



Results of Soil Sampling in Kearny, Hayden and Winkelman

U.S. ENVIRONMENTAL PROTECTION AGENCY • REGION 9 • FEBRUARY 2005

The United States Environmental Protection Agency (EPA), in coordination with the Arizona Department of Environmental Quality (ADEQ), conducted surface soil sampling in the areas of Kearny, Hayden, and Winkelman, Arizona. EPA was concerned that possible soil contamination could pose a threat to human health. In October 2004, over 200 samples were collected from public areas and residences in the three towns.

This fact sheet summarizes the sampling results, discusses EPA next steps, and provides information about the upcoming public meetings. The final report includes all of the results and is available for review at the information repositories listed on page 3. Due to privacy concerns, the final report does not list the address of sample locations on residential property.

The Results at a Glance...

- The surface soil samples were analyzed for 17 metals, many of which are naturally occurring in the area. EPA was specifically concerned with potentially elevated levels of arsenic, lead and copper.
- After analysis and review of all the sample results, EPA has determined that the metal concentrations detected in soil do not pose an immediate human health concern in any of the three towns.
- Although not posing an immediate human health concern, samples from areas in Hayden and Winkelman had levels of arsenic and copper that could increase the potential for health effects over the long term.
- EPA, in coordination with the ADEQ and ADHS, is planning a comprehensive environmental investigation in Hayden and Winkelman later this year.

Upcoming EPA Public Meetings

We are offering two meetings to discuss the soil sampling results and EPA next steps. Please note that both meetings will present the same information and offer the same opportunity for discussion. There will be an Open House beginning at 4:30 p.m., followed by an EPA presentation and discussion period from 6:00 p.m. to 7:30 p.m. We look forward to seeing you at one of the public meetings.

Wednesday, March 16, 2005

Hayden/Winkelman School District Office
824 Thorne Ave
Winkelman, AZ 85292

Thursday, March 17, 2005

Constitution Hall (Senior Center)
912-E Tilbury Dr.
Kearny, AZ 85237



What Are Screening Levels?

EPA uses “screening levels” developed by the state or EPA to quickly evaluate and screen for possible health risks from a contaminant in soil and water. Screening levels are set at very low levels and are designed to be protective of human health. If a contaminant is below the screening level, then cleanup is not necessary. If a contaminant is above the screening level, it does not necessarily mean it poses a significant health risk or requires action.

For Hayden and Winkelman, EPA has determined that further investigation is needed to determine whether the levels of arsenic and copper increase the potential for health effects over the long term.



The Results for each town

The sample results were compared to screening levels set by the state of Arizona. The Arizona health based screening levels, Residential Soil Remediation Levels (R-SRLs), are specific to each metal and are set at the levels that are naturally occurring in soil throughout the state of Arizona. The R-SRLs for arsenic, lead and copper are 10 mg/kg, 400 mg/kg, and 2800 mg/kg, respectively.

What EPA found in Kearny

In Kearny, 89 samples were taken. In all, the detections above screening levels were at low concentrations. Therefore, there is no indication from the samples that residents in Kearny are being exposed to levels of metals that are significantly above what is naturally occurring in Arizona.

Of the samples, arsenic was detected slightly above its screening level (R-SRL) in nine samples with concentrations ranging from 10.1 to 26 mg/kg. Lead was only detected once above its R-SRL and copper was not detected above its R-SRL at any locations in Kearny.

What EPA found in Hayden

In Hayden, 51 samples were taken. Although above screening levels, the arsenic, copper and lead concentrations detected are not at levels that pose an immediate health concern. The levels indicate that the concentrations are not naturally occurring and could increase the potential for health effects over the long term.

Of the samples, 40 contained contaminants above their respective screening levels. Arsenic was detected most often above its screening level of 10 mg/kg, lead was detected slightly above its R-SRL in one sample, while copper also had elevated levels in a little over half (29) of the samples.

What EPA found in Winkelman

In Winkelman, 69 samples were taken. The arsenic, copper and lead detected in samples were not at levels that pose an immediate health concern, but they are above naturally occurring levels and could increase the potential for health effects over the long term.

Of the samples, arsenic was detected above its screening level 16 times. Lead was found just over the R-SRL of 400 mg/kg in three samples, while copper had elevated levels in seven samples.

The Results for Arsenic, Lead, and Copper

This section provides the sample results for the three contaminants of concern.

Arsenic

The table below shows the average, high and low concentrations of arsenic found in the three towns. The results are compared to the background (naturally occurring) levels of the metals that are in the area. The average background for arsenic was 5.7 mg/kg. The sample with the highest concentration of arsenic (320 mg/kg) also had the highest levels of copper and lead. This sample was taken next to railroad tracks used to transport copper ore or concentrate.

	Average sample (mg/kg)	Highest sample (mg/kg)	Lowest sample (mg/kg)
Kearny	6.7	26	3.0
Hayden	21.2	92.4	4.4
Winkelman	14.3	320	1.0

Table 1. Summary of arsenic detections in all samples

Lead

The table below shows that lead is not a widespread metal of concern in any of the three towns. The averages are well below the screening level of 400 mg/kg and the highest recorded levels are only slightly elevated. The average background (naturally occurring) level for lead was 29.5 mg/kg.

	Average sample (mg/kg)	Highest sample (mg/kg)	Lowest sample (mg/kg)
Kearny	51	476	10.1
Hayden	130	463	17.7
Winkelman	75	485	5.8

Table 2. Summary of lead detections in all samples

Copper

The table below shows the levels of copper in the three towns. In general, higher copper levels were found with the higher arsenic levels for samples in Hayden and Winkelman. The average background for copper was 585 mg/kg.

	Average sample (mg/kg)	Highest sample (mg/kg)	Lowest sample (mg/kg)
Kearny	327	1740	21.8
Hayden	3,895	11,400	300
Winkelman	967	19,000	36.4

Table 3. Summary of copper detections in all samples

What will the comprehensive environmental investigation include?

The purpose of the environmental investigation will be to determine whether the levels of contaminants in Hayden and Winkelman increase the potential for health effects over the long term and also to identify possible sources of the contamination.

The investigation will include air and water monitoring and further soil testing in the Hayden and Winkelman towns and surrounding areas. Potential source areas that will be examined include the tailings, smelters and concentrator as well as other industrial related areas that could be a source. Non-industrial activities and naturally occurring metals may be other sources.

EPA is expecting to have the investigation plan available for public comment in late March.

For more information...

EPA has established two information repositories for community members. A copy of the EPA October 2004 Sampling final report is available for review at:

Hayden Public Library

520 Velasco Avenue
Hayden, AZ 85235

Arthur E. Pomeroy Public Library

912-A Tilbury Road
Kearny, AZ 85237



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U.S. EPA

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San Francisco, CA 94105

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and we will return your call.

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