

# 7

## Removal Assessment Activities

This section summarizes some of the work conducted in association with the Removal Assessment tasks for this Integrated Assessment. The Removal Assessment program identified the drinking water pathway as the primary route for human exposure to site contaminants (i.e., exposure to TCE in groundwater via consumption of drinking water). Additionally, the vapor intrusion pathway was identified as a second possible route of exposure (i.e., the migration of TCE in ground water through the subsurface to overlying buildings as vapor which can lead to exposure when inhaled). The purpose of the Removal Assessment component of the IA was to:

- Investigate the extent of a known TCE groundwater plume which underlies the site by sampling drinking water wells in the study area;
- Determine the concentration of TCE present in drinking water wells located in the study area, and determine whether TCE concentrations exceed the MCL;
- Collect preliminary information regarding the potential presence of a TCE vapor intrusion exposure pathway; and
- Assess the need for further data collection.

In December, 2008 START mobilized a sampling team and a field laboratory equipped with a GC/MS. The field GC/MS was used to provide an initial analysis of drinking water well samples. The field analytical data were used to assess the need for immediate action should any of the residential wells contain TCE above the MCL, and not have a treatment system installed. Field analytical data also was used to determine whether the current study area was inclusive of the entire TCE plume or whether the study area should be expanded. All of the samples were subsequently submitted to a fixed laboratory for confirmation analysis.

The samples were collected directly from the residential water supply prior to any treatment systems, where possible. Because the ground water was first conveyed through pumps and other equipment prior to sampling, the samples are not necessarily representative of TCE concentrations in ambient groundwater. However, they are representative of contaminant concentrations in the drinking water pathway.

## 7. Removal Assessment Activities

Based on the sampling results from 49 wells, it was determined that TCE was present at nine sampling locations. Seven of these locations were drinking water wells, and two of them are monitoring wells. At six of these locations, the concentration of TCE exceeded the MCL of 5 µg/L. Table 7-1 summarizes the off-site fixed laboratory analytical detection results from this investigation, the detection results of several ODEQ sampling events, and indicates all of the residences where carbon treatment systems have been installed. As shown in Table 7-1, all of the drinking water wells that contained TCE at concentrations greater than the MCL had a carbon treatment system in place to remove TCE from the drinking water prior to consumption by residence occupants. As a result, the Removal Assessment program has not proposed the installation of additional carbon treatment systems at this time.

In addition to TCE, other VOCs were found in the drinking water wells at concentrations above background. These include Freon-113, Freon-12, and trichloromethane (also known as chloroform). Freon-113 was detected at elevated concentrations in five wells, Freon-12 was detected at an elevated concentration in one well, and trichloromethane was detected at an elevated concentration in one well. The wells that contained Freon-113 or Freon-12 are all in the southern portion of the study area, mainly on the south side of Rogue River Highway. These wells serve a total population of six people. MCLs for Freon-113, Freon-12, and trichloromethane have not been established.

In order to assess whether the potential exists for a vapor intrusion pathway at the site, a vapor intrusion questionnaire was completed for each residence where a drinking water sample was collected. Data for the questionnaire was obtained from conversations with occupants and from the observed physical characteristics of each residence. The questionnaire focused on such information as the presence of basements or crawl spaces, the type of foundation, the type of home heating system, and other factors that may provide information regarding the likelihood of a vapor intrusion exposure pathway.

The information collected during this investigation is being used to determine the need for further site characterization and assessment. At this time, the need for further Removal Assessment involvement has not been determined. In addition to this IA report, START will submit a separate Removal Assessment report containing data from this sampling event as well as additional information collected in association with removal tasks.

## 7. Removal Assessment Activities

**Table 7-1 ODEQ and EPA Ground Water Well TCE Sample Results (µg/L)**

259 Laurel- dale	287 Laurel- dale	296 Laurel- dale	345 Wood- bury	353 Laurel- dale	377 Laurel- dale	434 Laurel- dale	410 Wood- bury	3576 Rogue River Highway (Domestic Well)	3576 Rogue River Highway (Monitoring Well 1)	3576 Rogue River Highway (Monitoring Well 2)
<b>ODEQ 2003/2004 Maximum Concentrations</b>										
13.3	7.5	4.99	1.08	22.2	2.93	28	7.33	NS	NS	NS
<b>ODEQ 2006/2007 Results</b>										
1.92	1.16	3.52	< 0.5	14.9	2.54	39.1	6.97	NS	NS	NS
<b>ODEQ 2008 Results</b>										
4.23	1.00	3.64 (3.81 dup)	< 1.00	18.0	13.2	42.7	12.2	NS	NS	NS
<b>EPA 2008 Results</b>										
3.0	1.0	2.8	0.5 U	15	8.2	43	0.5 U	6.3	28	16
<b>Carbon Filter Treatment System Present</b>										
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No

**Key:**

- < = Not detected at or above the indicated method reporting limit.
- dup = Duplicate sample.
- EPA = U.S. Environmental Protection Agency.
- NS = Not Sampled.
- ODEQ = Oregon Department of Environmental Quality.
- TCE = Trichloroethene.
- U = The analyte was not detected at or above the reported result.
- µg/L = micrograms per liter.

# 8

## Summary and Conclusions

The Laureldale Groundwater Site consists of a solvent-related ground water plume in Grants Pass, Oregon. The site is in a rural residential area near the Rogue River. The study area for this IA includes properties on the south side of the Rogue River Highway; north to the Rogue River. This area is bounded on the west by Blue Jay Lane and on the east by properties on the east side of Whispering Pines Lane.

In previous investigations, TCE was detected in nine domestic wells in the study area. The source of the ground water plume has not been determined and was not included as an objective of this IA. Two businesses in the area of the plume have been implicated. These are the former Weber Manufacturing and ECS. Other possible sources of contamination are RV and mobile home parks, a small aircraft facility, and/or other as yet unidentified sources. At present, TCE use has only been confirmed at ECS where TCE was used in a parts degreaser in 1998. During previous investigations, soil and ground water samples have been collected at various locations on the Weber Manufacturing property, Mr. Becklin's private property located adjacent to the Weber Manufacturing property to the east, and the ECS property. Soil and ground water samples have been collected on each property from the ground surface to 25 feet bgs; and on the ECS property to 50 feet bgs. TCE has not been detected in these samples with the exception of a few locations on the ECS property where TCE was detected in ground water at 50 feet bgs in borings. It should be noted that only a limited number of samples have been collected from each property during these earlier investigations and that other locations may reveal different results.

During this IA, 49 domestic and monitoring wells in the study area were sampled. The START operated a field laboratory during the field event to provide real-time information regarding the location and magnitude of the ground water plume. The TCE plume was determined to be confined to those wells previously identified as being impacted. These wells are along Laureldale Lane and the Rogue River. It appears that a second, independent plume of Freon is present in the study area. This plume is along the Rogue River Highway.

### 8.1 Targets

A total of 14 wells contained elevated concentrations of VOCs including TCE, Freon-113, Freon-12, and trichloromethane. These wells serve a total population of seventeen people. Of these wells, four domestic wells, serving a total of six people, contained TCE above the EPA MCL. All wells containing TCE have

treatment systems. The samples containing TCE were all collected prior to treatment. Concentrations ranged from 1 to 43 µg/L. Wells containing other contaminants (i.e., Freon-113, Freon-12, and trichloromethane) do not have ODEQ-installed treatment systems. EPA has not established MCLs for these contaminants.

## **8.2 Conclusions**

TCE is present above the MCL in four domestic wells. Additionally, eight other domestic wells and two monitoring wells contain one or more VOC at elevated concentrations relative to background concentrations. Two groundwater plumes appear to exist in the study area; one of TCE and one of Freon. A total of seventeen people are served by affected wells; however, all wells with TCE contamination have treatment systems.

# 9

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