3/10/15 11:46	NAH	EPA 200.7 ^
Total Nickel	1.3	ug/L	1.0	3.0	6.0	6.0	1.00	J M	3/9/2015 08:00	3/10/15 11:46	NAH	EPA 200.7 ^
Total Selenium	<2.2	ug/L	2.2	6.5	13	13	1.00	U	3/9/2015 08:00	3/10/15 11:46	NAH	EPA 200.7 ^
Total Silver	<0.70	ug/L	0.70	2.0	4.0	4.0	1.00	U	3/9/2015 08:00	3/10/15 11:46	NAH	EPA 200.7 ^
Total Thallium	<2.5	ug/L	2.5	7.5	15	15	1.00	U	3/9/2015 08:00	3/10/15 11:46	NAH	EPA 200.7 ^
Total Vanadium	<0.80	ug/L	0.80	2.5	5.0	5.0	1.00	U	3/9/2015 08:00	3/10/15 11:46	NAH	EPA 200.7 ^
Total Zinc	30.7	ug/L	1.6	5.0	10	10	1.00		3/9/2015 08:00	3/10/15 11:46	NAH	EPA 200.7 ^
Total Potassium	1460	ug/L	90	250	500	500	1.00		3/9/2015 08:00	3/10/15 11:08	MDS	EPA 200.7 ^
Total Sodium	2400	ug/L	100	300	600	600	1.00		3/9/2015 08:00	3/10/15 11:08	MDS	EPA 200.7 ^

Organic Results

4,4'-DDD	<0.0063	ug/L	0.0063	0.010	0.025	0.025	1.00	U	3/9/2015 08:30	3/9/15 13:29	JJY	EPA 8081B ^
4,4'-DDE	<0.0063	ug/L	0.0063	0.010	0.042	0.042	1.00	U	3/9/2015 08:30	3/9/15 13:29	JJY	EPA 8081B ^
4,4'-DDT	<0.0073	ug/L	0.0073	0.010	0.025	0.025	1.00	U	3/9/2015 08:30	3/9/15 13:29	JJY	EPA 8081B ^
Aldrin	<0.0063	ug/L	0.0063	0.010	0.025	0.025	1.00	U	3/9/2015 08:30	3/9/15 13:29	JJY	EPA 8081B ^
alpha-BHC	<0.0052	ug/L	0.0052	0.010	0.025	0.025	1.00	U	3/9/2015 08:30	3/9/15 13:29	JJY	EPA 8081B ^
alpha-Chlordane	<0.0094	ug/L	0.0094	0.010	0.042	0.042	1.00	U	3/9/2015 08:30	3/9/15 13:29	JJY	EPA 8081B ^
beta-BHC	<0.0094	ug/L	0.0094	0.010	0.042	0.042	1.00	U	3/9/2015 08:30	3/9/15 13:29	JJY	EPA 8081B ^
Chlordane (Technical)	<0.11	ug/L	0.11	0.21	0.63	0.63	1.00	U	3/9/2015 08:30	3/9/15 13:29	JJY	EPA 8081B ^
delta-BHC	<0.0052	ug/L	0.0052	0.010	0.025	0.025	1.00	U	3/9/2015 08:30	3/9/15 13:29	JJY	EPA 8081B ^
Dieldrin	<0.0063	ug/L	0.0063	0.010	0.025	0.025	1.00	U	3/9/2015 08:30	3/9/15 13:29	JJY	EPA 8081B ^
Endosulfan I	<0.0094	ug/L	0.0094	0.010	0.042	0.042	1.00	U	3/9/2015 08:30	3/9/15 13:29	JJY	EPA 8081B ^
Endosulfan II	<0.0073	ug/L	0.0073	0.010	0.025	0.025	1.00	U	3/9/2015 08:30	3/9/15 13:29	JJY	EPA 8081B ^
Endosulfan sulfate	<0.0063	ug/L	0.0063	0.010	0.025	0.025	1.00	U	3/9/2015 08:30	3/9/15 13:29	JJY	EPA 8081B ^
Endrin	<0.0063	ug/L	0.0063	0.010	0.025	0.025	1.00	U	3/9/2015 08:30	3/9/15 13:29	JJY	EPA 8081B ^

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 559224	Sample Description: TIMM-0315A	Client Sample #:	Sampled: 3/4/2015 1330
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Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Endrin aldehyde	<0.0094	ug/L	0.0094	0.010	0.042	0.042	1.00	U	3/9/2015 08:30	3/9/15 13:29	JJY	EPA 8081B ^
Endrin ketone	<0.0073	ug/L	0.0073	0.010	0.025	0.025	1.00	U	3/9/2015 08:30	3/9/15 13:29	JJY	EPA 8081B ^
gamma-Chlordane	<0.0073	ug/L	0.0073	0.010	0.025	0.025	1.00	U	3/9/2015 08:30	3/9/15 13:29	JJY	EPA 8081B ^
Heptachlor	<0.0063	ug/L	0.0063	0.010	0.025	0.025	1.00	U	3/9/2015 08:30	3/9/15 13:29	JJY	EPA 8081B ^
Heptachlor epoxide	<0.0073	ug/L	0.0073	0.010	0.025	0.025	1.00	U	3/9/2015 08:30	3/9/15 13:29	JJY	EPA 8081B ^
Lindane	<0.0073	ug/L	0.0073	0.010	0.025	0.025	1.00	U	3/9/2015 08:30	3/9/15 13:29	JJY	EPA 8081B ^
Methoxychlor	<0.0063	ug/L	0.0063	0.010	0.042	0.042	1.00	U	3/9/2015 08:30	3/9/15 13:29	JJY	EPA 8081B ^
Toxaphene	<0.18	ug/L	0.18	0.21	0.63	0.63	1.00	U	3/9/2015 08:30	3/9/15 13:29	JJY	EPA 8081B ^
SURR:2,4,5,6-CL4-m-xylene	91	% Recovery	25			140	1.00		3/9/2015 08:30	3/9/15 13:29	JJY	EPA 8081B
SURR:Decachlorobiphenyl	87	% Recovery	30			135	1.00		3/9/2015 08:30	3/9/15 13:29	JJY	EPA 8081B

CT LAB#: 559225	Sample Description: TIMM-0315A	Client Sample #:	Sampled: 3/4/2015 1330
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Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Metals Results												
Dissolved Mercury	<0.030	ug/L	0.030	0.060	0.12	0.12	1.00	U	3/6/2015 08:30	3/9/15 08:29	LJF	EPA 7470A ^
Dissolved Aluminum	<6.0	ug/L	6.0	18	36	36	1.00	U	3/9/2015 08:00	3/10/15 12:32	NAH	EPA 200.7 ^
Dissolved Antimony	<2.0	ug/L	2.0	6.0	12	12	1.00	U	3/9/2015 08:00	3/10/15 12:32	NAH	EPA 200.7 ^
Dissolved Arsenic	<4.0	ug/L	4.0	12	24	24	1.00	U	3/9/2015 08:00	3/10/15 12:32	NAH	EPA 200.7 ^
Dissolved Barium	20.3	ug/L	0.29	0.90	1.8	1.8	1.00		3/9/2015 08:00	3/10/15 12:32	NAH	EPA 200.7 ^
Dissolved Beryllium	<0.10	ug/L	0.10	0.30	0.60	0.60	1.00	U	3/9/2015 08:00	3/10/15 12:32	NAH	EPA 200.7 ^
Dissolved Cadmium	<0.30	ug/L	0.30	1.0	2.0	2.0	1.00	U	3/9/2015 08:00	3/10/15 12:32	NAH	EPA 200.7 ^
Dissolved Calcium	58100	ug/L	17	50	100	100	1.00		3/9/2015 08:00	3/10/15 12:32	NAH	EPA 200.7 ^
Dissolved Chromium	<0.60	ug/L	0.60	2.0	4.0	4.0	1.00	U	3/9/2015 08:00	3/10/15 12:32	NAH	EPA 200.7 ^
Dissolved Cobalt	<0.70	ug/L	0.70	2.0	4.0	4.0	1.00	U	3/9/2015 08:00	3/10/15 12:32	NAH	EPA 200.7 ^
Dissolved Copper	1.7	ug/L	1.2	3.5	7.0	7.0	1.00	J	3/9/2015 08:00	3/10/15 12:32	NAH	EPA 200.7 ^

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 559225	Sample Description: TIMM-0315A	Client Sample #:	Sampled: 3/4/2015 1330
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Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Dissolved Iron	3230	ug/L	16	50	100	100	1.00		3/9/2015 08:00	3/10/15 12:32	NAH	EPA 200.7 ^
Dissolved Lead	<1.4	ug/L	1.4	2.0	4.0	4.0	1.00	U M	3/9/2015 08:00	3/10/15 12:32	NAH	EPA 200.7 ^
Dissolved Magnesium	29500	ug/L	6.0	20	40	40	1.00	Y	3/9/2015 08:00	3/10/15 12:32	NAH	EPA 200.7 ^
Dissolved Manganese	191	ug/L	0.70	2.0	4.0	4.0	1.00		3/9/2015 08:00	3/10/15 12:32	NAH	EPA 200.7 ^
Dissolved Nickel	1.3	ug/L	1.0	3.0	6.0	6.0	1.00	J	3/9/2015 08:00	3/10/15 12:32	NAH	EPA 200.7 ^
Dissolved Selenium	<2.2	ug/L	2.2	6.5	13	13	1.00	U	3/9/2015 08:00	3/10/15 12:32	NAH	EPA 200.7 ^
Dissolved Silver	<0.70	ug/L	0.70	2.0	4.0	4.0	1.00	U	3/9/2015 08:00	3/10/15 12:32	NAH	EPA 200.7 ^
Dissolved Thallium	<2.5	ug/L	2.5	7.5	15	15	1.00	U	3/9/2015 08:00	3/10/15 12:32	NAH	EPA 200.7 ^
Dissolved Vanadium	<0.80	ug/L	0.80	2.5	5.0	5.0	1.00	U	3/9/2015 08:00	3/10/15 12:32	NAH	EPA 200.7 ^
Dissolved Zinc	16.2	ug/L	1.6	5.0	10	10	1.00		3/9/2015 08:00	3/10/15 12:32	NAH	EPA 200.7 ^
Dissolved Potassium	1500	ug/L	90	250	500	500	1.00	M	3/9/2015 08:00	3/10/15 10:40	MDS	EPA 200.7
Dissolved Sodium	2430	ug/L	100	300	600	600	1.00	M	3/9/2015 08:00	3/10/15 10:40	MDS	EPA 200.7

CT LAB#: 559226	Sample Description: TIMM-0315B	Client Sample #:	Sampled: 3/4/2015 1350
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Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Inorganic Results												
E. coli	ABSENT						1.00			3/5/15 12:00	LJS	SM 9223B
Total Coliform Bacteria	PRESENT						1.00	F		3/5/15 12:00	LJS	SM 9223B
pH	7.45	S.U.					1.00			3/6/15 12:30	LJS	EPA 9040C ^
Nitrate Nitrogen Total	<0.040	mg/L	0.040			0.040	1.00	U		3/5/15 14:45	JJF	EPA 300.0
Metals Results												
Total Mercury	<0.030	ug/L	0.030	0.060	0.12	0.12	1.00	U	3/6/2015 08:30	3/9/15 09:03	LJF	EPA 7470A ^
Total Aluminum	<6.0	ug/L	6.0	18	36	36	1.00	U	3/9/2015 08:00	3/10/15 12:20	NAH	EPA 200.7 ^
Total Antimony	<2.0	ug/L	2.0	6.0	12	12	1.00	U	3/9/2015 08:00	3/10/15 12:20	NAH	EPA 200.7 ^
Total Arsenic	9.1	ug/L	4.0	12	24	24	1.00	J	3/9/2015 08:00	3/10/15 12:20	NAH	EPA 200.7 ^

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 559226	Sample Description: TIMM-0315B	Client Sample #:	Sampled: 3/4/2015 1350
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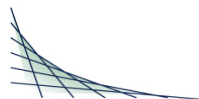
Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Total Barium	22.2	ug/L	0.29	0.90	1.8	1.8	1.00		3/9/2015 08:00	3/10/15 12:20	NAH	EPA 200.7 ^
Total Beryllium	0.15	ug/L	0.10	0.30	0.60	0.60	1.00	J B	3/9/2015 08:00	3/10/15 12:20	NAH	EPA 200.7 ^
Total Cadmium	<0.30	ug/L	0.30	1.0	2.0	2.0	1.00	U	3/9/2015 08:00	3/10/15 12:20	NAH	EPA 200.7 ^
Total Calcium	59800	ug/L	17	50	100	100	1.00		3/9/2015 08:00	3/10/15 12:20	NAH	EPA 200.7 ^
Total Chromium	0.71	ug/L	0.60	2.0	4.0	4.0	1.00	J	3/9/2015 08:00	3/10/15 12:20	NAH	EPA 200.7 ^
Total Cobalt	<0.70	ug/L	0.70	2.0	4.0	4.0	1.00	U	3/9/2015 08:00	3/10/15 12:20	NAH	EPA 200.7 ^
Total Copper	1.2	ug/L	1.2	3.5	7.0	7.0	1.00	J	3/9/2015 08:00	3/10/15 12:20	NAH	EPA 200.7 ^
Total Iron	3020	ug/L	16	50	100	100	1.00		3/9/2015 08:00	3/10/15 12:20	NAH	EPA 200.7 ^
Total Lead	<1.4	ug/L	1.4	2.0	4.0	4.0	1.00	U	3/9/2015 08:00	3/10/15 12:20	NAH	EPA 200.7 ^
Total Magnesium	29800	ug/L	6.0	20	40	40	1.00		3/9/2015 08:00	3/10/15 12:20	NAH	EPA 200.7 ^
Total Manganese	195	ug/L	0.70	2.0	4.0	4.0	1.00		3/9/2015 08:00	3/10/15 12:20	NAH	EPA 200.7 ^
Total Nickel	1.9	ug/L	1.0	3.0	6.0	6.0	1.00	J	3/9/2015 08:00	3/10/15 12:20	NAH	EPA 200.7 ^
Total Selenium	12.2	ug/L	2.2	6.5	13	13	1.00	J	3/9/2015 08:00	3/10/15 12:20	NAH	EPA 200.7 ^
Total Silver	1.4	ug/L	0.70	2.0	4.0	4.0	1.00	J	3/9/2015 08:00	3/10/15 12:20	NAH	EPA 200.7 ^
Total Thallium	<2.5	ug/L	2.5	7.5	15	15	1.00	U	3/9/2015 08:00	3/10/15 12:20	NAH	EPA 200.7 ^
Total Vanadium	0.91	ug/L	0.80	2.5	5.0	5.0	1.00	J B	3/9/2015 08:00	3/10/15 12:20	NAH	EPA 200.7 ^
Total Zinc	10.8	ug/L	1.6	5.0	10	10	1.00		3/9/2015 08:00	3/10/15 12:20	NAH	EPA 200.7 ^
Total Potassium	1510	ug/L	90	250	500	500	1.00		3/9/2015 08:00	3/10/15 11:24	MDS	EPA 200.7 ^
Total Sodium	2510	ug/L	100	300	600	600	1.00		3/9/2015 08:00	3/10/15 11:24	MDS	EPA 200.7 ^

CT LAB#: 559227	Sample Description: TIMM-0315B	Client Sample #:	Sampled: 3/4/2015 1350
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Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Metals Results												
Dissolved Mercury	<0.030	ug/L	0.030	0.060	0.12	0.12	1.00	U	3/6/2015 08:30	3/9/15 08:41	LJF	EPA 7470A ^
Dissolved Aluminum	<6.0	ug/L	6.0	18	36	36	1.00	U	3/9/2015 08:00	3/10/15 13:06	NAH	EPA 200.7 ^
Dissolved Antimony	<2.0	ug/L	2.0	6.0	12	12	1.00	U	3/9/2015 08:00	3/10/15 13:06	NAH	EPA 200.7 ^

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis





CT LAB#: 559227

Sample Description: TIMM-0315B

Client Sample #:

Sampled: 3/4/2015 1350

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Dissolved Arsenic	7.5	ug/L	4.0	12	24	24	1.00	J	3/9/2015 08:00	3/10/15 13:06	NAH	EPA 200.7 ^
Dissolved Barium	22.0	ug/L	0.29	0.90	1.8	1.8	1.00		3/9/2015 08:00	3/10/15 13:06	NAH	EPA 200.7 ^
Dissolved Beryllium	<0.10	ug/L	0.10	0.30	0.60	0.60	1.00	U	3/9/2015 08:00	3/10/15 13:06	NAH	EPA 200.7 ^
Dissolved Cadmium	<0.30	ug/L	0.30	1.0	2.0	2.0	1.00	U	3/9/2015 08:00	3/10/15 13:06	NAH	EPA 200.7 ^
Dissolved Calcium	60700	ug/L	17	50	100	100	1.00		3/9/2015 08:00	3/10/15 13:06	NAH	EPA 200.7 ^
Dissolved Chromium	<0.60	ug/L	0.60	2.0	4.0	4.0	1.00	U	3/9/2015 08:00	3/10/15 13:06	NAH	EPA 200.7 ^
Dissolved Cobalt	<0.70	ug/L	0.70	2.0	4.0	4.0	1.00	U	3/9/2015 08:00	3/10/15 13:06	NAH	EPA 200.7 ^
Dissolved Copper	<1.2	ug/L	1.2	3.5	7.0	7.0	1.00	U	3/9/2015 08:00	3/10/15 13:06	NAH	EPA 200.7 ^
Dissolved Iron	2970	ug/L	16	50	100	100	1.00		3/9/2015 08:00	3/10/15 13:06	NAH	EPA 200.7 ^
Dissolved Lead	<1.4	ug/L	1.4	2.0	4.0	4.0	1.00	U	3/9/2015 08:00	3/10/15 13:06	NAH	EPA 200.7 ^
Dissolved Magnesium	30000	ug/L	6.0	20	40	40	1.00		3/9/2015 08:00	3/10/15 13:06	NAH	EPA 200.7 ^
Dissolved Manganese	195	ug/L	0.70	2.0	4.0	4.0	1.00		3/9/2015 08:00	3/10/15 13:06	NAH	EPA 200.7 ^
Dissolved Nickel	1.7	ug/L	1.0	3.0	6.0	6.0	1.00	J	3/9/2015 08:00	3/10/15 13:06	NAH	EPA 200.7 ^
Dissolved Selenium	7.1	ug/L	2.2	6.5	13	13	1.00	J	3/9/2015 08:00	3/10/15 13:06	NAH	EPA 200.7 ^
Dissolved Silver	<0.70	ug/L	0.70	2.0	4.0	4.0	1.00	U	3/9/2015 08:00	3/10/15 13:06	NAH	EPA 200.7 ^
Dissolved Thallium	<2.5	ug/L	2.5	7.5	15	15	1.00	U	3/9/2015 08:00	3/10/15 13:06	NAH	EPA 200.7 ^
Dissolved Vanadium	<0.80	ug/L	0.80	2.5	5.0	5.0	1.00	U	3/9/2015 08:00	3/10/15 13:06	NAH	EPA 200.7 ^
Dissolved Zinc	11.0	ug/L	1.6	5.0	10	10	1.00		3/9/2015 08:00	3/10/15 13:06	NAH	EPA 200.7 ^
Dissolved Potassium	1520	ug/L	90	250	500	500	1.00		3/9/2015 08:00	3/10/15 10:55	MDS	EPA 200.7
Dissolved Sodium	2510	ug/L	100	300	600	600	1.00		3/9/2015 08:00	3/10/15 10:55	MDS	EPA 200.7

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

Notes:

^ Indicates the laboratory is NELAP accredited for this analyte by the indicated matrix and method. DL (detection limit), LOD (limit of detection), loq (limit of quantitation) as defined by most recent DOD QSM version.

All samples were received intact and properly preserved unless otherwise noted. The results reported relate only to the samples tested. This report shall not be reproduced, except in full, without written approval of this laboratory. The Chain of Custody is attached.

Submitted by: Pat M. Letterer
Project Manager
608-356-2760

This report has been specifically prepared to satisfy project or program requirements. These results are in compliance with NELAC requirements for the parameters where accreditation is required or available, unless noted in the case narrative.

<u>Code</u>	<u>Description</u>	<u>QC Qualifiers</u>	
B	Analyte detected in the associated Method Blank.		Current CT Laboratories Certifications Florida NELAP ID# E871111 Kansas NELAP ID# E-10368 Kentucky ID# 0023 ISO/IEC 17025-2005 A2LA Cert # 3806.01 New Jersey NELAP ID# WI001 North Carolina ID# 674 Wisconsin (WDNR) Chemistry ID# 157066030 Wisconsin (DATCP) Bacteriology ID# 105-289 DoD-ELAP L-A-B Cert # L2392 GA EPD Stipulation ID E871111, Expires Annually Louisiana ID # 115843 Virginia ID# 7608 Illinois NELAP ID # 002413 Wisconsin (WOSB) ID# WI-5499-WBE Maryland ID# 344
C	Toxicity present in BOD sample.		
D	Diluted Out.		
E	Safe, No Total Coliform detected.		
F	Unsafe, Total Coliform detected, no E. Coli detected.		
G	Unsafe, Total Coliform detected and E. Coli detected.		
H	Holding time exceeded.		
I	BOD incubator temperature was outside acceptance limits during test period.		
J	Estimated value.		
L	Significant peaks were detected outside the chromatographic window.		
M	Matrix spike and/or Matrix Spike Duplicate recovery outside acceptance limits.		
N	Insufficient BOD oxygen depletion.		
O	Complete BOD oxygen depletion.		
P	Concentration of analyte differs more than 40% between primary and confirmation analysis.		
Q	Laboratory Control Sample outside acceptance limits.		
R	See Narrative at end of report.		
S	Surrogate standard recovery outside acceptance limits due to apparent matrix effects.		
T	Sample received with improper preservation or temperature.		
U	Analyte concentration was below detection limit.		
V	Raised Quantitation or Reporting Limit due to limited sample amount or dilution for matrix background interference.		
W	Sample amount received was below program minimum.		
X	Analyte exceeded calibration range.		
Y	Replicate/Duplicate precision outside acceptance limits.		
Z	Specified calibration criteria was not met.		



Company: TETRA TECH
 Project Contact: Rob Kondreck
 Telephone: 312.201.7479
 Project Name: ANIWA ARSENIC
 Project #: 103X90260001S051502003
 Location: ANIWA, WI
 Sampled By: Robert Kondreck

CT LABORATORIES
 1230 Lange Court, Baraboo, WI 53913
 608-356-2760 Fax 608-356-2766
 www.ctlaboratories.com
 Place Folder #: 109795
 Company: TETRA TECH
 Project: ANIWA ARSENIC
 Logged By: TKR PM PM
 RA SDWA NPDES
 Other CERCLA

Report To: Robert Kondreck
 EMAIL: robert.kondreck@tetratech.com
 Company: TETRA TECH
 Address: 1 S Dacker Dr St 3700
 CHICAGO IL 60606
 Invoice To: AS ABOVE
 EMAIL:
 Company:
 Address:

*Party listed is responsible for payment of invoice as per CT Laboratories' terms and conditions

Client Special Instructions
 *Only Dissolved Metals are Filtered
 *Analyses added by PML per phone conversation with Robert Kondreck.

ANALYSES REQUESTED										Total # Containers	Designated MS/MSD
NITRATE	PH	PESTICIDES/HERBICIDES	TOTAL METALS	DISSOLVED METALS	ARSENIC SPECIATION	COLIFORM	IRON & SULFUR				

Turnaround Time
 Normal RUSH*
 Date Needed:
 Rush analysis requires prior CT Laboratories' approval
 Surcharges:
 24 hr 200%
 2-3 days 100%
 4-9 days 50%

Matrix:
 GW - groundwater SW - surface water WW - wastewater DW - drinking water
 S - soil/sediment SL - sludge A - air M - misc/waste

Collection		Matrix	Grab/Comp	Sample ID Description	Filtered	Fill in Spaces with Bottles per Test										Total # Containers	Designated MS/MSD	CT Lab ID # Lab use only
Date	Time																	
3-4-15		GW	GRAB	TMM-0315A	N*	1/2	1/2	3	1	1	2	1	1		10	559224/225		
3-4-15		GW	GRAB	TMM-0315B	N*	*	*		1	1		*	*		2	559224/227		

IR # 8

Relinquished by: *[Signature]* Date/Time: 3-5-15/1800
 Received by: *[Signature]* Date/Time: 3/5/15 1048
 Received for Laboratory by: *[Signature]* Date/Time: 3/5/15 1048
 Lab Use Only
 Ice Present Yes No
 Temperature 44°
 Cooler # unmarked

3/5/15 0950 j/s

QC SUMMARY REPORT

TETRA TECH

Project Name: ANIWA ARSENIC

SDG #: 0

Folder #: 109795

Project Number: 103X9026000150515020

Duplicate

Analytical Run #:	112922	Analysis Date:	3/5/2015	Prep Batch #:	Matrix:	GROUND WATER
CTLab #:	559467	Analysis Time:	15:06	Prep Date/Time:	Method:	E300.0
Parent Sample #:	559226	Analyst:	JJF	Prep Analyst:		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Nitrate Nitrogen Total	0.0400	mg/L	<0.0400	U				0	20

TETRA TECH

Project Name: ANIWA ARSENIC

SDG #: 0

Folder #: 109795

Project Number: 103X9026000150515020

Matrix Spike Water

Analytical Run #:	112922	Analysis Date:	3/5/2015	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	559461	Analysis Time:	15:27	Prep Date/Time:		Method:	E300.0
Parent Sample #:	559226	Analyst:	JJF	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Nitrate Nitrogen Total	2.17	mg/L	BDL		2.00	108	80 --- 120		8

TETRA TECH

Project Name: ANIWA ARSENIC

SDG #: 0

Folder #: 109795

Project Number: 103X9026000150515020

Duplicate

Analytical Run #:	112945	Analysis Date:	3/9/2015	Prep Batch #:	51715	Matrix:	GROUND WATER
CTLab #:	559422	Analysis Time:	08:33	Prep Date/Time:	03/06/2015 08:30	Method:	SW7470A
Parent Sample #:	559225	Analyst:	LJF	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Dissolved Mercury	0.0300	ug/L	<0.0300	U			0.12	0	20

TETRA TECH

Project Name: ANIWA ARSENIC

SDG #: 0

Folder #: 109795

Project Number: 103X9026000150515020

Lab Control Spike Water

Analytical Run #:	112945	Analysis Date:	3/9/2015	Prep Batch #:	51715	Matrix:	LIQUID
CTLab #:	559421	Analysis Time:	08:21	Prep Date/Time:	03/06/2015 08:30	Method:	SW7470A
Parent Sample #:		Analyst:	LJF	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Dissolved Mercury	3.00	ug/L			3.00	100	80 --- 120		

TETRA TECH

Project Name: ANIWA ARSENIC

SDG #: 0

Folder #: 109795

Project Number: 103X9026000150515020

Method Blank Water

Analytical Run #:	112945	Analysis Date:	3/9/2015	Prep Batch #:	51715	Matrix:	LIQUID
CTLab #:	559420	Analysis Time:	08:27	Prep Date/Time:	03/06/2015 08:30	Method:	SW7470A
Parent Sample #:		Analyst:	LJF	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Dissolved Mercury	0.03	ug/L		U	0		0.06		

TETRA TECH

Project Name: ANIWA ARSENIC

SDG #: 0

Folder #: 109795

Project Number: 103X9026000150515020

Matrix Spike Duplicate Water

Analytical Run #:	112945	Analysis Date:	3/9/2015	Prep Batch #:	51715	Matrix:	GROUND WATER
CTLab #:	559424	Analysis Time:	08:37	Prep Date/Time:	03/06/2015 08:30	Method:	SW7470A
Parent Sample #:	559423	Analyst:	LJF	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Dissolved Mercury	1.9	ug/L	BDL		2.0	95	80 --- 120	1	20

TETRA TECH

Project Name: ANIWA ARSENIC

SDG #: 0

Folder #: 109795

Project Number: 103X9026000150515020

Matrix Spike Water

Analytical Run #:	112945	Analysis Date:	3/9/2015	Prep Batch #:	51715	Matrix:	GROUND WATER
CTLab #:	559423	Analysis Time:	08:35	Prep Date/Time:	03/06/2015 08:30	Method:	SW7470A
Parent Sample #:	559225	Analyst:	LJF	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Dissolved Mercury	1.9	ug/L	BDL		2.0	95	80 --- 120		

TETRA TECH

Project Name: ANIWA ARSENIC

SDG #: 0

Folder #: 109795

Project Number: 103X9026000150515020

Duplicate

Analytical Run #:	112948	Analysis Date:	3/9/2015	Prep Batch #:	51710	Matrix:	GROUND WATER
CTLab #:	559401	Analysis Time:	08:55	Prep Date/Time:	03/06/2015 08:30	Method:	SW7470A
Parent Sample #:	559224	Analyst:	LJF	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Mercury	0.0300	ug/L	<0.0300	U			0.12	0	20

TETRA TECH

Project Name: ANIWA ARSENIC

SDG #: 0

Folder #: 109795

Project Number: 103X9026000150515020

Lab Control Spike Water

Analytical Run #:	112948	Analysis Date:	3/9/2015	Prep Batch #:	51710	Matrix:	LIQUID
CTLab #:	559400	Analysis Time:	08:43	Prep Date/Time:	03/06/2015 08:30	Method:	SW7470A
Parent Sample #:		Analyst:	LJF	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Mercury	2.96	ug/L			3.00	99	80 --- 120		

TETRA TECH

Project Name: ANIWA ARSENIC

SDG #: 0

Folder #: 109795

Project Number: 103X9026000150515020

Method Blank Water

Analytical Run #:	112948	Analysis Date:	3/9/2015	Prep Batch #:	51710	Matrix:	LIQUID
CTLab #:	559399	Analysis Time:	08:45	Prep Date/Time:	03/06/2015 08:30	Method:	SW7470A
Parent Sample #:		Analyst:	LJF	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Mercury	0.03	ug/L		U	0		0.06		

TETRA TECH

Project Name: ANIWA ARSENIC

SDG #: 0

Folder #: 109795

Project Number: 103X9026000150515020

Matrix Spike Duplicate Water

Analytical Run #:	112948	Analysis Date:	3/9/2015	Prep Batch #:	51710	Matrix:	GROUND WATER
CTLab #:	559403	Analysis Time:	08:59	Prep Date/Time:	03/06/2015 08:30	Method:	SW7470A
Parent Sample #:	559402	Analyst:	LJF	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Mercury	2.0	ug/L	BDL		2.0	100	80 --- 120	3	20

TETRA TECH

Project Name: ANIWA ARSENIC

SDG #: 0

Folder #: 109795

Project Number: 103X9026000150515020

Matrix Spike Water

Analytical Run #:	112948	Analysis Date:	3/9/2015	Prep Batch #:	51710	Matrix:	GROUND WATER
CTLab #:	559402	Analysis Time:	08:57	Prep Date/Time:	03/06/2015 08:30	Method:	SW7470A
Parent Sample #:	559224	Analyst:	LJF	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Mercury	1.9	ug/L	BDL		2.0	95	80 --- 120		

Duplicate

Analytical Run #:	112966	Analysis Date:	3/10/2015	Prep Batch #:	51722	Matrix:	GROUND WATER
CTLab #:	559631	Analysis Time:	11:54	Prep Date/Time:	03/09/2015 08:00	Method:	SW6010
Parent Sample #:	559224	Analyst:	NAH	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Aluminum	6.00	ug/L	<6.00	U			36	0	20
Total Antimony	2.00	ug/L	<2.00	U			12.0	0	20
Total Arsenic	12.0	ug/L	11.2				24	7	20
Total Barium	21.0	ug/L	20.3				1.80	3	20
Total Beryllium	0.100	ug/L	<0.100	U			0.60	0	20
Total Cadmium	0.300	ug/L	<0.300	U			2.0	0	20
Total Calcium	58900	ug/L	58700				100	0	20
Total Chromium	0.600	ug/L	<0.600	U			4.0	0	20
Total Cobalt	0.700	ug/L	<0.700	U			4.0	0	20
Total Copper	3.9	ug/L	3.8				7.0	3	20
Total Iron	3090	ug/L	3100				100	0	20
Total Lead	2.1	ug/L	<1.40				4.0	200	20
Total Magnesium	29400	ug/L	29300				40	0	20
Total Manganese	191	ug/L	190				4.0	1	20
Total Nickel	1.7	ug/L	1.3				6.0	27	20
Total Selenium	2.20	ug/L	<2.20	U			13.0	0	20
Total Silver	0.700	ug/L	<0.700	U			4.0	0	20
Total Thallium	2.50	ug/L	<2.50	U			15.0	0	20
Total Vanadium	0.800	ug/L	<0.800	U			5.0	0	20
Total Zinc	30.6	ug/L	30.7				10.0	0	20

Lab Control Spike Water

Analytical Run #:	112966	Analysis Date:	3/11/2015	Prep Batch #:	51722	Matrix:	LIQUID
CTLab #:	559630	Analysis Time:	13:20	Prep Date/Time:	03/09/2015 08:00	Method:	SW6010
Parent Sample #:		Analyst:	NAH	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Aluminum	904.0	ug/L			800.0	113	80 --- 120		
Total Antimony	168.0	ug/L			200.0	84	80 --- 120		
Total Arsenic	637.0	ug/L			800.0	80	80 --- 120		
Total Barium	738.0	ug/L			800.0	92	80 --- 120		
Total Beryllium	18.40	ug/L			20.00	92	80 --- 120		
Total Cadmium	22.30	ug/L			20.00	112	80 --- 120		
Total Calcium	172000	ug/L			200000	86	80 --- 120		
Total Chromium	70.40	ug/L			80.00	88	80 --- 120		
Total Cobalt	182.0	ug/L			200.0	91	80 --- 120		
Total Copper	82.90	ug/L			100.0	83	80 --- 120		
Total Iron	391.0	ug/L			400.0	98	80 --- 120		
Total Lead	210.0	ug/L			200.0	105	80 --- 120		
Total Magnesium	91600	ug/L			100000	92	80 --- 120		
Total Manganese	185.0	ug/L			200.0	92	80 --- 120		
Total Nickel	159.0	ug/L			200.0	80	80 --- 120		
Total Selenium	682.0	ug/L			800.0	85	80 --- 120		
Total Silver	16.40	ug/L			20.00	82	80 --- 120		
Total Thallium	688.0	ug/L			800.0	86	80 --- 120		
Total Vanadium	204.0	ug/L			200.0	102	80 --- 120		
Total Zinc	166.0	ug/L			200.0	83	80 --- 120		

Method Blank Water

Analytical Run #:	112966	Analysis Date:	3/10/2015	Prep Batch #:	51722	Matrix:	LIQUID
CTLab #:	559629	Analysis Time:	11:42	Prep Date/Time:	03/09/2015 08:00	Method:	SW6010
Parent Sample #:		Analyst:	NAH	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Aluminum	6	ug/L		U	0		18		
Total Antimony	2.0	ug/L		U	0		6.0		
Total Arsenic	4	ug/L		U	0		12		
Total Barium	0.29	ug/L		U	0		0.90		
Total Beryllium	0.115	ug/L			0		0.30		
Total Cadmium	0.3	ug/L		U	0		1.0		
Total Calcium	28.10	ug/L			0		50		
Total Chromium	0.6	ug/L		U	0		2.0		
Total Cobalt	0.7	ug/L		U	0		2.0		
Total Copper	1.2	ug/L		U	0		3.5		
Total Iron	27.50	ug/L			0		50		
Total Lead	1.4	ug/L		U	0		2.0		
Total Magnesium	12.30	ug/L			0		20		
Total Manganese	0.7	ug/L		U	0		2.0		
Total Nickel	1.0	ug/L		U	0		3.0		
Total Selenium	2.2	ug/L		U	0		6.5		
Total Silver	0.7	ug/L		U	0		2.0		
Total Thallium	2.5	ug/L		U	0		7.5		
Total Vanadium	1.21	ug/L			0		2.5		
Total Zinc	1.6	ug/L		U	0		5.0		

Matrix Spike Duplicate Water

Analytical Run #:	112966	Analysis Date:	3/10/2015	Prep Batch #:	51722	Matrix:	GROUND WATER
CTLab #:	559633	Analysis Time:	12:13	Prep Date/Time:	03/09/2015 08:00	Method:	SW6010
Parent Sample #:	559632	Analyst:	NAH	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Aluminum	1000	ug/L	BDL		800	125	80 --- 120	1	20
Total Antimony	172	ug/L	BDL		200	86	80 --- 120	1	20
Total Arsenic	709	ug/L	11.2		800	87	80 --- 120	1	20
Total Barium	769	ug/L	20.3		800	94	80 --- 120	1	20
Total Beryllium	18.5	ug/L	BDL		20.0	92	80 --- 120	0	20
Total Cadmium	15.8	ug/L	BDL		20.0	79	80 --- 120	0	20
Total Calcium	237000	ug/L	58700		200000	89	80 --- 120	2	20
Total Chromium	67.9	ug/L	BDL		80.0	85	80 --- 120	0	20
Total Cobalt	155	ug/L	BDL		200	78	80 --- 120	1	20
Total Copper	89.0	ug/L	3.8		100	85	80 --- 120	0	20
Total Iron	3470	ug/L	3100		400	92	80 --- 120	3	20
Total Lead	152	ug/L	BDL		200	76	80 --- 120	1	20
Total Magnesium	120000	ug/L	29300		100000	91	80 --- 120	2	20
Total Manganese	380	ug/L	190		200	95	80 --- 120	3	20
Total Nickel	162	ug/L	1.3		200	80	80 --- 120	0	20
Total Selenium	695	ug/L	BDL		800	87	80 --- 120	4	20
Total Silver	17.2	ug/L	BDL		20.0	86	80 --- 120	1	20
Total Thallium	659	ug/L	BDL		800	82	80 --- 120	7	20
Total Vanadium	175	ug/L	BDL		200	88	80 --- 120	1	20
Total Zinc	202	ug/L	30.7		200	86	80 --- 120	1	20

Matrix Spike Water

Analytical Run #:	112966	Analysis Date:	3/10/2015	Prep Batch #:	51722	Matrix:	GROUND WATER
CTLab #:	559632	Analysis Time:	11:58	Prep Date/Time:	03/09/2015 08:00	Method:	SW6010
Parent Sample #:	559224	Analyst:	NAH	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Aluminum	991	ug/L	BDL		800	124	80 --- 120		
Total Antimony	171	ug/L	BDL		200	86	80 --- 120		
Total Arsenic	714	ug/L	11.2		800	88	80 --- 120		
Total Barium	765	ug/L	20.3		800	93	80 --- 120		
Total Beryllium	18.5	ug/L	BDL		20.0	92	80 --- 120		
Total Cadmium	15.8	ug/L	BDL		20.0	79	80 --- 120		
Total Calcium	233000	ug/L	58700		200000	87	80 --- 120		
Total Chromium	68.0	ug/L	BDL		80.0	85	80 --- 120		
Total Cobalt	154	ug/L	BDL		200	77	80 --- 120		
Total Copper	88.6	ug/L	3.8		100	85	80 --- 120		
Total Iron	3370	ug/L	3100		400	68	80 --- 120		
Total Lead	153	ug/L	BDL		200	76	80 --- 120		
Total Magnesium	118000	ug/L	29300		100000	89	80 --- 120		
Total Manganese	370	ug/L	190		200	90	80 --- 120		
Total Nickel	162	ug/L	1.3		200	80	80 --- 120		
Total Selenium	668	ug/L	BDL		800	84	80 --- 120		
Total Silver	17.1	ug/L	BDL		20.0	86	80 --- 120		
Total Thallium	615	ug/L	BDL		800	77	80 --- 120		
Total Vanadium	173	ug/L	BDL		200	86	80 --- 120		
Total Zinc	200	ug/L	30.7		200	85	80 --- 120		

Duplicate

Analytical Run #:	112967	Analysis Date:	3/10/2015	Prep Batch #:	51723	Matrix:	GROUND WATER
CTLab #:	559636	Analysis Time:	12:40	Prep Date/Time:	03/09/2015 08:00	Method:	SW6010
Parent Sample #:	559225	Analyst:	NAH	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Dissolved Aluminum	6.00	ug/L	<6.00	U			36	0	20
Dissolved Antimony	2.00	ug/L	<2.00	U			12.0	0	20
Dissolved Arsenic	4.00	ug/L	<4.00	U			24	0	20
Dissolved Barium	20.0	ug/L	20.3				1.80	1	20
Dissolved Beryllium	0.100	ug/L	<0.100	U			0.60	0	20
Dissolved Cadmium	0.300	ug/L	<0.300	U			2.0	0	20
Dissolved Calcium	56500	ug/L	58100				100	3	20
Dissolved Chromium	0.600	ug/L	<0.600	U			4.0	0	20
Dissolved Cobalt	0.700	ug/L	<0.700	U			4.0	0	20
Dissolved Copper	1.20	ug/L	1.7	U			7.0	200	20
Dissolved Iron	3140	ug/L	3230				100	3	20
Dissolved Lead	1.40	ug/L	<1.40	U			4.0	0	20
Dissolved Magnesium	18300	ug/L	29500				40	47	20
Dissolved Manganese	187	ug/L	191				4.0	2	20
Dissolved Nickel	1.00	ug/L	1.3	U			6.0	200	20
Dissolved Selenium	2.20	ug/L	<2.20	U			13.0	0	20
Dissolved Silver	0.700	ug/L	<0.700	U			4.0	0	20
Dissolved Thallium	2.50	ug/L	<2.50	U			15.0	0	20
Dissolved Vanadium	0.800	ug/L	<0.800	U			5.0	0	20
Dissolved Zinc	9.8	ug/L	16.2				10.0	49	20

Lab Control Spike Water

Analytical Run #:	112967	Analysis Date:	3/10/2015	Prep Batch #:	51723	Matrix:	LIQUID
CTLab #:	559635	Analysis Time:	12:24	Prep Date/Time:	03/09/2015 08:00	Method:	SW6010
Parent Sample #:		Analyst:	NAH	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Dissolved Aluminum	647.0	ug/L			800.0	81	80 --- 120		
Dissolved Antimony	171.0	ug/L			200.0	86	80 --- 120		
Dissolved Arsenic	709.0	ug/L			800.0	89	80 --- 120		
Dissolved Barium	750.0	ug/L			800.0	94	80 --- 120		
Dissolved Beryllium	18.30	ug/L			20.00	92	80 --- 120		
Dissolved Cadmium	16.20	ug/L			20.00	81	80 --- 120		
Dissolved Calcium	179000	ug/L			200000	90	80 --- 120		
Dissolved Chromium	67.70	ug/L			80.00	85	80 --- 120		
Dissolved Cobalt	168.0	ug/L			200.0	84	80 --- 120		
Dissolved Copper	85.90	ug/L			100.0	86	80 --- 120		
Dissolved Iron	378.0	ug/L			400.0	94	80 --- 120		
Dissolved Lead	173.0	ug/L			200.0	86	80 --- 120		
Dissolved Magnesium	92500	ug/L			100000	92	80 --- 120		
Dissolved Manganese	180.0	ug/L			200.0	90	80 --- 120		
Dissolved Nickel	164.0	ug/L			200.0	82	80 --- 120		
Dissolved Selenium	700.0	ug/L			800.0	88	80 --- 120		
Dissolved Silver	16.90	ug/L			20.00	84	80 --- 120		
Dissolved Thallium	651.0	ug/L			800.0	81	80 --- 120		
Dissolved Vanadium	173.0	ug/L			200.0	86	80 --- 120		
Dissolved Zinc	173.0	ug/L			200.0	86	80 --- 120		

Method Blank Water

Analytical Run #:	112967	Analysis Date:	3/10/2015	Prep Batch #:	51723	Matrix:	LIQUID
CTLab #:	559634	Analysis Time:	12:28	Prep Date/Time:	03/09/2015 08:00	Method:	SW6010
Parent Sample #:		Analyst:	NAH	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Dissolved Aluminum	6	ug/L		U	0		18		
Dissolved Antimony	2.0	ug/L		U	0		6.0		
Dissolved Arsenic	4	ug/L		U	0		12		
Dissolved Barium	0.294	ug/L			0		0.90		
Dissolved Beryllium	0.10	ug/L		U	0		0.30		
Dissolved Cadmium	0.3	ug/L		U	0		1.0		
Dissolved Calcium	29.40	ug/L			0		50		
Dissolved Chromium	0.6	ug/L		U	0		2.0		
Dissolved Cobalt	0.7	ug/L		U	0		2.0		
Dissolved Copper	1.2	ug/L		U	0		3.5		
Dissolved Iron	16	ug/L		U	0		50		
Dissolved Lead	1.4	ug/L		U	0		2.0		
Dissolved Magnesium	12.50	ug/L			0		20		
Dissolved Manganese	0.850	ug/L			0		2.0		
Dissolved Nickel	1.0	ug/L		U	0		3.0		
Dissolved Selenium	2.2	ug/L		U	0		6.5		
Dissolved Silver	0.7	ug/L		U	0		2.0		
Dissolved Thallium	2.5	ug/L		U	0		7.5		
Dissolved Vanadium	0.8	ug/L		U	0		2.5		
Dissolved Zinc	1.6	ug/L		U	0		5.0		

Matrix Spike Duplicate Water

Analytical Run #:	112967	Analysis Date:	3/10/2015	Prep Batch #:	51723	Matrix:	GROUND WATER
CTLab #:	559638	Analysis Time:	12:48	Prep Date/Time:	03/09/2015 08:00	Method:	SW6010
Parent Sample #:	559637	Analyst:	NAH	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Dissolved Aluminum	1010	ug/L	BDL		800	126	80 --- 120	3	20
Dissolved Antimony	173	ug/L	BDL		200	86	80 --- 120	1	20
Dissolved Arsenic	717	ug/L	BDL		800	90	80 --- 120	0	20
Dissolved Barium	760	ug/L	20.3		800	92	80 --- 120	0	20
Dissolved Beryllium	18.5	ug/L	BDL		20.0	92	80 --- 120	0	20
Dissolved Cadmium	15.8	ug/L	BDL		20.0	79	80 --- 120	1	20
Dissolved Calcium	233000	ug/L	58100		200000	87	80 --- 120	0	20
Dissolved Chromium	67.2	ug/L	BDL		80.0	84	80 --- 120	2	20
Dissolved Cobalt	156	ug/L	BDL		200	78	80 --- 120	0	20
Dissolved Copper	86.0	ug/L	1.7		100	84	80 --- 120	0	20
Dissolved Iron	3470	ug/L	3230		400	60	80 --- 120	0	20
Dissolved Lead	151	ug/L	BDL		200	76	80 --- 120	1	20
Dissolved Magnesium	119000	ug/L	29500		100000	90	80 --- 120	1	20
Dissolved Manganese	362	ug/L	191		200	86	80 --- 120	1	20
Dissolved Nickel	162	ug/L	1.3		200	80	80 --- 120	1	20
Dissolved Selenium	709	ug/L	BDL		800	89	80 --- 120	3	20
Dissolved Silver	16.8	ug/L	BDL		20.0	84	80 --- 120	4	20
Dissolved Thallium	553	ug/L	BDL		800	69	80 --- 120	3	20
Dissolved Vanadium	172	ug/L	BDL		200	86	80 --- 120	2	20
Dissolved Zinc	187	ug/L	16.2		200	85	80 --- 120	1	20

Matrix Spike Water

Analytical Run #:	112967	Analysis Date:	3/10/2015	Prep Batch #:	51723	Matrix:	GROUND WATER
CTLab #:	559637	Analysis Time:	12:44	Prep Date/Time:	03/09/2015 08:00	Method:	SW6010
Parent Sample #:	559225	Analyst:	NAH	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Dissolved Aluminum	985	ug/L	BDL		800	123	80 --- 120		
Dissolved Antimony	172	ug/L	BDL		200	86	80 --- 120		
Dissolved Arsenic	719	ug/L	BDL		800	90	80 --- 120		
Dissolved Barium	758	ug/L	20.3		800	92	80 --- 120		
Dissolved Beryllium	18.5	ug/L	BDL		20.0	92	80 --- 120		
Dissolved Cadmium	15.9	ug/L	BDL		20.0	80	80 --- 120		
Dissolved Calcium	233000	ug/L	58100		200000	87	80 --- 120		
Dissolved Chromium	68.5	ug/L	BDL		80.0	86	80 --- 120		
Dissolved Cobalt	156	ug/L	BDL		200	78	80 --- 120		
Dissolved Copper	85.9	ug/L	1.7		100	84	80 --- 120		
Dissolved Iron	3480	ug/L	3230		400	62	80 --- 120		
Dissolved Lead	152	ug/L	BDL		200	76	80 --- 120		
Dissolved Magnesium	120000	ug/L	29500		100000	90	80 --- 120		
Dissolved Manganese	364	ug/L	191		200	86	80 --- 120		
Dissolved Nickel	163	ug/L	1.3		200	81	80 --- 120		
Dissolved Selenium	689	ug/L	BDL		800	86	80 --- 120		
Dissolved Silver	17.4	ug/L	BDL		20.0	87	80 --- 120		
Dissolved Thallium	537	ug/L	BDL		800	67	80 --- 120		
Dissolved Vanadium	176	ug/L	BDL		200	88	80 --- 120		
Dissolved Zinc	188	ug/L	16.2		200	86	80 --- 120		

TETRA TECH

Project Name: ANIWA ARSENIC

SDG #: 0

Folder #: 109795

Project Number: 103X9026000150515020

Duplicate

Analytical Run #:	112968	Analysis Date:	3/10/2015	Prep Batch #:	51722	Matrix:	GROUND WATER
CTLab #:	559631	Analysis Time:	11:14	Prep Date/Time:	03/09/2015 08:00	Method:	SW6010
Parent Sample #:	559224	Analyst:	MDS	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Potassium	1500	ug/L	1460				0.500	3	20

TETRA TECH

Project Name: ANIWA ARSENIC

SDG #: 0

Folder #: 109795

Project Number: 103X9026000150515020

Duplicate

Analytical Run #:	112968	Analysis Date:	3/10/2015	Prep Batch #:	51722	Matrix:	GROUND WATER
CTLab #:	559631	Analysis Time:	11:14	Prep Date/Time:	03/09/2015 08:00	Method:	SW6010
Parent Sample #:	559224	Analyst:	MDS	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Sodium	2440	ug/L	2400				0.600	2	20

TETRA TECH

Project Name: ANIWA ARSENIC

SDG #: 0

Folder #: 109795

Project Number: 103X9026000150515020

Lab Control Spike Water

Analytical Run #:	112968	Analysis Date:	3/10/2015	Prep Batch #:	51722	Matrix:	LIQUID
CTLab #:	559630	Analysis Time:	10:58	Prep Date/Time:	03/09/2015 08:00	Method:	SW6010
Parent Sample #:		Analyst:	MDS	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Potassium	104000	ug/L			100000	104	80 --- 120		

TETRA TECH

Project Name: ANIWA ARSENIC

SDG #: 0

Folder #: 109795

Project Number: 103X9026000150515020

Lab Control Spike Water

Analytical Run #:	112968	Analysis Date:	3/10/2015	Prep Batch #:	51722	Matrix:	LIQUID
CTLab #:	559630	Analysis Time:	10:58	Prep Date/Time:	03/09/2015 08:00	Method:	SW6010
Parent Sample #:		Analyst:	MDS	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Sodium	103000	ug/L			100000	103	80 --- 120		

TETRA TECH

Project Name: ANIWA ARSENIC

SDG #: 0

Folder #: 109795

Project Number: 103X9026000150515020

Method Blank Water

Analytical Run #:	112968	Analysis Date:	3/10/2015	Prep Batch #:	51722	Matrix:	LIQUID
CTLab #:	559629	Analysis Time:	11:06	Prep Date/Time:	03/09/2015 08:00	Method:	SW6010
Parent Sample #:		Analyst:	MDS	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Potassium	90	ug/L		U	0		250		

TETRA TECH

Project Name: ANIWA ARSENIC

SDG #: 0

Folder #: 109795

Project Number: 103X9026000150515020

Method Blank Water

Analytical Run #:	112968	Analysis Date:	3/10/2015	Prep Batch #:	51722	Matrix:	LIQUID
CTLab #:	559629	Analysis Time:	11:06	Prep Date/Time:	03/09/2015 08:00	Method:	SW6010
Parent Sample #:		Analyst:	MDS	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Sodium	100	ug/L		U	0		300		

TETRA TECH

Project Name: ANIWA ARSENIC

SDG #: 0

Folder #: 109795

Project Number: 103X9026000150515020

Matrix Spike Duplicate Water

Analytical Run #:	112968	Analysis Date:	3/10/2015	Prep Batch #:	51722	Matrix:	GROUND WATER
CTLab #:	559633	Analysis Time:	11:19	Prep Date/Time:	03/09/2015 08:00	Method:	SW6010
Parent Sample #:	559632	Analyst:	MDS	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Potassium	107000	ug/L	1460		100000	106	80 --- 120	1	20

TETRA TECH

Project Name: ANIWA ARSENIC

SDG #: 0

Folder #: 109795

Project Number: 103X9026000150515020

Matrix Spike Duplicate Water

Analytical Run #:	112968	Analysis Date:	3/10/2015	Prep Batch #:	51722	Matrix:	GROUND WATER
CTLab #:	559633	Analysis Time:	11:19	Prep Date/Time:	03/09/2015 08:00	Method:	SW6010
Parent Sample #:	559632	Analyst:	MDS	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Sodium	107000	ug/L	2400		100000	105	80 --- 120	3	20

TETRA TECH

Project Name: ANIWA ARSENIC

SDG #: 0

Folder #: 109795

Project Number: 103X9026000150515020

Matrix Spike Water

Analytical Run #:	112968	Analysis Date:	3/10/2015	Prep Batch #:	51722	Matrix:	GROUND WATER
CTLab #:	559632	Analysis Time:	11:16	Prep Date/Time:	03/09/2015 08:00	Method:	SW6010
Parent Sample #:	559224	Analyst:	MDS	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Potassium	106000	ug/L	1460		100000	105	80 --- 120		

TETRA TECH

Project Name: ANIWA ARSENIC

SDG #: 0

Folder #: 109795

Project Number: 103X9026000150515020

Matrix Spike Water

Analytical Run #:	112968	Analysis Date:	3/10/2015	Prep Batch #:	51722	Matrix:	GROUND WATER
CTLab #:	559632	Analysis Time:	11:16	Prep Date/Time:	03/09/2015 08:00	Method:	SW6010
Parent Sample #:	559224	Analyst:	MDS	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Sodium	104000	ug/L	2400		100000	102	80 --- 120		

TETRA TECH

Project Name: ANIWA ARSENIC

SDG #: 0

Folder #: 109795

Project Number: 103X9026000150515020

Duplicate

Analytical Run #:	112969	Analysis Date:	3/10/2015	Prep Batch #:	51723	Matrix:	GROUND WATER
CTLab #:	559636	Analysis Time:	10:45	Prep Date/Time:	03/09/2015 08:00	Method:	SW6010
Parent Sample #:	559225	Analyst:	MDS	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Dissolved Potassium	1540	ug/L	1500				500	3	20

TETRA TECH

Project Name: ANIWA ARSENIC

SDG #: 0

Folder #: 109795

Project Number: 103X9026000150515020

Duplicate

Analytical Run #:	112969	Analysis Date:	3/10/2015	Prep Batch #:	51723	Matrix:	GROUND WATER
CTLab #:	559636	Analysis Time:	10:45	Prep Date/Time:	03/09/2015 08:00	Method:	SW6010
Parent Sample #:	559225	Analyst:	MDS	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Dissolved Sodium	2470	ug/L	2430				600	2	20

TETRA TECH

Project Name: ANIWA ARSENIC

SDG #: 0

Folder #: 109795

Project Number: 103X9026000150515020

Lab Control Spike Water

Analytical Run #:	112969	Analysis Date:	3/10/2015	Prep Batch #:	51723	Matrix:	LIQUID
CTLab #:	559635	Analysis Time:	10:35	Prep Date/Time:	03/09/2015 08:00	Method:	SW6010
Parent Sample #:		Analyst:	MDS	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Dissolved Potassium	104000	ug/L			100000	104	80 --- 120		

TETRA TECH

Project Name: ANIWA ARSENIC

SDG #: 0

Folder #: 109795

Project Number: 103X9026000150515020

Lab Control Spike Water

Analytical Run #:	112969	Analysis Date:	3/10/2015	Prep Batch #:	51723	Matrix:	LIQUID
CTLab #:	559635	Analysis Time:	10:35	Prep Date/Time:	03/09/2015 08:00	Method:	SW6010
Parent Sample #:		Analyst:	MDS	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Dissolved Sodium	102000	ug/L			100000	102	80 --- 120		

TETRA TECH

Project Name: ANIWA ARSENIC

SDG #: 0

Folder #: 109795

Project Number: 103X9026000150515020

Method Blank Water

Analytical Run #:	112969	Analysis Date:	3/10/2015	Prep Batch #:	51723	Matrix:	LIQUID
CTLab #:	559634	Analysis Time:	10:37	Prep Date/Time:	03/09/2015 08:00	Method:	SW6010
Parent Sample #:		Analyst:	MDS	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Dissolved Potassium	90	ug/L		U	0		250		

TETRA TECH

Project Name: ANIWA ARSENIC

SDG #: 0

Folder #: 109795

Project Number: 103X9026000150515020

Method Blank Water

Analytical Run #:	112969	Analysis Date:	3/10/2015	Prep Batch #:	51723	Matrix:	LIQUID
CTLab #:	559634	Analysis Time:	10:37	Prep Date/Time:	03/09/2015 08:00	Method:	SW6010
Parent Sample #:		Analyst:	MDS	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Dissolved Sodium	100	ug/L		U	0		300		

TETRA TECH

Project Name: ANIWA ARSENIC

SDG #: 0

Folder #: 109795

Project Number: 103X9026000150515020

Matrix Spike Duplicate Water

Analytical Run #:	112969	Analysis Date:	3/10/2015	Prep Batch #:	51723	Matrix:	GROUND WATER
CTLab #:	559638	Analysis Time:	10:50	Prep Date/Time:	03/09/2015 08:00	Method:	SW6010
Parent Sample #:	559637	Analyst:	MDS	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Dissolved Potassium	107000	ug/L	1500		100000	106	80 --- 120	1	20

TETRA TECH

Project Name: ANIWA ARSENIC

SDG #: 0

Folder #: 109795

Project Number: 103X9026000150515020

Matrix Spike Duplicate Water

Analytical Run #:	112969	Analysis Date:	3/10/2015	Prep Batch #:	51723	Matrix:	GROUND WATER
CTLab #:	559638	Analysis Time:	10:50	Prep Date/Time:	03/09/2015 08:00	Method:	SW6010
Parent Sample #:	559637	Analyst:	MDS	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Dissolved Sodium	105000	ug/L	2430		100000	103	80 --- 120	0	20

TETRA TECH

Project Name: ANIWA ARSENIC

SDG #: 0

Folder #: 109795

Project Number: 103X9026000150515020

Matrix Spike Water

Analytical Run #:	112969	Analysis Date:	3/10/2015	Prep Batch #:	51723	Matrix:	GROUND WATER
CTLab #:	559637	Analysis Time:	10:48	Prep Date/Time:	03/09/2015 08:00	Method:	SW6010
Parent Sample #:	559225	Analyst:	MDS	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Dissolved Potassium	106000	ug/L	1500		100000	104	80 --- 120		

TETRA TECH

Project Name: ANIWA ARSENIC

SDG #: 0

Folder #: 109795

Project Number: 103X9026000150515020

Matrix Spike Water

Analytical Run #:	112969	Analysis Date:	3/10/2015	Prep Batch #:	51723	Matrix:	GROUND WATER
CTLab #:	559637	Analysis Time:	10:48	Prep Date/Time:	03/09/2015 08:00	Method:	SW6010
Parent Sample #:	559225	Analyst:	MDS	Prep Analyst:	LJF		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Dissolved Sodium	105000	ug/L	2430		100000	103	80 --- 120		

Lab Control Spike Duplicate Water

Analytical Run #:	112976	Analysis Date:	3/9/2015	Prep Batch #:	51714	Matrix:	LIQUID
CTLab #:	559419	Analysis Time:	12:55	Prep Date/Time:	03/09/2015 08:30	Method:	SW8081
Parent Sample #:	559418	Analyst:	JJY	Prep Analyst:	AJZ		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
4,4'-DDD	0.416	ug/L			0.400	104	25 --- 150	3	30
4,4'-DDE	0.430	ug/L			0.400	108	35 --- 140	0	30
4,4'-DDT	0.415	ug/L			0.400	104	45 --- 140	4	30
Aldrin	0.436	ug/L			0.400	109	25 --- 140	1	30
alpha-BHC	0.426	ug/L			0.400	106	60 --- 130	0	30
alpha-Chlordane	0.418	ug/L			0.400	104	65 --- 125	0	30
beta-BHC	0.450	ug/L			0.400	112	65 --- 125	1	30
Chlordane (Technical)	0	ug/L			2.50	0	72 --- 122	200	30
delta-BHC	0.472	ug/L			0.400	118	45 --- 135	0	30
Dieldrin	0.413	ug/L			0.400	103	60 --- 130	1	30
Endosulfan I	0.409	ug/L			0.400	102	50 --- 110	1	30
Endosulfan II	0.410	ug/L			0.400	102	30 --- 130	1	30
Endosulfan sulfate	0.407	ug/L			0.400	102	55 --- 135	2	30
Endrin	0.418	ug/L			0.400	104	55 --- 135	0	30
Endrin aldehyde	0.417	ug/L			0.400	104	55 --- 135	1	30
Endrin ketone	0.416	ug/L			0.400	104	75 --- 125	2	30
gamma-Chlordane	0.423	ug/L			0.400	106	60 --- 125	1	30
Heptachlor	0.452	ug/L			0.400	113	40 --- 130	0	30
Heptachlor epoxide	0.430	ug/L			0.400	108	60 --- 130	1	30
Lindane	0.434	ug/L			0.400	108	25 --- 135	1	30
Methoxychlor	0.417	ug/L			0.400	104	55 --- 150	6	30
Toxaphene	0	ug/L			2.50	0	73 --- 129	200	30

Lab Control Spike Water

Analytical Run #:	112976	Analysis Date:	3/9/2015	Prep Batch #:	51714	Matrix:	LIQUID
CTLab #:	559418	Analysis Time:	12:39	Prep Date/Time:	03/09/2015 08:30	Method:	SW8081
Parent Sample #:		Analyst:	JJY	Prep Analyst:	AJZ		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
4,4'-DDD	0.429	ug/L			0.400	107	25 --- 150		30
4,4'-DDE	0.432	ug/L			0.400	108	35 --- 140		30
4,4'-DDT	0.430	ug/L			0.400	108	45 --- 140		30
Aldrin	0.433	ug/L			0.400	108	25 --- 140		30
alpha-BHC	0.424	ug/L			0.400	106	60 --- 130		30
alpha-Chlordane	0.416	ug/L			0.400	104	65 --- 125		30
beta-BHC	0.446	ug/L			0.400	112	65 --- 125		30
Chlordane (Technical)	2.80	ug/L			2.50	112	72 --- 122		30
delta-BHC	0.472	ug/L			0.400	118	45 --- 135		30
Dieldrin	0.410	ug/L			0.400	102	60 --- 130		30
Endosulfan I	0.405	ug/L			0.400	101	50 --- 110		30
Endosulfan II	0.413	ug/L			0.400	103	30 --- 130		30
Endosulfan sulfate	0.417	ug/L			0.400	104	55 --- 135		30
Endrin	0.420	ug/L			0.400	105	55 --- 135		30
Endrin aldehyde	0.422	ug/L			0.400	106	55 --- 135		30
Endrin ketone	0.426	ug/L			0.400	106	75 --- 125		30
gamma-Chlordane	0.418	ug/L			0.400	104	60 --- 125		30
Heptachlor	0.452	ug/L			0.400	113	40 --- 130		30
Heptachlor epoxide	0.425	ug/L			0.400	106	60 --- 130		30
Lindane	0.429	ug/L			0.400	107	25 --- 135		30
Methoxychlor	0.441	ug/L			0.400	110	55 --- 150		30
Toxaphene	2.48	ug/L			2.50	99	73 --- 129		30

Method Blank Water

Analytical Run #:	112976	Analysis Date:	3/9/2015	Prep Batch #:	51714	Matrix:	LIQUID
CTLab #:	559417	Analysis Time:	12:22	Prep Date/Time:	03/09/2015 08:30	Method:	SW8081
Parent Sample #:		Analyst:	JJY	Prep Analyst:	AJZ		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
4,4'-DDD	0.006	ug/L		U	0		0.012		
4,4'-DDE	0.006	ug/L		U	0		0.020		
4,4'-DDT	0.007	ug/L		U	0		0.012		
Aldrin	0.006	ug/L		U	0		0.012		
alpha-BHC	0.005	ug/L		U	0		0.012		
alpha-Chlordane	0.009	ug/L		U	0		0.020		
beta-BHC	0.009	ug/L		U	0		0.020		
Chlordane (Technical)	0.102	ug/L		U	0		0.300		
delta-BHC	0.005	ug/L		U	0		0.012		
Dieldrin	0.006	ug/L		U	0		0.012		
Endosulfan I	0.009	ug/L		U	0		0.020		
Endosulfan II	0.007	ug/L		U	0		0.012		
Endosulfan sulfate	0.006	ug/L		U	0		0.012		
Endrin	0.006	ug/L		U	0		0.012		
Endrin aldehyde	0.009	ug/L		U	0		0.020		
Endrin ketone	0.007	ug/L		U	0		0.012		
gamma-Chlordane	0.007	ug/L		U	0		0.012		
Heptachlor	0.006	ug/L		U	0		0.012		
Heptachlor epoxide	0.007	ug/L		U	0		0.012		
Lindane	0.007	ug/L		U	0		0.012		
Methoxychlor	0.006	ug/L		U	0		0.020		
Toxaphene	0.176	ug/L		U	0		0.300		

Sample Condition Report

Folder #: 109795	Print Date / Time: 03/05/2015 10:48
Client: TETRA TECH	Received Date / Time / By: 03/04/2015 1800 JP
Project Name: ANIWA ARSENIC	Log-In Date / Time / By: 03/05/2015 1048 TKR
Project Phase:	Project #: 103X9026000150515020 PM: PML
Coolers: UNMARKED	Temperature: 4.4 C On Ice: Y
Custody Seals Present : N	COC Present?: Y Complete? Y
Seal Intact? NA	Numbers:
Ship Method: HAND DELIVERED	Tracking Number: NA
Adequate Packaging: Y	Temp Blank Enclosed?

Notes: THE SAMPLES WERE DELIVERED TO THE LABORATORY, AFTER HOURS, BY TETRA TECH SAMPLER ON 03/04/15 @ 1800. THE SAMPLES WERE PLACED IN COLD STORAGE FOR THE EVENING AND WERE LOGGED IN ON 03/05/15.

THE SAMPLES WERE RECEIVED INTACT AND ON ICE.

THERE WERE NO CUSTODY SEALS ON THE COOLER.

THE COC DOCUMENTATION DID NOT AGREE WITH THE BOTTLES RECEIVED. THE FOLLOWING BOTTLES WERE RECEIVED FOR SAMPLE TIMM-0315B BUT THE ANALYSES WERE NOT MARKED ON THE COC: NITRATE/PH, COLIFORM BACTERIA, IRON & SULFUR BACTERIA. THE CLIENT WAS CONTACTED AND INDICATED THAT THE ANALYSES SHOULD BE ADDED. ADDED TO THE COC BY LAB PROJECT MANAGER.

CLIENT INDICATED THAT THEY FILLED BOTH ARSENIC SPECIATION BOTTLES BUT ONLY NEED THE TOTAL ANALYZED. WE CAN DISPOSE OF THE DISSOLVED BOTTLE.

THE TIME COLLECTED WAS NOT DOCUMENTED ON THE COC FOR EITHER SAMPLE. THE TIMES WERE FOUND ON THE BOTTLE LABELS AND WERE USED TO LOG THE SAMPLES IN.

Sample ID / Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
559224 TIMM-0315A	UNPRES PL	1	/	Anions,pH
	Total # of Containers of Type		(UNPRES PL) = 1	
559224 TIMM-0315A	HNO3	1	/	ARSENIC,HG,ICP,K,NA
	HNO3	1	/	ARSENIC,HG,ICP,K,NA
	Total # of Containers of Type		(HNO3) = 2	
559224 TIMM-0315A	STERILE	1	/	FEBT,TCOL
	STERILE	1	/	FEBT,TCOL
	Total # of Containers of Type		(STERILE) = 2	
559224 TIMM-0315A	AMBER GL	1	/	HERB,PEST
	Total # of Containers of Type		(AMBER GL) = 1	

Sample ID / Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
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559225	TIMM-0315A	HNO3	1	/	HG,ICP,K,NA
		HNO3	1	/	HG,ICP,K,NA
		Total # of Containers of Type (HNO3) = 2			

Sample ID / Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
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559226	TIMM-0315B	UNPRES PL	1	/	Anions,pH
		Total # of Containers of Type (UNPRES PL) = 1			

559226	TIMM-0315B	STERILE	1	/	FEBT,TCOL
		STERILE	1	/	FEBT,TCOL
		Total # of Containers of Type (STERILE) = 2			

559226	TIMM-0315B	HNO3	1	/	HG,ICP,K,NA
		HNO3	1	/	HG,ICP,K,NA
		Total # of Containers of Type (HNO3) = 2			

Sample ID / Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
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559227	TIMM-0315B	HNO3	1	/	HG,ICP,K,NA
		HNO3	1	/	HG,ICP,K,NA
		Total # of Containers of Type (HNO3) = 2			

<u>Condition Code</u>	<u>Condition Description</u>
1	Sample Received OK

DATA VALIDATION REPORT

FOR LABORATORY REPORT NO. 109795

This data validation report documents the validation of analytical results for two groundwater samples (including total and dissolved fractions) collected on 4 March 2015 from the Aniwa Arsenic site in Aniwa, Wisconsin. The samples were collected by Tetra Tech START personnel to determine the potential risk to human health and the environment from site contamination. The samples were hand-delivered to the CT Laboratories, Inc. (CT), facility in Baraboo, Wisconsin, for analysis. CT identified the samples as Sample Delivery Group No. 109795 and analyzed them for mercury by U.S. Environmental Protection Agency (EPA) SW-846 Method 7470A and for other metals by EPA water method 200.7. CT performed other analyses on these samples, but those are reported separately.

Tetra Tech validated the data from the samples in general accordance with the EPA Contract Laboratory Program (CLP) National Functional Guidelines (NFG) for Inorganic Data Review, dated August 2014. The NFG guidelines were modified as appropriate to correspond to the specific requirements of the non-CLP method used in these analyses and the START Quality Assurance Project Plan (QAPP) dated April 2014. The validation was based on the following quality control (QC) parameters, as applicable to each analysis:

- Holding time and sample preservation
- Initial and continuing calibrations
- Blanks
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Serial dilution results
- Sample duplicate results
- Sample quantitation

The next sections discuss the validation results for the analyses, with the focus on the QC parameters with irregularities. The final section provides an overall evaluation of the validation of all analyses. CT did not include an electronic data deliverable (EDD), so Tetra Tech annotated the sample results from CT, added validation qualifiers, and attached that to this report. These added qualifiers may include:

- No qualifier: results are acceptable as reported
- U: Analyte analyzed for but not detected above the listed reporting limit
- J: Analyte detected but concentration is estimated for QC reasons
- J-: Analyte detected but concentration is estimated for QC reasons and may be biased low
- J+: Analyte detected but concentration is estimated for QC reasons and may be biased high
- UJ: Analyte not detected and the sample reporting limit is considered estimated for QC reasons
- R: Results are rejected. The analyte may or may not be present. Re-sampling and re-analysis are necessary to verification.

1.0 Mercury Analyses

There were no problems with holding times and sample preservation, initial and continuing calibrations, blanks, LCS results, MS/MSD results, sample duplicate results, and sample quantitation. Mercury was not detected in the samples and no qualifications were applied.

2.0 Other Metals Analyses

The other metals analyses had no problems with sample preservation and holding times, initial and continuing calibrations, and LCS results.

Many metals were found in various laboratory blanks, all in concentrations less than their reporting limit (RL). When the metal detected in one or more blank samples was not detected in an associated field

sample, no qualifications were applied. When the metal was detected in a sample at a concentration that was both above the RL and more than 10 times the blank concentration, no qualifications were applied. In the few cases in which the metal was reported in the sample at a concentration less than the RL, that result was qualified as nondetected and flagged “U”, with the concentration raised to the RL.

The MS/MSD analyses were performed on sample TIMM-0315A. Iron recoveries (both total and dissolved) could not be determined because the unspiked sample concentration was about 8 times the amount of the spike. No qualifications were applied for these data gaps. Some recoveries were outside the laboratory’s QC limits of 80 to 120 percent but within the NFG limits of 75 to 125 percent. Other recoveries were outside the NFG limits in one sample but within them in the other sample and in the average recovery. No qualifications were applied for these minor irregularities. However, dissolved thallium recoveries were 69 and 67 percent. (Total thallium recoveries were 77 and 82 percent.) The nondetected results for dissolved thallium in both samples were qualified as estimated and flagged “UJ” to indicate the apparent matrix interference.

The serial dilution analyses were performed on sample TIMM-0315A. Most results were not usable because of the low concentration of the metals in the samples. However, recoveries were 116 percent for dissolved calcium, 134 percent for total calcium, 102 percent for dissolved magnesium, and 120 percent for total magnesium, versus QC limits of 90 to 110 percent recovery. These results indicate significant matrix interference. Therefore the results for dissolved calcium, total calcium, and total magnesium in both samples were qualified as estimated, possibly biased low, and flagged “J-” to indicate the problem.

In the laboratory duplicate analysis performed on sample TIMM-0315A, several low-concentration results yielded relative percent differences (RPD) above the QC limit of 20 percent. These metals were all well within the low-concentration QC limit of ± 1 RL, so no qualifications were applied. However total magnesium yielded a 47 percent RPD, so that result in sample TIMM-0315A was qualified as estimated and flagged “J”.

A number of the detected metal results were less than the RL, which corresponds to the limit of quantitation. CT correctly flagged these results “J” to indicate that they are estimated.

3.0 Overall Evaluation

No significant problems were encountered and few qualifications were applied. The qualifications were due to typical low-concentration laboratory contamination, routinely found in sensitive analyses such as these, and some matrix interferences. No qualifications were required by the arsenic results. All results may be used, as qualified, for any purpose.