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MCRD PARRIS ISLAND
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LETTER REGARDING U S EPA REGION IV DISAPPROVALS AND CONDITIONAL
APPROVALS FOR DRAFT FINAL SITE INSPECTION/CONFIRMATORY SAMPLING REPORT
FOR SITE 4, SITE 5, SITE 7, SITE 9, SITE 16, SITE 27 AND SITE 35 MCRD PARRIS ISLAND
SC
1/24/2011
U S EPA REGION IV



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4

**Atlanta Federal Center
61 Forsyth Street, SW
Atlanta, Georgia 30303-8960**

January 24, 2011

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

4SD-FFB

Naval Air Station, JAX
Navy Facilities Engineering SE
Installation Restoration, SC IPT
Attn: Charles Cook
PO Box 30
North Ajax Street, Bldg 135
Jacksonville, FL 32212-0030

And

Commanding General
Marine Corps Recruit Depot
Natural Resources & Environmental Affairs
Attn: Lisa Donohoe
PO Box 5028
Parris Island, SC 29905-9001

SUBJ: EPA Review of the Draft Final Site Inspection/Confirmatory Sampling Report for Sites 4, 5, 7, 9, 16, 27, and 35 (January 2010)

Dear Addressees:

EPA has reviewed the Draft Final Site Inspection/Confirmatory Sampling (SI/CS) Report for sites 4, 5, 7, 9, 13C, 16, 27, and 35 (SI Report). This review was delayed due to changing Navy priorities, as well as changing positions on what is recommended for each site addressed, but has now been completed. This review was based on what is in this document, rather than historical discussions/comments and recommendations by any of the three agencies previously, since at various times additional data and information was provided for some sites, etc.

The review has found that the information provided in the SI Report is sufficient to support the Navy's conclusions and recommendations for certain sites, but insufficient for others. Therefore, EPA will not be able to approve the document without conditions. Additionally, approval of each site's SI/CS conclusions/recommendations will be approved/disapproved

individually, as opposed to approval or disapproval of the document as a whole. EPA recognizes South Carolina Department of Health and Environmental Control has concerns about certain sites as well. EPA is open to discussing these disapprovals/approvals with conditions and EPA instructions in order to reach concurrence on how to proceed at each site.

In order to move forward with the sites, in the paragraphs which follow EPA has instructed the Navy as to next steps for each site investigated. Any additional progress made at any of these sites should be addressed through documentation of the next appropriate stage of the CERCLA remedial process as indicated in the conditions herein, not through modification of this document.

Based on the review, EPA finds the following:

DISAPPROVALS and CONDITIONAL APPROVALS:

1. Site 4: Dredge Spoils Area Former Fire Training Pit. NFA is Disapproved

The SI/CS Report Section 3 recommends No Action/No Further Action for soil and groundwater at Site 4 (ignoring typo of "41"). This recommendation is disapproved. Rather, an Extended Site Investigation (ESI) is needed for the following reasons:

I) While the soil borings conducted in 1988 were advanced to what appears to be appropriate depths (20 feet bgs), reportedly with a headspace screening, the boring logs do not appear to provide any information pertaining to head space readings nor PID core scanning. However, the boring logs do indicate lithological info which may be helpful moving forward. It is also not clear if the number and locations of the borings were sufficient to eliminate concern for a site which has no known location, without further evidence. The samples taken in 1988 were only located outside of the berm area of Site 13C, which may overlay Site 4. The boring logs for the samples taken within 13C at a later point in time do not clearly indicate whether the depth in feet includes the fill area of the berm or not. Also, there were no boring logs recorded for PAI-13C-MW-01(S) or MW-02(S) reportedly. The 13C samples may not be deep enough to suffice for use in investigating Site 4. Cross sections of the area, showing fill, original grade, boring depth, well depth, etc., may be useful. A broader grid sampling design may be more appropriate for a site with an unknown location, even though this is an SI level investigation.

II) Additional borings conducted in 1999 and 2000 were not advanced to an appropriate depth (only 2 feet bgs or to the top of the water table at 4 feet bgs). Borings should have been advanced far enough into the ground to have detected fuel residuals in case water levels had previously dropped and residual fuel contaminants had been smeared downward below the water table. There were no boring logs provided for PAI-04-SB-11 through 14 and the samples do not appear on any maps or tables. Lithological information from the 1988 borings and historical water level data may provide information useful in determining how deep borings should be advanced to capture any potential historical smear zones.

III) The 1999 borings were reportedly screened with PID only. It is unclear if head space screening was conducted, and apparently no samples were sent for chemical analysis from borings 1 through 10 outside of the bermed area (Site 13C), presumably due to low PID readings. Although no relatively elevated PID readings were observed and no stained soils encountered, had the borings been advanced deeper and PID screening conducted, the boring may have been useful in determining if any contaminants had migrated via groundwater in the subsurface from a source upgradient.

IV) In 2000, borings 15 through 19 were screened similarly, and stains and elevated PID readings were observed in borings 16 and 17 respectively. Samples were taken for chemical analysis from the two suspect areas. However, the borings should have been advanced to a depth which would have investigated any potential smear zones as well. Also, a site-specific soils background data set may be needed to further address inorganic results.

V) In 2000, borings 20 through 25 were advanced within the berm area of Site 13C, since 13C may have overlain Site 4. Soil logs indicate borings were only advanced .5' bgs of the original grade based on dredge materials observed to 3.5' bgs in the boring. Therefore, the depth was not sufficient to investigate for a historical fire training pit. These samples should be removed from consideration for Site 4, but can be included in the Site 13C investigation if found to be useful in any way. The Site 13C bermed area should be reinvestigated at appropriate depth for Site 4 contaminants (unless arguments can be made for eliminating this area from concern).

VI) It is unclear if temporary monitoring wells 02 and 03 were screened across the top of the water table and/or across any potential smear zones/clay layers in which contaminants could be located. The depth of the screen should be clarified with respect to water table depths historically and at the time of the investigation. Appropriate subsurface lithological information should also be provided, as well as information on historical practices (e.g. typical depth of fire training pits). Geologic information in Section 3.4 indicates a clay layer at 1.5 to 2.5 feet bgs, but certain boring logs also indicate clays at various depths down to 16 feet. The relationship between historical practices, current and historical water table levels, and depth of clay layers should be discussed and considered in a brief conceptual site model discussion.

VII) It is also unclear if the appropriate screening for product floating in the well was conducted prior to disturbance/purging of the well according to well development sheets.

VIII) The analyte list was inappropriately reduced to only VOCs/SVOCs for PAI-04-GW-03-01.

IX) Since the location of Site 4 is unknown, the Navy should present an argument for whether the additional Site 4 investigation should be driven by soils or groundwater samples. It may be difficult to locate an unknown soils source. However, if the groundwater is investigated to sufficient depth and found to be contaminated, the concentration gradients may point back to a source location. If groundwater is not found

to be contaminated, it may be possible to make an argument against the need to pin point a subsurface soil source and/or further investigate sediments and surface waters. The investigation could then focus on surface soils and related potential exposures.

IN CONCLUSION: Based on these issues and concerns, EPA cannot approve the No Further Action determination proposed for Site 4. The Navy should either develop/submit for review and approval a white paper discussing data/information which can eliminate these above mentioned concerns, and/or develop a limited QAPP/SAP in support of an ESI to sufficiently support a recommendation for the Site.

Furthermore, the Navy should discuss whether the inorganic results from Site 4 samples should be considered as part of the 13C investigation, since the levels exceed existing soil background, but may be indicative of sediment levels which could have been distributed during historical storms, and/or via misplaced dredge materials from Site 13C, etc. Otherwise, the Navy should discuss whether a site-specific soils and/or sediment background data set may be appropriate to obtain. Additionally, when investigating Site 13C further, a full suite of analytes should be covered in case Site 4 is overlain. The vertical boundary of any further investigation at Site 13C should also address investigations at depths where Site 4 contaminants might be expected. (Also see 13C below.)

Finally, EPA expects Sites 4 and 13C to be addressed concurrently.

2. Site 5: Former Paint Disposal Area (near Beaufort River). Conditionally Approved

The SI/CS Report reveals sample results with multiple screening level exceedances by multiple PCOCs in surface soil, and a couple of exceedances in sediment also (though likely naturally occurring). It is not likely that the surface soil samples were taken from an area reflective of paint disposal, due to the amount of fill in place at the time of sampling. Surface and subsurface soil sampling should occur, as well as sediment and groundwater samples, to see if wastes are present at levels of concern. Analytes should not be limited, since the source of the fill material is unknown, a variety of PCOCs had exceedances, and GW has not been sampled at all yet.

The SI/CS Report Section 4 pertaining to Site 5 recommends an RI/RFI. This recommendation is approved with the following condition:

I) EPA expects the Navy to continue with the Site 5 RI/RFI as currently being scoped, discussed, and planned by the Parris Island Partnering Team. Issues raised by the team should be addressed as agreed to.

3. Site 7: Former Fire Training Pit (airfield). Obligations for an SI have not been met fully. Navy recommendations are not clear. However, what evidence was gathered indicates the need for an RI.

The SI/CS Report Section 5, Conclusions and Recommendations, pertaining to Site 7 is not clear in its recommendations with respect to CERCLA. The conclusions and recommendations section of the report states "Petroleum contaminated soil will be excavated and disposed." And it also states "The lack of site-related contamination in groundwater supports a case for clean closure following the removal of visually-contaminated soil from the site and confirmation that buried lines have been addressed at the site." The report goes on further to discuss the pipe line potential and to state what the Navy and MCRD thinks is the most likely scenario with respect to a pipe, but does not clearly state the impact this has upon the previous statements.

EPA has the following concerns regarding this site:

I) Section 5.3.1 states that a PID reading of 107 ppm was obtained from test pit 2 at a depth of about 4 feet bgs and a soil sample was taken from the backhoe bucket of soil. A soil core may have been a more appropriate approach to retrieving a sample. It also states black stains were observed in test pit 1, but no elevated PID readings were observed and no sample was taken. Again, a core with a sample may have been more appropriate. Excavated soils were returned to the test pit, reportedly at about the original depth.

II) Section 5.4.1 describes remnants of fuel contamination in one surficial monitoring well installed at site 7. Also, a cohesive, black-stained, silty sand consistent with historic fire pits was observed at 3 to 4.5 feet bgs. However, the section does not specify which well this was, but tables indicate it was apparently GW4, which had a much smaller screen.

III) Table 5-6 indicates only one subsurface soil location was sampled. This is insufficient even for an SI level investigation, unless the Navy is willing to state the exceedances detected are sufficient to move into an RI without restricting the analytes.

IV) Tables 5-7 and 5-8 show groundwater results which are inconsistent with soil results. GW shows ethylbenzene, xylene, 2-methylnaphthalene, and naphthalene as detected in the groundwater, with naphthalene exceeding the tapwater PRG in '99.

V) The monitoring wells do not appear to be screened across the top of the water table and/or across significant clay layers. While this may not be necessary at more distant wells, it would be more appropriate for the wells most proximate to the location of the elevated PID reading, to determine if any fuel sources may be in the area. The wells should also be deep enough to capture impacts from contaminants which may have migrated down. The distant wells appear to indicate there is no widespread groundwater contamination, and that what contamination is present attenuates before migrating far from the source. However, there is obviously a source somewhere, even if minimal, and this should be investigated in the next stage of the CERCLA process.

VI) Section 5.8 fails to make specific recommendations. It states petroleum contaminated soil will be excavated and disposed. Please note that there is no exclusion

from CERCLA for petroleum products when used as an accelerant and released to the environment. This would need to be accomplished under CERCLA. However, it is unclear where contamination exists, since only 1 soil sample was taken and it had only inorganics detected. However, the elevated PID reading and the gw results indicate a release occurred. Further investigation is necessary in an RI.

VII) Section 5.8 also speaks to the potential for a pipe or its likelihood, but presents no further evidence than when the question was first posed by the regulators. The potential existence of a pipe needs to be investigated, not simply pondered.

EPA recommends an RI to provide sufficient soil samples to determine if contaminants exist above screening levels and/or to identify the source of elevated PID readings and GW contamination. EPA also recommends that installed wells be evaluated for sufficiency and appropriateness, considering location, depths of screens, water tables, clay layers, etc. in order to delineate GW contamination. Soil sample results may be used to drive the location of the well. If the additional soil samples still do not reveal contamination, EPA recommends additional wells be installed slightly downgradient from the elevated PID hit, perhaps just beyond the fill material. These should be screened across the top of the water table as well as across significant clay layers. Ensure the proper analysis is conducted to detect the suspected accelerants used. Furthermore, some attempt to locate a pipe (ditchwitch around the circle?) should be made to determine if any piping remains on-site.

The Navy should implement the RI investigation to fully delineate nature and extent of contaminated groundwater and soils and to determine if a remedy is necessary for either.

4. **Sites 9 and 16: Paint Waste Storage Area and Pesticide Rinsate Disposal Area. Recommendation for Extended SI with Focused FS is Disapproved, but SI is to be considered Complete with Conditions, and an RI is required.**

The SI/CS Report Section 6 pertaining to Sites 9 and 16 recommends an Extended SI followed by a Focused FS. However, this recommendation is inconsistent with the Navy and MCRD's current pathforward for these sites. The Navy and MCRD have already submitted and obtained approval for an RI Workplan for Sites 9, 16, 27, and 55. EPA expects the Navy and MCRD to continue on its current path. If these sites need to be separated after the RI stage, the Navy should discuss this matter with the team. Therefore, the recommendation in this SI/CS Report for Sites 9 and 16 is not approved. However, the Navy may consider the SI/CS Report for Sites 9 and 16 as completed with the following condition:

I) EPA expects the Navy to continue with the Sites 9 and 16 RI/RFI as currently being scoped, discussed, and planned for with Sites 27 and 55 by the Parris Island Partnering Team. Issues raised by the team should be addressed as agreed to.

5. Site 13C: Inert Disposal Area C (Dredge Spoils Area). NFA is Disapproved

The SI/CS Report Section 7 pertaining to Site 13C recommends No Action/No Further Action for soil, sediment and groundwater. This recommendation is disapproved. Rather, a white paper more clearly comparing samples to appropriate background and screening values and/or an Extended Site Investigation (ESI) and/or an RI is needed for the following reasons:

D) Since the Site 4 investigation is not complete and samples may be needed from within the Site 13C bermed disposal area it is not an appropriate time to make an NFA determination for 13C.

II) Only one surface soil sample at 0-1' bgs was taken in 1999. Two had been taken in 1995 for the relative site ranking at 6" deep. The analyte list was appropriate. However, the depths were insufficient for use in the Site 4 investigation.

III) It appears soil sample results were screened against sediment background numbers instead of soil background numbers. Once dredge materials are deposited on the land surface they are considered soils and should be screened against soil background and screening values, not sediment values. (See Table 7-3, as well as the chart on page 7-11 The text and the table/chart are also inconsistent in what they report.) In future discussions (potential white paper), ensure appropriate comparisons are made. Also, if a Table such as 7-3 is used again, ensure all screening values have been updated. Indicate if the background number used is 2 times the average background concentration or not. Be sure to compare all upland samples to soil background and screening values. True "sediment" samples should be compared to sediment background and sediment screening values.

IV) As compared, multiple soil samples exceeded background and at least one or more screening value, indicating the need for a remedial investigation of Site 13C soils.

V) It appears the sediment sample results indicate no impact to site sediments for inorganics, however, the analyte list appears to have been inappropriately limited. Surface water samples indicate a potential impact, yet may be due to turbidity. EPA is willing to discuss the potential for an Extended SI for sediment and surface water, prior to proceeding to the RI for soils, if the Navy desires this, and if conducted in conjunction with the Site 4 ESI. Otherwise, additional sediment and surface water samples should be taken in the RI stage, and designed to address turbidity issues and the analyte list should not be limited.

VI) It is unclear if any wells produced samples representative of potable water. Without clarification of this concern, the remaining concerns exist.

VII) The 1999 initial temporary GW well (01 and 02) samples were too turbid. Data associated with excessively turbid samples should not be considered in this report and its

conclusions with respect to inorganics. [Also, it was unclear if the screens intersected the top of the water table – in order to be useful for the Site 4 investigation.]

VIII) In 2004, only permanent wells 03, 04, and 05 were installed and sampled with acceptable turbidity levels (MW04-02 from Site 4 also obtained acceptable turbidity levels, however, boring log info is not clear for this well). These wells were screened from 3 to 13 feet bgs. The top of the water table was at about 4 feet bgs. The design and construction of the wells appear appropriate for 13C (however, it is unclear if these wells also intersect any clay lenses of concern to make them useful for Site 4). The Navy should discuss if the number of wells and location of the wells which yielded samples of acceptable quality are sufficient to indicate the presence or absence of contaminants related to Site 13C. [It was unclear if vapors were screened for before disturbing/purging the well prior to sampling (sample log sheets either indicate an unspecified monitor or no monitor results which is pertinent if considering use of wells/data for Site 4 as well.) While these wells appear to be constructed in a manner which would be appropriate for use at Site 13C as well as Site 4, the analyte list in 13C samples were limited to TAL inorganics and tin (not sufficient for Site 4.)]

Samples from PAI-13C-MW-03 and 05 had multiple exceedances of the criteria listed in Table 7-4 but were not identified on tag map Figure 7-6 (perhaps because permanent wells were omitted), while PAI-13C-MW-04 and PAI-04-MW-02 had limited exceedances but were included. The Navy tries to argue that PAI-04-MW-02 is downgradient and shows attenuation. However, none of the wells which yielded results are downgradient of each other according to the potentiometric surface maps. No results were ever reported for PAI-13C-MW-06 which would be considered upgradient. What is more important to note is that all of the samples taken were reported to have elevated saline levels above acceptable potable water criteria. Additional groundwater samples may be necessary to reach consensus on moving forward.

Furthermore, EPA has concerns whether or not the inorganic results from Site 4 samples should be considered as part of the 13C investigation, since the levels exceed soil background, but may be indicative of sediment levels which could have been distributed during historical storms, and/or via misplaced dredge materials from Site 13C, etc. Otherwise, the Navy should discuss whether a site-specific soils background data set may be appropriate to obtain.

IN CONCLUSION: Either a white paper sufficiently discussing 13C should be written to address all concerns identified or additional investigation should take place through either an ESI or an RI since screening level exceedances were noted. The Navy may make an argument for an ESI at Sites 4 and 13C, if it is felt there is a possibility that if concerns are sufficiently addressed, the need for an RI can be eliminated. However, the possibility would still exist that an RI would be necessary even after an ESI is completed based on results (especially considering Site 13C soils). If the Navy feels such a risk is undesirable, the Navy may choose to move on into an RI for both Sites.

If an ESI is desired, the Navy should start efforts with a simplified CSM addressing both Sites 4 and 13c, to ensure the sampling plan is designed in a straightforward manner and to eliminate some of the confusion as a result of overlying sites and attempts to use data across sites without planning so up front.

In such an effort, only wells of the proper depth and construction should be included (i.e. deep enough, screened across areas of concern, etc.), the analyte list should not be limited, proper turbidity levels should be reached, and a sample should be obtained at the location of PAI-13C-MW-06 (or further into Site 13C) or the well replaced and sampled. Wells should be screened for product prior to disturbance of the wells. Results from that sampling event may be used in an argument for non-potable water and no significant impact, if such is the case, according to EPA standards (recognizing South Carolina has different drinking water regulations.) For soils and sediments, proper comparisons to background sets and screening levels should be ensured. Additionally, when investigating Site 13C further, a full suite of analytes should be covered in case Site 4 is overlain. The vertical boundary of any further investigation at Site 13C should also address investigations at depths where Site 4 contaminants might be expected.

Based on these issues and concerns, EPA cannot approve the No Further Action determinations proposed for Site 13C. The Navy should either develop/submit for review and approval a white paper discussing data/information which can eliminate these concerns, and/or develop a limited QAPP/SAP in support of an ESI or RI to sufficiently support a recommendation for Site soils, sediments, surface water and groundwater.

Finally, EPA expects Sites 4 and 13C to be addressed concurrently in the future.

6. SWMU 27: Equipment Parade Deck SAA. Conditionally Approved

The SI/CS Report Section 8 pertaining to SWMU 27 recommends that due to the proximity to and possible impact from migration of contaminants detected on Site 55, SWMU 27 will be addressed in an RI along with Site 55. EPA emphasizes that not only Site 55 contaminants are of concern, but also any SWMU 27 contaminants which may exist. This recommendation is approved with the following condition:

I) EPA expects the Navy to continue with the SWMU 27 RI/RFI as currently being scoped, discussed, and planned for with Sites 9, 16, and 55 by the Parris Island Partnering Team. Issues raised by the team should be addressed as agreed to.

7. SWMU 35: DRMO Salvage Yard. Disapproved

This site is largely an asphalt area, previously used as a DRMO Salvage yard. The investigation has shown that releases have occurred which exceeded screening values. Additional information is needed in the investigation before a determination can be made regarding the need for remedial action. Therefore, an RI is necessary. The RI should focus on the following:

1) Asphalt and associated subsurface soils: Very few samples were taken within the storage area asphalt. However, evidence exists which indicates releases have occurred, at least to the adjacent surface soils. Asphalt is somewhat pervious, and may have also leached chemicals through to the soils below. MCRD should consider future use and their intentions with respect to the asphalt. This could help to determine what data is needed to make a decision regarding the need for remedial action. If MCRD intends to keep the asphalt in place, then groundwater samples and some additional soil samples downgradient could determine if the asphalt is continuing to act as a source of contamination. It is EPA's understanding that MCRD did not install a berm around the asphalt as instructed. This could have allowed the asphalt to recontaminate the soils downgradient of the site. As long as it is not continuing to release contamination to the groundwater or the downgradient soils, then MCRD could decide to assume contamination may be present beneath the asphalt in order to avoid additional sampling beneath it, and agree to maintain the asphalt and restrict to industrial use through LUCS. If the base desires to not have such LUCs, it would be necessary to obtain subsurface soil samples across the asphalt in a representative manner. If the asphalt is found to be acting as a continuing source to adjacent soils or groundwater, a remedial action will be necessary if unacceptable risks are generated. Otherwise, if MCRD decides the asphalt is to be removed, soils samples would be needed across the exposed area in this case as well.

2) Surface soils: The area between the removal site and out past sample 16 and/or the creek should be investigated.

3) Creek: The sediments, and perhaps the surface water, of the nearby creek should be investigated.

4) Groundwater: The analyte list was inappropriately limited and therefore groundwater must be retested with a full suite. At least three wells should be installed in order to determine groundwater flow direction across the site.

5) New Storage Building: Since the building was built prior to obtaining samples to clear the area from concern, MCRD will need to assume contamination may exist beneath the facility. Land Use Controls would be required to leave the building intact and/or to investigate the soils if the building is ever demolished. A fence could be added which would more closely enclose this facility, allowing that particular facility to be addressed separately from the remainder of the Site. EPA recognizes the facility itself will continue to be regulated under RCRA.

6) Removed Soils: Soils were removed under an MCRD maintenance action. The soil removal should be documented in the RI Report, for the Administrative Record. Post removal samples indicate zinc barely exceeded ESV in only 2 samples. Seven out of ten PCB results exceeded ESVs, however remained within an order of magnitude. Four out of ten pesticide results exceeded ESVs by more than an order of magnitude or so. These data should be compared against the new samples to be taken to determine if a source is continuing, and should also be considered in the final assessment of the site soils.

IN CONCLUSION: The SI/CS Report Section 9 pertaining to SWMU 35 recommends no action/no further action. This recommendation is not approved. An RI as indicated above should proceed. Recognizing that MCRD does not intend to close the <90 day storage facility building until MCRD itself closes, this site may need to be deferred to RCRA at the point of CERCLA delisting if the site has not been otherwise cleared by that time.

If there are any questions on these disapprovals and/or conditional approvals and instructions on how to proceed please call me at (404) 562-9969. If the Navy and/or MCRD do not agree with any of the listed conditions, EPA should be notified immediately by written notice.

Sincerely,

A handwritten signature in black ink that reads "Lila Llamas". The signature is written in a cursive, flowing style.

Lila Llamas
Senior RPM

cc: Meredith Amick, SCDHEC
Mark Sladic, TtNUS