Meeting Minutes

May 23 and 24, 2007

INDIAN HEAD INSTALLATION RESTORATION TEAM (IHIRT) MEETING

CHANTILLY, VIRGINIA

The meeting was held on Wednesday, May 23, and Thursday, May 24, 2007 at the CH2M HILL office in Chantilly, Virginia.

The following people attended the meeting on May 23, 2007:

- Curtis DeTore – Maryland Department of the Environment (MDE)
- Dennis Orenshaw – U.S. Environmental Protection Agency (EPA)
- Jeff Morris – Naval Facilities Engineering Command (NAVFAC) Washington
- Joe Rail – NAVFAC Washington
- George Latulippe – TETRA TECH NUS (TTNUS)
- Shawn Jorgensen – Naval Support Facility, Indian Head (NSF-IH)
- Margaret Kasim – CH2M HILL
- Christine Metcalf – CH2M HILL
- Guests:
  - Paula Gilbertson – NAVFAC Washington (Tier II Link)
  - Gunarti Coghlan – CH2M HILL (Site 17 Bench Scale Update)
  - Annette Lee and Brant Smith – Xpert Design and Diagnostics (XDD) (via con call for Site 17 Bench Scale Update)
  - Phil Wayland and Jerry Grose – CH2M HILL (Munitions Response Program [MRP] Data Management, Data Visualization, and Field Data Collection Methods)

The following people attended the meeting on May 24, 2007:

- Curtis DeTore – MDE
- Dennis Orenshaw – EPA
- Jeff Morris – NAVFAC Washington
- Joe Rail – NAVFAC Washington
- George Latulippe – TTNUS
- Shawn Jorgensen – NSF-IH
- Margaret Kasim – CH2M HILL
- Christine Metcalf – CH2M HILL
- Guests:
  - John Burgess and Chris English – CH2M HILL (via con call for Site 8 Sampling Work Plan Development Brainstorming)
  - Gunarti Coghlan – CH2M HILL (Site 11 Modified Approach)
  - Bob Mertz and Chris Pike – TTNUS (via con call for Site 57 Remediation Design)

Wednesday, May 23, 2007

Began Meeting at 10:00 a.m.

Welcome and Check-In

Meeting Roles: Margaret (Host), Shawn (Chair), George (Scribe), Joe (Time Keeper), Christine (Minute Taker), and Paula (Tier II link).

Review Agenda

The Team reviewed the agenda. Susanne Borchert from CH2M HILL could not join the meeting that day.

Review Meeting Evaluation and Minutes from April 2007 IHIRT Meeting

The Team briefly reviewed the April 2007 meeting minutes and meeting evaluation. No additional changes were made to the meeting minutes, which will be issued as final.

Site 17 Bench-Scale Study Update

Goal: Present overall approach and status of the study.
FY07 Goal: Complete the Feasibility Study (FS).

Discussion

CH2M HILL summarized the *in situ* chemical oxidation (ISCO) bench-scale study approaches for both persulfate and permanganate, which were presented to the Team during previous meetings. The studies include soil oxidant demand and stability tests, and injection simulation events for both technologies.

Preliminary tests were performed on three forms of persulfate: unactivated, iron-activated, and alkaline-activated. The results showed that unactivated persulfate was the most efficient of these technologies in reducing trichloroethene (TCE) concentrations in Site 17 soil. Both unactivated and iron-activated persulfate were advanced to the next step of the bench-scale study (soil oxidant demand and stability tests). Alkaline-activated persulfate was eliminated from further consideration because of the very high soil buffering capacity needed to support this technology. The results of the soil oxidant demand and stability tests show that both unactivated and iron-activated persulfate are relatively stable in the subsurface.

Unexpectedly, the chemical 1,1,2,2-tetrachloroethane (1,1,2,2-PCA) was detected in each of the persulfate reactors during the study. This chemical is more oxidized than TCE, and therefore is not expected to be a degradation product of TCE. Three theories were postulated for the 1,1,2,2-PCA detection. First, 1,1,2,2-PCA had been in the soil matrix but was masked by high TCE concentrations; it desorbed from the soil during the test. Second, impurities might have been present in the TCE used to spike the reactors, because 1,1,2,2-PCA is used to manufacture TCE solution. Third, 1,1,2,2-PCA might have resulted as a

product of a radical reaction of persulfate and TCE. Available data, however, do not support any of these theories. A linear correlation between the reduction of TCE and the formation of 1,1,2,2-PCA was not observed.

A maximum contaminant level (MCL) is not currently listed for 1,1,2,2-PCA, although EPA lists the chemical as a potential carcinogen. CH2M HILL recommended monitoring for 1,1,2,2-PCA during the next steps of the bench-scale study. The injection simulation is scheduled to last more than 30 days; therefore, the persistence of the chemical can be observed.

High soil oxidant demand values were observed for the permanganate, which indicate that the use of this technology would not be practical at the site. The amount of permanganate needed to treat the site would not be cost-effective or safe. Therefore, this technology was eliminated from further consideration.

Both iron-activated and unactivated persulfate will be evaluated in upcoming injection simulation tests. At least two injection events are planned, with a third application possible depending on the analytical results of the samples. Contact time for the persulfate will range from 28 to 42 days.

Resolution

The first set of data from the injection simulation tests should be available by the next Team meeting, currently scheduled for the end of June.

ACTION ITEM: Dennis will check with EPA toxicologists regarding 1,1,2,2-PCA numbers/risk assessment at Site 17 by the next Team conference call.

Tier II Feedback

The Tier II representative indicated that the Team makes good use of their FY07 goals on the meeting agenda. Tier II members have reviewed the rankings for the MRP sites at Indian Head. The Team now needs to review the rankings to ensure that the regulatory agencies agree with the results, and also needs to inform the public of the process and the results. The Tier II representative clarified that the intent of this exercise is not to have public help rank the sites.

Lunch

MRP Data Management, Data Visualization, and Field Data Collection Methods

Goal: Discuss the unique range of data management and types of data visualization applicable to MRP sites.
FY07 Goal: N/A.

Discussion

Digital data collection at MRP sites is important because of the amount of data that need to be recorded for every piece of ordnance found at a site. All analytical data for each item are collected real-time in the field, and each item needs to be tracked through its life cycle.

A variety of devices can be used to collect data, based on specific field conditions at a site. Some of the considerations in choosing data collection equipment are battery life, platform

flexibility, size (because it will be carried around the site by field staff), mobility, and durability (because of potentially harsh field conditions). In addition, positional accuracy is important. MRP sites generally require sub-foot or sub-meter accuracy. These requirements, along with the site terrain, can also influence data collection equipment decisions. It is important that data collection devices contain hard memory, which can retain data in the event of equipment failure. Ample disk space (at a minimum of 256 megabytes) is also recommended.

CH2M HILL has used the Microsoft Windows CE platform because there are a large number of third-party software programs available for it, which can reduce software development time. Software should be able to extract positional data, generated from both internal and external global positioning system devices, for future reacquisition of an item, display of work progress, or identification of potential problem areas. Software should also have field-editable forms to document field conditions that might not be anticipated during the planning stage, and have the ability to scale these forms up for more complex or larger sites or down for simpler or smaller sites. Categorization, or standardizing names by forced data entry, within forms can improve quality control and result in a better, repeatable database and more-effective queries. The ability to display on-screen maps and identification information about specific munitions is also an important software consideration. A representative personal digital assistant (PDA) data collection device was passed around to Team members, and examples of the various forms loaded onto the PDA were displayed.

Software loaded onto the data collection equipment should be compatible with data management software for easy uploading of field data to the project database (e.g., NIRIS). Data queries can be conducted daily, and pre-set forms and queries can be created for quick data retrieval. Features such as webGIS can provide data access to stakeholders (project managers, clients, regulatory agencies, etc.) across the country. An example of webGIS that is currently used at a Navy MRP site in Vieques, Puerto Rico, was presented to the Team.

The CH2M HILL system has been used not only at MRP sites, but also at small environmental sites to collect field environmental data. NSF-IH asked about merging data from several contractors. As demonstrated by the work at Vieques, multiple contractors can use the data collection devices and software in the field and still maintain data quality and consistency. The software and database can be used to track and manage multiple contractors at a site for safety purposes. Stakeholders can have access to data at different levels of detail and during different timeframes.

Site 66 Sampling Results

Goal: Present preliminary results from recent sampling at Site 66.
FY07 Goal: Complete Site Inspection (SI) field work.

Discussion

CH2M HILL briefly summarized recent activities at Site 66. Field work, which included a boundary and debris survey, utility clearance, and sampling, was conducted at the site from April 9 through 17, 2007. The revised site boundary was presented to the Team, based on detailed observations made during the boundary survey.

The Team reviewed the unvalidated analytical results for the surface water, sediment, surface soil, subsurface soil, *in situ* groundwater, and ash samples. It was noted that many of the elevated constituent concentrations were found in sample IS66SB01, located upgradient of the site near Greenslade Road. NSF-IH noted that a basewide background monitoring well and background soil samples used in the ecological risk assessment for Site 47 are located just north of Greenslade Road. Data from these sample locations will be reviewed in conjunction with the Site 66 data.

Resolution

The sampling data will be validated and incorporated into a draft SI report for Team review.

Break

Course of Action for Scrap Yard Pad (Concrete Risk Assessment)

Goal: Discuss various approaches for handling pad.
FY07 Goal: Complete removal action.

Discussion

The Team briefly reviewed the Scrap Yard presentation from the April 2007 IHIRT meeting. The Team had previously decided that the low occupancy description from the Toxic Substances Control Act was appropriate for the site. However, the polychlorinated biphenyl (PCB) waste definition was still confusing.

The EPA human health risk assessor indicated that power washing the concrete pad, confirmed by visual observation, would be appropriate for this site. Navy human health risk assessors agreed with that approach. The Team proposed confirmatory sampling following the power washing to support the decision for closure. The Team was unable to find any definitive information on the transport of PCBs through concrete, human health risks from PCBs in concrete, or specific recommendations for cleanup of PCBs in concrete.

TTNUS indicated that in industrial scenarios, the proper procedure for sampling PCBs in concrete is to punch a hole in the concrete, collect the concrete dust, and evaluate that material for inhalation of and dermal contact with PCBs. To decide the best course of action for the concrete pad at the Scrap Yard, the Team should first define the human health risk scenario and how the data will be used. TTNUS suggested that a limited sampling plan, such as one that targets stained areas of the concrete, could be implemented.

The Team discussed whether the highest concentration of PCB at the site would have migrated, or would be limited to the surface soil. A number of locations were historically sampled only at the surface, not at depth. TTNUS suggested sampling soil at a few worst-case locations to support the case for no further action at the site. It was also suggested that the rinsate from the power washing also be sampled.

Resolution

The Navy asked that EPA provide guidance in writing on the path forward for the Scrap Yard concrete pad.

ACTION: MDE will check with the MDE RCRA office regarding concrete pad sampling for PCBs and data interpretation at the Scrap Yard (i.e., comparison to which standards).

Review Day 1 Action Items and Consensus Agreements

Two action items were generated today. There were no consensus agreements.

Adjourned Meeting at 3:30 p.m.

Thursday, May 24, 2007

Began Meeting at 8:30 a.m.

Meeting Roles: Margaret (Host), Shawn (Chair), George (Scribe), Joe (Time Keeper), and Christine (Minute Taker).

Check In

The Team completed check in and reviewed the agenda for the day.

Site 57 Remediation Design

Goal: Describe remediation approach for the Building 292 area.
FY07 Goal: Complete Record of Decision (ROD).

Discussion

In the FS, Site 57 was divided into an upper area (proposed to be treated by anaerobic bioremediation), a middle area (proposed to be treated through monitored natural attenuation), and a lower area (proposed to be treated by aerobic bioremediation). The proposed remedial approach for Site 57 will focus on the upper area (the presumed source) and will differ slightly from the approach presented in the FS. Hydrogen release compound (HRC) will be placed in the source area, and one HRC barrier (rather than the two barriers proposed in the FS) will be placed downgradient of the source area. The reason for the change is that the HRC would be consumed by non-site-related constituents before the contaminated groundwater reached it if placed too far downgradient of the source area.

In placing the proposed locations of HRC injection points, TTNUS assumed that the most contaminated soil formerly located near Building 292 served as a source for TCE in groundwater, and verification sampling conducted during the interim remedial action at the site provided a reasonably accurate delineation of the former contaminated soil. The distance between injection points was decided based on the results of a previous soil gas study at the site, which suggested a tight subsurface formation. Injection points were spaced at 10 feet on center with a radius of influence of 5 feet per well. HRC injection will target the interval from the top of the water table to the top of the confining unit. Because the elevation of the confining unit varies across the site, one direct push technology (DPT) soil sample is proposed for every 10 injection points to verify the lithology and the depth of the confining unit. This is important because TCE can be present as a dense, non-aqueous phase liquid (DNAPL) in high enough concentrations, although DNAPL has not been observed at the site. The remedial design includes 48 injection points in the source area, 31 points outside the source area, and 7 DPT locations.

The HRC barrier placed downgradient of the source area will provide additional groundwater treatment as a "safety net" to account for variations in groundwater flow. For the barrier, two rows of injection points will be installed at similar depths and spacing as those in the source area. The barrier will be placed approximately 30 feet downgradient of

the source area. Groundwater is expected to migrate from the source area to the barrier in approximately 2 months.

HRC dosing will be about 6 pounds per vertical foot in the source area and 4 pounds per vertical foot, which is the recommended minimum dosage of the compound, in the barrier. These doses were based on pilot test results.

Several new and replacement monitoring wells are proposed for the site. These nested wells will be screened at approximately 4 to 14 feet in the upper wells and 17 to 22 feet in the deeper wells. These wells will be used to confirm the areas of HRC influence. Monitoring wells A and B will provide information on the upgradient edge of the source area. Wells C, D, E, and F will provide information from within the source area. Wells G and H will provide information downgradient of the source area. New wells I and J, in the western part of the source area, and K, L, M, and N would be placed about 5 feet upgradient of the barrier to provide information on the groundwater quality coming out of the source area. Wells K, L, M, and N, while close to wells E and F, will be used to monitor vinyl chloride concentrations resulting from source area treatment. Wells O, P, Q, R, S, and T are proposed about 15 feet downgradient of the barrier to assess the groundwater quality after the barrier.

Fast-turn analysis of groundwater samples from wells P, Q, S, and T could be used to help decide the final placement of the HRC barrier. This approach would not affect construction time, HRC injection quantities, or cost because other work could be completed while waiting for the fast-turn groundwater analysis. However, this approach should be clearly defined for the remediation contractor.

TTNUS recommended that the Navy consider one round of groundwater sampling prior to HRC injection to establish baseline conditions, and an additional round of sampling approximately 1 month after injection to establish the first point on a long-term monitoring curve. Quarterly sampling would begin in the first quarter after injection is complete. Long-term monitoring analysis should include dehalococcoides in addition to the typical parameters. A small business is being considered by the Navy for the design/build and long-term monitoring contract.

Resolution

The Team agreed with the proposed remedial approach.

Site 8 Sampling Work Plan Development Brainstorming

Goal: Brainstorm sampling approach for Site 8.
FY07 Goal: NA

Discussion

The BTAG representative could not join the meeting because of an unexpected field assignment.

Historical sediment sampling showed elevated mercury concentrations in the vicinity of Site 8. A removal action was conducted upstream of Site 8 in 1994, and another is currently planned for the elevated mercury concentrations in the Site 8 stream. No action is proposed for the downstream pond because mercury concentrations in the sediment are not affecting upper-trophic-level organisms, such as fish.

The valve on the downstream pond's weir has been opened, and water is slowly draining out of the pond. It is likely that the weir will be removed in the future. It is unclear what the new footprint of the pond will be after the water level has reached equilibrium conditions. Figure A-1, which was distributed to the Team, depicted the approximate boundary of the downstream pond prior to the installation of the weir. The boundary shown on the figure should approximate equilibrium conditions after the weir is removed. The Team noted that beavers in the area have a propensity to build barricades over the culverts.

ACTION: Talk with Jeff Bossart regarding weir removal at Site 8.

CH2M HILL recommended that a pre-removal characterization be conducted in the stream from IW87 to the upper part of the pond to delineate the lateral and vertical extents of mercury in sediment for the proposed removal action. The Team agreed that the study boundary should not include areas inundated with water. The investigation will focus on areas of elevated mercury concentrations to enable the Team to make an informed decision on the proposed sediment removal action. CH2M HILL proposed that 5 samples be collected from each of 9 to 10 transects across the stream in the vicinity of the elevated mercury concentrations. At each location, samples would be collected at three depth intervals (3 to 6 inches, 12 to 18 inches, and 24 to 30 inches). All samples would be analyzed for mercury, and the shallowest samples would also be analyzed for methyl mercury. In addition, a small number of samples would be analyzed for mercury using toxicity characteristic leaching procedure for future disposal considerations. Although the proposed sampling effort is fairly extensive, it would eliminate the need for post-excavation sampling.

The screening value for mercury is 0.18 mg/kg; however, preliminary risk evaluations show that mercury concentrations above that concentration in the pond do not currently pose an unacceptable risk to upper-trophic-level organisms. Because the Team has not identified a range of acceptable mercury concentrations, the Team could conduct a cost-benefit analysis of the potential excavation and cleanup areas.

During previous discussions, it was noted that BTAG was more concerned with elevated mercury concentrations in the wetland area upgradient of the pond than elevated concentrations upgradient of the wetland. However, the Navy noted that biomonitoring has not indicated the need for additional work because the mercury has been shown to have limited bioavailability. A conference call will be scheduled with BTAG to discuss the issue.

The Team discussed the need to address elevated lead concentrations in the Site 8 area. Although lead was associated with activities at Site 56, which was closed by the Team, the Team decided that the lead concentrations in this area should be addressed by any Site 8 actions.

An alternative to the proposed removal action would be continued biomonitoring. However, site conditions have changed because of the removal of the weir, so this option would not be appropriate. An additional alternative would be to conduct a baseline ecological risk assessment; however, the Team decided against this action because BTAG remained concerned with the elevated mercury concentrations in the wetland. The Team discussed whether wetland delineation should be conducted. It was unclear if a wetland would exist after the weir was removed from the downstream pond. The ratio in Maryland for wetland mitigation is 2 to 1 if a wetland is filled.

Resolution

A conference call will be scheduled with the Team and BTAG to further discuss the path forward for Site 8.

Site 11 Modified Approach

Goal: Present a modified extent of soil cover.
FY07 Goal: Complete FS, Proposed Plan, and ROD.

Discussion

CH2M HILL proposed a modification of the extent of the solid waste area that was presented in the RI. As part of the pre-design investigation approach, a geophysical survey was completed in May 2006. The geophysical survey results were used to identify seven test pit locations, from which surface and subsurface soil samples would be collected, analyzed, and evaluated through a human health risk screening. However, the potential for munitions and explosives of concern (MEC) at Site 11 required that the test pit approach be modified because of the need for an explosives safety submission. MEC issues would prolong field activities and increase safety risk and cost. The Naval Ordnance Safety and Security Activity requires that any anomalies encountered in the test pit be removed by hand, which would require human entry into the test pits and sloping/shoring of the pits. In addition, material potentially presenting an explosive hazard would need to be classified, certified, and verified. Because of munitions risks, costs, and delays associated with excavating test pits, CH2M HILL recommended using existing soil borings and geophysical survey results to assess the extent of solid waste at Site 11.

A site visit was conducted to confirm the results of the May 2006 geophysical survey. Site features, such as utility lines, an electrical control panel, surface metal debris, and a telephone pole were identified as potential contributors to the anomalies identified by the geophysical survey. Topographic maps and soil boring logs were then reviewed for the site. Based on the available information, a revised solid waste boundary was plotted.

Originally, the solid waste boundary identified in the RI was defined by areas with non-native fill material, regardless of the source. The solid waste boundary was redrawn based on results of the May 2006 geophysical survey and a reevaluation of the soil boring information. The Team agreed with the new landfill footprint.

To finalize the FS, the area of attainment will be modified based on the results of the geophysical survey. The upland area will not be addressed at this time, because remediation of this area will be conducted concurrently with the final remedy for Site 66. The soil cover and cap footprint will encompass the revised landfill boundary to eliminate the need for excavation and offsite disposal. Shoreline stabilization measures (i.e., removing all debris and reinforcing the shoreline to the low tide waterline) and installation of a bioswale feature will be added to Alternatives 2 and 3 in the FS. The bioswale will allow minimal disturbance to the cap during future activities in the upland area.

As described in the FS, metal debris will be cleared out of the upland area if the area is to be restored to a natural feature. However, this restoration will be conducted at a later date. The Team agreed with the approach, and agreed that the site could move forward to the proposed plan.

Resolution

The Team agreed with the new landfill footprint as described in the presentation. The Team further agreed with the approach of remediating the upland area concurrently with the future Site 66 remediation, and agreed that Site 11 could move forward to the proposed plan. An NSF-IH streamlined ROD will be prepared for this site that references existing information in the upfront sections.

Review Workload Management Tool/Goalkeeping

The Team briefly reviewed and updated the workload management tool and Team goals, which were discussed during the agenda conference call on May 8, 2007.

Review Day 2 Action Items and Consensus Agreements

One action item was during the meeting today, as shown in the table below. There were no consensus agreements.

Closeout

Review Parking Lot

The Parking Lot items:

- Review of closed sites for perchlorate sampling
- Memorandum of Understanding (Scrap Yard)
- Site Management Plan

Next Agenda

The following items were suggested to be included in the next meeting's (June 2007) agenda:

Next Agenda	Lead	Time (Hours)
Site 17 Bench Scale Injection Test Results	Gunarti/XDD	0.5
Site 11 Proposed Plan	Gunarti	1
Site 47 Revise Alternatives to Reflect Bench Scale Study Results	Gunarti	1
Site 6 (Outside Fence) – Unvalidated Chemical Data Review	John Burgess	0.5
Site 28 Proposed Plan	Christine	1
Site 36 Draft SSP Report	George	1
Site Management Plan	Jeff	1
	Total	6

Conference Call List

The II IIRT meeting agenda conference call will be held on June 20, 2007 at 10:00 a.m.

Additional conference calls were scheduled as follows:

- Conference call regarding Site 8 path forward (date/time to be determined)

Success Stories / Lesson Learned

New success stories:

- Site 11 FS resolution

Schedule of Future Meetings

Date of Meeting	June 26-27	August 8-9	October 3-4
Location	Annapolis	Philadelphia	Lancaster
Host			
Chair			
Scribe			
Tier II Link			
Timekeeper			

Meeting Evaluation

[Captured in a separate file.]

Adjourned Meeting at 12:30 p.m.

Actions Completed Since Last Conference Call

Action Number	Action	Person Responsible for Action	Date Action Created	Status of Action	Date Action Was Completed
607	Contact retired site worker about historical site practices at Rum Point or look in RFI report.	Shawn	9/22/05	OBE	9/30/05
629	Check the applicability of the "David Taylor saturated fill material decision" to Site 36.	Dennis	7/12/06	Completed	8/2/06
636	Check with MDE Solid Waste Division for clarification on whether ARARs would be triggered if groundwater beneath a landfill causes a risk (Site 36)	Curtis	8/23/06	Completed	TBD
641	Check the Fort Detrick sampling plan for the number and spatial distribution of samples for the skeet range (Stump Neck Impact Area)	Curtis	11/9/06	Completed	11/29/06
644	Talk to Mindi about what to do about additional groundwater sampling at SWMU 14.	Dennis	12/13/06	Completed	05/08/07

Open Actions

Action Number	Action	Person Responsible for Action	Date Action Created	Status of Action	Date Action Must Be Completed
616	Check on meeting with Indian Head Fire Department and Chemical Biological Incident Response Force for emergency response procedures. Action Item generated during the White Oak lessons-learned discussion.	Shawn	12/07/05	In progress	01/11/06
639	Check with MDE management on the usability of direct-push pre-pack wells vs. traditional monitoring wells	Curtis	11/8/06	In progress	11/17/06

Open Actions

Action Number	Action	Person Responsible for Action	Date Action Created	Status of Action	Date Action Must Be Completed
645	Regarding PCBs on the scrap yard concrete pad, Jeff, Dennis, John, and George will talk to the risk assessors in their respective organizations about the evaluation of the potential risk from PCBs in concrete.	Jeff, Dennis, John, and George	04/05/07	In progress	05/23/07
646	Check with EPA toxicologists regarding 1,1,2,2-PCA numbers/risk assessment at Site 17.	Dennis	5/23/07	In progress	6/20/07
647	Check with MDE RCRA regarding PCB sampling and data interpretation (i.e., comparison to which standards) at the Scrap Yard concrete pad.	Curtis	5/23/07	In progress	6/1/07
648	Check with Jeff Bossart regarding the weir at Site 8.	Jeff	5/24/07	In progress	6/1/07