

Letter Health Consultation

PALERMO SUPERFUND SITE

TUMWATER, WASHINGTON

EPA FACILITY ID: WA0000026534

SEPTEMBER 25, 2008

**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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LETTER HEALTH CONSULTATION

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Prepared By:

**State of Washington Department of Health
Under Cooperative Agreement with the
U.S. Department of Health and Human Services
Agency for Toxic Substances and Disease Registry**



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Health Consultation Memorandum

September 11, 2008

TO: Chris Cora
U.S. Environmental Protection Agency

FROM: Barbara Trejo
Washington Department of Health

SUBJECT: Final Second Five-Year Review Report
Palermo Wellfield Superfund Site
Tumwater, Washington

Background and Statement of Issues

The U.S. Environmental Protection Agency (EPA) recently provided the Washington Department of Health (DOH) with its August 18, 2008, *Final Second Five-Year Review Report, Palermo Wellfield Superfund Site, Tumwater, Washington*. The purpose of the second five-year review is for EPA to determine whether the remedial actions being implemented at this site are protective of human health and the environment. DOH appreciates the opportunity to review and comment on this version of the report.

The site includes the Palermo Wellfield and the Palermo neighborhood, a residential community, located within the Deschutes River Valley and the adjacent uplands located to the west of the valley. The uplands contain predominantly commercial properties including the Southgate Mall and two existing Washington Department of Transportation (DOT) properties. The Palermo Wellfield, where trichloroethylene (TCE) was detected in the municipal water supply in 1993, is located in the Palermo neighborhood.

TCE and tetrachloroethylene (PCE) have been found at various locations in upland soils. Some of those contaminants entered groundwater and migrated eastward, below the Palermo neighborhood. In addition, shallow groundwater containing PCE and TCE was found to surface near the base of the Palermo bluff, ponding as surface water in the yards and crawlspaces of some of the homes in the Palermo residential neighborhood in the valley.

EPA has conducted some cleanup activities at the site including a wellhead treatment system (using air stripping technology) at the Palermo Wellfield, a soil vapor extraction (SVE) system at

the Southgate Dry Cleaner (one of a number of potential source areas), and a french drain system in the Palermo neighborhood to lower the water table below homes and property near the Palermo bluff. EPA also conducts long-term groundwater monitoring at the site and is evaluating the groundwater to indoor air pathway in the Palermo neighborhood.

DOH initially became involved at the Palermo site in the mid-1990s when it reviewed EPA's site inspection report. A health consultation report summarizing DOH's findings and recommendation to fill site data gaps was completed in 1996. In 1999, during the later part of the remedial investigation, EPA requested that DOH review EPA's draft proposed site plan. As part of that health consultation, DOH identified some health related issues including potential exposures to contaminants via the groundwater to indoor air pathway in the Palermo neighborhood. EPA began evaluating the groundwater to indoor air pathway in 2001 when it sampled indoor air at some homes. DOH evaluated this indoor air data and completed another health consultation report in 2002, summarizing its conclusions and recommendations, which included a determination that it was not clear whether the source of the TCE and PCE in indoor air was the contaminated groundwater or an unrelated background source. DOH also concluded exposures to the detected levels of PCE and TCE in indoor air in 2001 posed no apparent public health hazard. Since then, DOH has continued working with EPA to assess the vapor intrusion pathway in the Palermo neighborhood.

Discussion

DOH was only able to conduct a cursory review of the report because EPA only allowed a short time to review the five-year report, which contains limited supporting information and data. Nonetheless, DOH did identify some concerns about the site and the report.

Based on information presented in the five-year review report, it does not appear that the site has been fully characterized. The figures presented in the report suggest that the groundwater monitoring system is not adequate for determining the lateral extent of the TCE and PCE plumes in most of the compass directions across the site (see figures 4-4 and 4-5). Information provided in EPA's June 1999, *Final Remedial Investigation for the Palermo Wellfield Superfund Site, Tumwater, Washington* (see figures 4-9 and 4-10) suggests that vertical extent of contamination might also be unknown across the site.

TCE and PCE contaminated soil appears to be limited to the upland area of the site. EPA's June 1999 RI report (see Figures 4-1 through 4-4) suggests there are a number of potential sources of TCE and PCE in the upland areas (e.g., two DOT facilities, Southgate Mall, vicinity of Brewery City Pizza, and a Chevron Station) based on various sampling events. However, it is not clear that the extent of soil contamination is well defined at any of these locations. EPA's soil cleanup efforts appear to have been focused mainly on the Southgate Dry Cleaner facility. The rationale for this decision is unclear given that contaminated soil at the other locations could also contribute to groundwater contamination and potentially affect indoor air quality.

Lack of understanding about the groundwater plume boundaries, contaminated soil boundaries, and the potential impact of contaminated media on indoor air quality in the upland areas are significant data gaps that need to be addressed by EPA.

The following numbered items summarize some additional DOH concerns and recommendations:

1. **Five-Year Review Summary Form, Issues** – It is noted that no deed restriction exists for the Southgate Dry Cleaner, which is an important issue if contamination remains at the site. However, as noted above, it does not appear that the Southgate Dry Cleaner is the only contaminant source area at the site. EPA should consider using deed restrictions at the other sources too to prevent releases or possible exposures to contaminants in the future.
2. **Five-Year Review Summary Form, Recommendations and Follow-up Actions** – EPA is recommending a deed restriction or soil sampling for the Southgate Dry Cleaner property. However, a deed restriction alone might not be an adequate follow-up action if PCE or other contaminants remain in the soil because these contaminants could be posing a potential threat to indoor air at the dry cleaner and other nearby buildings. DOH recommends that EPA conduct additional soil characterization work, including soil gas testing, at the dry cleaner.
3. **Five-Year Review Summary Form, Recommendations and Follow-up Actions** – It is noted that indoor air monitoring continues to insure concentrations remain below 1.46 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). The contaminant this level relates to is not mentioned but based on later report information it appears this is the remedial action objective (RAO) for trichloroethylene (TCE). It should be noted that this level is almost two orders of magnitude higher the MTCA TCE cleanup level ($0.022 \mu\text{g}/\text{m}^3$). EPA should indicate in the five year review whether it will conduct some type of action to reduce contaminant levels when contaminant levels exceed RAOs.
4. **Section 4.1, Remedy Selection** – The report notes that the MTCA Method B air cleanup level for tetrachloroethylene is $4.38 \mu\text{g}/\text{m}^3$ (see item 2, description of “selected remedy”). However, Ecology’s CLARC database indicates that level is $0.42 \mu\text{g}/\text{m}^3$. The report should be corrected.
5. **Section 4.1, Remedy Selection** - The report indicates that attainment of the soil remediation goal at Southgate Dry Cleaners was evaluated in the past based on PCE concentrations in vapor discharged from the remediation system (see item 4). Attainment of the soil remediation goal should be based on soil results, not vapors.
6. **Section 4.2.4, Component 4** – The report indicates that areas of PCE contaminated soils remain at the Southgate Mall, near the dry cleaner after the soil vapor vacuum system was decommissioned in June 2000. This is based on one confirmation soil sample collected after the decommissioning. One confirmation sample is inadequate for assessing cleanup success at the property and whether the soils continue to pose a health risk. EPA should define the

initial lateral and vertical extant of contaminated soil at Southgate Mall and develop a soil sampling plan to assess current contaminant levels.

7. **Section 4.3.4, Component 5 – Long-Term Groundwater Monitoring** – Figure 4-4 and 4-5 do not appear to be correctly constructed (shallow and deep wells were used together to construct groundwater concentration and flow maps). Correctly constructed figures are necessary for understanding groundwater flow and potential exposures and to evaluate possible health risks.
8. **Section 4.3.4, Component 5 – Long-Term Groundwater Monitoring** – It is noted in the report that “[c]omparison of the long-term monitoring data to the RI data implies that the removal of residual PCE in soil by the SVE system operated from March 1998 to June 2000 has resulted in decreased PCE concentrations in groundwater downgradient of Southgate Dry Cleaners.” However, when looking at Figure 4-5, it appears that no monitoring wells are located directly downgradient of the dry cleaner. These facts should be noted in the revised report.
9. **Section 6.4.1, Key Data Trends** - The report notes that, based on indoor air sampling results since 2004, concentrations of PCE and TCE appear to be generally decreasing over time in indoor air at most sampling locations in the Palermo neighborhood. However, a number of homes have only been sampled twice so this conclusion is not well supported. In addition, there are some locations, such as at 206 O Street, where levels have been fluctuating above the remedial goal. These facts should be noted in the revised report.
10. **Section 7.1.2, Subdrain System and Treatment Lagoon** – The report notes that only one TCE exceedance occurred in May 2004 and one PCE exceedance occurred in December 2004. What is exceeded is uncertain. However, DOH assumes it is the remedial goal. This finding is inconsistent with the results presented on Table 7-1, which shows a number of TCE and PCE exceedances of the respective remediation goals.
11. **Section 7.1.4, Long-Term Groundwater Monitoring, First Sentence** – The report notes that the Palermo Wellfield is capturing the groundwater contaminant plumes. However, this conclusion is not supported by Figure 4-4 and the 2004 through 2007 *Groundwater Long-Term Monitoring Reports*, which suggest that the Palermo Wellfield is not capturing all the contaminated groundwater. This situation could pose a health risk if the contaminated groundwater is pulled toward other water supply wells, such as the Pabst Brewery wells, located northeast of the site, or discharging into the nearby Deschutes River.
12. **Section 7.1.4, Long-Term Groundwater Monitoring** –DOH agrees with EPA that the groundwater monitoring network needs to be re-evaluated. DOH recommends that EPA summarize that evaluation in a technical memorandum and provide DOH with an opportunity to review the findings and recommendations.
13. **Section 7.2.2.1, Potential Inhalation Risks** - The report notes that although indoor air concentrations are above the calculated MTCA Method B cleanup level, they are below remediation goals in the ROD, which are within the acceptable risk range of 1E-4 to 1E-6.

However, Table 7-1 indicates that there are some exceedances. The portions of the report where this is noted, including sections 7.1.2, 7.4.2, 7.2.2.1 and 7.2.2.2, should be corrected.

14. **Section 7.2.2.1, Potential Inhalation Risks** – DOH understands that the EPA Region 10 risk assessment unit is still using a TCE slope factor of 0.4 per mg/kg-day, which is consistent with the slope factor currently used by DOH.
15. **Table 7-2** – This table includes monitoring well MW-ES-9, which is not a shallow monitoring well, so using it to compare with indoor air levels is inappropriate.
16. **Section 9, Recommendations and Follow-up Actions** - This section should be modified to address DOH's recommendations as noted above.
17. **Section 10, Protectiveness Statement** – The protectiveness statement should be revised to reflect the issues and recommendations as noted above.

Conclusion

Because of the issues and data gaps, described above, DOH cannot determine whether the remedial actions conducted by EPA at the Palermo Superfund site are protective of human health. As a result, the site poses an indeterminate public health hazard.

Recommendations

EPA should address DOH's comments and recommendations as summarized in the discussion section above. DOH will evaluate any new data or other information that becomes available to determine whether the site might pose a current or future public health hazard.

cc: Laura Klasner, Washington Department of Ecology

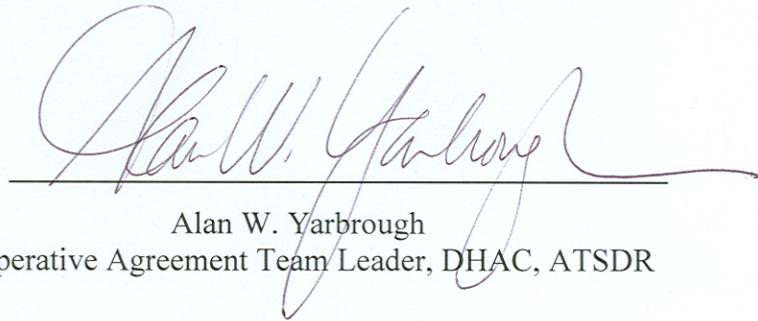
Certification

The Washington Department of Health (DOH) prepared this health consultation for Palermo Wellfield under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). It was completed in accordance with approved methodology and procedure existing at the time the health consultation was initiated. Editorial review was completed by the cooperative agreement partner.



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



Alan W. Yarbrough
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