

## **Fact Sheet: Fort Ord Environmental Cleanup Operable Unit 2 (OU2) Landfill Gas Monitoring, Extraction, and Treatment System**

**Fort Ord Landfill History:** During its years of operation, Fort Ord maintained a landfill (many people referred to it as “the dump”) similar to those maintained by most municipalities. Like many such landfills, Fort Ord’s landfill was later found to be leaking hazardous chemicals into the groundwater beneath the landfill waste that had to be cleaned up. This cleanup has been substantially completed, and the landfill is closed. The contamination of groundwater beneath the landfill is stopped by a cover that has been installed so that water cannot reach the waste and move chemicals into the groundwater beneath the landfill. A treatment facility was constructed in October 1995 to treat the contaminated groundwater beneath the landfill, and the Army continues to monitor and report on the treatment system operation and status of groundwater contamination. All this work is done by the Presidio of Monterey under the direction of the U.S. Environmental Protection Agency (USEPA), the California Regional Water Quality Control Board, and the California Department of Toxic Substance Control. This landfill cleanup project is often referred to as Operable Unit 2 or OU2.

**Landfill Gas:** Landfill gas testing and monitoring at the Fort Ord landfill have been conducted since its closure. As with all landfills, the decay of the waste produces gases in the landfill (principally methane) that must be monitored. While methane gas has practically no toxic effects, it can ignite at concentrations of 5-15 percent. An ignition of methane can be hazardous for

workers and others nearby. The Presidio of Monterey has installed underground and above ground monitoring devices on the OU2 landfill to monitor the levels of methane and detect other gases that might be present. These measurements initially showed that the amount of methane in the soil was above the California standards. In response, the Presidio of Monterey has installed a landfill gas extraction and treatment system adjacent to the landfill. The system uses a vacuum in a series of extraction pipes around the perimeter of the landfill to draw methane and other gases from the soil and transport them to the treatment facility.

**Landfill Gas Treatment:** The landfill gas treatment system consists of two containers of activated carbon and five containers of potassium permanganate. The gases extracted from the landfill are passed through these containers where the activated carbon and potassium permanganate capture the toxic trace gases and the methane is then vented. This system reduces the concentrations of toxic trace gases and methane in the soil to a level not detectable at the fence line of the landfill.

**Ambient Air Sampling:** Ambient air sampling has been conducted over the past three years (2000, 2001, and 2002). At five locations downwind of the landfill between the landfill boundary and the closest residences, air samples are collected over a 24-hour period and analyzed. Air samples are taken in other locations for background measurements. This sampling has detected small concentrations (typically one part per

billion or less) of some compounds that are suspected to be toxic when breathed at higher concentrations or over many years. For some contaminants, such as benzene and carbon tetrachloride, the concentrations upwind of the landfill are equal or greater than the downwind samples.

**Health Risk Assessment:** All contaminants detected downwind of the landfill are modeled as part of a health risk assessment and compared to Preliminary Remediation Goals (PRGs). Preliminary Remediation Goals are concentrations of chemicals that USEPA has determined are safe for residential exposures, 24 hours a day for 30 years. If a detected chemical exceeded the PRG divided by 100 and exceeded the concentration detected in background locations, the chemical was included in the risk assessment. For the chemicals included in the risk assessment, the maximum concentration detected at any sampling point was used in calculating risk. This process is very conservative, assuming that a person would be breathing the maximum detected concentration of each of the chemicals of concern 24 hours a day for thirty years, or for 6 years, the two scenarios that were studied. The model shows a potential for adverse health effects after six years of constant exposure under these circumstances. The risk assessment for the 2002 sampling will be released in January 2003. Preliminary results indicate concentrations of contaminants in the air around the landfill similar to those detected in 2000 and 2001. The data from the sampling is

still limited and more sampling will be done in 2003.

**Current and Future Actions:** The Presidio of Monterey continues to monitor the OU2 landfill for landfill gas. The landfill gas extraction system is removing the landfill gas from the soil at the eastern edge of the landfill. Other actions to reduce landfill gas and the potential health effects include:

- Completion of the landfill cover system to close the landfill by the end of 2002,
- Quarterly ambient air monitoring beginning in 2003,
- Continued operation of the landfill gas extraction system and,
- Possible expansion of the extraction system based on future sampling results.

The Presidio of Monterey continues to conduct technical and economic evaluations to determine the best method for operation of the landfill gas treatment system over the long term.

It is not expected that methane or other gases will reach levels that present a significant risk to nearby residents. However, if monitoring indicates a possible hazard, residents will be notified and instructions provided.

**For more information:** Additional information concerning the monitoring, extraction, and treatment of OU2 landfill gas is available by contacting Lyle Shurtleff at (831) 393-9691 or via email at: [cqc@redshift.com](mailto:cqc@redshift.com).