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RESPONSES TO U S NAVY COMMENTS ON SOLID WASTE MANAGEMENT UNIT 3 (SWMU
3) SOIL DELINEATION SAMPLING DATA SUMMARY NSA CRANE IN
5/1/2013
TETRA TECH

**RESPONSES TO NAVY COMMENTS RECEIVED MAY 3, 2012
SWMU 3 SOIL DELINEATION SAMPLING DATA SUMMARY
NAVAL SUPPORT ACTIVITY CRANE, CRANE, INDIANA**

Comment 1: Please reword. Does this mean less expensive or more complex than the field methods for lead?

Response: The word "extensive" was a typographical error, and should have been "expensive". The sentence in question has been revised to read:

"Only FBL analyses were used to establish the extent of TNT and RDX contamination because laboratory analysis was less expensive for these organic contaminants than field analysis, and a reliable correlation between field analytical data and FBL data for these analytes has not been demonstrated."

Comment 2: Curious as to why this (03SB018S1) wasn't "03SB018W1"?

Response: When the sample locations were initially laid out, two step-out locations were positioned around the former hot spot in all four directions. One location was set at a distance of approximately 10 feet and the other at approximately 20 feet. The methodology was that the outer most sample would be collected first and analyzed via XRF. If the lead concentration was less than 200 ppm, the inner most sample at 10 feet would then be collected. Prior to collecting samples, a magnetometer was utilized to ensure the proposed sample location was free of anomalies. If an anomaly was detected at the planned location, the sample was then repositioned. In the area south of former hot spot 03SB018, anomalies were detected in the area of the proposed 20-foot location; therefore, it was moved in approximately 10 feet which put it near the proposed 10-foot sample. Instead of collecting the 10-foot sample next to the repositioned 20-foot sample, the location was moved to the west. Eventually, the 10-foot step-out sample ended up west of the initial hot spot. In this particular case, both sample locations 03SB018S1 and 03SB018S2 were repositioned from their original planned locations due to anomaly interference. Original sample nomenclature was maintained even though the sample locations may have changed.

Comment 3: Another sample is recommended between 03SB015 and 03SB018E2, especially since the excavation limits shown on Figure 4-1 do not go to the clean sample 03SB015.

Response: Two sample locations (03SB165 and 03SB166) have been added between sample locations 03SB018E2 and 03SB015 to aid in delineating the lead concentrations in the northern area. Both locations will be sampled to a depth of 10-foot bgs in two-foot increments as presented in Table 4-1. Figure 4-1 has been revised accordingly.

The first paragraph of Section 4.1 has been revised to read:

“Based on the evaluation of data available for “hot spot” 03SB018, the extent of the lead contamination in soil has not fully delineated. Delineation sample 03SB018E2, located approximately 25 feet to the northeast, showed an elevated concentration of lead in the 2 to 4 feet bgs sample (547 mg/kg). Therefore, two soil borings (03SB165 and 03SB166) will be sampled to fully delineate, both horizontally and vertically, the extent of lead concentrations above MCSs in the area northeast of boring 03SB018. Figure 4-1 presents the locations of the proposed soil delineation borings. Each boring location will be sampled down to 10 feet bgs in two-foot increments and submitted to the FBL for lead analyses (see Table 4-1).”

Comment 4: Should this be 03SB019S1 since it's closer and appears to have been laboratory based?

Response: The sample identification of 03SB019S2 was a typographical error. The correct sample identification is 03SB019S1, as correctly shown on Figure 4-1. The sample identification has been corrected to 03SB019S1 in the text.

Comment 5: Were any samples collected between 03SB137 and 03SB19S1? The figure indicates approximately half of the suspected Bur Pit/Burn Area was not sampled. Is this a potential data gap?

Response: No samples have been collected between 03SB137 and 03SB19S1 since the purpose of the delineation sampling program was to delineate the contamination identified in historic borings 03SB019 and 03SB022.

Sample 03SB019S1 delineates the contamination identified at 03SB019 to the south, and samples 03SB137N2 and 03SB137 delineate the contamination identified in 03SB022 to the north. Therefore, there was no need to collect additional samples between locations 03SB137 and 03SB19S1 since the contamination has been adequately delineated for both locations.

No update to text was needed in regard to this comment.

Comment 6: Note that 03SB138, 22E2, 22W2, and 22W1 are not bounded vertically.

Response: Based on the data collected at locations 03SB138, 03SB22E2, 03SB22W2, and 03SB22W1, RDX and/or TNT contamination has not been bounded vertically at these locations; therefore, additional samples at depth are proposed in two-foot increments from these locations for RDX and TNT analyses.

The first sentence of the last paragraph of Section 3.3 has been updated to read as follows:

"The data results show that the RDX and TNT contamination present at "hot spot" location 03SB022 has not been fully delineated horizontally or vertically delineated to the north, east, or west."

Table 4-1 has been updated to include the additional sample depths at these locations.

Comment 7: Note that 03SB143, 147, and 24N3 are not bounded vertically.

Response: Based on the data collected at locations 03SB143, 03SB147, and 03SB024N3, RDX and/or TNT contamination has not been bounded vertically at these locations; therefore, additional samples at depth are proposed in two-foot increments from these locations for RDX and TNT analyses.

The first sentence of the last paragraph of Section 3.4 has been updated to read as follows:

"The data results show that the RDX and TNT contamination present at "hot spot" location 03SB024 has not been fully delineated horizontally or vertically delineated to the north, south, east, or west."

Table 4-1 has been updated to include the additional sample depths at these locations.

Comment 8: Since the "east" samples actually appear to lie NE of the sample point, one sample should be taken due east of 03SB048.

Response: One sample location (03SB167) has been added east of sample location 03SB048 to aid in delineating the lead concentrations. This location will be sampled to a depth of 10-feet bgs in two-foot increments as presented in Table 4-1. Figure 4-2 has been revised accordingly.

The first paragraph of Section 4.3 has been revised to read:

"Based on the evaluation of data available for "hot spot" 03SB048, the extent of the lead contamination in soil has not fully delineated to the east. Therefore, one soil boring (03SB167) will be sampled to fully

delineate, both horizontally and vertically, the extent of lead concentrations above MCSs in the area east of boring 03SB048. Figure 4-2 presents the location of the proposed soil delineation boring. The boring will be sampled down to 10 feet bgs in two-foot increments and submitted to the FBL for lead analyses (see Table 4-1)."

Comment 9: Since the contamination in this area seems to be comingled and overlapping, consider adding lead to the proposed step-out samples associated with 03SB022.

Response: Lead analysis has been added to the analytical suite for all of the proposed delineation step-out samples associated with 03SB022 and 03SB024. Additionally, a second layer of step-out sample locations (03SB183, 03SB184, 03SB185) are proposed south of location 03SB024 where a lead concentration of 10,200 mg/kg was detected in the 0 to 2 foot bgs sample. These additional locations will help ensure the lead is fully delineated in this area. The second paragraph of Section 4.4 has been rewritten as follows:

"Fifteen soil borings (03SB168 through 03SB182) will be placed around the perimeter of the "hot spots" and will be sampled to fully delineate, both horizontally and vertically, the extent of RDX and TNT concentrations greater than MCSs. To ensure lead contamination is fully delineated in the areas around locations 03SB022 and 03SB024, all collected samples will also be analyzed for lead. XRF field analysis is not proposed for this round of sampling; therefore, to ensure the extent of horizontal lead contamination is fully delineated especially to the south of "hot spot" 03SB024, three additional borings (03SB183 through 03SB185) will be placed south of proposed locations 03SB180 and 03SB181. Figure 4-3 presents the locations of the proposed soil delineation borings. Each boring location will be sampled down to 10 feet bgs in two-foot increments and submitted to the FBL. See Table 4-1 for the respective FBL analyses."

Comment 10: Since, as stated on p.3 that the maximum depth of excavation is 10', then samples should be collected to this depth, held and analyzed if needed.

Response: Additional samples proposed at the site to fully delineate a location will be completed in two-foot increments to a maximum depth of 10 feet bgs. In an attempt to reduce overall analytical costs associated with the large number of proposed samples, all perimeter RDX and TNT delineation samples associated with locations 03SB022 and 03SB024 will be shipped to the FBL for extraction; however, only those samples in the 0 to 2 and 2 to 4 foot increments will be fully analyzed for RDX and TNT. The remaining samples from the 4 to 6, 6 to 8, and 8 to 10 foot increments will be extracted and held. These samples will only be fully analyzed if their associated 2 to 4 foot increment sample is greater than their respective MCS. Due to the relatively low cost associated with lead analysis, all samples collected for

lead analysis will be analyzed at the FBL. Section 4.4 has been rewritten in regard to sample collection to 10 feet bgs, as well as text regarding the Extract and Hold process for the RDX and TNT samples.