

N00109.AR.002454
NWS YORKTOWN
5090.3a

LETTER AND COMMENTS FROM VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY
REGARDING TECHNICAL MEMORANDUM FOR NO FURTHER INVESTIGATIONS AT SITE
SCREENING AREA 7 NWS YORKTOWN VA
9/14/2010
VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

Sawyer, Stephanie/VBO

From: Smith, Wade (DEQ) [Wade.Smith@deq.virginia.gov]
Sent: Tuesday, September 14, 2010 9:08 AM
To: Friedmann, William/VBO
Cc: Forshey, Adam/VBO
Subject: RE: NWSY: SSA 7 Tech Memo - DEQ Comments

Thank you for the detailed rationale.

I agree with the points you made, so please revise the tech memo to further detail the rationale for no further investigation.

Thanks again,
wade

From: William.Friedmann@CH2M.com [mailto:William.Friedmann@CH2M.com]
Sent: Thursday, September 09, 2010 2:12 PM
To: Smith, Wade (DEQ)
Cc: Adam.Forshey@CH2M.com
Subject: RE: NWSY: SSA 7 Tech Memo - DEQ Comments

Wade,

Thanks again for providing your comments. Reading through them, you have requested that additional groundwater samples be collected at both the Main Road Disposal Area and the Group 18 Magazine due to thallium. I wanted to provide you with additional information from the SSP regarding this metal. Thallium in addition to the other metals detected in soil as well as the groundwater were reported not to exhibit any pattern suggesting a source. The SSP also goes on to suggest that the metals detected in both media are not related to site activities (Sections 5.3.3.2 and 5.3.3.3 of the 1996 SSP).

The conclusion of the SSP for SSA 7 (Section 7.4) does not recommend any further investigation at either the Main Road Disposal Area or the Group 18 Magazine areas. While I see that thallium stands out because there were no detections in background samples that would allow us to manage 2010 RSL or MCL exceedence, I do believe that thallium is not resultant of the operations at these areas. The main risk driver from groundwater was identified as VOCs in the vicinity of the UST area. As neither surface soils nor subsurface soils had any detections of thallium from samples in either area (and would therefore pass an SSL comparison), it is highly unlikely that there is a source that is impacting the soil. Lastly, given that subsequent sampling of groundwater at the Site 25 (related to the UST area only) has not detected thallium.

Let me know how you feel about some of this rationale. If you agree with these points, we can certainly include these points in the tech memo. Otherwise, after EPA provides their comments, we'll incorporate groundwater sampling at both areas to confirm the concentrations of thallium.

Thanks,
Bill

From: Smith, Wade (DEQ) [mailto:Wade.Smith@deq.virginia.gov]
Sent: Monday, August 30, 2010 1:33 PM
To: tom.kowalski@navy.mil
Cc: Friedmann, William/VBO; Forshey, Adam/VBO; Thomson.Bob@epamail.epa.gov
Subject: NWSY: SSA 7 Tech Memo - DEQ Comments

Thank you for giving the DEQ the opportunity to comment on the August 19, 2010 *Draft Tech Memo* for SSA 7 at NWSY.

The Draft Tech Memo was received by the DEQ on August 23, 2010.

The DEQ's comments are attached (Track Changes via Microsoft Word).

Upon your acceptance of the proposed changes and upon your submittal 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 M. Smith

Remediation Project Manager

Virginia Department of Environmental Quality

Office of Remediation Programs

Phone: (804) 698-4125

wade.smith@deq.virginia.gov

Rationale for No Further Action at the SSA 7, Main Road Disposal Area and Group 18 Magazine Area

PREPARED FOR: Yorktown Partnering Team
 PREPARED BY: CH2M HILL
 DATE: January 23, 2012 ~~August 30, 2010~~

Background

Site Screening Area (SSA) 7 was identified in Appendix A of the Naval Weapons Station Yorktown Federal Facilities Agreement (FFA) issued in September 1994. The SSA consisted of three areas requiring additional evaluation: the Main Road Disposal Area, the Building 373 Rocket Plant and the Group 18 Magazine Area. The SSA is located in the northern portion of Weapons Station Yorktown, just east of the Main Branch of Felgates Creek (Figure 1). The Main Road Disposal Area is located south of Main Road in the eastern portion of SSA 7. The Group 18 Magazine Area is located north of the Building 373 and the Rocket Plant area is located in the southern portion of the SSA along Felgates Creek. Two bunkers, currently not in use, also are present in a clearing between the Rocket Plant and the magazines (Figure 2). The Main Road Disposal Area was reported as an area of disposal for inert mine casings (*OHM Remediation Services Corp, 1997*). Many of the inert mine casings were reported to be partially buried. The Building 373 Rocket Plant was used for explosive operations while the Group 18 Magazine Area was used for munitions storage.

Comment [WMS1]: The SMP states that the FFA was signed in August 1994.

The 1994 Site Screening Process (SSP) Report for SSA 7 recommended completion of a Remedial Investigation (RI) for the Building 373 Rocket Plant portion of the SSA. That area has since been renamed Site 25 and is currently under investigation. No additional action was recommended to address the Main Road Disposal Area and Group 18 Magazine Area. However, formal documentation was not completed to record the No Further Action (NFA) determinations for these areas. This technical memorandum is intended to provide documentation for the NFA decision for the Main Road Disposal Area and the Group 18 Magazine Area.

Comment [WMS2]: Please include a reference to the third bunker (Bunker 384) north of the magazines.

Investigation and Removal Action Summary for the Main Road Disposal Area and ~~Group 18 Magazine~~ Group 18 Magazine Areas

Geophysical Investigation

A geophysical survey of SSA 7 was conducted in January 1994 to help identify areas of buried debris. Interpretation of the data identified magnetic anomalies in the vicinity of Main Road (*Baker Environmental, Inc., 1996*) and the Group 18 Magazine Area as shown on Figure 2. The disposed debris at ~~the~~ the Main Road Disposal Area was determined to be mostly ferrous in nature and was estimated to be between 0 and 4 feet (ft) below ground surface (bgs). A geophysical ~~anomalies~~ anomaly was observed at the Group 18 Magazine

Area, but the signature only suggested an anomaly beneath the roadway which may be part of a drainage pipe from the magazine area toward Felgates Creek.

SSP Investigation Summary

The SSP investigation was conducted at SSA 7 in the fall of 1994. The investigation included digging of test pits and collection of samples for laboratory analysis. While test pitting was completed at the Group 18 Magazine Area, no evidence of buried waste or contamination was noted. Buried ordnance and other debris were observed during test pitting at the Main Road Disposal Area.

Main Road Disposal Area

At the Main Road Disposal Area, a total of seven soil samples were collected from two test pits (two samples each), one subsurface soil sample location (~~two~~ three depth intervals) and one surface soil sample station. One groundwater sample was also collected across Main Road from the ~~Disposal Area~~ Main Road Disposal Area. All samples were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, polychlorinated biphenyls (PCBs), explosives, and metals (groundwater was analyzed for both total and dissolved metals). Soil and groundwater sample locations are shown on Figure 2. No surface water or sediment is located in these areas, so no samples of these media were collected.

Several SVOCs, four pesticides, one PCB (Arochlor-1260), and several metals were detected in one or more soil samples collected in support of the Main Road Disposal Area investigation (Table 1). For the purpose of this technical memorandum, detected constituent concentrations were compared to current residential Regional Screening Levels (RSLs) for soil. Concentrations of three constituents exceeded their corresponding current RSLs: benzo(a)pyrene, Arochlor-1260 and arsenic. These three constituents were also retained as constituents of potential concern (COPCs) during the SSP study.

Benzo(a)pyrene was detected at a concentration of 43 $\mu\text{g}/\text{kg}$ in the surface soil sample from the ~~disposal area~~ Main Road Disposal Area. The current residential soil RSL for benzo(a)pyrene is 15 $\mu\text{g}/\text{kg}$. ~~Arochlor~~ Arochlor-1260 was detected at a concentration of 980 $\mu\text{g}/\text{kg}$ in the 1-3 ft bgs sample from A07TP02, exceeding the RSL of 220 $\mu\text{g}/\text{kg}$. Arsenic was detected in all samples analyzed at concentrations exceeding the RSL of 0.39 $\mu\text{g}/\text{kg}$. However, all detections were less than the maximum basewide background soil concentration of 14.8 $\mu\text{g}/\text{kg}$.

One VOC (ethylbenzene) and several metals were detected in groundwater collected across from the Main Road Disposal Area (Table 2). The detected concentration of ethylbenzene did not exceed its corresponding tap-water RSL or MCL. Several total metals results exceeded corresponding MCLs and/or tap-water RSLs (Table 2). However, samples were collected from temporary sampling points and it is likely that the water was very turbid (no field readings of the event were available). The only dissolved metal which exceeded a screening value was thallium which was detected at a concentration of 4.4 $\mu\text{g}/\text{L}$ in exceedance of both the tap-water RSL (2.4 $\mu\text{g}/\text{L}$) and the MCL (2 $\mu\text{g}/\text{L}$). Thallium was not detected in the dissolved background data set and was retained as a COPC during the SSP study. However, it should be noted that thallium was detected at numerous locations across SSA 7 during the SSP and has not been detected in wells sampled subsequently in the

Comment [WMS3]: Table 1 – Define NA, ND, J, K, RSL, etc.

Comment [WMS4]: Define

Comment [WMS5]: $\mu\text{g}/\text{kg}$ and mg/kg are used interchangeably between the text and the tables. $\mu\text{g}/\text{kg} \neq \text{mg}/\text{kg}$.

Comment [WMS6]: Please indicate the maximum arsenic detection.

Comment [WMS7]: Table 2 – Define NA, ND, L, J, K, RSL, MCL, etc.

Comment [WMS8]: Define

Comment [WMS9]: Additional groundwater sampling is recommended prior to a No Further Action determination.

Comment [WMS10]: Define

vicinity of the Rocket Plant since that time. It is believed that the thallium detections may have been related to laboratory error.

Group 18 Magazine
Group 18 Magazine Area

At the Group 18 MagazineGroup 18 Magazine Areas, one surface soil sample and three subsurface soil boring samples, and one subsurface soil test pit (two depth intervals) sample were collected. One groundwater sample was also collected ~~across Main Road from the Disposal Area~~ from the Group 18 Magazine Area. All samples were analyzed for volatile organic compounds (VOCs), SVOCs, pesticides, PCBs, explosives, and metals (groundwater was analyzed for both total and dissolved metals). Soil and groundwater sample locations are shown on Figure 3. No surface water or sediment is located in these areas, so no samples of these media were collected.

Methylene chloride, styrene, several SVOCs, and several metals were detected in one or more soil samples collected in support of the Group 18 MagazineGroup 18 Magazine Area investigation (Table 3). For the purpose of this technical memorandum, detected constituent concentrations were compared to current residential RSLs for soil. Of the detected constituents, only arsenic exceeded the current RSL of 0.39 µg/kg in all samples. Arsenic was also retained as a COPC during the SSP study. However, all detections were less than the maximum basewide background concentration of 14.8 µg/kg.

- Comment [WMS11]: Table 3 – Define NA, ND, L, J, K, B, RSL, etc.
- Comment [WMS12]: Table 3- A07SB01-10 is not identified properly. Should this be A07SB03-10?
- Comment [WMS13]: Please indicate the maximum arsenic detection.

Three VOCs (acetone, toluene, ethylbenzene) and several metals were detected in groundwater collected from the Group 18 MagazineGroup 18 Magazine Area investigation (Table 4). The detected VOC concentrations did not exceed their corresponding tap-water RSL or MCL. Several total metals results exceeded corresponding tap-water RSLs and/or MCLs (Table 4). However, samples were collected from temporary sampling points and it is likely that the water was very turbid (no field readings of the event were available). The only dissolved metal which exceeded a screening value was thallium which was detected at a concentration of 5.6 µg/L in exceedance of both the tap-water RSL (2.4 µg/L) and the MCL (2 µg/L). Thallium was not detected in the dissolved background data set and was retained as a COPC during the SSP study. However, it should be noted that thallium was detected at numerous locations across SSA 7 during the SSP and has not been detected in wells sampled subsequently in the vicinity of the Rocket Plant since that time. It is believed that the thallium detections may have been related to laboratory error.

- Comment [WMS14]: Table 4 – Define NA, L, J, RSL, MCL, etc.
- Comment [WMS15]: Additional groundwater sampling is recommended prior to a No Further Action determination.

Removal Action

In May 1996, a removal action was conducted to address and properly dispose of the buried ordnance at the Main Road Disposal Area. An inventory of the excavated ordnance was maintained and confirmatory soil sampling and analysis was performed in the open excavation area (OHM Remediation Services Corp, 1997).

The buried ordnance was located using a gradiometer and visual identification. The gradiometer was a specific magnetometer that contained two sensors within the instrument, which allowed it to immediately detect buried metallic objects via an audible tone. The locations of the metal debris detected during the gradiometer survey were staked to determine the extent of the excavation activities. The results of the magnetometer survey

and the excavation revealed that the limits of the buried ordnance was an approximate area of 163 feet long by 112 feet wide by 9 feet deep, covering an area approximately 1/3 acre (OHM Remediation Services Corp, 1997).

A total of 985 ordnance items were removed from the excavation area. The type of ordnance included underwater moored sea mines, depth charges, aerial launched bomb/depth charge, torpedo warheads, small rockets, and explosively-launched grappling hooks. Some scrap metal was also encountered and removed during the excavation. All of the ordnance uncovered was confirmed to be filled with inert concrete materials or were free of all internal components (OHM Remediation Services Corp, 1997).

Seven confirmation samples (four floor and three sidewalls) relative to the removal of ordnance (YT-4, YT-5, YT-5B, YT-6, YT-6B, YT-7, and YT-7B) were collected and analyzed for full suite plus explosives following the removal of the ordnance. Only one explosive, 1,3,5-trinitrobenzene was detected at a low estimated value of 0.267 mg/kg, below the current RSL of 2,200 mg/kg. Metals were detected, but only two exceed their current RSL; arsenic and potassium. However, the concentrations of these two metals fall within their base background values. Acetone, detected at low levels ranging from 0.006 to 0.018 mg/kg is well below its RSL of 6,100 mg/kg and likely representative of a lab artifact. Figure 3-4 shows the locations of samples collected as part of the SSP as well as the boundaries of the areas of excavation.

Comment [WMS16]: Define

Rationale for No Further Action at the Main Road Disposal Area and Group 18 Magazine Area

There were minimal risks associated with the Main Road Disposal Area identified during the SSP. Following the SSP, a removal action was completed to remove debris and buried ordnance and resulted in excavation and offsite disposal of areas with soil samples exceeding screening values during the SSP. Post-excavation sampling confirmed that the limited amount of contamination was removed. Consequently, no additional action is necessary for this portion of SSA 7.

While geophysical anomalies were observed at the Group 18 Magazine Area during the 1994 investigation, no visible evidence of buried material or debris was observed during test pitting conducted during the SSP. Consequently, no additional action is necessary to address this portion of SSA 7.

No Further Action Consensus

Based on the information reviewed and summarized in this Technical Memorandum, there are no potential risks associated with the ~~Main Disposal Area~~ Main Road Disposal Area or Group 18 Magazine Area of SSA 7 and therefore ~~a~~ no further action is required for these areas. The Navy will continue to investigate the remainder of SSA 7, now known as Site 25, through a Remedial Investigation. The Navy, in partnership with the USEPA and VDEQ, agree that there are no potential risks that exist at the Site SSA 7, the Main Road Disposal Area and Group 18 Magazine Area and that no further action is required.

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

Mr. Rob Thomson;
USEPA Region 3 _____ Date _____

Mr. Wade Smith;
Virginia DEQ _____ Date _____

References

OHM Remediation Services Corp, 1997. Final Report for Removal Action at Site Screening Areas 3 and 7 Naval Weapons Station Yorktown VA, Deliver Order No. 098. March 1997.

Baker Environmental, Inc., 1996. Final Site Screening Process Report for Site Screening Areas 1, 6, 7, 15, Naval Weapons Station Yorktown, Yorktown, Virginia. Contract N62470-89-D-4814. March 1996.