Health Consultation

Contaminated Site Evaluation
Yttri/Wozow Site
Snohomish County, Washington

April 2005

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Prepared by

The Washington State Department of Health
Under a Cooperative Agreement with the
Agency for Toxic Substances and Disease Registry

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Foreword

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

The purpose of a health consultation is to identify and prevent harmful human health effects resulting from exposure to hazardous substances in the environment. Health consultations focus on specific health issues so that DOH can respond to requests from concerned residents or agencies for health information on hazardous substances. DOH 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 DOH or the contents of this health consultation, please call the health advisor who prepared this document:

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Summary and Statement of Issues

The Washington State Department of Health (DOH) conducted this health consultation for the Yttri/Wozow site at the request of the Washington State Department of Ecology (Ecology). Contaminants were discovered at this site in the mid-1990s and were observed again in February 2005 while a foundation for a single-family residence was being installed. The purpose of the health consultation is to evaluate whether the site poses a potential threat to construction workers/inspectors and future residential occupants of the property. DOH prepares health consultations under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR).

Background

The Yttri/Wozow site is located at 9218 171st Avenue SE in unincorporated Snohomish County, Washington (Figure 1). The site is located in a semi-rural area and is bounded by 171st Avenue SE to the east and single family residences on large lots to the north, south, and west.

Ecology and the Snohomish Health District (SHD) conducted an initial investigation at the site in May 1994 after receiving a report in March 1994 about releases of chemicals to soil at the site.[1] A small house, trailer and other outbuildings, and a well were located at the site at the time of the initial investigation. SHD noted that much of the property was covered with berry bushes. Containers of paint, oil, gas, and other chemicals, batteries, appliances, and asphalt piles were observed in the south central portion of the site, near the buildings, during the investigation. Areas of petroleum and paint contaminated soil and a cracked battery were also observed in this area. SHD additionally noted that other areas of the site (i.e., areas covered with berries) could also contain released contaminants.[2]

Only one sample was collected from zero to 6-inches below ground surface (bgs) during the initial investigation in an area where paint was stored (E-mail message from Gary Hanada, Snohomish Health District, March 21, 2005).[3] The sample was analyzed for metals, mercury, volatile organic compounds (VOCs), and semi-volatile organic compounds (SVOCs).[3] No information was provided about how the sample was collected. The analytical laboratory, however, reported that because of high concentrations of the target contaminants in the sample, dilutions were required for all analytes except mercury.[4] Toluene, xylenes, and ethylbenzene were the only chemicals reported by SHD to exceed the Washington State Model Toxics Cleanup Act (MTCA) soil cleanup levels.[3] However, other chemicals including, but not limited to, acetone, methyl ethyl ketone, 4-methyl 2-pentanone, naphthalene, and some metals were also detected.[4]

DOH noted during its review of the data that some metals (e.g., chromium) were detected at levels higher than natural background levels for soil in the Puget Sound region (90th percentile values).[5] DOH also noted that the total chromium level detected in the sample exceeded the MTCA Method A soil cleanup level for chromium VI (19 mg/kg), which is intended to be protective of groundwater, but does not exceed the level for chromium III (2000 mg/kg).[6] What portion, if any, of the chromium is chromium VI, however, is unknown.

During the site hazard assessment (SHA) conducted by SHD in September 1994, SHD observed that paint contaminated soil sampled during the initial investigation was dug up and stored in buckets. SHD resampled soil from zero to 6-inches bgs in this area and analyzed for metals and VOCs (E-mail message from Gary Hanada, Snohomish Health District, March 21, 2005).[3] SHD reports that only cadmium exceeded the MTCA method A soil cleanup level. Again, how the sample was collected was not reported.[3]

Two other soil samples were collected from zero to 6-inches bgs by SHD in September 1994, which were analyzed for VOCs and metals (E-mail message from Gary Hanada, Snohomish Health District, March 21, 2005).[3] One of those samples was collected on an adjacent property near the southwest corner of the Yttri/Wozow site.[3] No VOCs, except methylene chloride, were detected in the soil sample from the adjacent property. Methylene chloride is a common contaminant found in analytical laboratories and was noted as such by the laboratory. Metals detected on this property, including chromium, were generally less than background for the Puget Sound region.[5] The other soil sample was collected in the southwest portion of the Yttri/Wozow site. Acetone was detected but below MTCA soil cleanup levels. Total chromium was detected again above background levels and MTCA method A cleanup levels for chromium VI.

A well was located on site at the time of the SHA. One sample was collected from a spigot in front of the former house, preserved with nitric acid, and analyzed for VOCs and metals (E-mail message from Gary Hanada, Snohomish Health District, March 21, 2005).[3] Metal levels in the water were low. Methylene chloride was the only VOC detected in the sample. It should be noted, however, that samples collected from a spigot can be aerated. Consequently, the VOC results may be biased low. The well was subsequently abandoned.[7]

Based on the information obtained by SHD during the SHA, SHD gave the site a hazard ranking of 5. A hazard ranking is an estimation of the potential threat a site poses to human health and/or the environment relative to all other sites assessed by Ecology. A site with a ranking of 1 represents the highest potential threat while a ranking of 5 represents the lowest risk.[8]

The Snohomish County Sheriff's Office (SCSO) conducted a search for stolen vehicles at the property in late 1998 and dug up several buried vehicles. While removing the vehicles, SCSO observed petroleum, including gasoline, entering the soil and groundwater. No information is available to indicate where these releases occurred on the site. A cargo container, possibly containing drug paraphernalia and precursors for methamphetamine production was also suspected to be buried at the site but was never found.[9] SHD noted that an "alleged methamphetamine drug lab" was seized on the property during the SHA. However, SHD did not observe any drug lab supplies.[3]

The property is currently owned by B&R Homes, who purchased the property from the Wozow family. A single-family home is planned for the property. The owner/developer reports that the home will be supplied with city water and a drain field/septic system will be installed to handle waste (personal communication with Joe Brandvolt, B&R Homes, March 8, 2005).

B&R Homes was constructing the residence on the property until February 2005 when state and

local agencies became aware that construction was occurring on a contaminated site. The Washington State Department of Labor & Industry (L&I) discovered that the property had been ranked as a contaminated site and contacted Ecology about concerns that its electrical inspectors might be exposed to contaminants. L&I also discovered that none of the construction workers at the site had appropriate health and safety training for working on a contaminated site, which is a regulatory violation. L&I issued B&R Homes a citation for this violation. In addition, L&I will not allow its electrical inspectors to go to the site until it is cleaned up.[10]

A Snohomish County Planning and Development Services (SCPDS) building inspector observed evidence of a petroleum-like sheen in the footing excavation, and one of the foundation contractors reported to the SCPDS building inspector that he had detected odors in the excavation (telephone communication with Dan Smith, Snohomish County Planning and Development Services, March 1, 2005). SCPDS will also not allow their inspectors on the site until B&R Homes provides adequate information demonstrating that the site does not pose a health risk to its inspectors. B&R Homes will also need to demonstrate to SCPDS that future residential occupants will not be exposed to harmful levels of contaminants from the site. SCPDS indicates that they will not grant any further inspection approvals until that demonstration has been made (Personal communication with Dan Daley, Snohomish County Planning and Development Services, February 8, 2005 and e-mail message from Dan Daley, Snohomish County Planning and Development Services, March 23, 2005).

The foundation for the home was installed in February 2005. The owner/developer originally intended to construct a crawlspace beneath the home but the excavation had to be deepened to reach soil that could adequately support the foundation (personal communication with Joe Brandvolt, B&R Homes, March 8, 2005). DOH observed concrete footings in an excavation approximately 7 feet deep during a site visit on March 8, 2005. The owner/developer reports that he probably will convert the foundation to a basement and will pour a concrete floor. The owner/developer also indicated that he installed footing drains, and that the drains are tight-lined, and discharge at the southwest end of the site (personal communication with Joe Brandvolt, B&R Homes, March 8, 2005). DOH observed the footing drain discharge during a site visit on March 8, 2005. There were no odors or visual evidence of contamination associated with the discharging water, except there did appear to be a lot of iron present. It should be noted that precipitation levels in the Puget Sound area are currently well below normal. However, a significant amount of water was discharging from the pipe. Whether the appearance of the water from this pipe would change in a year with normal precipitation is unknown.

SHD visited the Yttri/Wozow site on February 7, 2005, and observed a number of buried objects at the site (e.g., top of a car, lawn mower, battery). No visible chemical contamination was observed.[10] None of the buried objects observed by SHD were visible when DOH and SCPDS visited the site on March 8, 2005. It is unknown whether these objects were removed or covered over. DOH and SCPDS did observe one pile of metal, wood, and other debris and noted other debris scattered around the site and mixed in disturbed soils. No visual evidence of contaminated soils was observed by DOH and SCPDS during the site visit.

Discussion

A number of observations about releases or potential releases of contaminants have been made regarding the Yttri/Wozow site since 1994. In addition, some limited sampling results obtained by SHD in 1994 to assist Ecology in determining whether the site posed a threat to human health and environment during the initial investigation and ranking the site under MTCA indicates that chemical releases have occurred at the site. However, this information is neither adequate for determining the nature and extent of the contamination nor evaluating health threats at this site. Furthermore, buried objects, including but not limited to cars and a cargo container with methamphetamine precursors, could be contributing to subsurface contamination at the site. Consequently, DOH cannot determine the level of the health threat posed by the site until additional investigation has been conducted.

Construction workers/inspectors and future occupants of the residential property could be exposed to VOCs migrating from contaminated soil or groundwater into excavations and indoor air (i.e., vapor intrusion pathway). Inhaling contaminated dust, ingestion of contaminated soil, and dermal contact with contaminated soil or groundwater collected from the footing drains that discharges in the southwest corner of the site are other potential exposure pathways. As noted above, the owner/developer reports that the home will be supplied with city water. If this occurs, contaminated groundwater would not pose a threat to drinking water. It should be noted, however, if contaminated groundwater discharges from the footing drains in the southwest corner of the site it could pose a health risk if, for example, it was ingested by a child.

Children's Health Concern

Children could potentially be exposed to contaminants migrating from contaminated media (e.g., soil, dust, groundwater, indoor air) if measures are not taken to reduce such exposures. Children can be uniquely vulnerable to the hazardous effects of environmental contaminants. When compared to adults, pound for pound of body weight, children drink more water, eat more food, and breathe more air. These facts lead to an increased exposure to contaminants. Additionally, the fetus is highly sensitive to many chemicals, particularly with respect to potential impacts on childhood development. For these reasons, DOH considers the specific impacts that contaminated media might have on children, as well as other sensitive populations.

Conclusions

Observations and limited sampling at the Yttri/Wozow site indicates that contaminants have been released at the property. These contaminants pose a possible health threat to construction workers/inspectors and future residential occupants of the property. The level of the health threat cannot be determined, however, until an investigation of the nature and extent of contamination at the site is completed. The site, therefore, poses an *indeterminate public health hazard*.

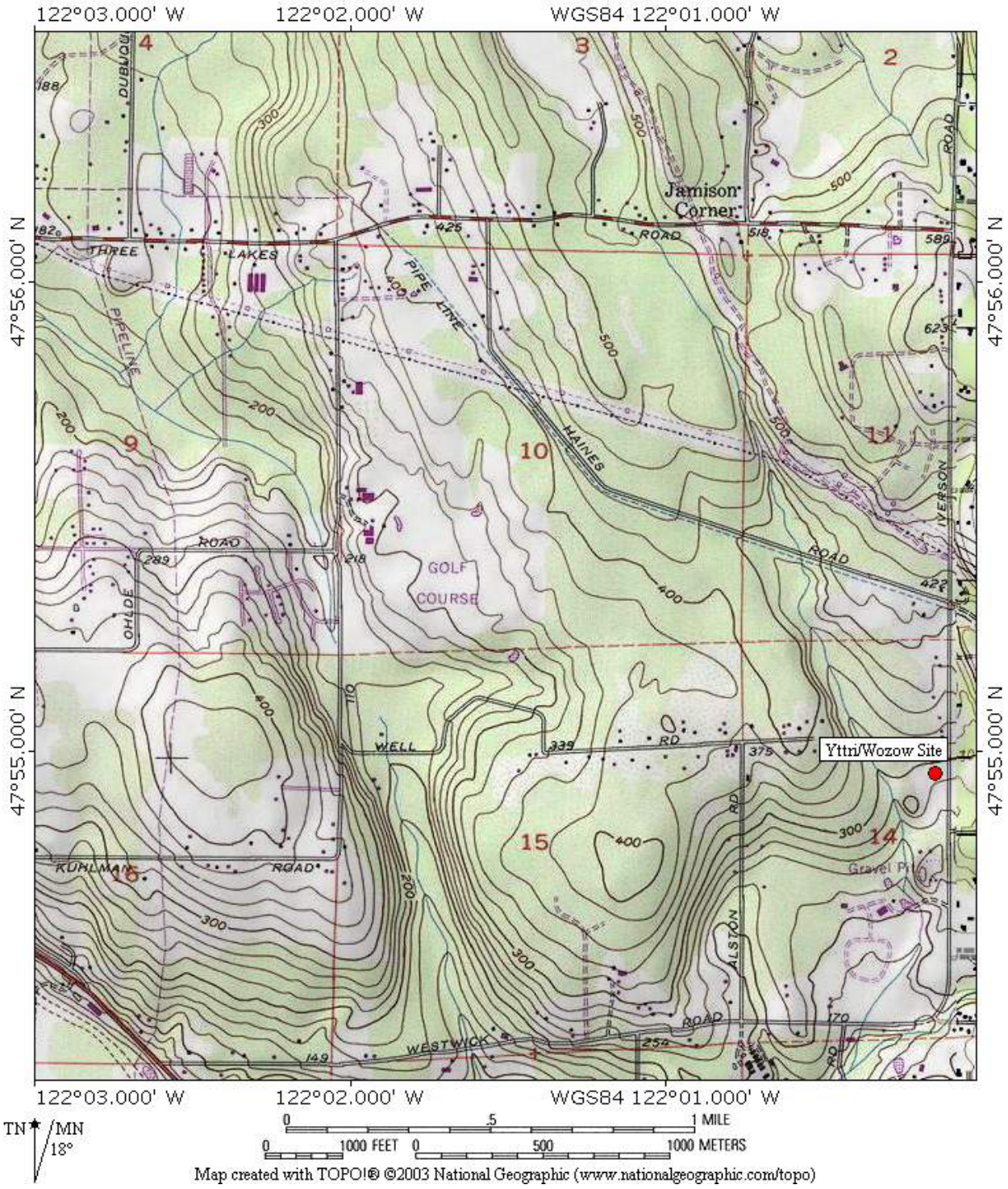
Recommendations

The developer/property owner should conduct an investigation to determine the nature and extent of contamination so it can be determined whether the site poses a health threat to construction workers/inspectors and future residential occupants of the property. Plans for such an investigation should be submitted to Ecology, L&I, SHD, SCPDS, and DOH for review. These plans should include some type of geophysical survey to identify locations of potentially buried sources of contamination. Investigation findings should be summarized in a report and submitted to Ecology, L&I, SHD, SCPDS, and DOH for review.

Public Health Action Plan

1. Copies of this health consultation will be provided to the property owner/developer, Ecology, L&I, SHD, and SCPDS.

2. DOH is available to review project plans and reports and evaluate possible health threats posed by site contaminants.



● Approximate site location

Figure 1 – Vicinity Map
Yttri/ Wozow Site
9218 171st SE
Snohomish County, WA

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Certification

This Yttri/Wozow Site Public Health Consultation was prepared by the Washington State Department of Health under a cooperative agreement with the federal Agency for Toxic Substances and Disease Registry (ATSDR). It was completed in accordance with approved methodologies and procedures existing at the time the health consultation was initiated. Editorial review was completed by the Cooperative Agreement partner.

Technical Project Officer, CAT, SPAB, DHAC

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

Team Lead, CAT, SPAB, DHAC, ATSDR

References

1. Washington State Department of Ecology. ERT system – initial report/follow-up. March 23, 1994.

2. Snohomish County Health District. Initial investigation site safety and health checklist. May 11, 1994.

3. Snohomish County Health District. Site hazard assessment worksheet 1, summary score sheet, undated.

4. AmTest Incorporated. Analysis report. June 6, 1994.

5. Washington State Department of Ecology. Natural background soil metals concentrations in Washington State. Lacey, Washington: Toxics Cleanup Program. October 1994.

6. Washington State Department of Ecology. Model toxics control act cleanup regulation, chapter 173-340 WAC. Lacey, Washington: Toxics Cleanup Program. Amended February 12, 2001.

7. Washington Department of Ecology. Facsimile from Gail Colburn. February 11, 2005.

8. Snohomish Health District. Letter to Mr. Charles Wozow. February 14, 1995.

9. Snohomish County Surface Water Management. Summary of notes from an April 1, 1999 agency meeting. April 9, 1999.

10. Washington State Department of Ecology. Telephone conversation record. March 1, 2005.