

Bountiful/Woods Cross 5th South PCE Plume

Social Diagnosis

The Bountiful/Woods Cross PCE Plume is located from approximately 500 South to 400 North, and from 500 West to 1100 West. The Bountiful/Woods Cross PCE Plume crosses over three cities in Davis County: Bountiful, West Bountiful, and Woods Cross. These sites incorporate private residences, agricultural land, commercial properties, interstate highway, and railroad tracks.

Bountiful/Woods Cross site consists of a contaminated groundwater plume. The contaminated groundwater covers approximately 245 acres. Tetrachloroethylene has been detected at 24 feet and as deep as 150 feet. Approximately 5,900 wells have been constructed in the East Shore Aquifer servicing a population of over 45,000 within a four-mile radius of the site.

The first detection of tetrachloroethylene (PCE) and trichloroethene (TCE) was in 1986. An investigation in 1987 was conducted at Woods Cross Phillips 66 Refinery to attempt to identify potential source of PCE. Elevated levels of PCE were detected both up gradient and down gradient of the refinery. EPA sampled residential wells. Four of the residential wells were found to contain elevated levels of PCE. The residents were notified and supplied with bottled water.

Several potential sources were identified in 1996, including dry cleaners, a waste oil refinery, automotive maintenance facilities, and an oil refinery. The main route of exposure is the ground water.

Sampling in August 2000 down gradient of the Phillips Refinery showed TCE and PCE at elevated levels in three monitoring wells. Sampling in September 2000 taken from permanent monitoring wells and domestic wells confirmed the presence of PCE, TCE, vinyl chloride and other contaminants at elevated levels.

The Bountiful/Woods Cross plume is approximately 10 miles north of Salt Lake City. The total population for Davis County is 238,994 (5). According to the 1990 U.S. Census Bureau, the median family income was \$38,050. The public education system in Davis County consists of Elementary schools, Middle schools, High schools, and vocational schools. This is an urban area that is growing rapidly. Thirty-eight percent of the population in Bountiful, Woods Cross, and West Bountiful are 19 years old or younger (5). Eighteen percent of the families in Davis County fell below poverty level (4). Ninety percent of the residents in Davis County are high school graduates or higher. Twenty-four percent of the residents in Davis County have earned a bachelor's degree or higher (4).

According to the 2000 U.S. Census Bureau for Davis County. In Davis County the population consists of the following races; 93.2% of the population is White, 5.4% are Hispanic or Latino, 1.5% are Asian, 1.1% are Black or African American, 0.5% are American Indian or Alaska Native, 0.3% are Native Hawaiian and Other Pacific Islander, and 0.1% are some other race.

In March 2002, the Utah Department of Health worked with Davis County Health Department to develop a survey and distribute the survey to the residents. When asked how they have received information in the past or would like to receive information the residents responded: newspaper (46%), word-of-mouth (36.5%),

newsletter (23%), public meeting (6.9), direct contact by health officials (5.2), internet (3.3%), and library (0.9%).

Epidemiological Diagnosis

Goals

1. By December 2002, inform 85% of the residents in Bountiful, West Bountiful, and Woods Cross of the groundwater pollution.

Behavioral and Environmental Diagnosis

1. By July 2003, have the residents able to name one way they can protect themselves from groundwater pollution.

Community Concerns

A survey was mailed out March 2002, to 1,000 residents of Bountiful, West Bountiful, and Woods Cross. Of the residents that responded to the survey, 33% of the residents have lived in the area from 1-10 years; 18% responded living in the area for 31-40 years; 16% have lived in the area for 11-20 years. When asked how the residents rate their city from the last five years, 48% of the people said about the same.

The top five environmental concerns were: air pollution, over development, drinking water, noise pollution, and water quality. The top five health concerns in their community were: cancer, drugs, allergies, adequate health care, and asthma. 66% responded that they were concerned about environmental health risks in the area. Most of the residents are concerned with the decrease of property values. Over half the residents responded that they were very concerned about the health risk from shallow groundwater contamination. 91.5% are not aware of the EPA cleanup process.

Most of the residents responded that they would be somewhat likely to very likely to attend a public information meeting. Almost all of the residents responded that they would be somewhat interested to very interested in learning more about the superfund process. 89% answered that they would like more information about the groundwater contamination, the superfund process, and the EPA cleanup process.

A few comments the residents wrote in the survey are the following:

- ✓ The air sometimes outside smells terrible. My family has always lived in Davis County along with friends. They all seem to die of strange illnesses. I think refineries are causing serious health problems.
- ✓ Some folks say the high percent of cancer in our area is from our age factor as we are in an aging area. I believe there are too many cases to attribute that explanation.
- ✓ I would request that the public be well informed so that we all work together to resolve the problem and not create more problems with witch-hunt accusations.
- ✓ What is the contaminate in these plums? What is the likelihood of them getting into the drinking water?
- ✓ I have a concern about the smell of my tap water. Sometimes it smells like rotten eggs.
- ✓ What areas are contaminated? What is the contaminate? What is the extent of contamination? What health problems etc. Could these contaminants cause or

- currently be responsible for? What steps are currently in the process to eradicate this contaminate.
- ✓ Where can I find out more about the “pollution Plumes” in our area and the superfund clean up?
 - ✓ Thank you for making me aware of this. We tried to find environmental information about my area but haven’t succeeded. What is a good resource to know what is going on? What is a “Superfund site”?
 - ✓ What does it mean to be listed as Federal Super Fund Site? What exactly have I gotten in my drinking water and how much?
 - ✓ I’m more concerned about air quality in my area. I’d like more information about refinery odor.
 - ✓ Air quality is a great concern. I may be more concerned about water quality if I learn more about contamination potentials.
 - ✓ We would like to know where the two pollution plumes are located and if these areas are near our home, etc.
 - ✓ Has any information been given to residents to Bountiful about there 2 sites before this survey and if so where can I find that info?
 - ✓ This seems to be another environmental scare tactic. Similar to the legacy highway problems with the sierra club, rocky Anderson, et al.
 - ✓ We are very concerned about the safety of our family and the protection of them and our property.
 - ✓ I would like to know how can I protect me and my family concerning water contamination, what about risks in my garden and what I harvest, are we at risk eating them?

Educational and Organizational Diagnosis

A survey was sent out to the residents surrounding the Bountiful/Woods Cross 5th South PCE Plume and the Intermountain Waste Oil Refinery sites to find out how much was known about the site and what information they would like to know. Most of the residents had not heard about the 5th South PCE plume.

The first step will be to send out a flyer or pamphlet explaining the site, what the contamination is and where it is, and how to protect themselves and their families from coming in contact with the contaminate. An announcement for a public meeting will also be included in the flyer along with the local Davis County Clipper newspaper. A public meeting will be held in September 2002, to answer any questions and to explain in more detail about the chemicals and the process. The residents will be given information of the cleanup process, potential dangers, and how they can protect themselves. The community meeting will involve the following agencies; Utah Department of Health, Davis County Health Department, Utah Department of Environmental Quality (UDEQ), Environmental Protection Agency (EPA).

The information provided at the meeting will also be mailed to all of the residents that listed their address on the survey to receive more information about the site. A postcard survey will be handed out at the community meeting. The residents will be able to write down any comments or concerns regarding the site. A space will also be provided for the residents to list their address for more information. All of the addresses from the surveys received in March 2002 and addresses from the community meeting will be put on a mailing list to receive information about the site.

Community meetings in the future will then take place as new information is collected, to answer any questions the residents may have and update the residents of any new information. A newsletter will be sent out following the community meetings to ensure all of the residents have an opportunity to receive the information discussed at the meeting. Additional pamphlets will be made and distributed as needed.

Predisposing- knowledge, attitudes, beliefs, values

According to the survey, 80% of the residents answered that they were not aware of EPA listing two pollutions plumes in the area. Only 10.5% of the residents knew of specific areas with contaminated shallow groundwater or contaminated soil. A majority of the residents in the area did not know of specific locations where shallow groundwater had been detected or contaminated. Most of the residents were unaware of the problem and would like to get the problem taken care of. One resident stated that this was just another scare tactic. Most of the residents are very concerned about their property values. Over half of the residents that responded said they would be somewhat likely to attend a community meeting.

Enabling- skills, resources, or barriers help hinder the desired behavior

Many residents are not aware that the chemicals have been found in the shallow aquifer of the groundwater. By informing the community about the chemicals they will be able to protect themselves. Giving the residents the knowledge about what is in the groundwater, this will allow them to make informed decisions. The residents will also have the resources to find more information on the chemicals or the groundwater in their area. The source of contamination has not been pinpointed; this may lead some of the residents to speculate if it will be found and if it is a problem.

Reinforcing- rewards received from others following the adoption of desired behavior

A majority of the residents own their homes in this community, which caused them to be very concerned about the property values. If the contamination is cleaned up then this may result in an increase in their property values. This was a concern of a majority of the residents voiced that responded to the survey. By receiving educational material the residents will know the health concerns or what the health risks are in their community.

Administrative and Policy Diagnosis

According to the survey sent to the community in March 2002, regarding how they like to receive their information in the future the response was; Newspaper 46%, Word of mouth 36.5%, Newsletter 23%, Public meeting 6.9%, Direct contact 5.2%, Internet 3.3%, and Library 0.9%. Davis County has one local newspaper, Davis County Clipper. As new information becomes available regarding the site an article will be sent to the Davis County Clipper. A newsletter will also be sent to the surrounding residents informing residents of cleanup activities, upcoming activities, and information about the Bountiful/Woods Cross 5th South PCE Plume.

Implementation

March 2002, a survey was mailed to residents surrounding the Bountiful/Woods Cross 5th South PCE Plume in order to find out about the community (What they know, what they would like to know more about, what they don't know, etc). Davis County Health Department and Utah Department of Health teamed up to write, distribute, and analyze the survey. In September 2002 a community meeting will be held to discuss the issues surrounding the Bountiful/Woods Cross site as well as International Waste Oil Refinery site. UDOH, Davis County Health Department, EPA, and UDEQ will be invited to the meeting and each will discuss how their agency is involved in the site. The agencies will also answer questions any of the residents may have concerning the site and chemicals. UDOH is developing site-specific pamphlets for the residents that will be available at the community meeting. A comment card will be given to the residents to fill out while at the meeting.

A newsletter/pamphlet will be mailed to the residents when new information is available to keep the public informed about the site. Additional material will be mailed out as needed. Information about the chemicals will be distributed to the health care providers in the surrounding area.

Process evaluation

At the community meeting a survey will be given to each person. This survey will ask if the information they received was in an effective manner, if it was the information they need, and if they would like to learn more, and how often.

Impact evaluation

In 2004, EEP will send out another survey to the residents surrounding the site, similar to the first initial survey to see if the residents have increased their knowledge about the site. EEP would also ask the residents if the education provided was efficient to the needs of the community.

Outcome evaluation

Reference:

1. EPA. Bountiful/Woods Cross 5th South PCE Plume. www.epa.gov/region08/superfund/sites/intmtnref.html January 2002.
2. EPA. State, Tribal and Site Identification Center **NPL Site Narrative at Listing**, www.epa.gov/superfund/sites/npl/nar1579.html January 2002.
3. Utah Department of Health, Public Health Assessment. **Bountiful/Woods Cross 5th South PCE Plume**
4. U.S. Census Bureau 1990. United States Census 1990, May 2002, <http://factfinder.census.gov>.
5. U.S. Census Bureau 2000. United States Census 2000, May 2002, <http://factfinder.census.gov>.