



Summary Meeting Notes

Meeting Topic: Lendrum Court Next Steps and Risk Assessment Review
Where: Building 1202
When: Wednesday, March 26, 2014
Time: 6:30PM to 8:30PM

Attendees:

North Fort Scott residents (see attached sign in sheet)
Trust Staff: Eileen Fanelli; Ann Ostrander
John Stewart Co. Staff: Darin Delagnes
DTSC Staff: Denise Tsuji; George Chow; Dr. Kimiko Klein
EKI Staff: John DeWitt; John Montgomery-Brown

Presentation slides are attached.

Background

On February 28, 2014, the Presidio Trust Remediation Department (Trust) submitted the *Lendrum Court Site Investigation Summary Report and Screening Risk Evaluation* to the California Department of Toxic Substances Control (DTSC) summarizing the results of site investigation and soil sampling at the Lendrum Court area. The report was approved by the DTSC on March 7, 2014. A copy of this report is available at the Trust's Lendrum Court Remediation webpage:

<http://www.presidio.gov/about/Pages/Lendrum-Court-Remediation.aspx>

On March 24, 2014, the Trust submitted a Technical Memorandum to the DTSC summarizing potential temporary measures the Trust could implement to minimize the exposure of Lendrum Court residents to impacted surface soils. A copy of this memorandum is available at the Trust's Lendrum Court Remediation webpage.

The purpose of the meeting was threefold: (1) update Lendrum Court and other North Fort Scott residents about the status of Lendrum Court activities including temporary measures and the planned implementation of additional sampling within both Lendrum Court and the Armistead Road and Ramsel Court areas, (2) review the components of the temporary measures to be installed at Lendrum Court, and (3) allow DTSC toxicologist Dr. Kimiko Klein to discuss the DTSC risk assessment process and address resident's questions on Dioxin and Furans.

Key Discussion Topics/Comments/Questions

Dr. Klein explained that the risk-assessment process used at the Lendrum Court site was originally developed for Superfund sites. As the methodology was found to be very robust, regulatory agencies throughout the United States have adopted this procedure to characterize potential risks due to exposure to identified chemicals of concern.

The risk assessment process involves the following four components: (1) source assessment and hazard identification, (2) toxicity assessment of identified hazards, (3) exposure pathway analysis and exposure assessment, and (4) risk characterization by the comparison of calculated risk to risk levels considered acceptable by the DTSC. Dr. Klein further stressed that the calculated risks are not statements of fact, rather they represent probabilities. For example, an incremental risk of 1 in 1,000,000 for carcinogenic effects does not indicate that one person in a million would get cancer, but rather that, on average, 1 person in a million could potentially get cancer due to their specific exposure level to the specific chemical being assessed.

The basic exposure equation involves multiplying the observed concentration in the contaminated media by several exposure factors, including exposure duration, exposure frequency, averaging time, uptake rates, and body weight. Dr. Klein explained that depending on Site uses (e.g., residential, commercial, recreational), risk assessments use different assumptions for the exposure factors and indicated that the assumptions made under the residential use scenario involve the most conservative assumptions. In addition, Dr. Klein indicated that risk assessments evaluate the exposure of adults and children using different exposure assumptions.

The risk of carcinogenic effects can be estimated by multiplying the calculated exposure by the cancer slope factor and the risk of non-carcinogenic effects can be estimated by dividing the calculated exposure by the reference dose; both the cancer slope factor and reference dose for a particular compound are based on the results of toxicity assessments on laboratory mammals.

Following Dr. Klein's presentation on the risk assessment process, she talked about the specific chemicals of concern at the Lendrum Court site (dioxins and lead) and answered questions from residents. Brief summaries of the information Dr. Klein discussed regarding dioxins and lead, and questions and responses, are presented below. Several technical papers and references were discussed; where available, these links are provided.

Dioxins

- Generated during any combustion process.
- Due to increased burning (in fireplaces, of trash, etc.) historic concentrations of dioxins significantly higher than at present.
(http://ofmpub.epa.gov/eims/eimscomm.getfile?p_download_id=36252)
- While it is often contended that dioxins are the most potent carcinogen known, this data is based on laboratory studies on rats and there is little epidemiological data for humans
 - United States Environmental Protection Agency (U.S. EPA) has been reassessing the toxicity of dioxins since around 2002.
(<http://cfpub.epa.gov/ncea/cfm/nceaQFind.cfm?keyword=dioxin&showAll=yes>)
 - Data from a DOW Chemical study in Michigan where a significant amount of dioxins were released to a river indicated that no significant increase in dioxin body-burden was observed in residents of the area who live on flood plain soil contaminated with dioxins. However, a significant increase in dioxin body-burden was observed in residents who consumed fish from the impacted river. Additional information on this study is available at the following URL: <http://www.sph.umich.edu/dioxin/>.
 - At high doses, dioxin exposure can result in a condition known as chloracne.

Lead

- Lead can cause cancer; however, because lead has significant adverse non-cancer impacts at lower concentrations, regulatory agencies are rarely concerned about the carcinogenic impacts from lead.
- A primary concern with elevated blood lead concentrations in young children is related to their neurological development (i.e., a correlation has been found between elevated blood lead levels and decreased IQ and increased behavioral problems).
- A primary concern with elevated blood lead concentrations in females of child-bearing age is related to fetal development.

Questions and Concerns Raised by Residents

Residents raised questions regarding the carcinogenic potency of dioxins and inquired whether there was any testing that could be done to determine whether their exposure resulted in an increased risk. Residents indicated that based on their research efforts, they were unable to find a commercial or academic laboratory that was willing to conduct such an analysis. Another resident indicated that even if one were to find a laboratory capable of performing this analysis, the cost would likely be substantial (i.e., thousands of dollars).

DTSC Response: Dioxin concentrations could be measured in an individual's fat, their blood, or in a mother's breast milk. DTSC was not aware of any specific laboratories that routinely conducted such analyses.

Residents also expressed concern about the sampling technique used to collect the soil sample from trench T1 in 2010 as this sample contained the highest calculated dioxin equivalent concentration observed at the Site. The residents also indicated that the uncertainty over the sampling technique and the reported results for this sample prompted their desire for additional sampling.

Trust/DTSC Response: Sample T1 was a composite of two discrete samples collected from the ash and debris layer at trench T1 from depths of 4 and 7 feet below ground surface. This sample was analyzed by EPA Method 8290, and most of the reported concentrations were estimated (J-flagged) as they were below the reporting limits of the analytical method.

The soil samples collected during the June 2013 investigation at Lendrum Court were multi-increment samples collected from a specific layer of the debris fill; these samples were processed at the analytical laboratory using a multi-increment sampling preparation procedure and analyzed using EPA Method 1613B.

Additional data on dioxin concentrations in the debris layer at Lendrum Court will be collected during implementation of the Additional Sampling Workplan for the Lendrum Court area. The sampling plan will be reviewed and approved by DTSC prior to implementation.

Residents asked about the half-life of dioxins, whether lead is persistent within a person's body, and whether blood-lead testing would be useful to assess the exposure of individuals that were exposed several months ago.

DTSC Response: Dr. Klein was uncertain what the half-life of dioxins is within a person's body but indicated that she would look into it. For lead, Dr. Klein indicated that she did not believe it persisted for long periods in a person's body. Dr. Klein indicated that lead can compete with calcium within a person's body; as a result, it has similar pathways as calcium. In cases of chronic exposure, lead concentrations may build up within a person's bones, but as bones prefer calcium, even this lead is gradually excreted from a person's body. Dr. Klein did not believe that a blood lead test would be particularly useful for an individual who was exposed several months ago.

There were several questions whether individualized exposure assessments would be prepared for the residents or whether reasonable estimates for an individual child's exposure could be back-calculated.

DTSC Response: Dr. Klein indicated that individualized exposures would be very difficult to assess due to the high variability of an individual's exposure parameters (i.e., these parameters would vary with the season, the weather, the activities the person was engaged in, etc.). Due to these difficulties, the DTSC uses a set of very conservative assumptions when conducting risk assessments; for example, to evaluate the potential risk due to a carcinogenic compound, the risk assessment assumes that the individual is exposed to a particular dose of the carcinogenic chemical every day over a 25 year period. As a result, when the DTSC concludes that a particular concentration is protective, the multiple conservative assumptions allow DTSC to be confident in the analysis to state that the concentration is protective of human health and the environment.

A resident asked about the purpose of the bird nesting survey being conducted prior to implementation of the temporary remedial actions at Lendrum Court.

Trust Response: The bird nesting survey is intended to ensure that the nesting and reproduction process of migratory birds is not adversely affected by implementation of the temporary remedial actions at Lendrum Court. In the event that migratory birds are nesting in the shrubs around Lendrum Court buildings, construction of the temporary measures will be staged to permit the migratory birds to fledge their young.

A resident asked about the purpose of the extensive soil evaluation at Lendrum Court if, based on DTSC's presentation tonight, the exposure of Lendrum Court residents is so minimal.

DTSC Response: The DTSC is brought in to oversee projects where chemical impacts may affect communities. One of the DTSC's roles is to review the evaluations and help the community understand the evaluation and address community concerns. In general, as long as observed chemical concentrations remain within background levels, no additional characterization is necessary. At Lendrum Court, lead concentrations exceed background levels and additional data is needed to assess the concentrations of other compounds; therefore, additional characterization is needed to assess potential exposure.

Trust Response: The Trust is currently preparing work plans for additional sampling.

A final question was asked regarding whether the remediation could proceed more rapidly.

Trust Response: The Trust understands the tenant's desire to have remedial actions completed as soon as possible. To expedite the investigation, the Trust decided to conduct additional sampling in two phases. The purpose of the first round of additional sampling (Armistead Road and Ramsel Court) is to better determine the overall extent of debris at the site; information from this sampling event will be used to refine the second sampling investigation at Lendrum Court to better delineate the extent of debris and identify chemicals of concern for the risk assessment. Based on the investigation results, the Trust will prepare a feasibility study and remedial action plan. Remedial action plans generally include a 30 day public comment period. Based on past experience at the Trust, it is critical selection of a final remedial alternative is not rushed, so that the engineering design can be properly completed and unintended consequences from rushing limited. To the extent possible, the Trust will work with its consultants and the DTSC to implement final remedial actions as soon as characterization of the site is complete.

Follow-up Activities

1. The Trust will prepare summary meeting notes and distribute to the neighborhood via email.
2. The Trust will begin implementing temporary remedial actions in Lendrum Court on March 31, 2014.
3. The Trust will continue preparation of a sampling workplan for the Armistead Road and Ramsel Court area and the preparation of an additional sampling workplan for the Lendrum Court area. It is anticipated that soil sampling pursuant to these workplans will begin after DTSC approval, ideally in early May 2014. Once results from these sampling events are available, the Trust will share them with the tenants.