

N00109.AR.002459
NWS YORKTOWN
5090.3a

LETTER AND VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY COMMENTS TO
DRAFT TECHNICAL MEMORANDUM FOR GROUNDWATER RISK MANAGEMENT AT SITE
30 NWS YORKTOWN VA
4/21/2009
VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

Sawyer, Stephanie/VBO

From: Smith, Wade [Wade.Smith@deq.virginia.gov]
Sent: Tuesday, April 21, 2009 10:39 AM
To: Kowalski, Thomas CIV NAVFAC MidLant, OPHREV4
Cc: Friedmann, William/VBO; Forshey, Adam/VBO; Thomson.Bob@epamail.epa.gov
Subject: NWSY: Site 30 Groundwater Tech Memo - DEQ Comments
Attachments: Draft Site 30 GW Risk Mgmt TM-4_21_09(DEQ).doc

I have attached DEQ's comments (track changes via Word) on the above-referenced report received March 13, 2009.

Upon receipt of the requested revisions, the DEQ will issue an official letter for your files.

Please let me know if you have any questions.

Sincerely,
wade

Wade M. Smith
Remediation Project Manager
Virginia Department of Environmental Quality
Office of Remediation Programs
Phone: (804) 698-4125
Fax: (804) 698-4234
wmsmith@deq.virginia.gov

Yorktown Site 30 Groundwater Data Review and Risk Management Consideration

PREPARED FOR: Yorktown Partnering Team

PREPARED BY: CH2M HILL

DATE: March 13, 2009

This Technical Memorandum (TM) summarizes groundwater data, human health risks, and provides the rationale for no action ~~of~~ for groundwater at the Naval Weapons Station (WPNSTA) Yorktown, Site 30, the Bracken Road Incinerator. A human health risk assessment (HHRA) that was completed as part of the 2005 Remedial Investigation (RI) (Baker, 2005) identified potential unacceptable risk for potable use of groundwater. This TM presents the rationale for groundwater risk management consideration to support a no action Proposed Plan and Record of Decision at Site 30.

Background

Site 30, the Bracken Road Incinerator ~~{(formerly Site Screening Area (SSA)-124)}~~, encompasses an area approximately 0.1-acre in size located north of Site 5 (Surplus Transformer Storage Area), northeast of a cooling pond (76A), and south of railroad tracks. The incinerator was reportedly used for an unknown period of time to burn municipal waste from the housing area located in the vicinity of the incinerator. Incineration of low-grade aviation fuel also was performed in an area just southeast of the former incinerator. Historical information was found that documents the burning of Venezuelan crude oil in the mid-1970s. Venezuelan crude oil has a higher specific gravity ~~then~~ than other crude oils and contains elevated concentrations of sulfur and several metals such as vanadium. The incinerator stack and remnants of an old cold storage area were removed during the 2008 remedial action conducted by the Shaw Group.

Groundwater data was collected in 1997 as part of the *Remedial Investigation Report for Sites 27, 28, 29, and 30 Naval Weapons Station Yorktown, Yorktown, Virginia* (Baker, 2005).

Following an Engineering Estimate/Cost Analysis completed in 2007 (CH2M HILL, 2007), the removal of approximately 4,500 cubic yards (cy) of soil was conducted at Site 30 comprising approximately 4,200 ~~cubic yards (cy)~~ of material in the area used to incinerate the low-grade aviation fuel and approximately 300 cy of soil around the incinerator at Site 30. Post-removal confirmation sampling contained in the construction completion documentation demonstrates the removal of all waste and the mitigation of unacceptable risk associated with soil at Site 30 (Shaw, 2008).

Groundwater Data

Two monitoring wells were sampled in October 1997 at Site 30 as part of the 2005 RI (Baker, 2005): A24-GW01 and A24-GW02. Tables of the 1997 analytical results used in the 2005 RI

are provided as an attachment to this TM and include: 1997 groundwater sample results (Table 4-33 and 4-34 from the RI) and the groundwater sample results. A figure is provided as an attachment, which compares the 1997 groundwater results to the 2008 results (Figure 4).

Monitoring Well A24-GW01 was installed downgradient from the incinerator and Monitoring Well A24-GW02 was installed in the vicinity of the historical incinerator activity (see attached Figure Attachment 1). Results from the 1997 sampling event detected no constituents in exceedance of any risk screening levels in Monitoring Well A24-GW01.

Organic compounds detected in Monitoring Well A24-GW02 were 1,1-dichloroethane (4 J µg/L), 1,1-dichloroethene (1 J µg/L), bromodichloromethane (1 J µg/L), carbon disulfide (4 J µg/L), chlorobenzene (14 µg/L), chloroform (6 J µg/L), toluene (2 J µg/L), and trichloroethene (TCE) (6 J µg/L). Of the constituents detected in Monitoring Well A24-GW02 during the 1997 sampling event, all but chlorobenzene were marked with a "J" flag, indicating that the reported concentrations were estimated. Only TCE was found to exceed any risk screening values. TCE was found to slightly exceed the associated MCL of 5 µg/L.

Comment [WMS1]: Please revise sampling date in Attachment 1. (10/14/1997 not 10/13/1997)

Inorganic compounds detected in Monitoring Well A24-GW02 were aluminum (636 J µg/L), barium (39 J µg/L), cadmium (0.31 K µg/L), calcium (92,300 µg/L), iron (980 µg/L), magnesium (2140 J µg/L), manganese (26.3 µg/L), potassium (9,210 µg/L), sodium (18,900 µg/L), and vanadium (4.2 J µg/L). Total cadmium, barium, and manganese were detected above station-wide background levels, but were not detected in exceedance of any risk screening values. Iron and vanadium were both identified as risk drivers for terrestrial lower trophic level populations for soils while vanadium was also identified as a human health risk driver for soils. However, neither of these constituents was detected above station-wide background levels in groundwater. Additionally, the ash and contaminated soil at Site 30 has since been removed, and with it, any potential source of contaminant migration to groundwater.

Comment [WMS2]: Please revise detection in Attachment 1. (9,210 not 9,210 J)

Due to the fact that TCE is not a common constituent of the fuels burned on-site, the detection of TCE in Monitoring Well A24-GW02 is not considered a site related contaminant. In order to confirm that the 1997 detection was or was not a false positive, it was decided by the partnering team in March 2007 that an additional sample from Monitoring Well A24-GW02 was needed in order to confirm the presence or absence of TCE.

In 2008, three attempts were made to collect a sample from A24-GW02. On each attempt, the well was reported dry and no groundwater could be collected. A grab groundwater sample was collected in August 2008 next to A24-GW02 using a Direct Push Technology (DPT) rig. The sample was submitted for analysis for volatile organic compounds (VOCs). There were no detections of any of the VOCs, including TCE or any of its daughter products in the 2008 sample. A comparison of constituent concentrations during the two sampling events is provided below in the attached Figure Attachment 1 and the 1997 and 2008 analytical data is provided in the attachment Attachment 2.

Comment [WMS3]: Please revise sampling date in Attachment 1. (8/5/2008 not 5/8/2008)

Comment [WMS4]: Please include the Chain-of-Custody to indicate the sample collection date. Without field logs, the data currently only indicates the Date Received and the Date Analyzed.

Human Health Risk Summary

The human health risk assessment provided in the 2007-2005 RI identified that the only unacceptable risk associated with groundwater was identified from its potable use by potential future resident. The Reasonable Maximum Exposure (RME) for TCE was

calculated at 1.4 based on the maximum concentrations from Monitoring Well A24-GW02. Table 1 below provides a comparison of future child resident risk assessment for data from all groundwater samples from all wells.

Table 1 – Future Child Resident Risk Assessment Comparison

Receptor	Pathway	Chemical of Concern	EPC (µg/L)	RME	RME Non-	CT	CT Non-	Cancer	Non-Cancer
				Cancer Risk	Cancer Hazard (HI)	Cancer Risk	Cancer Hazard (HI)	Toxicity Factor (CSF)	Toxicity Factor (RfD)
								mg/kg-day ⁻¹	Mg/kg-day
Future Child Resident	Ingestion	TCE	6	1.3x 10 ⁻⁵	1.3	8.8 x 10 ⁻⁶	0.85	1.1 x 10 ⁻²	6.0 x 10 ⁻³
	Dermal	TCE	6	1.0 x 10 ⁻⁶	0.1	2.3 x 10 ⁻⁷	2.2 x 10 ⁻²	1.1 x 10 ⁻²	6.0 x 10 ⁻³

Comment [WMS5]: Please define acronyms included in Table 1.

Groundwater Risk Management Considerations

Potential risk to groundwater identified in the 1997-2005 RI for Site 30 warrants no action based on the following:

- Of the nineteen constituents detected in groundwater at A24-GW02 during the 1997 sampling event, twelve were marked with a “J” qualifier, indicating that the values were estimated. The low estimated levels of this compound indicate that the results may have been impacted by lab contamination.
- The presence of TCE and 1,1-DCE does not fit well correspond with the known use of the site and may be the result of false positive detection based on the high number of estimated values in the 1997 data.
- The TCE detected was only considered a risk to human health under the RME scenario and only slightly exceeded the Hazard Index of 1.0 (1.4).
- All potentially unacceptable risks associated with the potable use of groundwater were driven by groundwater data collected from one well (A24-GW02) located within the boundary of the waste.
- A 2008 confirmation DPT sample taken in 2008 at collected next to A24-GW02, found detected no VOCs detected, including TCE and its daughter products.
- The source of the potential groundwater contamination was the ash and soil, which was removed during the 2008 remedial action conducted by the Shaw Group. Confirmation sampling of the remaining soil, as documented in the 2009 Construction Closeout Report, indicated that site clean up goals for soil have been achieved.

Comment [WMS6]: What compound?

Comment [WMS7]: This is the first mention of a 1,1-DCE detection, please explain.

Comment [WMS8]: This report is not included in References, please explain.

Groundwater Risk Management Consensus

The Navy, in partnership with the USEPA and VDEQ, has determined that no potential groundwater risks exist in groundwater at Site 30 and that no action is required for this ~~media~~groundwater.

Mr. Tom Kowalski;
NAVFAC Mid-Atlantic _____ Date _____

Mr. Rob Thomson;
USEPA Region 3 _____ Date _____

Mr. Wade Smith;
Virginia DEQ _____ Date _____

References

Baker, 2005. *Remedial Investigation Report for Sites 27, 28, 29, and 30 Naval Weapons Station Yorktown, Williamsburg, Virginia.* July 2005.

Baker, 2007. *Engineering Evaluation/Cost Analysis for Contaminated Soil Site 30 Bracken Road Incinerator and Environs Naval Weapons Station Yorktown, Williamsburg, Virginia.* April 2007.

Shaw, 2008. *Draft Construction Completion Report Bracken Road Incinerator Removal Action at Site 30 Naval Weapons Station.* Williamsburg, Virginia. October 2008.

Comment [WMS9]: Please update with Final report date when complete.

Attachments: Figure 1 - Site Figure
Analytical Data

Comment [WMS10]: Please define acronyms included in Attachment 1 and Attachment 2.