

Attachment 6H: Sample Results Letter to a Pregnant Woman or Woman of Child Bearing Age (15 to <45 years) - Total Arsenic Above Follow-up Level, Organic Arsenic Elevated, Inorganic Arsenic Elevated

Flesch-Kincaid Reading level – 10.7

(ATSDR Letterhead)

DATE _____

Name XXXXX
Address XXXX
Address XXXX

Dear _____ [Participant Name] _____,

Thank you for participating in the second Exposure Investigation in Winkelman, Arizona in MONTH, YEAR. The goal is to find out whether people living in Hayden and Winkelman, AZ are being exposed to arsenic.

Your arsenic results were above the investigation follow up level. ATSDR will call you within 2 weeks to discuss your results. We recommend you contact your doctor to discuss the results and determine if retesting is appropriate.

This package contains the results of your urine arsenic test from the current investigation and for comparison, also contains [his/her] results from the initial investigation conducted in April 2015, if applicable.

Results above the investigation exposure follow-up level appear in **bold**.

What do these results mean and should I follow up?

In this package, you can find:

- Test Results: Your arsenic test results from 2015, if applicable, and [Current investigation YEAR]
- What It Means: An explanation of what the YEAR results mean for your health
- Follow Up: Recommendations for following up on these results, if needed
- Fact Sheet: Tips to lower your exposure to arsenic

If you have questions about this Exposure Investigation or your test results, please contact me at 770-488-0771 or BTierney@cdc.gov.

Sincerely,

Bruce C. Tierney, MD
Lead Investigator, ASARCO Hayden Smelter Exposure Investigation
ATSDR Division of Community Health Investigations, Exposure Investigation Team

TEST RESULTS

Your Total Urinary Arsenic Results, 2015

| 2015 Arsenic Test Results | | |
|--|--|--|
| Arsenic Type | Your result * | Investigation Exposure Follow-Up Level * |
| Total Urine Arsenic | XX.X µg/g of creatinine ** (or “Not Applicable” as appropriate) | 28.4 µg/g creatinine † |
| <p>* Results are reported in micrograms per gram of creatinine (µg/g). Creatinine adjustment is a standard method we use to report the amount of arsenic measured in urine samples.</p> <p>** If your total urinary arsenic level was above 28.4 µg/g, further analysis was done to determine the amount of organic and inorganic arsenic in the total.</p> <p>† The total urine arsenic investigation exposure follow-up level is the lowest 95th percentile total urine arsenic value reported for all age groups in the 2009-2010 CDC National Health and Nutrition Examination Survey. The 95th percentile means that 95 percent of the population will have a value at or below the number indicated as the investigation exposure follow up level.</p> | | |

Your Total Urinary Arsenic Results, [current investigation YEAR]

| YEAR Arsenic Test Results | | |
|--|----------------------------|--|
| Arsenic Type | Your result * | Investigation Exposure Follow-Up Level * |
| Total Urine Arsenic | XX.X µg/g of creatinine ** | 28.4 † |
| <p>*1 Results are reported in micrograms per gram of creatinine (µg/g). Creatinine adjustment is a standard method we use to report the amount of arsenic measured in urine samples.</p> <p>**2 If your total urinary arsenic level was above 28.4 µg/g, further analysis was done to determine the amount of organic and inorganic arsenic in the total.</p> <p>† The total urine arsenic investigation exposure follow-up level is the lowest 95th percentile total urine arsenic value reported for all age groups in the 2009-2010 CDC National Health and Nutrition Examination Survey. The 95th percentile means that 95 percent of the population will have a value at or below the number indicated as the investigation exposure follow up level.</p> | | |

Your Organic Arsenic Results, [current investigation YEAR]

Since your total urine arsenic level was above the investigation exposure follow up level, we tested 3 types of organic arsenic (the most common types). Your organic arsenic results are shown below. [X] out of 3 of your organic arsenic test results were [not above] [above] the investigation exposure follow-up level. Results above the investigation exposure follow-up level appear in **bold**.

| Organic Arsenic Type (Abbreviation) | Your Result * | Investigation Exposure Level *,** |
|-------------------------------------|---------------|---|
| Arsenobetaine (AsB) | X.XX | Age specific 2009-2010 NHANES 95% value |
| Arsenocholine (AsC) | X.XX | Too low to detect |
| Trimethylarsine Oxide (TMAO) | X.XX | Too low to detect |

* Results are reported in micrograms per gram of creatinine (µg/g). Creatinine adjustment is a standard method we use to report the amount of arsenic measured in urine samples.

** The follow-up level for each arsenic species is the 2009-2010 creatinine corrected 95th percentile level for the US population in the participants' age group (i.e. 6-11, 12-19, 20 + years). CDC. Fourth Report on Human Exposure to Environmental Chemicals, Updated Tables, Feb 2015. <http://www.cdc.gov/exposurereport/>

Your Inorganic Arsenic Results, [current investigation YEAR]

Since your total urine arsenic level was above the investigation exposure follow up level, we tested for 4 types of inorganic arsenic. Your inorganic arsenic results are shown below. [X] out of 4 of your inorganic arsenic test results were [not above] [above] the investigation follow-up level. Results above the investigation follow-up level appear in **bold**.

| Inorganic Arsenic Type (Abbreviation) | Your Result * | Investigation Exposure Follow Up Level **,** |
|---|---------------|--|
| Arsenic Acid | X.XX | Too low to detect |
| Arsenous Acid (As3) | X.XX | Age specific 2009-2010 NHANES 95% value |
| Dimethylarsinic Acid (DMA) | XX.X | Age specific 2009-2010 NHANES 95% value |
| Monomethylarsonic Acid (MMA) | X.XX | Age specific 2009-2010 NHANES 95% value |
| * Results are reported in micrograms per gram of creatinine (µg/g). Creatinine adjustment is a standard method we use to report the amount of arsenic measured in urine samples. ** The follow-up level for each arsenic species is the 2009-2010 creatinine corrected 95 th percentile level for the US population in the participants' age group (i.e. 6-11, 12-19, 20 + years). CDC. Fourth Report on Human Exposure to Environmental Chemicals, Updated Tables, Feb 2015. http://www.cdc.gov/exposurereport/ | | |

WHAT IT MEANS

What Your Urine Arsenic Result Means

When arsenic gets into your body, it stays for a few days, and then most of it comes out through your urine. Your test results tell us about the most recent arsenic exposures you experienced, but not about exposures from a week, or even a year ago.

Since your total arsenic result was above the investigation exposure follow up level we further tested for organic and inorganic arsenic.

Arsenic comes in two types: organic and inorganic.

- **Organic arsenic doesn't usually cause health problems.** It's often found in fish and seafood, so eating fish or seafood before testing can increase your organic arsenic level.
- **Inorganic arsenic may cause health problems.** It's found in the environment and in some foods. In Hayden and Winkelman it is found in the air, in storm water in neighborhood arroyos, and in tailings piles. It can also be found in some foods like rice, and rice products (more information in Enclosure 1).

Your organic arsenic results

[Some] [All] of the organic arsenic species in your urine from this test date were [equal to] [above] the

investigation exposure follow up level.

This means that [some] [all] of the organic arsenic results from this test date are higher than the results of most other adults your age in the United States.

Your inorganic arsenic results

[Some] [All] of the inorganic arsenic species in your urine were [equal to] [above] the investigation exposure follow up level.

This means that [some] [all] of your inorganic arsenic results from this test date are higher than the results of most other adults your age in the United States.

Will I have health problems?

Organic arsenic levels above the investigation exposure follow-up levels **don't mean that you will have health problems**. Organic arsenic may be elevated for a few days after a person eats fish or seafood. Organic arsenic is not typically associated with health problems

Inorganic arsenic levels above the investigation exposure follow-up levels **don't mean that you will have health problems**. Health problems depend on the arsenic level, length of exposure, and your age and health.

Exposure to low levels of inorganic arsenic over many years can cause darkening of the skin and the appearance of small corns or warts on the palms of the hands, soles of the feet, and the upper body.

Arsenic exposure over many years also raises the risk of cancer of the bladder, lung, liver, and skin.

Studies in people show that exposures to inorganic arsenic while a woman is pregnant can lead to developmental effects on her unborn baby – such as learning disabilities and behavioral issues – that could appear during childhood.

FOLLOW UP

How to Follow Up on Your Urinary Arsenic Results

Based on these results, **ATSDR will call you within about 2 weeks of you receiving this packet to discuss your results**. In addition, we recommend you contact your doctor to discuss the results and determine if retesting is appropriate. Take this letter with you and encourage your doctor to contact ATSDR with questions.

Hayden and Winkelman have more environmental arsenic than most towns in the United States, so everyone can take steps to reduce their exposure to arsenic. Use the tips in Enclosure 1 to do so.

As always, if you have questions for ATSDR, please contact us at 770-488-0771 or by email at BTierney@cdc.gov.

Enclosures (Attachment 11 - Tips for Reducing Exposure to Arsenic)