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U S NAVY RESPONSE TO U S EPA COMMENTS TO DRAFT SAMPLING AND ANALYSIS
PLAN (FIELD SAMPLING PLAN AND QUALITY ASSURANCE PROJECT PLAN) MUNITIONS
CONSTITUENTS REMEDIAL INVESTIGATION OF SITE 12 EOD AREA NAS BRUNSWICK

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9/13/2012

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**RESPONSE TO USEPA COMMENTS DATED JULY 12, 2012
DRAFT SAMPLING AND ANALYSIS PLAN, MUNITIONS CONSTITUENTS REMEDIAL
INVESTIGATION OF SITE 12 EOD AREA DATED MAY 2012
FORMER NAVAL AIR STATION BRUNSWICK, MAINE**

General Comments:

1. **Comment:** The purpose of this sampling and analysis plan (SAP) is to collect a sufficient quantity and quality of environmental data to support significant refinement of the Site 12 conceptual site model (CSM) so that a feasibility study (FS) of potential site cleanup options can be prepared, assuming the RI baseline risk assessment identifies potential unacceptable risks to human health and the environment. While it is the Navy's goal to collect all data in one mobilization effort to satisfy all SAP data objectives, it may be necessary to conduct limited additional sampling to address any data gaps that prevent the adequate development of remedial alternatives (ROs) as part of the FS process. Data needs that are not critical to RO development can be collected as part of the remedial design phase. The Navy and EPA expect to complete a record of decision (ROD) for Site 12 on or before 30 December 2013.

Response: Acknowledged. If significant data gaps remain following the MC RI at Site 12 additional sampling will be considered and completed, as necessary.

2. **Comment:** EPA's comments focus on the soil, surface water, and sediment portions of the draft Site 12 SAP. EPA provided earlier feedback to the Navy concerning the ground water investigation that is also planned for the site. Monitoring wells will be installed at the site after the Navy completes surface geophysical investigations that will be designed to identify ground water bearing zones within the bedrock underlying the site. It is assumed that there is limited overburden ground water given that bedrock is near or at ground surface across much of the site.

Response: Acknowledged. Of note, subsequent to EPA submittal of subject comments, the bedrock fracture trace analysis report was issued and because numerous fractures were encountered, a decision was made to proceed with monitoring well installation and defer a decision on the need and scope of geophysics until after monitoring well boring logs and analytical results are evaluated and discussed with EPA and MEDEP.

3. **Comment:** EPA concurs with the plan's overall sampling strategy in assessing the nature and extent of munitions constituents (MC), VOCs, SVOCs, and metals. A "bull's eye" sampling approach, with the greatest density of sampling targeted within the suspected source areas (existing/former berm areas) and gradually diminishing sampling densities laterally away from these areas, is logical and appropriate. This general approach is consistent with the current CSM which is partially based on historical information, aerial photography, surface geophysics investigation results, limited test pitting, and MEC clearance efforts.

Response: Acknowledged.

Specific Comments:

1. **Comment:** DU-1: This DU is defined as the existing berm wall located in the central portion of the site. The berm is approximately 200 linear feet long and 6 to 8 feet high. The SAP divides the inner berm wall into 10 grids. 3 increment surface soil samples (0-3") will be collected from each grid and combined to create 1 ISM surface soil sample. Two replicate surface soil ISMs will be created in the same manner. In addition, 3 increment subsurface soil samples will be collected from each grid and combined to create 1 subsurface soil ISM. No replicate ISM subsurface soil sample will be collected. The SAP data objectives are to assess MC concentrations in the surface soil that may present direct contact/ingestion risks and to evaluate contamination levels within a portion of the berm cross-section (12-18" into the berm wall) in order to assess potential risks associated with demolishing the berm and spreading the soils across the site. EPA recommends collecting the subsurface soil sample increments from the 3" – 18" depth horizon and that a replicate subsurface soil ISM sample be collected in the same fashion. While it may be unlikely that there are MEC items deep within the berm walls, only MEC surface clearance has been completed. Assuming it is acceptable to spread the berm wall soils across the site from a MC standpoint, the Navy would still need to conduct MEC clearance of these soils as part of berm demolition.

Response: Agree to revise the interval depth of the DU1 subsurface ISM sample collected in DU1 from 12-18 inches to 3-18 inches, and agree to add one associated replicate for the subsurface. This subsurface replicate will be co-located with the first replicate of the surface ISM soil sample. Assuming it is acceptable to spread the berm wall soils across the site, based on MC RI sample results, the soil will be screened for MEC during anticipated future razing of the berm.

2. **Comment:** DU-2: This DU encompasses the current and former berm areas. Based on the current CSM, it is this area of the site that has the strongest likelihood of being impacted by MC above project screening levels (PSLs). The SAP divides this DU into subareas; 2A (present berm area), 2B (1993 berm), 2C (1981 berm), 2D (1978 berm), 2E (1996 Berm), and 2F (all remaining areas not covered by DUs 2A – 2E). The sampling details for each subarea include;
 - DU2A – this subarea is approximately 10,000 ft² and potentially represents one of the main sources of soil contamination at the site based on the current CSM. The Navy proposes collecting 10 soil increments from this subarea and combining them to create 1 ISM sample. Three replicate ISM samples will be created in the same fashion. The soil samples will be collected from the 0-3" interval. EPA does not believe 10 increments for a ¼ acre area is sufficient to adequately characterize this potential source area sub-DU. EPA proposes further subdividing this sub-DU into 2 areas (inside berm and the remaining area outside the berm). The soil within the berm would expect to be the most contaminated within DU2A and less contaminated outside the berm. A significantly higher number of sample increments (30) should be collected within the berm area to create 1 ISM sample. 30 increments should be collected across the remaining area to create a 2nd ISM sample. 1 replicate sample should be collected from each of these 2 areas. This data will significantly improve the CSM source area definition and assist the Navy in determining the volume of soil that may require remediation as part of FS development.

A significant RI/FS data gap will continue to exist if subsurface soil samples (3" to top of water table or top of bedrock, whichever is encountered first) are not collected within portions of DU2. The Navy needs to develop a strategy to collect subsurface soil samples as part of this SAP. An ISM approach could be used to assess subsurface contaminant concentrations or a discrete sample collection strategy could be implemented (EPA is amenable to either methodology). Regardless on the sampling approach used, this data is needed to fully assess potential risks associated with direct contact/ingestion of contaminated subsurface soil and the potential for MC and metals to leach from impacted soil and degrade ground water. The SAP should be revised to include subsurface sampling.

- DU2B – this subarea is approximately 2,000 ft² and encompasses the 1993 berm area. The Navy proposes collecting 10 soil increments from this subarea and combining them to create 1 ISM sample. Three replicate ISM samples will be created in the same fashion. The soil samples will be collected from the 0-3" interval. EPA supports this sampling design for this soil depth interval. However, the SAP needs to be revised to include collection of subsurface soil samples for the reasons stated above for DU2A. Please revise the SAP accordingly.
- DU2C – this subarea is approximately 4,000 ft² and encompasses the 1981 berm area. The Navy proposes collecting 10 soil increments from this subarea and combining them to create 1 ISM sample. Three replicate ISM samples will be created in the same fashion. The soil samples will be collected from the 0-3" interval. EPA supports this sampling design for this soil depth interval. However, the SAP needs to be revised to include collection of subsurface soil samples for the reasons stated above for DU2A. Please revise the SAP accordingly.
- DU2D – this subarea is approximately 1,400 ft² and encompasses the 1978 berm area. The Navy proposes collecting 10 soil increments from this subarea and combining them to create 1 ISM sample. Three replicate ISM samples will be created in the same fashion. The soil samples will be collected from the 0-3" interval. EPA supports this sampling design for this soil depth interval. EPA believes that subsurface soil sampling is not warranted for this DU at this time. Should MC be detected in the surface soil significantly above PSLs, it will be necessary to evaluate subsurface soils.
- DU2E – this subarea is approximately 16,000 ft² and encompasses the 1996 berm area. The Navy proposes collecting 30 soil increments from this subarea and combining them to create 1 ISM sample. Three replicate ISM samples will be created in the same fashion. The soil samples will be collected from the 0-3" interval. EPA supports this sampling design for this soil depth interval. However, the SAP needs to be revised to include collection of subsurface soil samples for the reasons stated above for DU2A. Please revise the SAP accordingly.
- DU2F – this subarea covers all the remaining land not covered by DUs 2A thru 2E. EPA estimates this area to be approximately 55,000 ft² in size. The SAP divides the area into 9 grids and collects either 2, 3, 4, 5 or 10 increments from each grid and combines these into 1 ISM sample for DU2F. Three replicate ISM samples will be created in the same fashion. The soil samples will be collected from the 0-3" interval. EPA supports this sampling design for this soil depth interval.

Response: The Navy agrees to defer to EPA's requested changes. Note that the revisions to address EPA comments also address MEDEP Comment 15 regarding the requested addition of subsurface soil samples; and MEDEP Comment 22d regarding DU2F ISM increment point redistribution to be both representative of the DU and provide adequate coverage (the total number of increments remains the same as before).

Changes to the SAP are summarized below:

DU2A: DU2A will be completely revised.

- Surface soil ISM: DU2A will be split into DU2A-a (inside existing berm) and DU2A-b (outside existing berm), each with 1 ISM sample of 30 increments and each with 1 replicate. Please recognize that because of numerous anomalies present, it may not be possible to collect all increments.
- Subsurface Soil: Four discrete subsurface soil samples will be added within the berm footprint (DU2A-a). The subsurface sample discrete interval will be determined in the field from a non-saturated depth between 1 to 5 feet bgs or until bedrock is encountered, based on visual and olfactory observations (PID). If no visual or olfactory observations indicate potential contamination, then samples will be collected from 1 to 3 feet bgs (unsaturated soil).

DU2B: Four discrete subsurface soil samples will be added within the berm footprint and evenly spaced. The depth interval will be as described for DU2A-a above.

DU2C: Four discrete subsurface soil samples will be added within the berm footprint, avoiding the wetlands area. The depth interval will be as described for DU2A-a above.

DU2D: No change, although it is acknowledged that if MC is detected in the surface soil significantly above PSLs, it will be necessary to evaluate subsurface soils.

DU2E: Four discrete subsurface soil samples will be added within the berm footprint and evenly spaced. The depth interval will be as described for DU2A-a above.

DU2F: No change to address EPA comment. However, note ISM increment points have been redistributed (the total number of increments remains the same) to reflect changes as per Conference Call of September 19, 2012 related to adjusting the southeastern boundary of DU2 such that if follows the Perimeter Road and increments which fell east of the Perimeter Road have been redistributed within the new boundary of DU2F.

- 3. Comment:** DU-3: This DU represents the next outward sampling target ring from DU2. EPA estimates the sampling area between the DU3 and DU2 boxes to be approximately 280,000 ft² in size. The SAP divides this area into approximately 30 grid areas. Of these 30 areas, 7 grids will be targeted for surface soil sampling. 30 increments will be collected from each of the 7 grids and combined to make 1 ISM sample for DU3. Two replicate ISM samples will be created in the same fashion. EPA believes that 1 ISM sample for this large of an area is not appropriate. EPA recommends that this DU be divided into 3 subareas – DU3^{north}, DU3^{south}, and DU3^{west}. The 4 northern grids should be combined to make 1 ISM sample, and the 3 southern grids should be combined to make another ISM sample. A western subarea ISM sample should be added by collecting increments from 2 or 3 grids

west of the berm area. 1 replicate sample should be collected from each of the 3 subareas. Please revise the SAP accordingly.

Response: While the Navy agrees the area may be too large for 1 ISM sample, the Navy prefers to continue with the bull's eye sampling approach. Therefore, DU3 will be split into DU3A (Intermediate Area – Inner) and DU3B (Intermediate Area – Outer). DU3A will be comprised of Grids H4, F4 (newly added grid), D4, and D7. DU3B will be comprised of Grids J7, J8, H3, and C5. One replicate sample will be collected from each of the two subareas.

4. **Comment:** DU-4: This DU represents the outermost soil sampling ring of the SAP (area between DU3 and DU4 boxes). The SAP divides this area into approximately 40 grid areas. Of these 40 areas, 5 grids will be targeted for surface soil sampling. 30 increments will be collected from each of the 5 grids and combined to make 1 ISM sample for DU4. 2 replicate ISM samples will be collected in the same fashion. The soil samples will be collected from the 0-3" interval. EPA supports this sampling design for this soil depth interval.

Response: Acknowledged. No changes to the SAP are necessary.

5. **Comment:** Analytical Parameters – DUs 1 thru 4: Soils will be analyzed for explosive compounds (Method 8330B) and metals. EPA concurs with the analyte list.

Response: Acknowledged. No changes to the SAP are necessary.

6. **Comment:** DU-5 (Site Pond): The SAP proposes collection of discrete aquatic sediment, surface water, and soil samples for the site pond. The soil samples will be collected to cover the historical northern and southern extent of the pond as well as disturbed areas to the northwest that are no longer under water. All media will be sampled for explosives, metals, VOCs, SVOCs, and EPH/VPH analytes. This data will provide insight to any impacts historical site activities may have had on these media and to support potential plans to temporarily drain the pond to conduct MEC clearance activities that have not yet been completed. As part of this sampling effort, the Navy will collect depth measurements across the pond to calculate a water volume estimate. EPA concurs with the SAP approach for this DU.

Response: Acknowledged. No changes to the SAP are necessary.

7. **Comment:** Replicate ISM Sample Collection: According to the ITRC ISM Guidance Document Section 5.3.5 - Collection of Field Replicate ISM Samples, it is recommended that replicate ISM samples be submitted to the laboratory as "blind" samples, meaning the laboratory does not know they are replicate samples of the initial ISM samples. Please revise the SAP accordingly to address this issue.

Response: Agree. The SAP will be revised to specify the use of blind duplicates and replicates.

09/13/12