

# Health Consultation

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Assessment of Drinking Water Quality  
Security Water District Municipal Water, 1992 - 2004

SCHLAGE LOCK COMPANY

COLORADO SPRINGS, EL PASO COUNTY, COLORADO

EPA FACILITY ID: COD082657420

NOVEMBER 30, 2004

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES  
Public Health Service  
Agency for Toxic Substances and Disease Registry  
Division of Health Assessment and Consultation  
Atlanta, Georgia 30333

## **Health Consultation: A Note of Explanation**

An ATSDR health consultation is a verbal or written response from ATSDR to a specific request for information about health risks related to a specific site, a chemical release, or the presence of hazardous material. In order to prevent or mitigate exposures, a consultation may lead to specific actions, such as restricting use of or replacing water supplies; intensifying environmental sampling; restricting site access; or removing the contaminated material.

In addition, consultations may recommend additional public health actions, such as conducting health surveillance activities to evaluate exposure or trends in adverse health outcomes; conducting biological indicators of exposure studies to assess exposure; and providing health education for health care providers and community members. This concludes the health consultation process for this site, unless additional information is obtained by ATSDR which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

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Prepared by:

Colorado Department of Public Health and Environment  
Under a Cooperative Agreement with the  
Agency for Toxic Substances and Disease Registry

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## Foreword

The Colorado Department of Public Health and Environment (CDPHE) has prepared this health consultation in cooperation with the Agency for Toxic Substances and Disease Registry (ATSDR). ATSDR is part of the US Department of Health and Human Services and is the principal federal public health agency responsible for the health issues related to hazardous waste. This health consultation was prepared in accordance with the methodologies and guidelines developed by ATSDR.

The purpose of this health consultation is to identify and prevent harmful health effects resulting from exposure to hazardous substances in the environment. Health consultations focus on health issues associated with specific exposures so that the state or local department of public health can respond quickly to requests from concerned citizens or agencies regarding health information on hazardous substances. The state or local department of public health evaluates sampling data collected from a hazardous waste site, determines whether exposures have occurred or could occur, reports any potential harmful effects, and recommends actions to protect public health. The findings in this report are relevant to conditions at the site during the time of this health consultation and should not necessarily be relied upon if site conditions or land use changes in the future.

For additional information or questions regarding the CDPHE or the contents of this health consultation, please call the health advisor who prepared this document:

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## **Background and Statement of Issues**

At the request of a concerned resident and CDPHE's Hazardous Material and Waste Management Division (HMWMD), CDPHE's Environmental Health Studies Program (EHS), under a Cooperative Agreement with ATSDR, is conducting an evaluation of cancer incidence and PCE concentration in municipal water in Security-Widefield, Colorado. Specifically, the request initiating this investigation included concerns about cancer and the quality of the drinking water in the Security Water District (SWD), Widefield Water and Sanitation District, City of Fountain, and private residential wells.

EHS contacted CDPHE's Water Quality Control Division and various area water departments in order to obtain and review available environmental sampling data for the affected municipal drinking water supplies. (See Figure 1 in Appendix A for a map of the area water districts in proximity to the Schlage Lock site.) In addition, private residential well data were obtained from the annual and quarterly monitoring reports from the Schlage Lock PCE remediation site. However, due to the complexity of evaluating all water systems in one public health consultation, EHS has decided to evaluate each water system as a separate public health consultation. The following report is for the SWD municipal water supply.

Community concern focused primarily on the incidence of multiple myeloma cancers in the Security-Widefield area. In response to these concerns, the EHS contacted the Colorado Central Cancer Registry (CCCR) to conduct an evaluation of the incidence of cancers of the esophagus, cervix, bladder, liver, kidney, lung, breast, non-Hodgkins lymphoma, and leukemia by a small geographic area where a PCE plume has been identified. These cancer types were selected in order to address community concern regarding suspected elevations in the incidence of these cancer types and because the scientific literature suggests environmental factors (e.g., exposure to chemicals) may be associated with the development of cancer. Results of the cancer evaluation will be described in a future document.

Schlage Lock, located at 3899 Hancock Expressway, Security, Colorado, began operations manufacturing door locks and related hardware in August 1977. From late 1977 until mid 1992, Schlage Lock used the solvent tetrachloroethylene (PCE) as a metal cleaner.

In mid July 1987, during plant expansion, Schlage Lock discovered PCE in their subsurface soils. Soil Vapor Extraction (SVE) systems were installed in two source areas in 1989 and in a third source area in 2000. Other remediation technologies that have been implemented include air sparging,  $\text{NC}_2$  oxidation, and recirculating sparge wells.

Schlage discovered that groundwater beneath the site was contaminated with PCE after an initial investigation in 1987. The plume of PCE contaminated groundwater extends from the Schlage Lock facility, in a west-southwest direction below Little Johnson Reservoir, then turns and migrates south-southeast as it intersects with the Widefield aquifer south of Bradely Road. The contaminant plume travels within the Widefield aquifer toward the Willow Springs Ponds. The shape of the contaminant plume is constrained by paleo-channels in bedrock and by channel deposits in the Widefield aquifer. The length of the contaminant plume is approximately four and a half miles. The Widefield aquifer is used for drinking water in the Security-Widefield

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municipal water supply. The PCE concentration in the Widefield Aquifer varies greatly over time and space due to lithologic differences. For example, the range of PCE concentration detected at monitoring wells SW-37 in 1995 was 91-140 µg/l and at SW-44 was 67-140 µg/l. In comparison, the average concentration in 2004 (as of August 2004) was 15 µg/l and 18 µg/l respectively. At SW-43, a monitoring well located just 475 feet from SW-44, the PCE concentration in 1995 varied from 12-16 µg/l (Accame, 2004).

Affected municipal wells were either shut down or water treatment systems were installed to remove PCE before concentrations became greater than drinking water standards. Affected residential wells were either offered municipal water hook-ups or individual water-treatment units. In 1990, Schlage Lock installed an on-site groundwater recovery and treatment system to treat PCE-contaminated groundwater, and in 1992, they began operation of an additional system between their property and the former Little Johnson Reservoir. Treated water was discharged under a permit to the Security Water and Sanitation District sanitary sewer.

By 1999, maximum concentrations of PCE within the plume were over 1,000 µg/l in the vicinity of Little Johnson Reservoir, less than 100 µg/l south of Bradley Road, and less than 50 µg/l south of Fontaine Boulevard. Maximum PCE concentrations detected during the 2<sup>nd</sup> quarter of 2004 were below 800 µg/l in the vicinity of Little Johnson Reservoir, less than 50 µg/l south of Bradley Road, and less than 10 µg/l south of Fontaine Boulevard. The width of the plume with PCE concentrations exceeding 5 µg/l is usually less than 200 feet. An upgraded groundwater remediation system, described as the Bradley Road/Little Johnson Reservoir Groundwater Recovery, Treatment and Injection System, has been operating since 1999. The system is designed to halt further movement of PCE-affected groundwater into the Widefield aquifer.

In 2001, a series of sentry wells were installed to monitor groundwater in the vicinity of various municipal water supply wells. Additionally, an on-site boundary control system was installed. The boundary control system consists of 37 recovery wells for groundwater extraction, treatment, and infiltration. Water from the recovery wells is filtered and softened, then conveyed to the Bradley Road/Little Johnson Reservoir water treatment facility where PCE is removed prior to injecting the treated water into the ground. The system began operation in January 2002 with 19 wells. In November 2002, 14 recovery wells were added. In April 2003, a trench drain (including four recovery wells) became operational as part of the on-site boundary control system.

Some ponds in the area, Willow Springs Ponds, have also been found to be contaminated with PCE. In 1997, the El Paso County Parks Department closed the Willow Springs Ponds to all fishing pending further fish testing and analysis. Results of the fish analysis will be discussed in a future document.

## **Discussion**

### **Evaluation of Environmental Data**

Available sampling data for SWD water supply was reviewed, and a screening evaluation was conducted to identify PCE in the water supply and determine whether it may be of potential health concern. The screening analysis identifies maximum concentrations of contaminants

detected in the water supply and compares these concentrations with MCLs and health-based comparison values established by the ATSDR (ATSDR 2003). The ATSDR comparison values are specific concentrations of a chemical for various environmental media (e.g., air, soil, or water) that are used by health assessors to identify environmental contaminants that require further evaluation. These comparison values are developed based on health guidelines and assumed exposure situations that represent high estimates of human exposure. Chemical concentrations detected in environmental media that are less than a comparison value are unlikely to pose a health threat. However, chemical concentrations detected in environmental media above a comparison value do not necessarily represent a health threat. To impact one's health, a chemical must not only be present in a certain environmental media but a person must also come in contact with the compound via the contaminated media (e.g., drinking water).

Therefore, if the concentration of a chemical in an environmental medium (e.g., water) is greater than the appropriate comparison value (CV), the potential for exposure to the chemical should be further evaluated to determine whether health effects may be possible. Further evaluation is necessary because the CVs used in the screening analysis are derived based on high estimates of exposure that do not apply to all situations. Therefore, they are conservative in order to be health protective. Factors related to actual exposures that are unique to the specific situation under investigation need to be determined if an adverse health effect from this chemical could occur.

The public water supply in SWD is sampled on a regular basis to monitor the quality and to ensure the safety of drinking water. It is not unusual to detect some contaminants in a drinking water supply. For this reason, the CDPHE, Water Quality Control Division has adopted standards known as maximum contaminant levels (MCLs) for public drinking water supplies. These standards were developed by the US Environmental Protection Agency (EPA) and identify the maximum concentration at which a chemical can safely exist in drinking water. If a chemical is detected below the MCL, that chemical is considered to be at a level that is safe for drinking water.

### **Security Water District Municipal Water Supply Data**

In response to resident concerns, EHS obtained and reviewed information regarding the municipal drinking water supplies in the SWD. Available information and environmental sampling data between the years 1992 to the present was evaluated. Results of this sampling are depicted in the tables in Appendix B.

The SWD municipal drinking water supply has been sampled on a quarterly basis beginning in 1992. [See tables in Appendix B.] The results of drinking water sampling are reported to CDPHE to ensure that the districts drinking water supply is in compliance with state drinking water standards. The municipal drinking water supply for SWD is currently in compliance with state drinking water standards. The federal and state of Colorado maximum contaminant level (MCL) for PCE is 5 µg/l. None of the samples taken from the SWD groundwater wells were above the MCL.

Security Water District obtains 60% of its municipal water from 19 groundwater wells (R-1, R-2, S-2, S-4, S-7, S-8, S-9, S-10, S-11, S-12, S-13, S-14, S-15, S-16, S-17, FV-4, C.S., W-8, W12).

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Well S-10 was removed from service in 1992 and was placed back into service in 2000 after an air stripper (water-treatment unit) was installed. The S-10 well water is treated by the air stripper and water from all the wells are disinfected with chlorine to ensure that the water is suitable for drinking and other personal uses before it enters the water-distribution system. The remaining 40% of the water supply comes from the Fountain Valley Water authority, which draws surface water from the Pueblo Reservoir and is not impacted by the PCE plume in question (Harding 2004).

Municipal water obtained from 19 groundwater wells and the Fountain Valley Water authority is mixed within the distribution system. For example, water from groundwater well S-10 flows through a short water main toward a large water main. Here, water from well S-10 is diluted with the flow of other water supply sources (e.g., other groundwater wells and water from Pueblo Reservoir), which also enter the large water main at this junction (Harding 2004). Any PCE contamination in the 19 groundwater wells will be reduced by the blending of water from this other reservoir.

For the SWD groundwater wells, PCE levels in all of the wells were lower than the MCL of 5 micrograms per liter ( $\mu\text{g/l}$ ) for drinking water for the time period that the wells were in service. There was one instance where well S-10 was pulled out of service in 1992 because the PCE level was  $5.4 \mu\text{g/l}$ . In 2000, to treat the water contaminated with PCE, an air-stripper treatment unit was installed at the S-10 well and was placed back into service. The latest test indicated that the PCE concentration (after treatment) in well S-10 was lower than the MCL at  $0.6 \mu\text{g/l}$ . The groundwater supply at all 19 wells are sampled and tested for the presence of PCE on a quarterly basis, and all have been in compliance with the state's MCLs.

### **Exposure Pathway Analysis**

An exposure pathway analysis was conducted to determine whether residents who receive water from SWD were, are, or could be exposed to levels of chemicals in the water supply that may potentially produce adverse health effects. The exposure pathway analysis is an evaluation of the environmental and human components that lead to exposure. The pathway analysis consists of five elements: a source of contamination; transport through an environmental medium (e.g., drinking water); a point of exposure; a route of human exposure; and a receptor population.

A completed exposure pathway indicates that humans were exposed to chemicals in the past, is occurring in the present, or will occur in the future. A completed exposure pathway exists when all of the above five elements are present. A potential exposure pathway exists when one or more of the five elements is missing or uncertain and indicates that exposure to a contaminant could have occurred in the past, could be occurring in the present, or could occur in the future. An exposure pathway can be eliminated if at least one of the five elements is missing and will not likely be present in the future.

CDPHE has identified a completed exposure pathway for PCE in drinking water. The PCE plume has impacted some of the groundwater wells used in the SWD municipal water supply in the past. Currently, exposure to PCE in the municipal water supply in the SWD is occurring in small amounts through 2 groundwater wells. [See tables in Appendix B.]

### **Public Health Implications**

Since 1992, all levels of PCE measured in the 19 groundwater wells have been below the MCL of 5.0 µg/l. In addition, the water from these 19 wells is blended with water from the Pueblo Reservoir which has not been impacted by PCE contamination. Therefore, current exposure to PCE is not expected to cause adverse health effects.

Levels of PCE before 1992 are unknown. One of the 19 groundwater wells had detection of PCE slightly above the MCL (5.4 µg/l); however, water from this well would have been mixed with water from other wells and the Pueblo Reservoir, before reaching residents. Because of this blending, one well with PCE detections slightly above the MCL would not be expected to cause adverse health effects. It is unknown if there were levels of PCE greater than this in the past. Past (pre-1992) exposure to PCE is an indeterminate public health hazard.

### **Child Health Considerations**

In communities faced with air, water, or food contamination, the many physical differences between children and adults demand special emphasis. Children could be at greater risk than are adults from certain kinds of exposure to hazardous substances. Children play outdoors and sometimes engage in hand-to-mouth behaviors that increase their exposure potential. Children are shorter than are adults; this means they breathe dust, soil, and vapors close to the ground. A child's lower body weight and higher intake rate results in a greater dose of hazardous substance per unit of body weight. If toxic exposure levels are high enough during critical growth stages, the developing body systems of children can sustain permanent damage. Finally, children are dependent on adults for access to housing, for access to medical care, and for risk identification. Thus adults need as much information as possible to make informed decisions regarding their children's health.

### **Conclusions**

PCE, a metal cleaning solvent, has been detected in the Security Water District's municipal drinking water supply. However, the past (since 1992) or current concentration of PCE in the SWD water supply would not be likely to cause an increased risk of cancer or adverse, non-cancerous health effects in individuals consuming this water.

- Since 1992, residents connected to the SWD municipal water supply may have been exposed to some levels of PCE. However, based on the data reviewed, and the nature in which the water is mixed and diluted with other water sources, it does not appear that local residents were exposed to significant concentrations of PCE that would result in adverse health effects. This is categorized as a **No Apparent Public Health Hazard**.
- PCE levels in the SWD municipal water supply prior to 1992 are unknown. Residents may have been exposed to some levels of PCE, since it is unknown when PCE first contaminated the groundwater. Since the municipal groundwater supply is blended with water from the Pueblo Reservoir (about 40%), any PCE levels would be reduced by that much. However, since there are no data available for review prior to 1992, this is

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categorized as an **Indeterminate Public Health Hazard**. [See Appendix C for a description of ATSDR's public health hazard categories.]

## **Recommendations**

- CDPHE's Environmental Health Studies program recommends continued quarterly monitoring of groundwater from all wells to ensure that the municipal drinking water supply continues to comply with state drinking water standards and to prevent potential future exposures.
- CDPHE's Environmental Health Studies program will review any additional environmental sampling data for municipal water wells as data becomes available at the request of local officials and Security-Widefield residents.
- The CDPHE, Environmental Health Studies program recommends continued regulatory oversight of the PCE plume by the CDPHE Hazardous Materials Waste Management Division.

## **Public Health Action Plan**

The public health action plan describes the actions designed to mitigate or prevent adverse human health effects that might result from exposure to hazardous substances associated with site contamination. CDPHE commits to do the following public health action related to the Security Water District municipal water supply:

- Review any additional environmental sampling data for the SWD municipal water supply as data becomes available at the request of local officials and Security-Widefield residents.
- Evaluate environmental sampling data for other municipal water supplies affected by the PCE groundwater plume and publish the evaluations in future health consultations.
- Evaluate environmental sampling data for private residential wells affected by the PCE groundwater plume and publish the evaluation in a future health consultation.
- Evaluate environmental sampling data and fish data for the Willow Springs ponds in a future health consultation.
- Evaluate cancer incidence data in a future health consultation to address community concerns about cancer.

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# Appendix A

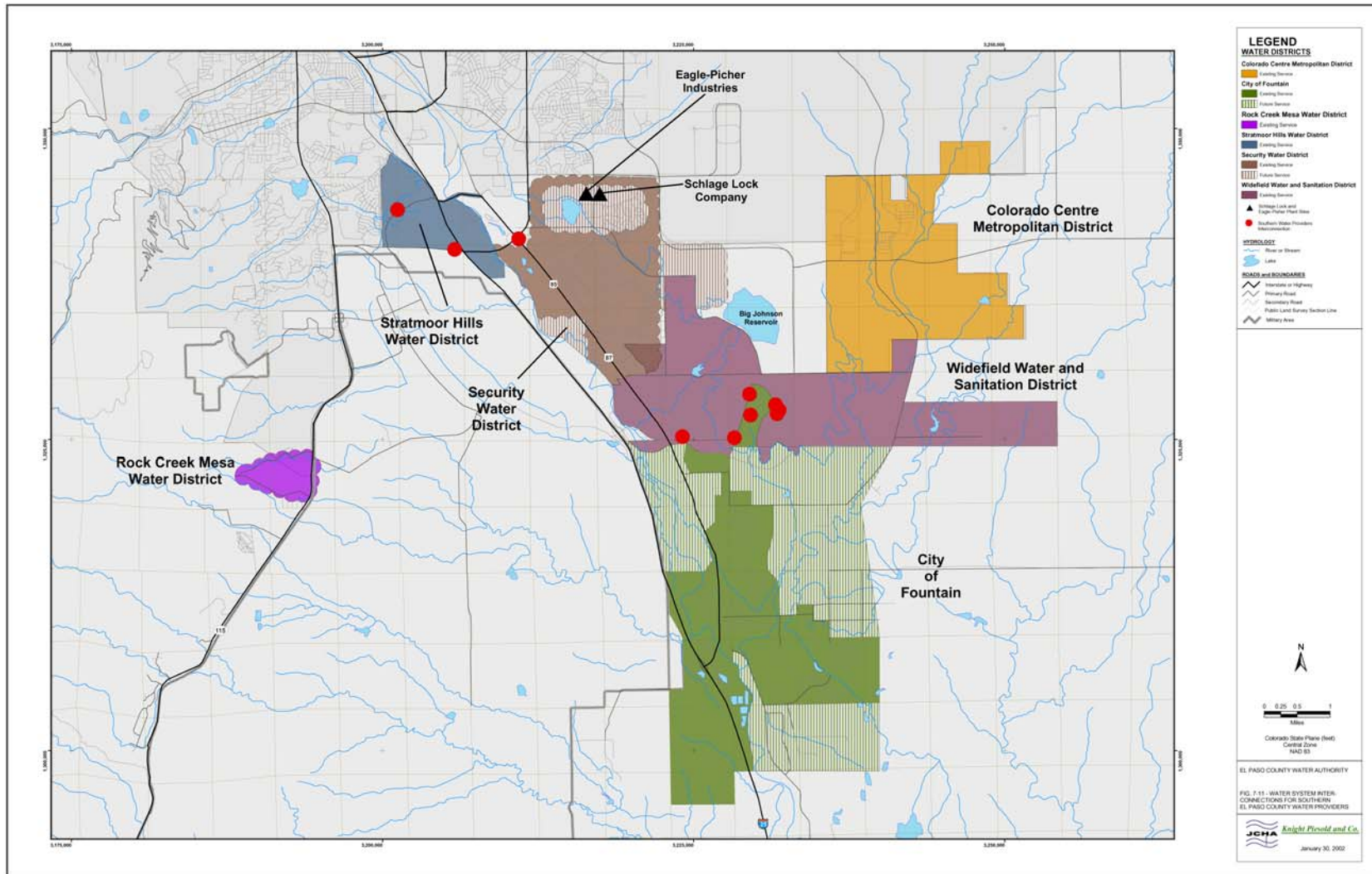


Figure 1. Map of area water districts in proximity to the Schlage Lock Company plant.

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## Appendix B

<b>Highest Detected Concentration of PCE in SWD Groundwater Wells, 1992–2004</b>	
<b>Well</b>	<b>Highest Detected Concentration of PCE (µg/l)*</b>
R-1	0
R-2	0
S-2	0.3
S-4	0.9
S-7	0.6
S-8	0.3
S-9	2.5
S-10*	0.6
S-11	1.9
S-12	0
S-13	0.3
S-14	0.6
S-15	0.3
S-16	0.3
S-17	0.2
FV-4	0.3
C.S.	0.4
W-8	0
W-12	0

**Data Source:** James Jones, PCE levels in Security Water District Wells, March 2004.

\*Concentration during the time well was in service

Security Water and Sanitation District PCE Levels in SWD Wells																			
ALL VALUES IN PPB or UG/L, MCL=5PPB																			
Date/Well	R-1	R-2	S-2	S-4	S-7	S-8	S-9	S-10	S-11	S-12	S-13	S-14	S-15	S-16	S-17	FV-4	C.S.	W-8	W-12
05/25/92	0	0	0	0	0	0	0	5.4	0	0	0	0	0	0	0	0	NT		
10/14/92	0	0	0	0	0	0	0	5.1	0	0	0	0	0	0	0	0	NT		
02/02/93	0	0	0	0	0	0	0	7.5	0	0	0	0	0	0	0	0	NT		
07/14/93	0	0	0	0	0	0.2	0.3	7.3	0	0	0.3	0	0.3	0.2	0	0	NT		
10/12/93	0	0	0.2	0	0	0.2	0.2	6.9	0	0	0.3	0	0.3	0.2	0	0.2	NT		
02/23/94	0	0	0.2	0	0	0.3	0	0	0	0	0.3	0	0.3	0.3	0	0.2	0.3		
04/04/94	0	0	0.2	0	0	0.2	0	0.8	0	0	0.3	0	0	0	0	0	0.2		
07/12/94	0	0	0	0	0	0	0	NT	0	0	0.3	0	0	0	0	0	0.2		
10/05/94	0	0	0.3	0	0	0.2	0	0.3	0	0	0.2	0	0	0	0	0	0.3		
1QT 1995	0	0	0	0	0	0	0	9.3	0	0	0.2	0	0	0	0	0	0		
2QT 1995	0	0	0.2	0	0	0.2	0	0	0	0	0.3	0	0.2	0.2	0	0.2	0		
3QT 1995	0	0	0.2	0	0	0	0	0.3	0	0	0.2	0	0	0	0	0	0.4		
4QT 1995	0	0	0	0	0	0.2	0	3.5	0	0	0.2	0	0	0	0	0	0.3		
1QT 1996	0	0	0.2	0	0	0.2	0	6.7	0	0	0.3	0	0.2	0.2	0	0	0.3		
2QT 1996	0	0	0.3	0	0	0.2	0	9.7	0	0	0.2	0	0.2	0.2	0	0.2	0.3		
3QT 1996	0	0	0	0	0	0.2	0.3	10	0	0	0.2	0	0.2	0.2	0	0.2	0.3		
4QT 1996	0	0	0	0	0	0.2	0	8.2	0	0	0.3	0	0	0	0	0.2	0.2		
1QT 1997	0	0	0.2	0	0	0.2	0.5	13	0	0	0.3	0	0.2	0.2	0	0.2	0.2		
2QT 1997	0	0	0.3	0	0	0.2	0.5	16	0	0	0.2	0	0.2	0.2	0	0.3	0		
3QT 1997	0	0	0	0	0	0	0.2	8	0	0	0.2	0	0	0	0	0	0.2		
4QT 1997	0	0	0	0	0	0	0.3	9.3	0	0	0.3	0	0.2	0.2	0	0.2	0.2		
1QT 1998	0	0	0.2	0	0	0	0.4	14	0	0	0.2	0	0.2	0.2	0	0.2	0		
2QT 1998	0	0	0.2	0	0	0	0.4	16	0	0	0	0.3	0	0	0	0	0		
3QT 1998	0	0	0	0	0	0	0.3	12	0	0	0.2	0	0	0	0	0	0.2		
4QT 1998	0	0	0	0	0	0	0.3	17	0	0	0.2	0	0	0	0	0	NT		
1QT 1999	0	0	0.2	0	0	0	2.5	23	0	0	0.3	0	0	NT	0	0	0.2		
2QT 1999	0	0	0	0	0	0	0.8	17	0	0	0	0	0	NT	0	0	0		
3QT 1999	0	0	0	0	0	0	0.5	8	0	0	0	0	0	NT	0	0	0		
4QT 1999	0	0	0	0	0	0	0.6	19	0	0	0	0	0	NT	0	0	0		
1QT 2000	0	0	0	0	0	0	0.8	17	0	0	0.2	0	0	NT	0.2	0.2	0.2		
2QT 2000	0	0	0	0	0	0	0.7	17	0	0	0.2	0	0	NT	0.2	0	0		
3QT 2000	0	0	0	0	0	0	1.1	NT	0	0	0	0	0	0	0	0	0		
4QT 2000	0	0	0	0	0	0	1.4	0.6	0	0	0	0	0	0.1	0	0	0		
1QT 2001	0	0	0	0	0	0	1.3	0.6	0	0	0	0	0	0.6	0	0	0		
2QT 2001	0	0	0	0	0	0	1.7	0	0	0	0	0	0	0	0	0	0		
3QT 2001	0	0	0	0	0	0	0.8	0	0	0	0	0	0	0	0	0	0		
4QT 2001	0	0	NT	0	0	0	0.7	0	0	0	0	0	0	0	0	0	0		
1QT 2002	0	0	NT	0	0	0	1.4	0	0.7	0	0	0	0	0	0	0	0		
2QT 2002	0	0	NT	0	0	0	2.4	0	1.3	0	0	0	0	0	0	0	0		
3QT 2002	0	0	NT	0.9	0	0	1.7	0	1.4	0	0	0	0	0	0	0	0		
4QT 2002	0	0	NT	0	0	0	1.3	0	1.9	0	0	0	0	0	0	0	0		
1QT 2003	0	0	NT	0	1	0	0.6	0	0.7	0	0	0	0	0	0	0	0		
2QT 2003	0	0	NT	0.6	1	0	0.5	0	0.7	0	NT	0.5	0	0	NT	NT	0	0	NT
3QT 2003	0	0	0	0	0	0	1.1	0	0	0	0	0	0	0	0	0	0	0	NT
4QT 2003	0	0	0	0	0	0	0.6	0	0	0	0	0	0	0	0	0	0	NT	NT
1QT 2004	0	0	0	NT	0	NT	0.5	0	NT	0	0	0.6	0	0	0	0	0	0	0

Data Source: James Jones, PCE levels in Security Water District Wells, March 2004.

## Appendix C

### ATSDR's Public Health Hazard Categories

Category / Definition	Data Sufficiency	Criteria
<p><b>A. Urgent Public Health Hazard</b></p> <p>This category is used for sites where short-term exposures (&lt; 1 yr) to hazardous substances or conditions could result in adverse health effects that require rapid intervention.</p>	<p>This determination represents a professional judgment based on critical data which ATSDR has judged sufficient to support a decision. This does not necessarily imply that the available data are complete; in some cases additional data may be required to confirm or further support the decision made.</p>	<p>Evaluation of available relevant information* indicates that site-specific conditions or likely exposures have had, are having, or are likely to have in the future, an adverse impact on human health that requires immediate action or intervention. Such site-specific conditions or exposures may include the presence of serious physical or safety hazards.</p>
<p><b>B. Public Health Hazard</b></p> <p>This category is used for sites that pose a public health hazard due to the existence of long-term exposures (&gt; 1 yr) to hazardous substance or conditions that could result in adverse health effects.</p>	<p>This determination represents a professional judgment based on critical data which ATSDR has judged sufficient to support a decision. This does not necessarily imply that the available data are complete; in some cases additional data may be required to confirm or further support the decision made.</p>	<p><b>Evaluation of available relevant information* suggests that, under site-specific conditions of exposure, long-term exposures to site-specific contaminants (including radionuclides) have had, are having, or are likely to have in the future, an adverse impact on human health that requires one or more public health interventions. Such site-specific exposures may include the presence of serious physical or safety hazards.</b></p>
<p><b>C. Indeterminate Public Health Hazard</b></p> <p><b>This category is used for sites in which “critical” data are insufficient with regard to extent of exposure and/or toxicologic properties at estimated exposure levels.</b></p>	<p>This determination represents a professional judgment that critical data are missing and ATSDR has judged the data are insufficient to support a decision. This does not necessarily imply all data are incomplete; but that some additional data are required to support a decision.</p>	<p><b>The health assessor must determine, using professional judgment, the “criticality” of such data and the likelihood that the data can be obtained and will be obtained in a timely manner. Where some data are available, even limited data, the health assessor is encouraged to the extent possible to select other hazard categories and to support their decision with clear narrative that explains the limits of the data and the rationale for the decision.</b></p>
<p><b>D. No Apparent Public Health Hazard</b></p> <p>This category is used for sites where human exposure to contaminated media may be occurring, may have occurred in the past, and/or may occur in the future, but the exposure is not expected to cause any adverse health effects.</p>	<p>This determination represents a professional judgment based on critical data which ATSDR considers sufficient to support a decision. This does not necessarily imply that the available data are complete; in some cases additional data may be required to confirm or further support the decision made.</p>	<p>Evaluation of available relevant information* indicates that, under site-specific conditions of exposure, exposures to site-specific contaminants in the past, present, or future are not likely to result in any adverse impact on human health.</p>
<p><b>E: No Public Health Hazard</b></p> <p><b>This category is used for sites that, because of the absence of exposure, do NOT pose a public health hazard.</b></p>	<p><b>Sufficient evidence indicates that no human exposures to contaminated media have occurred, none are now occurring, and none are likely to occur in the future</b></p>	

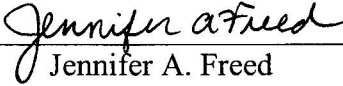
*\*Such as environmental and demographic data; health outcome data; exposure data; community health concerns information; toxicologic, medical, and epidemiologic data; monitoring and management plans.*

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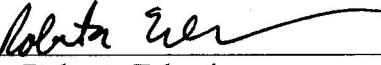


## Certification

This health consultation was prepared by the Colorado Department of Public Health and Environment under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). It is in accordance with approved methodology and procedures existing at the time the health assessment was begun.

  
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The Division of Health Assessment and Consultation, ATSDR, has reviewed this health consultation, and concurs with its findings.

  
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Roberta Erlwein  
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