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MEETING MINUTES FROM INSTALLATION RESTORATION PARTNERING TEAM MEETING  
DATED 19 TO 21 FEBRUARY 2012 MCB CAMP LEJEUNE NC  
5/21/2013  
CH2MHILL

## Marine Corps Installations East – Marine Corps Base Camp Lejeune IR Partnering Team Meeting Minutes

**MEETING DATES:** February 19-21, 2012

**LOCATION:** Wilmington, NC

**ATTENDEES:**

Bryan Beck/NAVFAC	Matt Louth/CH2M HILL
Dave Cleland/NAVFAC	Cathy Weber/Osage
Charity Rychak/MCIEAST MCB CAMLEJ	Shaun Whitworth/Osage
Patti Vanture/MCIEAST MCB CAMLEJ	Capt. Woodall/MCIEAST MCB CAMLEJ (Day 2)
Gena Townsend/EPA Region 4	James Macdonell/Sepi (Day 2 afternoon)
Beth Hartzell/NCDENR	Steve Scott/Sepi (Day 2 afternoon)
Randy McElveen/NCDENR	Rob Soc/Tetra Tech (Day 2 afternoon)
Marti Morgan/NCDENR	Greg Thompson/Sepi (Day 2 afternoon)
Chris Bozzini/CH2M HILL	Tom Roth/CH2M HILL (Day 3)
Kim Henderson/CH2M HILL	

**FROM:** Kim Henderson/CH2M HILL

**DATE:** May 21, 2013

### February 19, 2013

#### I. Introductions, Logistics, Check-In

#### II. Review Agenda

Capt. Woodall will be attending the meeting tomorrow. Sepi/Tetra Tech will be attending the meeting tomorrow afternoon to present the Site 89 PRB. Tom Roth/CH2M HILL will be attending the meeting on Thursday for MMRP topics. An EPA community involvement specialist will be coming in to town Thursday and she will be attending the RAB meeting.

#### III. Review Ground Rules/Action Items/Meeting Minutes

The status of Action Items identified during the previous meeting and on-going Action Items are tracked in the attached spreadsheet.

**Consensus:** November 2012 meeting minutes are approved.

Gena asked whether the meeting minutes are posted to the Administrative Record. They may be in the site file.

**Action Kim** – Check on whether meeting minutes are posted to the Administrative Record or Site File. Expedite the FY13 SMP for loading to the Administrative Record.

#### IV. Base/Navy Time

Charity reviewed current Base topics as follows:

- **RR Track Project** – When drawing the UXO-22 boundary, the railroad tracks were included. The Base has a current project to replace RR tracks and a portion is within the UXO-22 boundary and the OU 2 intrusive control boundary. Buried waste is unlikely to be under the RR tracks since they have been there since the Base was developed and prior to waste disposal activities. Charity recommends 40-hour HAZWOPER but is questioning the need for MEC avoidance support and recommends 3R training.

**Consensus:** The Team agrees that UXO construction support is not needed within the RR tracks and right-of-way within the eastern portion of UXO-22 but 40-hour HAZWOPER and 3R training will be required.

**Action Charity** – Discuss ESS requirements for the RR track replacement project within UXO-22 with MARCORSSYSCOM.

The Team discussed whether the UXO-22 boundary needed to be moved west of the railroad tracks but decided to leave the boundary as-is pending the results of the RI.

- **Lot 203** – There was an unauthorized intrusive activity today for an emergency waterline repair and the Base will be sending a letter to notify EPA and NCDENR.
- **OU 2** - A paving project is planned in the southern portion of the site within the LUC boundary.
- **NBC** – A story on the historic drinking water and environmental cleanup on Camp Lejeune will be airing this Friday and the Base declined in-person interviews. The AP is also contacting the Base for a story on current environmental cleanup activities.
- **ATSDR** – Working on document reviews for the vapor intrusion evaluation and timeline for their report is October 2013.

Dave discussed potential funding cuts and has given up the projected MMRP funding except for program support and UXO-22 support. For the IRP, LTM will be funded and potentially the Site 69 RA.

Randy reminded the Team for environmental contractors to post field activities on the website calendar.

#### V. Site 69 ROD and RD Update

The RTCs were submitted to the Team and NCDENR approved the RTCs. Once EPA reviews, the ROD will be prepared as final for signature in ROD. Gena anticipates this will be within a month. The RD RTCs were approved by NCDENR today and will be finalized and EPA had no comments. The Team discussed whether the ROD will be signed with the funds pending because an NOV could be issued if the RA is not initiated within 15 months funded. The RA initiation can be a small component, e.g., well abandonments. Dave is moving forward and Agviq will be providing a proposal for the RA.

#### VI. Site 49 Update

The public meeting presentation was reviewed by Chris and the Team for review prior to the meeting.

#### VII. Henderson Pond

**Objective:** Address an action item from the last meeting to conduct further data review of sediment in Henderson Pond and the potential source of PCB contamination to ensure there is not a continuing source of PCBs and nothing to remediate.

**Overview:** A presentation was reviewed by Kim. The sites in the watershed include Site 74 and Site 4 and there were anecdotal reports of the pond being drained in late 1970s to conduct maintenance on the dam and discarded military munitions (DMM) and trash was removed. The history for Site 74 indicated potential PCB disposal. The RI was completed in 1995 and PCBs were not detected in soil, groundwater, sediment, and surface water samples. The ROD was signed in 1995 based on potential unacceptable risks from exposure to waste, VOCs, and metals in groundwater. Groundwater LTM was conducted from 1997-2005 until cleanup levels were achieved and LUCs were implemented in 2001 and updated in 2002. Site 4 was a construction debris disposal site identified in the 1983 IAS and NFA was recommended. The Base initiated a CSA in 2009; soil and groundwater samples were analyzed for VOCs, SVOCs, and metals; and NFA was confirmed. During the Henderson Pond investigations in 2011-2012, Aroclor-1260 was detected in surface soil and sediment but there were no unacceptable human health and ecological risks identified.

The Team discussed potential sources of PCBs of fish in the pond including historical dust suppression on adjacent roadways. The pond was drained and waste removed in the 1970s and the highest concentration in soil is estimated from a diluted sample and is downstream from the highest concentrations in sediment.

Based on the data presented, the Team agrees there is no evidence of a continuing source.

The Team questioned the rationale for the fish advisory since there is no source and no unacceptable risks in soil, sediment, and surface water. Gena indicated signs are not required based on the results of the risk assessment. It is based on State advisories for fish consumption and the Base decided to post them based on discussions with NCDENR and the use as a campground and recreation area. NCDENR provided example language for the signs. NCDENR would not provide State signs and do not allow for use of the State logo or language regarding State advisories.

#### **VIII. LTM UFP-SAP**

**Objective:** Review responses to comments on the LTM UFP-SAP and schedule for LTM.

**Overview:** A presentation was reviewed by Chris. EPA's comments were addressed. NCDENR's comments were reviewed and approved and RTCs will be submitted. The recommendations for reducing the sampling frequency and omitting MW06 at Site 3 will be evaluated and considered in the FY12 report. The UFP-SAP was signed by the Team.

**Action CH2M HILL** – Check on the LTM sampling dates to evaluate seasonal variations.

#### **February 20, 2013**

#### **IX. Check-In**

#### **X. Partnering Exercise**

Kim led a team-building exercise.

#### **XI. Site 78 Update**

**Objective:** Provide treatability study update and review schedule and path forward.

**Overview:** A presentation was reviewed by Chris. The bench-scale study was conducted within the Site 78S area. In the IR78-GW75-1 area, sulfate was evaluated for effectiveness at degrading BTEX and subsequent treatment of CVOCs following the formation of iron sulfides. In the IR78-GW124UCH area, EHC-L was evaluated for CVOC reduction. The preliminary conclusions indicate there was no meaningful reduction in BTEX or TCE. Reducing conditions are present in both areas but microorganisms are absent. The next steps are to evaluate geochemical conditions, bioaugment the IR78-GW124UCH reactor to evaluate if bioaugmenting in conjunction with EHC-L addition yields CVOC degradation, amend the IR78-GW75-1 reactor with lactate to add carbon to 'kick start' the reaction, and monitor through May 2013.

Gena's opinion is that based on this study and all the previous studies, these areas are sterile of bugs and even if added they won't likely survive so we have to do something to degrade the contaminants. The Team discussed an injection and extraction system like implemented at Site 86 and sparging. The results can be discussed at the next meeting and the path forward for the treatability study can be determined.

The Draft Expanded Groundwater Investigation Summary Tech Memo is planned for submittal in April 2013 to present the current CSM, provide recommendations for changes to LTM network and LUC boundaries, and the addition of metals to LTM in FY2015. The FY13 LTM event is planned in May 2013.

#### **XII. Sites 6 and 82 Supplemental Investigation**

**Objective:** Provide an update on the supplemental investigation and schedule.

**Overview:** A presentation was reviewed by Chris.

**Site 6:**

The Site 6 groundwater plumes were reviewed for CVOCs and chlorobenzene in each aquifer. The CVOC plumes identified in the upper and lower Castle Hayne aquifers were discovered during this supplemental investigation. The distribution in the Upper aquifer indicates a potential connection to impacts at Site 82. Further lateral plume refinement may be required downgradient where TCE, cis-1,2-DCE, and vinyl chloride were detected in exceedance of NCGWQS at the site boundary and along the flow path into Site 82. In the Lower aquifer, further vertical delineation may be required in one area.

Maps of the 1993 RI monitoring well network vs the 2012 monitoring well network were reviewed and in 1993, trace levels of CVOCs were encountered in the surficial aquifer in Lots 201 and 203 and there were no intermediate wells within Lot 203 whereas now there are many more deeper wells in the network.

The Site 6 chlorobenzene plume extends downgradient further than expected and is likely migrating downgradient. Further lateral plume refinement may be required downgradient as chlorobenzene was detected at site boundary in exceedance of NCGWQS. The groundwater flow rate was discussed and is likely ~30 ft/year. The following uncertainties and potential path forward were presented.

Data Gap	Uncertainty	Reason for Uncertainty	Potential Path Forward
Impacted Area	What is extent of impacted groundwater?	CVOCs not delineated and may extend into Site 82, chlorobenzene plume is not laterally delineated downgradient	Delineate areas of impacted groundwater
Impacted Area	Have all sources been identified?	Source of CVOCs has not been identified	Delineate areas of impacted groundwater
Remedial Action Efficiency	Is MNA an effective remedy?	CSM has changed significantly since ROD and RA implemented.	Evaluate current RA and consider potential alternatives
Risk Assessments	What are risks to human health and the environment based on new information?	ERA and HHRA not conducted since RI; uncertainty in risks associated with chlorobenzene or CVOCs.	Collect soil and groundwater data and conduct ERA and HHRA

**Site 82:**

The Site 82 groundwater plumes were reviewed for CVOCs and 1,1,2, 2-PCA in each aquifer. In the surficial and upper Castle Hayne aquifers, new CVOC source areas were identified downgradient of recovery wells and further plume refinement may be required as it is not bound side gradient to the east or downgradient towards Wallace Creek and vertically in isolated areas. In the, two new surficial source areas were identified and contaminants were encountered outside of the influence of the recovery wells. In the lower Castle Hayne aquifer, vertical delineation may be required in one area.

Maps of the 1993 RI monitoring well network vs the 2012 monitoring well network were reviewed and in 1993, VOC contamination in the surficial aquifer was generally defined and there was widespread VOC contamination in deeper wells based on the limited number of monitoring wells. In 2012, there are many more monitoring wells, there is more widespread contamination in shallow groundwater, and deeper groundwater impacts are generally controlled by the recovery wells.

The pore water samples were reviewed and attenuation was observed in the wetlands towards the creek.

The following uncertainties and potential path forward were presented.

Data Gap	Uncertainty	Reason for Uncertainty	Potential Path Forward
Groundwater Flow	How do surficial and upper Castle Hayne aquifers interact?	Surficial aquifer appears to pinch out as it flows north towards Wallace Creek based on lithology and groundwater quality; upper Castle Hayne aquifer may be discharging to Wallace Creek directly	Evaluate vertical gradients and lithology as groundwater flows towards creek
Groundwater Flow	Does groundwater flow to wetlands, Wallace Creek, or beneath?	CVOCs appear to attenuate in wetlands and are not observed across Wallace Creek; unclear if groundwater is discharging to Wallace Creek	Evaluate vertical gradients near Wallace Creek by installing nested piezometers at several locations
Multiple Source Areas	Have all sources and groundwater plumes been identified?	Elevated CVOC concentrations detected; not fully delineated, sources unknown	Delineate areas of impacted groundwater
Multiple Source Areas	Are there additional COCs?	If site was used for disposal, is there potential for other COCs in new source areas?	Analyze soil and groundwater in new sources areas for full suite of analytes
Recovery Well Efficiency	What are recovery wells capturing?	Elevated CVOC concentrations detected downgradient of recovery wells	Survey recovery wells, evaluate radius of influence
Recovery Well Efficiency	Are recovery wells in the right location?	Elevated CVOC concentrations detected west of and at greater depths than recovery wells	Turn off system, allow site to equilibrate Evaluate locations of highest contaminant mass across site, optimize system as appropriate
Risk Assessments	What are risks to human health and the environment based on new information?	ERA and HHRA not conducted since RI; uncertain of risks associated with new source areas	Collect soil and groundwater data and conduct ERA and HHRA

Gena indicated that when funding is available in the future, the waste and potential sources should be removed. She recommended pore water samples below or within Wallace Creek to evaluate whether contamination is moving beneath or to the creek.

Charity asked whether there was risk from fishing and swimming in the creek. This pathway has not specifically been evaluated. VOCs in surface water are monitored and compared to NC2Bs, there was one historical surface water exceedance that led to the pore water sampling and surface water samples is collected during LTM semi-annually.

**Action CH2M HILL** – Compile the Site 82 surface water and pore water data over time to evaluate trends for discussion at the next meeting.

The Team discussed achieving all the remedies in-place and then revisiting the remedy.

The Draft Supplemental Investigation Report is planned for completion in Q2 2013. Quarterly sampling is planned at Site 6 through July 2013.

### XIII. Site 86 FS

**Objective:** Review FS components, lines of evidence for MNA, and the schedule to meet the FY14 goal.

**Overview:** A presentation was reviewed by Chris. The RAOs and cleanup levels were reviewed. The RAOs are:

- Restore groundwater quality to meet NCDENR and federal primary drinking water standards based on the classification of the aquifer as a potential source of drinking water [Class GA or Class GSA] under 15A NCAC 02L.0201.
- Prevent exposure to COCs in groundwater and vapor intrusion from COCs in groundwater until such time as groundwater concentrations or vapor intrusion mitigation measures allow for unlimited use and unrestricted exposure.

Five alternatives were evaluated:

- Alternative 1 – No Action
- Alternative 2 – MNA and LUCs
- Alternative 3 – Air Sparging, MNA, and LUCs
- Alternative 4 – ISCO, MNA, and LUCs
- Alternative 5 – ERD, MNA, and LUCs

Lines of evidence for MNA were presented as follows:

- Pilot tests (horizontal air sparging and ERD recirculation) reduced mass in high concentration areas
- Groundwater flow and solute transport models indicate that MNA is protective of the New River
- Estimated remedial time frame for MNA is similar to treatment alternatives
- EPA NAIP scoring indicate limited to adequate evidence of anaerobic degradation based on EPA NAIP scoring
- Biodegradation by-products are present in both the surficial and upper Castle Hayne aquifers and dehalococoides (and other bacteria) are present in the upper Castle Hayne aquifer

The draft FS is currently with Navy legal. The draft schedule to meet the FY14 goal was reviewed in detail. The goal was to have the final ROD complete in FY13 but the Team is ok with early FY14. Because the remedy is proposed as MNA, the remedy in-place goal may still be met in FY14.

#### **XIV. Site 35 Air Sparge Update**

**Objective:** Review recent groundwater results, determine path forward, and schedule.

**Overview:** A presentation was reviewed by Chris. The FY12 LTM data summaries for air sparge and MNA were reviewed and VOCs are decreasing over time. The air sparge exit strategy from the ROD and current status was reviewed where 1 of 3 conditions will be met to shut down the air sparge system:

1. Reduction of COC concentrations of 75% in source area wells, or
  - 71% total VOC reduction in source area wells and 75% total VOC reduction in Upper Castle Hayne groundwater within 100-ft of air sparge since baseline
2. Groundwater modeling indicates that contaminant levels have been reduced to levels protective of Brinson Creek, and COC reduction in source area wells demonstrating an asymptotic trend prior to achieving the target 75% reduction, or
  - Biochlor modeling shows current concentrations are protective of Brinson Creek
3. System operation for 3 years
  - 28 month round collected, 3 years will be August 2013

Randy recommended turning it off for a month, sampling, turning it back on for a month, turn it off again, and sampling again. He thinks a pulsing approach would be effective to reduce concentrations. Gena recommended turning it off now, collecting additional data, and evaluating whether concentrations rebound or are stable. If the concentrations are stable then the well could be left off but if concentrations rebound, the system could be turned back on or pulsed. Dave can look convert the cost savings under Osage's contract for another use.

**Action Shaun** – Look into Site 35 air sparge operation over time to evaluate pulsing.

**Consensus** – The Team agrees to turn off the Site 35 air sparge system and collect two quarterly rounds of LTM data starting in March to evaluate potential rebound and determine the path forward.

The Team agreed to await re-installation of the soil gas sampling point until and if the air sparge system is turned back on.

#### **XV. Site 89 Air Sparge Work Plan**

**Objective:** Provide a summary of the remedial action, review RTCs, and provide schedule.

**Overview:** A presentation was reviewed by Shaun. Air Sparging is the selected remedy to treat source area groundwater and two HDD sparge wells will diffuse larger plume in surficial aquifer and three vertical sparge wells will treat deeper impacts near well MW80DW.

Charity indicated the area has been requested to be used for parking.

NCDENR and EPA comments and responses were reviewed. The work plan will be finalized this month based on these responses in and site preparation activities will be initiated in March 2013. The well installation is planned in March 2013 for completion in May 2013 followed by start up in June 2013 and a Closeout Report and O&M Manual in July 2013.

**Action Shaun** – Provide Charity the schedule for the Site 89 air sparge work.

**Action Charity** – Provide Shaun with Base MILCON contacts in the Camp Geiger area for coordination of Site 89 air sparge work.

#### **XVI. Site 89 PRB**

**Objective:** Provide a summary of the remedial action phases and provide a schedule.

**Overview:** A presentation was reviewed by James. The selected remedy for downgradient groundwater contamination at Site 89 includes the installation of two PRBs on the east side of White St, MNA, and aerators. PRB “A” will be 175 ft long, 35 ft deep, and parallel to White Street. PRB “B” will be 400 ft long, 23 ft deep, and parallel to Edwards Creek.

Site preparation activities include vegetation clearance where needed within the footprint of PRBs and construction of an access road. The area will be graded to control stormwater runoff and provide for a 50-ft work platform area, media mixing area, and decon area. The work platform will be constructed to support the one-pass trencher and will incorporate a berm and features for erosion control and spoils containment. Gena indicated that in addition to heavy rain and stormwater flow, the creek could also flood the site. Building the platform will raise the working surface to protect from flooding.

The tree demo plan was sent to the Base to confirm whether the Base would harvest them. Charity asked whether the mulch could be used in the PRB. The mulch for the PRB in the previous treatability study was obtained from the Base mulching facility so this is an option.

**Action Charity** – Check to see if the Base mulching facility can provide mulch for the Site 89 PRBs.

The PRBs will be installed using a one pass trencher working from the platform. The trench media (40% mulch and 60% aggregate) will be mixed onsite. PRB B will be trenched west to east first, followed by PRB A trenched south to north. The PRB locations were shifted from the RD based on topography, access, and the need for the work platform. Waste characterization sampling will be conducted by DPT during site preparation to prepare for offsite disposal. Charity questioned the threshold to be effective to treat waste on-site. Currently, the volume of waste projected would not be cost-effective for on-site treatment.

Monitoring well abandonment of the MW37 cluster and installation of approximately 17-18 new wells was planned. The Team discussed keeping the MW37 cluster and installing 17 additional wells based on the revised location of the PRBs. MW37 will remain as upgradient wells and some of the proposed upgradient wells will be repositioned downgradient. A figure will be provided in the work plan to note existing and proposed well network. Chris indicated that the wells should be installed close to the PRBs (within 10-15 ft) since groundwater moves slowly.

Wetlands will be impacted and the appropriate forms will be included in the work plan for submittal to NCDENR to meet the intent. The Team discussed the access road and fencing and decided not to leave it in-place.

**Action Sepi** – Provide Randy with the NCDENR wetlands contact to coordinate review of the form for the Site 89 PRB.

Site restoration will include re-grading, future access to monitoring wells and for PRB reactivation, and re-vegetating with native species.

The Draft RAWP is planned for submittal in February 2013 followed by the Final RAWP in April 2013. Randy requested the erosion and sediment control plan in a separate appendix for NCDENR land quality review.

Site preparation/platform construction is planned in May/June 2013, PRB installation and waste hauling in June/July 2013, site restoration in July/August 2013, and the construction completion report in November/December 2013.

CH2M HILL will prepare the final RACR for Site 89 to document all the activities.

#### **XVII. UXO-01 (ASR#2.64) Groundwater**

**Objective:** Review background and remedy, groundwater sampling results, and schedule.

**Overview:** A presentation was reviewed by Cathy. The NTCRA was completed, 5 monitoring wells were installed, and groundwater monitoring conducted to verify dissolved lead concentrations.

Soil removal is complete and 847 tons of treated soil was transported to Subtitle D Landfill for disposal. The last post-excavation soil sample from the excavation base was completed and antimony, arsenic, and lead concentrations were less than the PRGs. Five groundwater monitoring wells were installed and quarterly groundwater sampling initiated 10/30/2012 and 1/24/2013 for total lead (not filtered). Turbidity was closely monitored to collect samples when <10 NTU. Total lead was not detected (below detection limit 4 µg/L) and the data is currently being validated.

The Draft Closeout Report is planned for submittal in March 2013 to include both soil and groundwater. No further action and well abandonment will be recommended in the report. The Base prepares NFA decision documents for Base signature with the EPA and NCDENR concurrence letters on the report as an appendix. The EPA and NCDENR do not need copies of these decision documents since they are not required. Dave questioned whether one document is needed to summarize all the UXO-01 decisions for tracking purposes.

**Action Dave** – Provide Osage with an example NFA decision document.

#### **XVIII. UXO-14 NTCRA Update**

**Objective:** Review background, NTCRA summary, RTCs on the implementation plan, schedule updates and SAP signature.

**Overview:** A presentation was reviewed by Shaun. The site was historically identified as Building RR-53 and was used for pistol and small arms training from 1950 through the 1990s. The Expanded SI, completed in 2011, identified potential unacceptable risk associated with lead and antimony in surface soil and an EE/CA was finalized in 2012 and the preferred alternative is *in situ* soil stabilization with excavation 0 to 1 ft depth and offsite disposal.

Pre-excavation soil sampling will be conducted to evaluate if excavation boundaries are sufficient followed by soil stabilization and waste sampling. EnviroBlend will be applied to stabilize lead impacted soil and the stabilized soil will then be characterized for disposal. Offsite disposal is planned for an estimated 410 tons followed by post-excavation confirmation soil sampling to verify that lead and antimony impacted soil were removed to below PALs.

NCDENR had no comments on the implementation plan and EPA's minor comment was addressed and will be finalized this month. Pre-excavation sampling is planned in March 2013. In April 2013, soil stabilization, waste sampling, excavation/disposal, and post-excavation sampling will be conducted. In May 2013, site restoration and survey is planned followed by a draft closeout report and NFA decision document.

#### **XIX. UXO-23 NTCRA Update**

**Objective:** Provide final validated post-excavation composite soil sample results, restoration status, and discuss reporting and project closeout.

**Overview:** A presentation was reviewed by Cathy. A summary of activities completed since last meeting was provided as follows:

- ~2,320 tons of non-hazardous soil shipped to landfill since last meeting (including infiltration basins)
- ~54,000 tons total waste disposed
- Geotextile layer installed where PAHs and lead remain at depth above the PALs
- Site restoration with backfill and demobilization
- Hydroseeded

The results from the remaining soil samples associated with additional excavation to 2 ft bgs in the geotextile area and infiltration basins were reviewed. E&SC inspections are ongoing pending vegetation growth. The Base and NCDENR will inspect the site following site restoration with vegetation.

Site restoration will be completed in March 2013 and the draft NTCRA summary report is targeted for April 2013.

#### **XX. Vapor Intrusion Update**

**Objective:** Discuss RTCs for IR UFP-SAP and signature, provide preliminary results of Round 4 VIMS performance monitoring, provide timeline and next steps for Building 1005, and review schedule.

**Overview:** A presentation was reviewed by Matt. The draft IRP UFP-SAP was submitted to the Team in October 2012 and NCDENR comments and RTCs were reviewed and accepted. Gena has no comments and the UFP-SAP was signed.

VIMS have been installed in 7 buildings and start-up was conducted in February/March 2012. Quarterly performance monitoring was conducted for 1 year and 4 events conducted (March, June, and September 2012; January 2013). A new lab was contracted for Round 4 data and had lower reporting limits that increased detections in the exhaust samples.

During this round, in Buildings 3, 3B, and 43, TCE in indoor air exceeded adjusted and non-adjusted Industrial Air RSLs that were not historically detected pre- or post-VIMS. TCE is being removed from the slab and the latest shallow groundwater data (2011) indicates low TCE concentrations. We are currently looking into the accuracy of lab data, potential for building maintenance, and/or indoor sources.

In Buildings 3 and 37, benzene exceeded the Industrial Air RSL in indoor air but was a similar concentration to outdoor air.

At Building 1005, the timeline of activities was reviewed from August 2012 to present. Methane has been detected and an SVE trench installed to reduce vapor concentrations of methane to <1% (below LEL of 5%). The next steps are to replace the carpet in the Work Reception Area and implement a testing plan to evaluate VIMS performance and upgrades during air sparge and biopulse operation to evaluate re-occupation of the area. The air sparge and biopulse will be turned on in a stepped approach to evaluate influence of air sparge only and influence of individual biopulse wells. Data evaluation is being conducted to determine potential sources and

impacts of methane. Charity indicated that there may be future news articles on this. The methane is likely a result of degradation of the petroleum related to HPFF.

In Building 1115, benzene and ethylbenzene exceeded screening criteria in indoor air and the HAPSITE confirmed potential indoor sources of petroleum constituents during Round 3.

The IR UFP-SAP will be finalized in February/March 2013 followed by the field activities in March/April 2013. A VIMS Summary Report is planned for submittal in May 2013. Gena requested separate section for IR and UST/RCRA sites.

**Action CH2M HILL** – Separate and clearly identify the IR sites from the UST/RCRA sites in the VIMS Summary Report.

**Action CH2M HILL** – Check on system modifications for VIMS stacks at Building 902.

## **XXI. SDZ Update**

**Objective:** Review Expanded SI objectives and approach, present findings from site reconnaissance, discuss coordination with other stakeholders, provide the schedule, and review RAB presentation prior to the meeting.

**Overview:** A presentation was reviewed by Matt. The Expanded SI objective is to further evaluate the presence or absence of MEC and MPPEH at locations identified during the PA/SI. The plan is to mag and dig as many anomalies and areas as feasible in a phased approach to prioritize investigation areas of interest. The method of investigation will be field-dependent based on site conditions, degree of public use, and number and distribution of anomalies and will include grid-based mag and dig, walking traverses, and a combination of the two.

A site reconnaissance was conducted in November 2012 to evaluate site conditions, protected species habitat, and navigability of waterways and site access. The anomalies in two of the areas of interest (AOI G and H) were identified during the site visit and no additional investigation is needed.

A consistency determination was prepared and submitted to NCDENR to summarize the objectives of NC laws and regulations regarding management of coastal areas and present information explaining how proposed actions at the SDZs align with those objectives. The determination was approved in December 2012.

We met with Onslow County Emergency Operations Center (EOC) and US Coast Guard and EOC (911) will coordinate emergency operations, including helicopter transport, and will create an Instant Action Plan.

Community involvement activities include having the work plans, fact sheets, and reports available on public websites, the Onslow County and Swansboro County libraries, and in the Administrative Record. A presentation will be provided at the RAB Meeting this week.

The work plan was finalized in January 2013 with some minor modifications to the approach were made based on the site reconnaissance. The Phase I and Phase II intrusive investigations will be conducted concurrently with one larger team to focus on accessible areas (forested upland and open beach areas) and one smaller team to focus on pre-determined anomalies located in marsh areas. The figure and table changes consistent with MARCORSYSCOM ESS updates regarding the MGFs and EZs were also made. MARCORSYSCOM provided interim service approval on the ESS Amendment in February 2013. The field activities will be initiated in early March 2013 followed by demobilization in the end of May 2013. The Draft Expanded SI Report is planned for submittal to the Base/Navy in September 2013.

## **February 21, 2013**

### **XXII. Check-In**

### **XXIII. UXO-23 Path Forward**

**Objective:** Present current status, discuss approach for future work, and review the schedule.

**Overview:** A presentation was reviewed by Matt and Tom.

## MILCON

MEC-related items found during NTCRA and MILCON activities and EOD responded. Nine items were discovered within the NTCRA area, including four 81mm practice mortars. ~16 items were discovered during MILCON in areas adjacent to UXO-23. Therefore, an “MRS” was identified based on review of historical aerial photos with ~300 ft buffer. Gena questioned why the treed area was not included within the MRS. Charity identified the MRS based on the cleared areas which were the areas with the highest potential for training. If items are found outside the MRS, the MRS will be expanded.

An approach for future work was developed for discussion with MARCORSSYSCOM. The proposed approach is to submit an ESS for working in areas of undisturbed native soil inside “MRS” and submit an ESS Determination Request for areas outside the “MRS” for 3R training and on-call support and in areas of imported fill or previously disturbed soil inside “MRS” for 3R training and on-call support when intrusive activities do not extend beyond the depths of fill or previous soil disturbance.

## NTCRA Phase 2

Vertical delineation of lead/PAHs is planned in ~20 grids remaining in-place and covered with the geotextile area. An ESS and UFP-SAP Addendum will be needed. The first step will be to re-evaluate PALs and potential risks for subsurface soil since only surface soil was initially screened. Based on the results, soil samples will be collected for lead/PAHs following the NTCRA approach for compositing 4 grab samples per grid, collecting samples every 6 inches and analyzing them via mobile lab until delineation complete.

## RI

The North Area groundwater and Bearhead Creek sediment investigations are completed and the results were reviewed. The objective of the North Area groundwater investigation was to confirm the presence of PAHs in shallow groundwater and PAHs were not detected, no further investigation is needed, and the monitoring wells were abandoned. The objective of the Bearhead Creek sediment data collection was to confirm ecological risks from lead based on previous investigations. A field survey was conducted and 50 sediment samples were collected for lead and the preliminary results indicated lead concentrations ranging from 1.1 mg/kg to 100 mg/kg and there was no significant ecological risk.

The path forward includes future investigation of the South Area soil and groundwater, Beaver Dam Creek sediment/surface water, and for MMRP. The objective of the South Area groundwater investigation will be to evaluate lead in groundwater following source removal. For soil, the objective is to confirm elevated XRF results in one grid outside of the shot fall zone. For Beaver Dam Creek, sediment and surface water samples will be collected for lead and PAHs.

The Team discussed the southern drainages that were removed and whether they were removed to clean. Randy requested that the samples and results are shown and discussed in the report.

**Action Shaun** - Check on the skeet range drainage swale confirmation sample results to confirm the extent was removed to meet the PALs.

Randy requested that two samples be collected within the pink-colored drainage, a sample could be moved from the green area. The UFP-SAP for this work was signed and accepted and indicates the sampling locations are proposed and will be based on the field survey.

For the MMRP investigation, the objective will be to determine the nature and extent of MEC/MPPEH within UXO-23. The approach includes an archive records search to evaluate the potential sources of MEC/MPPEH and an ESS and UFP-SAP Addendum for a 10% DGM and intrusive investigation. Bryan questioned why investigation is planned within the NTCRA area. Only one foot minimum removed and items could be detected at depth. The depths of the items found were not recorded. Future DGM can be focused on areas where only shallower removals were conducted.

Charity noted that the area was used for maneuver training and was not an impact zone. Dave noted that the RI funding is being reallocated to finish the NTCRA Phase 2 delineation and the remaining RI work will be funded following completion of the NTCRA.

The subsurface soil risks within the NTCRA grids will be re-evaluated in March 2013. Gena noted that if risks are re-evaluated and there is no risk as subsurface soil but there are potential risks as surface soil, the subsurface soil may need LUCs.

#### **XXIV. UXO-22 Approach**

**Objective:** Present current status, discuss approach for future work, and review the schedule.

**Overview:** A presentation was reviewed by Tom. The PA/SI report was submitted to the Team this month and recommended an RI to further characterize the nature and extent of MEC, consideration for MEC surface clearance to minimize explosive risks from unintentional detonations in the wooded and former DRMO areas to reduce interference from surface metallic debris during DGM for the RI, and to address potential unacceptable ecological risks associated with exposure to subsurface soil and the soil in the drainage as part of the Sites 6 and 82 supplemental investigations.

Defense Logistics Agency (DLA) is funding a project to address debris from DRMO operations. It includes a surface sweep, removal of large metal objects, and soil sifting of top 6 inches to address MR safety concerns and reduce interference from surface metal during DGM for RI.

The RI UFP-SAP development is underway to investigate the nature and extent of MEC and will include a surface sweep, 10% DGM, and intrusive investigation of a statistically representative sample of anomalies and disposal pits (if identified) for nature of content. The draft UFP-SAP is planned for submittal to the Team in May 2013.

A potential NTCRA is planned to address the exposed and corroded batteries mixed with MPPEH within the drainage. Timing is based on funding.

#### **XXV. UXO-06 RI**

**Objective:** Provide a summary of RI activities, discuss next steps, and review schedule of RI/FS.

**Overview:** A presentation was reviewed by Tom. The objectives of the RI were to further evaluate the nature and extent of subsurface MEC in uninvestigated and undeveloped areas within the site and along the boundary. Transect-based DGM or mag-and-dig and 100% intrusive investigation was conducted over 10% of the cantonment area (approx. 50 acres) and over 3.3% of the undeveloped area (approx. 71 acres). 3,252 targets were identified and investigated and the findings include:

- 2,935 cultural debris/non-munitions related items
- 14 QC seeds
- 107 no contacts (no items found)
- 17 locations unable to investigate
- 179 MPPEH items

Based on the findings, additional 3.3%DGM or mag-and-dig and 100% intrusive investigation is recommended northeast of the UXO-06 boundary where practice rockets were found along the boundary in an approximately 20 acre area. An ESS Amendment would be needed to complete this work since it is outside the boundary.

Charity questioned whether LUCs would be needed in the cantonment area based on findings to-date or whether 100% investigation is needed. Tom indicated that 100% investigation is not possible based on utilities ad interference. Randy doesn't think we are at the point to make a decision and agrees with the approach for additional investigation. He indicated that it may be recommended to conduct 100% investigation where grenades were found. Gena indicated that 100% investigation was conducted in the borrow pit and questioned the justification for not conducting 100% in the cantonment area. Randy agreed.

Charity proposed no further investigation in the area where only small arms (bullets/casings) were found (north of Gonzalez Blvd). The Team agrees to the proposed additional RI northeast of the site and revisit 100% only within the cantonment area where MPPEH other than small arms were found or LUCs. NFA may be acceptable in this area, after 100% investigation and environmental sampling if warranted. LUCs will likely be needed within the UXO-06 boundary, outside the borrow pit.

Patti indicated that UST has been and will be working in the vicinity of FC255. They should follow the ESS. Kim recommended the Base generate a GIS layer to identify the sites/areas under an ESS.

Charity asked whether the exclusion zones can be released in the areas north of Gonzalez. Gena is not comfortable without a document to support this decision. The RI is planned for submittal this fall.

## **XXVI. UXO-19 RI/FS**

**Objective:** Review key components of RI/FS and the schedule.

**Overview:** A presentation was reviewed by Tom. The site background was reviewed and the RI/FS findings presented as follows.

- No unacceptable risks were identified to human or ecological receptors from exposure to MC in site media (surface soil, subsurface soil, and groundwater)
- >450 MEC items (mostly 60mm and 81mm mortar projectiles, flares, and grenades) and >50,000 MPPEH items (mostly mortar projectiles) were discovered.
- 445 items were destroyed via controlled detonation. Potential human health risk was identified from explosives residues in soil at 5 BIP locations (3 from PA/SI, 2 from ESI). For the PA/SI locations, we are re-evaluating site-wide human health risks to determine whether removal is needed. For the ESI locations, approximately 4 drums of soil were excavated, confirmation samples collected, and there were no unacceptable risks. In the CDA, soil sampling was conducted and there were no unacceptable risks and the CDA was backfilled with soil.
- An evaluation of explosive hazards indicated that there is an explosive hazard for military personnel or contractors to come in contact with subsurface MEC/MPPEH during construction and intrusive activities >2 ft bgs or at any depth in developed areas.
- The RAOs were identified to prevent human exposure to potential explosive hazards and reduce explosive hazards associated with MEC to levels compatible with current and future land use.
- The remedial alternatives evaluated include: Alternative #1 - No Action, Alternative #2 – LUCs, Alternative #3- Subsurface Removal of MEC (via excavation, DGM, and intrusive investigation)and LUCs, and Alternative #4 - Subsurface Removal of MEC (via excavation and sifting) and LUCs.

The LUC boundaries were discussed and were based on general developed and undeveloped areas. The Team discussed generating a more detailed map to identify areas that have been cleared within the developed area and to add to the language in the FS for LUCs to “Restrict intrusive activities within the developed area that has not already been cleared”.

**Action Charity** – Provide CH2M HILL with Camp Devil Dog MILCON as-builts and topo maps.

**Action CH2M HILL** – Develop a more detailed map of areas of UXO-19 that have been cleared and the depths.

The Draft RI/FS is planned for submittal to the Navy/Base in March 2013 and to the Team in April followed by the Final RI/FS in April 2013 and choosing the preferred alternative in August 2013.

Additional stormwater construction is ongoing outside the boundaries of UXO-19 and construction support is being provided to conduct 100% intrusive investigation to final construction depth. ~5,000 anomalies were identified and buried drums were discovered in one area. The drums were in deteriorated condition but had to be treated as unknown and were excavated as low-input under the MILCON Support ESS using Level B PPE. The soils were stockpiled and are pending analysis.

## **XXVII. FY 2013 Goal Update**

The Team reviewed the FY 2013 goals and discussed the current status of each goal. The goals were color-coded to identify high priority document reviews (red), upcoming document submittals (yellow), and documents close to finalizing (green). The goals are presented in a table at the end of these minutes.

## **XXVIII. Parking Lot**

There were no items remaining in the parking lot after the meeting.

### XXIX. Next Partnering Meetings

**Start:** May 21, 2013 (2:30 pm start)

**End:** May 23, 2013 (2:30 pm end)

**Facilitator:** Patti

**Host:** Charity

**Chair:** Bryan

**Timekeeper:** Beth

**Location:** Wilmington, NC (Mayfaire area)

**Start:** August 21, 2013

**End:** August 22, 2013

**Facilitator:** TBD

**Host:** TBD

**Chair:** TBD

**Timekeeper:** Beth

**Location:** TBD

The next RAB date will be proposed as May 23, 2013.

### XXX. Agenda Topics for Next Partnering Meetings

#### Agenda Items for the May 2013 Partnering Meeting

Agenda Topic	Required Time
<b>Standing Agenda Items:</b>	
Check-in	30 minutes
Review agenda	15 minutes
Review action items, approve minutes from prior partnering meeting; read ground rules	30 minutes
Partnering exercise	30 minutes
Base/Navy time	1 hour
Review FY2013 goals	30 minutes
Parking lot	15 minutes
Agenda items for next partnering meeting, team assessment, +/- review, checkout	30 minutes
Lunch	3 hours
Breaks	1 hour
<b>Time for Standing Agenda Items: 8 hours</b>	
<b>Technical Agenda Items:</b>	
Site 35 AS Update	30 minutes
Site 49 ROD RTCs	30 minutes
Site 69 RA Update	30 minutes
Site 78 Bench Scale and LTM/LUCs Update	30 minutes
Site 82 surface water/sediment/pore water data	30 minutes
Site 86 FS RTCs & Preferred Alternative	30 minutes
Site 89 AS Update (Osage)	30 minutes
Site 89 PRB Update (Sepi)	30 minutes
FY12 LTM Report	30 minutes
UXO-06 RI Update	30 minutes
UXO-14 NTCRA Update (Osage)	30 minutes
UXO-19 RI/FS RTCs	30 minutes
UXO-21, 22, and 24 RTCs & Update	30 minutes
UXO-23 Risk Evaluation & Path Forward	30 minutes
UXO-23 NTCRA Report RTCs (Osage)	30 minutes
SDZ Update	30 minutes
Henderson/Hickory Pond Update	15 minutes
FYR Milestone Update	15 minutes
Vapor Intrusion Update	30 minutes
<b>Time for Technical Agenda Items: 9 hours</b>	

**Agenda Items for the May 2013 Partnering Meeting**

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<b>Agenda Topic</b>	<b>Required Time</b>
<b>TOTAL TIME</b>	<b>17 hours</b>

The agenda will be drafted prior to the meeting and the required times and topics may be adjusted based on current site status.

## Fiscal Year 2013 Goals

Goal #	Site	Goal	Complete by	Status as of 02/21/13	Future Agenda Items
1.	6/82	Supplemental Investigation Report	28 April 2013	On track	SW/PW update
2.	49	Technical Memo	15 January 2013	Complete	
3.	49	Final PRAP	20 February 2013	Complete	
4.	49	Public Meeting	21 February 2013	Complete	
5.	49	Draft ROD	30 March 2013	On track	RTCs
6.	49	Final ROD	30 June 2013	On track	
7.	69	Draft ROD	7 December 2012	Complete	
8.	69	Final ROD	30 March 2013	On track	
9.	69	Final RD	20 February 2013	Complete	Update on RA
10.	78	Additional Delineation Summary Tech Memo	28 March 2013	On track	
11.	78	Treatability Study Work Plan	TBD	TBD	Bench scale results
12.	78	Draft Report	TBD	TBD	
13.	86	Draft FS	15 April 2013	On track	RTCs & select preferred alternative
14.	86	Final FS	1 June 2013	On track	
15.	86	Draft PRAP	30 June 2013	On track	
16.	86	Final PRAP	15 August 2013	On track	
17.	86	Public Meeting	August 2013	On track	
18.	86	Draft ROD	August 2013	On track	
19.	86	Final ROD	November 2013	On track	
20.	88	Draft FS	16 March 2012	On hold	
21.	88	Final FS	TBD	On hold	
22.	88	Draft PRAP	TBD	On hold	
23.	88	Final PRAP	TBD	On hold	
24.	88	Draft ROD	TBD	On hold	
25.	88	Final ROD	TBD	On hold	
26.	89	Final ROD	30 August 2012	Complete	

**Fiscal Year 2013 Goals**

Goal #	Site	Goal	Complete by	Status as of 02/21/13	Future Agenda Items
27.	89	Final RD	30 November 2012	Complete	
28.	89	Final Remedial Action Work Plan for Sparge Wells (Osage)	February 2013	On track	Update
29.	89	Draft Remedial Action Work Plan for PRB (Sepi/Tetra Tech)	17 March 2013	On track	Update
30.	89	Remedial Action Closeout Report	TBD	TBD	
31.	96 (Former SWMU 360)	Complete Delineation for SRI/FS	TBD	TBD	
32.	LTM	Draft FY2012 Report	30 April 2013	On track	Site 35 update
33.	LTM	FY2013 UFP-SAP	20 February 2013	Complete	
34.	UXO-01 (ASR# 2.64)	Draft NTCRA Report – Soil/GW	30 March 2013	On track	
35.	UXO-01 (ASR# 2.64)	Final NTCRA Report – Soil/GW	30 May 2013	On track	
36.	UXO-06	Draft RI/FS	30 September 2013	On track	Update
37.	UXO-06	Final RI/FS	30 December 2013	On track	
38.	UXO-14	Final Action Memo	20 February 2013	Complete	
39.	UXO-14	NTCRA (Osage)	April 2013	On track	Field update
40.	UXO-14	NTCRA Report (Osage)	May 2013	On track	
41.	UXO-19	Draft RI/FS	30 March 2013	On track	RTCs
42.	UXO-19	Final RI/FS	30 June 2013	On track	
43.	UXO-21	Draft Phase II ESI UFP-SAP	30 March 2013	On track	RTCs
44.	UXO-22	Draft PA/SI Report	30 January 2013	Complete	RTCs
45.	UXO-22	Final PA/SI Report	30 May 2013	On track	
46.	UXO-22	Draft RI/UFP-SAP	30 April 2013	On track	RTCs
47.	UXO-23	Draft RI	TBD	TBD	Risk evaluation
48.	UXO-23	Final RI	TBD	TBD	
49.	Skeet Range (UXO-23)	Draft NTCRA Report (Osage)	April 2013	On track	RTCs
50.	Skeet Range (UXO-23)	Final NTCRA Report (Osage)	June 2013	On track	
51.	UXO-24	Draft Revised UFP-SAP	30 March 2013	On track	RTCs
52.	UXO-24	Final UFP-SAP	May 2013	On track	

**Fiscal Year 2013 Goals**

<b>Goal #</b>	<b>Site</b>	<b>Goal</b>	<b>Complete by</b>	<b>Status as of 02/21/13</b>	<b>Future Agenda Items</b>
53.	UXO-24	Draft PA/SI Report	30 September 2013	On track	
54.	SDZ	Final ESI Work Plan	January 2013	Complete	Update
55.	SDZ	Draft ESI Report	30 September 2013	On track	
56.	SDZ	Final ESI Report	31 December 2013	On track	
57.	Vapor Intrusion	UFP-SAP	30 December 2012	Complete	Update
58.	VIMs	Draft Annual Report	30 June 2013	On track	Update
59.	VIMs	Final Annual Report	30 August 2013	On track	
60.	UST/RCRA VI Work Plan	Work Plan	30 April 2013	On track	
61.	SMP	Draft FY14 SMP	30 June 2013	On track	
62.	Verona Loop (UXO-25)	Final PA/SI	20 February 2013	Complete	
63.	Henderson/Hickory Pond	Final Summary Report	1 March 2013	Complete	Update
64.	Five-Year Review Recommendations	Tracking Sheet (ESDs, Site 78 Drainage/Soil, Site 78/82 metals, LUCIPs, Site 2 TM)	See spreadsheet	Ongoing	Milestone update

**Red** - high priority document reviews

**Yellow** – upcoming/recent document submittals

**Green** – comments received/finalizing document