Arizona Department of Health Services

Special points of interest:

- Old Fort Lowell is a historical site
- Future use plans include a park and museum
- Concerns regarding physical hazards + potential chemical hazards

Old Fort Lowell

Arizona Department of Health Services, Office of Environmental Health

BACKGROUND

In the 1890's this site was known as Camp Lowell Army Post, or latter Old Fort Lowell, and includes a portion of a prehistoric site called the Hardy Site. Old Fort Lowell was used as a supply base for other army posts, protection for citizens and settlers, and a guard post for supply trains. The site has been used as a tuberculosis sanitarium, and later housed a steel and tank manufacturing company and a trucking company.

The City of Tucson and Pima County acquired the site, intending to turn it into Old Fort Lowell Park, with historic elements and current use amenities such as ball fields and trails. However, the 70 years of manufacturing operations resulted in environmental damage and caused potential public health concerns.

COMMUNITY CONCERN

For public safety, the City of Tucson fenced the site to restrict assess because there are concerns for:

- *Physical Hazards* including: debris, metal shards, and unstable buildings; falling objects can cause injuries; metal shards which can easily pierce street shoes, causing puncture wounds and bacterial infections.
- *Chemical Hazards* due to inappropriate disposal of waste including: batteries, metal scrap, and drums of unknown substances.

PUBLIC HEALTH EVALUATION

Soil samples were analyzed for metals, Polynuclear Aromatic Hydrocarbons (PAHs), Volatile Organic Chemicals (VOCs), Semivolatile Organic Chemicals (SVOCs), and Polychlorinated Biphenyls (PCBs). Elevated levels of lead, arsenic and PAHs were detected in the soil throughout the site.

ADHS evaluated potential health risks for the future recreational users from the site as if the site is redeveloped without being cleaned-up.

Exposure Pathways

ADHS looks at exposure pathways to determine how people may come into contact with chemicals. Future exposure to the soil could include occasional swallowing or infrequent skin contact with surface soil. Swallowing soil could occur accidentally. When walking or playing, soil gets stirred up, and can cling to their hands, and

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PUBLIC HEALTH EVALUATION (CONTINUED)

a person, especially a child, may put their hands in their mouth, thereby accidentally ingesting small amounts of soil.

General Exposure for Adults and Children

Averaged chemical concentrations were used to evaluate the overall exposures since they are most representative of site-specific exposure over time.

Carcinogenic PAHs (cPAHs) are a subgroup of PAHs classified as probable human (or B2) carcinogens by the Environmental Protection Agency. It is the only group of chemical with averaged concentration higher than its public health guideline. ADHS reviewed this group in more detail for cancer concerns. ADHS evaluated the increased chance of developing cancer from cPAHs based on site-specific exposure conditions (for example, the amount of soil ingested and time spent at the park).

"Hot Spot" Exposure to Children

A "hot spot" is an area that has much higher concentration of a substance than the rest of the property. Sampling revealed four (4) hot spot areas for lead (Pb) at the property.

ADHS evaluated possible repeated exposures to hot spot areas for children. Children's bodies tend to absorb more lead than adults. They are also more sensitive to the health effects than adults are. At low levels, lead can affect a child's mental and physical growth. At high levels, it can interfere with the blood-forming process and damage the nervous system. A blood test is able to measure the amount of lead in the blood.

ADHS used ATSDR's recommended methods to estimate blood lead levels in children who might be exposed at the site in addition to other sources. (Children are exposed to lead from a number of sources.)

RESULTS, CONCLUSIONS & RECOMMENDATIONS

Current Exposure

- The site is fenced and the general public do not have access to chemicals or physical hazards. The chemicals in the soil do not currently harm people's health since people do not have contact with the contaminants.

Future Exposure

- Exposure to the chemicals in the soil from park use is not expected to result in non-cancer health effects to adults or children.
- The estimated cancer risk from cPAHs is very low and within EPA's guidance range for protecting public health.
- The estimated range of blood lead from exposure to all sources would not be considered to be elevated by the CDC or by the EPA. Children visiting the park are not likely to have elevated blood lead levels.
- Without remediation, the existing physical hazards can cause public health concern, including injuries and bacterial infections.

ADHS recommends that the City of Tucson:

- Restrict access to the site before clean-up activities are completed

This factsheet is based on the Old Fort Lowell Health Consultation. For more information, or to see the details of the analyses, please refer to the original Health Consultation Report. The report is available by contacting the Office of Environmental Health, or by viewing the following website link: http://www.azdhs.gov/phs/oeh/atsdr_reports.htm