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From: Reisch, Timothy A CIV NAVFAC MID ATLANTIC
Sent: Friday, March 31, 2006 1:38 PM
To: Reisch, Timothy A CIV NAVFAC MID ATLANTIC; samihalko@deq.virginia.gov; Laura.Cook@CH2M.com; plandin@CH2M.com; Franklin. Greyson (Franklin.Greyson@epamail.epa.gov)
Subject: NASO --- PATH FORWARD FOR SWMUs 2B, 2C, 2E, and 24

Greyson/Steve,

Thanks for the meeting on Wednesday. I just want to confirm the path forward discussed to complete the Proposed Plans and Decision Documents for the remaining SWMUs at NASO. To allow us to proceed, without any re-doing, please respond in the next few days with a yes, no, grunt (positive or negative) or some other sign. And, yes, if I don't hear from you --- you see this e-mail again...and again.

Thanks - Tim

SWMU 2B, 2C, and 2E

Iron and Manganese at SWMUS 2B, 2C, and 2E

Path Forward: We confirmed the action determination/consensus statement from our January 2006 meeting. Based on the additional data evaluation and information presented in the "iron and manganese tech memo", a risk management decision to eliminate iron and manganese as COCs from SWMUs 2B, 2C, and 2E has been agreed upon, and no further action is required for these compounds at these SWMUs.

Discussion: Jennifer (EPA TOX) correctly identified that the *Technical Memorandum - Iron and Manganese Concentrations in SWMU 2B, 2C, and 2E Groundwater Compared to Recommended Daily Nutrient Intake Values* does state that arsenic at SWMUs 2C and 2E does not present any individual unacceptable risk. The unacceptable risk is based on the reasonable maximum exposure (RME) risk calculations; however, the individual risk to arsenic at SWMUs 2C and 2E based on the central tendency (CT) exposure point concentration (ECP) are not unacceptable. The central tendency exposure (CTE) risk numbers may be used by the RPM to make risk management decisions. The Navy has rechecked and verified the RME and CTE risk numbers presented in the tech memo (summary of the 2002 HHRA), and will revise the tech memo to address this concern.

As we discussed, the risk evaluation at SWMUs 2B, 2C, and 2E is based on data used in the HHRA, when the VOC plumes at these SWMUs were well defined. Since the HHRA was completed, additional sampling has confirmed the VOC plumes are no longer discernable at SWMUs 2B and 2E. This additional sampling was the basis for focusing the enhanced bioremediation treatability study at these SWMUs. As Jennifer notes, in theory as the organics concentrations decrease, so would the inorganics; hence the data from the HHRA would tend to error as being conservative as compared to current conditions. Using this conservative estimation for inorganics, there is no unacceptable CTE risk and the CTE intake of iron and manganese from groundwater ingestion at these SWMUs is below the maximum level of daily nutrient intake that is likely to pose no risk of adverse effects for both the future child and adult residential receptors.

Arsenic at SWMUS 2B, 2C, and 2E

Path Forward: Eliminate arsenic as a COC from SWMUs 2B, 2C, and 2E, and make a determination for no further action to address inorganics at these SWMUs. This action determination is based on individual risk at the CT exposure point concentrations, the spatial distribution of elevated arsenic concentrations at SWMUs 2C and 2E, and the results of the *Technical Memorandum - SWMU 2B Arsenic in Groundwater* and subsequent review by EPA and VDEQ.

Discussion: Arsenic was detected at SWMUs 2C and 2E above the MCL; however, arsenic does not pose unacceptable CT risk when evaluated as a individual constituent (see above discussion). The MCL is exceeded at two wells within each SWMU (highest concentrations of 52.5 ug/L at SWMU 2C and 40.1 ug/L at SWMU 2E). The CT (site mean) EPC for SWMU 2C is 5.3 ug/L and 2 ug/L for SWMU 2E. In January we discussed the spatial relationship of the MCL exceedances to the CERCLA sites, it was concluded that these data may not be directly located within the CVOC (the CERCLA release) at either SWMU 2C or SWMU 2E, but do fall within the site boundaries that were defined in early investigations. At SWMU 2B, the EPA reviewers of the tech memo provided the following: "...concur with the conclusions derived by CH2M HILL. Based upon the limited data set collected, no significant differences in arsenic concentrations (total as well as dissolved)

can be found in monitoring wells of the three groups." The reviewers did state that additional sampling to create a larger data set would result in a more reliable conclusion. This approach and line of evidence is similar to another site situation (NNSY Site 10) which has already received concurrence from VDEQ that no additional action under CERCLA is required to address the detected arsenic at that site. As we discussed, the statistical methodology was proven and we agreed to proceed with this line of evidence based only on the current information/data set; arsenic will not be considered as a site related COC for SWMU 2B. Based on this additional evaluation, the Proposed Plan and Decision Document for SWMU 2B will include the following, "A separate technical memorandum summarizing the potential groundwater risks associated with arsenic, and rationale for risk management consideration, was completed for SWMU 2B. Based on the results of risk calculations and data evaluation, no source area or discernable plume of groundwater contamination was identified, and there was no statistical difference in groundwater concentrations up- and down-gradient of SWMU 2B. Additionally, there is no current exposure to groundwater within the boundaries of SWMU 2B, and the groundwater is not currently or projected to be used as a potable water supply. Therefore, the NAS Oceana Project Management Team, comprised of remedial project managers representing the USEPA, VDEQ and the Navy, agreed that no further CERCLA action for groundwater at SWMU 2B is warranted."

Closeout Document (Proposed Plan and Decision Document)

Path Forward: The Navy will proceed with the Proposed Plan and Decision Documents for SWMU 2B, 2C and 2E based on the information contained in the FFS Addendum Technical Memorandum.

Discussion: The Proposed Plan and Decision Document will include information summarizing that the further investigation and assessment of the inorganic constituents detected and determined to potentially pose unacceptable risk to human health at SWMUs 2B, 2C, and 2E in the 2002 HHRA are not site COCs; therefore, no specific remedial action for these inorganics under CERCLA is required. Enhanced Bioremediation and Land Use Controls will be the recommended alternative because it has the likelihood of meeting the RAO, meets the ARARs, guards against future risk and allows for additional treatment if necessary. The implementation of the monitoring and groundwater use restrictions under this alternative would continue until such time that the site-specific RAOs are achieved at each specific SWMU or until it has been determined that concentrations are no longer decreasing and additional treatment is needed. Once the RAOs (and ARARs) have been achieved at a specific SWMU, with concurrence from the NASO-PMT, the monitoring and groundwater use restrictions at that SWMU would be discontinued and no further response action under CERCLA would be required. The Navy is developing the "exit strategy" criteria, which will be an integral part of the Decision Document, for review and comment by EPA and VDEQ.

SWMU 24

Arsenic at SWMU 24

Path Forward: Action to be determined based on results of additional arsenic sampling data from the two monitoring wells in the source /side gradient area of SWMU 24 (MW01 and MW04).

Discussion: It is agreed that statistical methodology used in the *Technical Memorandum - Groundwater Arsenic Data Review and Statistical Analysis* is valid; the EPA reviewers "...concur with the conclusions as derived in the memo dated 8-23-2005 for the SWMU 24. Specifically, based upon the results of the Mann-Whitney test (Appendix 1, Section B), it can be concluded that arsenic (dissolved as well as total) concentrations in Downgradient monitoring wells do not exceed the arsenic concentrations in Upgradient wells.." The reviewers did state that additional sampling to create a larger data set would result in a more reliable conclusion. However, as the SWMU 24 site conditions differ from the data set for which VDEQ has concurred with the static evaluation approach for risk management (NNSY Site 10), it is agreed to re-sample the source area monitoring wells for arsenic. This sampling event is scheduled for the week of 3 April 2006, with quick-turn around requested on the laboratory analysis.

- If the sampling results show a decreasing trend in the arsenic concentrations, dependent upon the actual concentrations detected, the decision to close the groundwater at SWMU 24 as to require no further action under CERCLA would be the likely action determination. As with SWMU 2B a statement to the risk at the site would be addressed in the Proposed Plan and Decision Document.
- If the sampling results do not show a decreasing trend in arsenic concentrations, additional action (extent of which is yet to be determined) would be required for this SWMU.

v/r

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