

# Health Consultation

Technical Document Review  
Proposed Investigation Plan  
Yttri/Wozow Site  
Snohomish County, Washington  
EPA Facility ID: WAD988518478

September 21, 2005

**Prepared by**

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



## **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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**Health Consultation**

**Proposed Investigation Plan**

**Yttri/Wozow Site**

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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 and buried debris were discovered at this site beginning in the mid-1990s and were observed again in early 2005 when a foundation for a single-family residence was being installed at the site. Some limited environmental sampling has been conducted at the site. However, the nature and extent of the site contamination was never fully investigated.

The purpose of the health consultation is to review a proposed site investigation plan and determine whether it will result in the collection of adequate data for determining the nature and extent of site contamination and assessing potential health risks 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 171<sup>st</sup> Avenue SE in unincorporated Snohomish County, Washington (Figure 1). The site, currently owned by B&R Homes, a developer, is located in a semi-rural area and is bounded by 171<sup>st</sup> Avenue SE to the east and single family residences on large lots to the north, south, and west.

In the mid- to late 1990s, Ecology and Snohomish County Health District (SCHD) investigated various reports of contaminant releases to soil and water at the Yttri/Wozow property. During those investigations, Ecology and SCHD observed numerous vehicles (e.g., approximately 25 cars were observed in April 1994); containers of paint, solvents, resin material, and various types of petroleum (e.g., oil and grease); batteries; appliances; and other debris stored on the site. Some areas of petroleum staining and spilled paint on surface soils were also observed. Only very limited environmental sampling was conducted during these investigations. Some volatile chemicals (e.g., toluene, ethylbenzene, xylenes, acetone, methyl ethyl ketone) were detected in a soil sample where some paints had been spilled. This contaminated soil was reportedly removed. However, only one sample was analyzed to confirm this. Evidence of petroleum releases were also observed in surface soils but no testing was conducted to determine the levels of contaminants.

Vehicles and other debris were discovered buried at the site in the late 1990s and some of that waste debris was reportedly excavated by Snohomish County and the former property owner. Petroleum, including gasoline, was observed during some of the excavation work.<sup>1</sup> Only a few photographs appear to be available that documented some of the Snohomish County excavation work. No documentation appears to be available regarding the excavation work conducted by the former property owner.

A cargo container containing drug paraphernalia and methamphetamine precursors was reported to be buried at the site. However, it does not appear that it was ever found.<sup>2</sup> Snohomish County Health District (SCHD) observed significant evidence of buried wastes, which included a

container of an unknown chemical, in the southwest portion of the Yttri/Wozow property site in February 2005.<sup>3</sup> This recent observation suggests that buried waste remains at the site, which could be a source of physical and chemical hazards.

B&R Homes began constructing a single family residence at the property in early 2005. During a foundation inspection on January 14, 2005, a Snohomish County Planning and Development Services (SCPDS) building inspector observed evidence of a petroleum-like sheen along the north and back side of the foundation excavation, which was approximately six to eight feet below ground surface. In addition, one of the foundation contractors reported to the SCPDS building inspector that he had detected odors in the excavation the previous day.<sup>4</sup> Because of these incidences, SCPDS would not allow their inspectors to return to the site until B&R Homes provided adequate information demonstrating that the site does not pose a health risk to its inspectors. SCPDS also determined that B&R Homes would 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 email message from Dan Daley, Snohomish County Planning and Development Services, March 23, 2005).

Ecology was also concerned about workers/inspectors and future resident's exposure to possible site contaminants when it found out about the contaminants discovered during the foundation work at the site. Ecology contacted DOH in February 2005 to help evaluate possible health risks associated with the site. In response to Ecology's request, DOH conducted a health consultation determining that the site posed an *indeterminate public health hazard* because there was not enough data to ascertain the nature and extent of the site contamination and recommended that the property owner/developer conduct an investigation to address the data gaps. The results of DOH's health consultation are summarized in its April 2005 health consultation report.<sup>5</sup>

DOH received a copy of the B&R Homes' investigation plan for the Yttri/Wozow site in mid-July 2005.<sup>1</sup> The plan provides site background information as well as a proposed sampling and analysis approach for investigation of possible contamination at the site.

## **Discussion**

The Yttri/Wozow site poses a potential health threat because of known and potential releases of contaminants. However, there currently is inadequate data available to evaluate potential health threats posed by this site. Physical hazards may also exist at the site. The July 2005, B&R Homes' letter/plan provides a proposed sampling and analysis approach for investigating site contamination. DOH has identified some issues and concerns and made some recommendations regarding the plan that need to be addressed before beginning the investigation:

1. DOH understands that only one residence, connected to a public water supply system, will be constructed on this property based on verbal information obtained about the property in early 2005. However, no information is provided in the plan to confirm this fact.

*Recommendation* – A discussion about the number and type of buildings planned for this property as well as other significant development information (e.g., drinking water source) should be added to the plan so there is a clear understanding about receptors and possible routes of exposure.

2. Numerous reports of observed contaminant releases have been included in the letter/plan (Appendix A) but none of this information has been summarized in a table and only a portion of that information is presented on a figure, which makes it difficult to evaluate whether the proposed sampling locations are reasonable.

*Recommendation* – DOH recommends that all reports of observed contaminant releases be summarized in a table and the locations shown on a copy of a site map. If the release location cannot be determined, this should be noted in the table. Sample locations should then be added to a copy of the site map to support the proposed sampling locations.

3. The plan indicates that test pits will be excavated and sampled in areas where past releases are likely to have occurred. Test pits are also planned where recent observations of buried debris (e.g., automotive parts, household items) have been observed. These are reasonable areas to excavate and test. However, the rest of the site also needs to be investigated given the past site use; uncertainty about where chemicals might have been released or disposed; uncertainty about where debris was buried; and undocumented excavation work.

*Recommendation* – As DOH recommended in its April 2005 health consultation report, some type of geophysical survey should be conducted at the site to identify locations of buried objects, which could be sources of physical and chemical hazards. Areas that serve as “sinks” (i.e. locations where contaminants would likely be deposited), such as the southwest corner of the site, should also be identified and tested. Areas of the site where there are no documented contaminant sources, sinks, or information about releases should be sampled using a grid of an appropriate density. Plans and procedures for conducting a geophysical survey and grid sampling should be added to the investigation plan.

4. The letter/plan states “If areas of apparent soil or water contamination are encountered, samples will be collected from these contaminated areas for field screening and for potential laboratory analysis.” Field screening is proposed to be conducted on samples with apparent soil or water contamination using either a photo ionization detector (PID) or flame ionization detector (FID). Petroleum hydrocarbons, metals, and/or volatile organic compound (VOC) analyses are the proposed types of analyses. However, the plan indicates that samples will only be submitted for a specific analysis based on visual and/or olfactory criteria.

The approach, as stated, suggests that visual or olfactory evidence of contamination will be the sole criteria for initially selecting samples and that if no visual or olfactory evidence exists then samples will not be field screened or analyzed. Such an approach is inappropriate because decisions about site contamination would be based on visual evidence or odors, which can be subjective criteria.

PIDs and FIDs are commonly used to screen samples for volatile chemicals but are not suitable for non-VOCs (e.g., metals). However, results obtained from these screening tools are never used alone to determine whether or not a site is contaminated. Such determinations are made using samples analyzed with U.S. Environmental Protection Agency (EPA) and/or Ecology analytical methods, like those mentioned in the investigation plan (e.g., EPA Method 8260, Ecology NWTPH-Gx).

*Recommendation* – Representative surface and subsurface samples should be collected across this site to determine if the site poses a health threat. Such an approach would include collecting soil samples from test pits even if there is no apparent contamination. The approach could include some screening criteria (e.g., PID/FID results, visual or olfactory evidence of contamination) for selecting the most contaminated samples for analysis but screening criteria alone should not be used to determine that samples collected from an area are not contaminated. This demonstration should be made using samples analyzed with appropriate EPA or Ecology analytical methods. Given the uncertainty about the potential types of contaminants released at this site and where they were released or disposed, each sample submitted for analysis should be analyzed for petroleum hydrocarbons, metals, VOCs, and semi-volatile organic compounds (SVOCs) unless it can clearly be demonstrated that a subset of these analyses are appropriate for a specific location.

5. Figures 1 and 2 are aerial photographs of the Yttri/Wozow property. However, no property boundaries have been added to distinguish the Yttri/Wozow property from the surrounding properties.

*Recommendation* – Property boundaries should be added to the figures so it is clear what area represents the site.

6. SOP No. 310, Section 5.2 – Breaking up soil clumps before placing it in a plastic bag is presented as an alternative approach for preparing the soil for headspace screening. Such an approach, however, could result in the loss of VOCs.

*Recommendation* – The SOP should be revised to ensure that all headspace samples are prepared in sealed bags to prevent the loss of VOCs.

### *Child Health Initiative*

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 indicate that contaminants have been released and waste debris, which could include physical and chemical hazards, have been buried at the property, posing a possible health threat to construction workers/inspectors and future residents. The property owner/developer is proposing to conduct a very limited investigation of the site. Given the past site use; uncertainty about where chemicals might have been released or disposed; uncertainty about where debris was buried; and undocumented excavation work, the proposed investigation, however, is not adequate for determining whether this site poses a health threat.

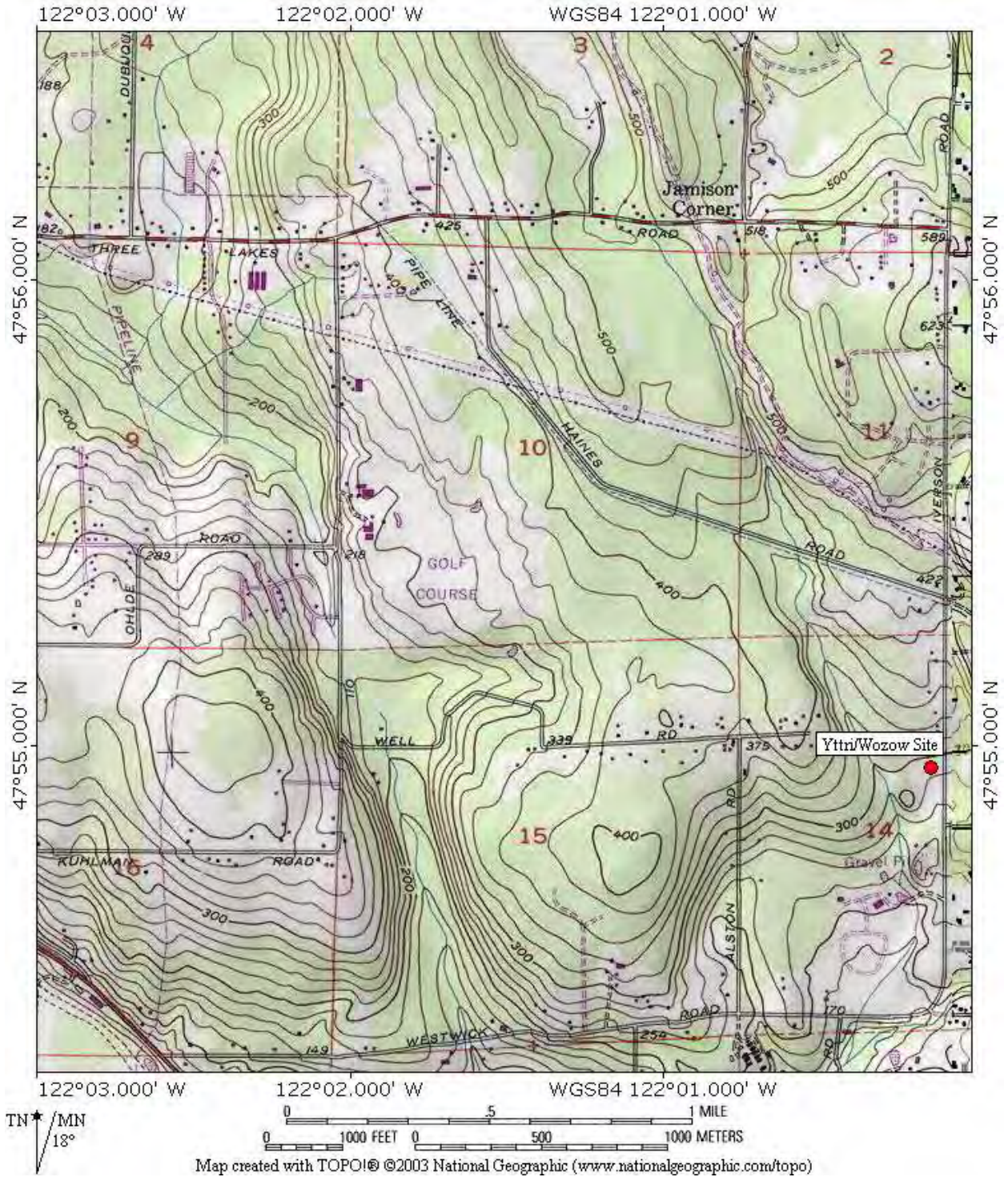
## **Recommendations**

Recommendations regarding the investigation plan for the Yttri/Wozow site are summarized in the discussion section, above.

## **Public Health Action Plan**

1. DOH is available to review future versions of the investigation plan as well as the investigation report.
2. DOH will provide copies of this health consultation report to Ecology, Snohomish County Health District, Snohomish County Planning and Development Services, and B&R Homes.
3. DOH will post this health consultation report on its web site to make it available to the general public.





- Approximate site location

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

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## References

1. RETEC Group. Letter report/plan to Gail Colburn, Washington Department of Ecology. July 8, 2005.
2. Snohomish County Surface Water Management. Summary of notes from an April 1, 1999 agency meeting. April 9, 1999
3. Snohomish County Health District. Recent complaint regarding former Yttri property. February 15, 2005.
4. Snohomish County Planning and Development Services. Letter from Dan Daley to Ben Farrow, RETEC. Undated.
5. Washington Department of Health. Contaminated site evaluation, Yttri/Wozow site, Snohomish County, Washington. Tumwater, Washington: Site Assessment Section. April 2005.

## **Certification**

This Yttri/Wozow 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.

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Technical Project Officer, CAT, SPAB, DHAC

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

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Team Lead, CAT, SPAB, DHAC, ATSDR