

**TOWN OF DEWEY-HUMBOLDT  
EIAC COMMITTEE MEETING  
MEETING MINUTES  
MAY 24, 2012, 1:00 pm**

1. **CALL TO ORDER.** The meeting was called to order at approximately 1:08 pm.
2. **ROLL CALL:** EIAC Committee Members Bob Bowman, Floyd Wright, Doris Cellarius, and Chair Treasha deFrance were present. Linda Jacobs was ill and unable to attend.
3. **CONSENT AGENDA -**
  - 3.1. **Minutes. Minutes from January 25, 2012 Special Meeting.** Bob Bowman made a motion to approve 3.1 Minutes from the January 25, 2012 Special Meeting, Floyd Wright seconded the motion, and the minutes were approved unanimously.
4. **REGULAR AGENDA – Unfinished Business - Updates and Issues regarding the Iron King Mine-Humboldt Smelter Superfund site.**

Nathan Lothrop, University of Arizona Project Manager for the Exposure Study project in D-H was on the phone to give an update and answer questions about the project. At this time, they are in the mid to late stage of mock trainings for the field technicians, doing mock home visits. They are waiting for the paperwork to be cleared by the human subject research department, so until that is approved, they are not recruiting families yet. Maybe this will begin in 2 weeks. They are not recruiting door to door, rather via advertisements in the Prescott Valley Tribune and the D-H newsletter, as well as a mailing to all residents in the study area. They also want to obtain authorization to post fliers in public places. The study area is considered a 3 mile radius from the Superfund site, almost all of D-H will be included (75% plus), and the portion of southeast Prescott Valley near D-H. Dr. Miranda Loh is the 2<sup>nd</sup> researcher in charge after Dr. Walt Klimecki. The study design includes biological samples (finger and toe nail clippings, a home urine sample for each child under 11, (these investigate arsenic) and a blood lead test at Lab Corp in PV ), soils samples, water samples from the usual drinking water source, dust from vacuums, and dust fall onto a petri dish. Additionally, there will be questions asked about the home itself, renovations, age, and the general health of the child. The parent will be asked to fill out a daily activity and a food diary re: their child or children, for 4 days. Other potential lead sources will be investigated such as herbal remedies, lead house paint exposure, or if a parent works in a firearms factory. The lead pipes in the infrastructure cannot be investigated but rumors are that the Grassroots project found water at the tap higher in metals than the water company source. The water source will be asked about and totally unfiltered water will be tested. The format for the results is still under discussion by the researchers. The identities of the participants will be confidential in any reports released to the public. Participants will receive their results, and either the state, who automatically gets all lead test results, or the researchers would indeed alert anyone with results that look like an actual or potential problem. Mr. Lothrop was asked by Jerry Brady if they are coordinating with other agencies (FEMA, CDC, ADHS), no. Mr. Brady also asked about their

referencing the War Department study done in the past here, Mr. Lothrop will ask about looking into it. Recent emails sent by the chair were reviewed, and their replies. Dr. Raina Maier reported that the U of A phytoremediation project is continuing to water the plantings from the first year. Dr. Maier expects that EPA will take her findings into account when they propose a remedy for the tailings pile(s). Dr. Maier or her associates) offered to come to D-H and discuss her work. There is speciation analysis of the metals underway, and the effect revegetation on them. Arsenic, preliminarily, may be stabilized. This may be confirmed in 6 months. Their project does not cover the tailings with soil, which is the usual but more expensive method of covering tailings. and then plant into the soil covering, rather they are studying amending the top layer of tailings with compost and then planting into that directly. There few long term studies on this innovative work, and it is not clear which approach is best. EPA has seeded, but not watered, some areas also. The committee discussed the relying on plants to be the dust suppressant, the potential effects of drought, and the possibility that this method with few long-term studies may be suggested by EPA for this site. Dr. Betterton's, U of A researcher on the tailings dust contents and movement, in his webinar in January 2012, mentioned that his study assessing the capacity for plants to reduce dust, will take a few years to complete, so with EPA moving towards selecting and suggesting remedies, that work may not yet be complete and Dr. Maier's work may not be long term at that point either. Jerry Brady mentioned a phytoremediation study done at Everett Washington. He stated USA today did a multi-year study of remediation and stated 14 states have demanded that states take direct action on remediation as EPA will study indefinitely unless the local agency (i.e. D-H Town Council) takes action. Dr. Betterton's email update mentioned that his team is doing speciation of the metals in the tailings dust that has been collected by samplers for 1 year. He is interested in sampling the smelter area air and community air as well as the work he has been doing on the tailings dust. He provided links to online information about his work and Google earth imagery. His dust model of the tailings should be running by the end of summer and perhaps the town will have an early warning system to alert residents when the wind and dust transport will be bad so as to take precautions. Jennifer Botsworth, Program Manager for Environmental Toxicology Program & , Arizona Department of Health Services(ADHS), Extreme Weather & Public Health Program updated us by email that the health study underway here has been completed and given to Agency for Toxic Substance Disease Registry (ATSDR) for the final review and publication. She inquired as to its status with them and will let us know what she learns. Diane Eckles, Chief, Office of Environmental Health, ADHS, reported via email that the free blood lead screenings held recently in D-H had very low numbers of participants, and that some general information about the findings may be available in several weeks. We reviewed information presented by EPA at their 4.18.2012 Community Meeting. Topics included: areas of naturally occurring higher lead and arsenic and D-H topography, the use of the XRF handheld scanner vs. laboratory analysis of samples, that EPA is not seeing high levels of contaminants going into groundwater wells. Jerry Brady stated that the calibrations standards for the sophisticated ERF device are different, as different agencies use different standards. He stated that the city of Phoenix ran 2 lines up to the smelter for

disposal of tires, batteries and all kinds of materials, as did the Department of Defense, so it is a complex site with a complex history. The EPA has not expanded its investigation to include all the historical documents or individuals who may have additional information.

## **5. REGULAR AGENDA – New Business**

**5.1. Introduction of new member Linda Jacobs, learning about her interests and concerns.** Ms. Jacobs was ill and unable to attend.

**5.2. Report by Doris Cellarius on EPA Webinar featuring D-H Grassroots Project “Understanding Arsenic: From Vasculature to Vegetables, May 16, 2012.”**

Superfund Research Program Webinar: “Understanding Arsenic: From Vasculature to Vegetables”

CLUIN Internet Seminar titled "Understanding Arsenic: From Vasculature to Vegetables" delivered on May 16. A complete archive of this seminar is now available along with hundreds of other archived internet seminars for free download and replay at: <http://www.clu-in.org/live/archive/>. Please feel free to share this archive with anyone who will find it valuable.

You may also be interested in the [links to additional resources](#) for this seminar.

Basic information from their website: “More than 350,000 acres of mine tailings exist in Arizona. “Since the 1990s, the scientists in the [The University of Arizona Superfund Research Program](#) have been especially concerned about the effects of residual arsenic in these tailings. Many studies involved arsenic contaminating water near mines. Our newest research is focused on finding out what happens when arsenic particles from the tailings get into our air, are blown around and we breathe them in. We are the first scientists in the country asking these questions. More than 75 scientists from five colleges at the UA are working on various aspects of the complex environmental pollution problems in the arid Southwest. Some are trying to establish standards for “safe” levels of arsenic exposure, as past studies done at the UA show harmful effects to human cell cultures from low-level exposures.” The new research will total about \$14 million in funding over the next five years.

The first presentation was from Todd D. Camenisch, PhD, who is studying how exposure to arsenic contributes both to congenital heart malformations and adult heart disease. This research is very important because heart malformations are the most common birth defects in the United States and heart disease remains the No. 1 killer of American adults. Other studies have shown there is a link between arsenic exposure and the incidence of heart disease. Studies of arsenic on the cardiovascular system have been limited, and even less is known about the effects of early arsenic insult (pre- or neonatal) on cardiotoxicity. In infants, congenital heart defects are often found with miscarriages. The heart is the first organ to form, usually before day 50. Dr. Todd Camenisch’s studied fetal mouse tissue that would become heart muscle. His studies indicate that arsenic affects the genes that control the development of heart mesenchyme.

For the functioning heart studies, living mice were chronically exposed to drinking water containing 100 ppb sodium arsenite for 22 weeks. They showed an increase in both systolic and diastolic blood pressure. Echocardiograms and cell tests showed that the left ventricle of the heart was enlarged. Live echocardiography showed a 43% increase in mass. Such enlargement is found in chronic hypertension. The enlargement triggered by arsenic was quite different from heart enlargement found in athletes. Control mice exposed to 100 ppb sodium chloride showed no effects. . This is the first animal study to assess cardiovascular changes in response to chronic exposure to environmentally-relevant concentrations of arsenic. This research suggests that early exposure to arsenic may contribute to heart disease later in life, and that cardiotoxic effects should be considered when standards are set for arsenic exposures such as the MCLs for As in drinking water. You can see details of the study at: <http://www.clu-in.org/conf/tio/arsenic/prez/May-16-2012-combined-presentationpdf.pdf>

The second half of the webinar featured Mónica D. Ramírez-Andreotta who explained why she created her study Gardenroots:The Dewey-Humboldt, Arizona Garden Project She had known of the Iron King mine problem even before it was listed as a Superfund site. A fellow scientist had done a project helping people living on a contaminated mine site in Mexico grow their food. He was able to show how careful gardening and washing of food could reduce blood lead levels in children. Monica's study was a "citizen science" program designed to engage local gardeners in scientific research to determine the uptake of arsenic and lead in commonly grown vegetables in Arizona and evaluate the possible health risks to the local population. It is known that local citizens bring knowledge to a project, and learn a great deal about the techniques of scientific investigations. The Gardenroots project began with an invitation to the community published in venues such as the Dewey-Humboldt newsletter which she credits as being most helpful. Forty three people took collection kits home and 25 returned them and continued to the end of the project. Samples of crops, soil and water were sent to the U of A lab where Monica and scientists at the U of A completed a comparative analysis of the concentrations of arsenic and lead found in the soils, irrigation water, edible tissues of crops from the greenhouse and residential gardens. Vegetable intake rate were calculated to determine how much could be safely consumed at these measured concentrations. For details from the presentation see the power point slides here:

<http://www.clu-in.org/conf/tio/arsenic/prez/May-16-2012-combined-presentationpdf.pdf>

Results were presented to community members at a lunch at the 4-H building in Humboldt. Each gardener was provided with a detailed report on what was found in his or her water, soil, and crops. Because Monica washed all the vegetables in acid before testing (to remove soil) the uptake of arsenic and lead in vegetable tissue was found to be very low. Squash and cukes were very low in contamination, while lettuce and beans were somewhat higher. These crops

generally had more contamination than supermarket vegetables as determined from federal "Market Basket" studies. Monica gave an overview of these results and answered questions. Gardeners were interested in each others "results". People were interested in a general overview of her findings, which will be presented in the final report which she is preparing as she completes her PhD thesis. Monica was very pleased with the outcome. People were reassured that their risk levels were generally low but manageable. They say they will continue gardening and they learned a lot about general science as well as gardening. A science test given at the start of the program was given again at the end and people did far better the second time.

Discussion included Nancy Wright asking about the residential removed soils characterized as not very contaminated, Doris explained they are less contaminated than the tailings and also there are different standards for residential soils vs. industrial areas.

**5.3. Setting next EIAC meeting date and time.** The next regular meeting would be June 28, 2012, if there is sufficient work to address at that time.

**6. COMMENTS FROM THE PUBLIC.**

Jerry Brady stated that "Olsen's Farm" was used as a research station demonstrating crops for human and animal consumption at a contaminated site from the 1920s until World War II. This included 9 wells and had insufficient flow and the water was contaminated with lead and zinc and tin, with lead pipes a major source. Texas Gulch in Dewey is also a phytoremediation site. The Clipper Wash runs through PV through D-H and intercepts Chaparral Gulch.

**7. ADJOURN.** The meeting was adjourned at 2:43 pm.

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Treesha deFrance, Chair

ATTEST:

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Judy Morgan, Town Clerk