

Received: Todd David  
12/15/16 Hearing  
JAP

# The Environmental Cleanup Process for Housing

With the discussion of the contaminated Brisbane Baylands site coming to their City Council, we thought it'd be a good idea to ask an expert about the environmental cleanup process and whether a former rail yard can be made safe for future residents. We interviewed **Jeff Adams**, an Associate with ENGEO Incorporated, a SFHAC member who has provided a variety of environmental services for nearly 30 years.

*Note: Mr. Adams and ENGEO have not formally reviewed the Brisbane Baylands Environmental Impact Report (EIR) and are not experts on this specific site.*

## **What do you do? What does ENGEO work to accomplish?**

I help lead our geo-environmental services group and have been practicing as an environmental engineer for over 15 years. At ENGEO, our geo-environmental group focuses on the characterization, assessment, and remediation of contaminated sites. ENGEO has been providing environmental consultation services for our Bay Area, Northern California and New Zealand clients since 1988.

## **What sites have you cleaned up in the past? How does that process work?**

We've worked on a wide variety of contaminated sites, most recently at Hunter's Point, Hunter's View, and Candlestick Point, with the goal of restoring a particular property to a state that allows for beneficial reuse while being protective of human health and the environment. The remediated sites have included impacts from a range of land use activities – petroleum hydrocarbon use and storage, dry cleaning products, asbestos (both naturally occurring and man-made), agricultural chemical applications, solvents and other chemicals used for industrial processes, and air-borne lead deposits in soil adjacent to roadways. Typically, once contamination is suspected at a property, we will collect samples of soil, groundwater and soil vapor for laboratory testing to determine if contamination is present and to what extent.

Then, we develop a remediation plan to implement. When soil is impacted, we will often excavate it for transport to an appropriate landfill, and replace the excavated soil with clean soil. Occasionally, when volatile petroleum products or solvents are a concern, a vapor extraction system is recommended, which functions like a vacuum to pull the contaminant vapors out of the ground.

When groundwater is contaminated, a number of approaches can be considered. The contaminated groundwater can be directly pumped to the ground surface for treatment following which it may be discarded or used as non-potable water uses. Often this mitigation method is not efficient and we recommend that selected chemical compounds be injected into the groundwater to break down the contaminants. Sometimes nutrients are injected into the groundwater to stimulate naturally occurring bacteria to breakdown the chemicals. Regardless of whether a chemical or a biological approach is implemented, we carefully monitor the progress to check that the contamination has been broken down into harmless by-products.

Once completed, we perform testing to confirm the site meets cleanup goals. The oversight agency reviews our work, and when they are satisfied we have achieved those goals, they grant "case closure". In some cases, we put engineering controls in place to protect against conditions that cannot easily be traced to a source or against potential future conditions.

**Which agencies regulate environmental remediation to make sure public health and safety is protected? What is their process?**

We work with several local, state, and federal agencies. Local agencies vary by city and county, but it is common to work with a particular county's environmental health department. At the state level, we commonly work with the Regional Water Quality Control Board (RWQCB) or the Department of Toxic Substances Control (DTSC). At the federal level we work with the U.S. Environmental Protection Agency. The process is relatively similar with each of these agencies – we enter into an oversight agreement, determine a characterization and/or remediation approach that will be protective of the human health and the environment, then implement it.

**What would you say to someone who is concerned about future residents living on a site that is currently contaminated?**

Sites can be contaminated from any number of past site uses or activities; however, the science and approach to environmental contamination has greatly evolved in the past 20 to 30 years. Environmental professionals have a variety of approaches that may be used to accurately characterize a site and properly remediate contamination. As this is done under the oversight of environmental agency staff, it results in a program with a number of well-qualified individuals working together, checking each other's work, and determining when a site has been cleaned up so that people and the environment are protected. The public can be confident that we collectively approach the cleanup of contaminated sites with the paramount goal of protecting people and the environment, and we work hard to make sure it is done right.