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DEPARTMENT OF THE NAVY
CRANE DIVISION
NAVAL SURFACE WARFARE CENTER
300 HIGHWAY 361
CRANE, INDIANA 47522-5000

IN REPLY REFER TO:
5090/S4.7.5
Ser PRCR4/6085
15 MAR 2006

U.S. Environmental Protection Agency, Region V
Waste, Pesticides, & Toxics Division
Waste Management Branch
Corrective Action Section
77 West Jackson Blvd.
Chicago, IL 60604

Dear Mr. Ramanauskas:

Crane Division, Naval Surface Warfare Center submits the final Corrective Measures Study (CMS) for Rockeye, Solid Waste Management Unit (SWMU) 10 as enclosure (1). Enclosure (2) contains responses to comments from the U. S. EPA dated July 11, 2005, September 7, 2005, January 19, 2006, and February 15, 2006. The permit required Certification Statement is provided as enclosure (3).

If you require any further information, my point of contact is Mr. Thomas J. Brent, Code PRCR4-TB, at 812-854-6160, email thomas.brent@navy.mil.

Sincerely,

J. M. Hunsicker

J. M. HUNSICKER
Environmental Site Manager
By direction of the Commanding Officer

Enclosures: 1. Final CMS for SWMU 10
2. Responses to Comments
3. Certification Statement

Copy to:
ADMINISTRATIVE RECORD
SOUTHNAVFACENGCOM (Code ES31) (w/o encl)
IDEM (Doug Griffin)
TTNUS (Ralph Basinski) (w/o encl)

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

James Hunsicker
SIGNATURE

Manager, Environmental Protection
TITLE

3/15/06
DATE

Enclosure (2)
Responses to the U. S. EPA Comments
on the
Corrective Measures Study
for
Rockeye
Solid Waste Management Unit 10

ATTACHMENT 1

RESPONSE TO US EPA COMMENTS DATED JULY 11, 2005, SEPTEMBER 7, 2005, AND SEPTEMBER 30, 2005 (E-MAIL) ON DRAFT RCRA CORRECTIVE MEASURES STUDY REPORT FOR SWMU 10 – ROCKEYE

**RESPONSE TO US EPA COMMENTS
DATED JULY 11, 2005, SEPTEMBER 7, 2005, AND SEPTEMBER 30, 2005 (E-MAIL) ON
DRAFT RCRA CORRECTIVE MEASURES STUDY REPORT
FOR SWMU 10 – ROCKEYE
NAVAL SURFACE WARFARE CENTER
CRANE, INDIANA**

Comments provided by the United States Environmental Protection Agency (US EPA) are shown in bold font. Responses following each comment are shown in regular font. Changes to Correctives Measures Study (CMS) Report text are italicized and enclosed in quotation marks.

1) In the Executive Summary (Remedial Alternatives), Alternative 2 states in the second to last sentence that there is "sufficient" available data to predict natural attenuation timeframe, while Alternative 3 states there is "insufficient" data available.

Response to Comment 1: The word "sufficient" was a typographical error; it should have been "insufficient."

The 5th sentence in the 1st paragraph of the Executive Summary, Subsection Remedial Alternatives, Alternative 2, has been revised as follows:

> *"Although currently available data is insufficient to accurately predict the timeframe required for natural attenuation to attain the Media Cleanup Standards (MCSs), preliminary estimations indicate that this timeframe would probably be somewhat greater than 100 years."*

2) Many figures identify multiple soil boring clusters taken in Areas A, B, C, D, etc. Were these taken as part of the recent RFI or historical USACE samples? There doesn't seem to be any data associated with these borings.

Response to Comment 2: All samples (i.e., groundwater, soil, sediment, etc.) used in the RFI Report including the preparation of the Human Health and Ecological Risk Assessments were collected in 2000/2001.

Soil borings collected for the RFI Report begin with the prefix "10SB." Soil borings collected during historical investigations, which were not including in the RFI Report of Human Health and Ecological Assessments, generally begin with the prefix "10-15-."

All historical sample locations are depicted on Figure 1-4. Figure 1-5 shows the sample locations collected during the 2000/2001 RFI sampling event as well as some historical soil borings.

Only the data from the 2000/2001 investigation was used in the RFI Reporting including the development of the Human Health and Ecological Risk Assessments. Therefore, no historical data summaries have been presented in the CMS Report.

For clarification, the 1st paragraph of Section 1.3.3.5 has been revised as follows:

> *The following is a brief description of the historical data collection activities conducted at SWMU 10. A tabular summary of the previous investigations completed for the site is presented in Table 1-1. Historical sample locations are shown in Figure 1-4. Locations of soil and groundwater samples collected in the 2000/2001, the latest phase of sampling as well as some historical borings, are shown in Figure 1-5."*

3) Section 3.2.2. states that there is no significant risk associated with sediment. Similarly, Section 3.3.5 states that chemicals in sediment are not found to present a significant risk. Table 2.6 shows risk to future child residents from ingestion of sediment (HI = 2.9).

Response to Comment 3: Section 7.6.1.4 of the RFI report states:

"Table 7-18 summarizes the COPC selection process for sediment at SWMU 10. Twelve sediment samples collocated with the surface water samples were collected during the investigation. No chemicals were eliminated from the quantitative risk assessment on the basis of background because appropriate upgradient locations could not (be) determined for SWMU 10.

The following chemicals were retained as COPCs in sediment:

- Inorganics - aluminum, arsenic, chromium (total), iron, manganese, and vanadium

These constituents were identified as COPCs in sediment because maximum concentrations exceeded US EPA Region 9 risk-based screening levels for residential soil, IDEM default closure levels for direct contact, and concentrations in the upgradient sample. The use of the US EPA Region 9 and IDEM risk-based concentrations for soil to evaluate chemical concentrations in sediment is conservative because these criteria were established assuming residential land use scenarios (e.g., routine daily contact with soils). However, it is anticipated that a human receptor would be exposed to the sediments in the streams and marshy areas of the site on a less frequent basis than is assumed for a typical residential exposure to soil. Consequently, the use of soil criteria for screening and risk estimation is likely to overestimate potential risks from exposure to sediment."

Based upon the above discussion from the RFI Report, the risk to receptors from sediment was considered to be insignificant.

No change to the CMS Report has been made in response to this comment.

4) Section 3.5.1 presents information on the explosives contaminant plume. How was the size of this plume determined? It appears that some of the boundaries were set arbitrarily as there is no groundwater data from many wells surrounding the "plume" (e.g., no data from wells 10C56,10-18, 10-21, 10C48P2, 10C48, 10-20, 10C29, 10C29P2, 10-19, 10C49,10C49P2). Similarly, how was the 100' diameter "hot-spot" determined?

This seems to have been arbitrarily set as well. The fact that this same information is presented in the "Assumptions" seciton of Appendix A implies that there is little supporting evidence for these boundary determinations. What about the RDX in well 10-02 (east of the SWMU)? Did the USACE RFI indicate a more widespread plume at the SWMU? A better discussion of the historical groundwater contamination/plume size compared to more recent data would be useful for additional perspective.

All RFI and historical groundwater data were used to map the area of the contaminant plume. These data are included in Appendix A. This plume area is shown in Figure A-1. The wells contained in the plume area include 10-07, 10-08, 10-17, 10-18, 10-21, 10C55, and 10C55P2 (seven wells total). These wells contain various concentrations of RDX, TNT, 4-amino-2,6-DNT, and 2-amino-4,6-DNT. The plume area is bordered by 12 monitoring wells that showed no detections of explosive compounds (10-19, 10-20, 10C29, 10C29P2, 10C33, 10C33P2, 10C48, 10C48P2, 10C49, 10C49P2, 10C56, and 10C57). These wells surrounding the plume were used to help define the shape and extent of the groundwater plume.

The groundwater in this plume appears to travel northeast parallel to the small ravine and eventually discharges into the ravine. The fact that explosives were not detected in wells 10C56 and 10C57 downgradient of the plume is evidence that the plume is most likely discharging to the ravine. Wells 10C60, 10-01, and 10-02 are located approximately 3,500 to 5,000 feet downstream of the plume (Figure A-2). These three wells also have historically had significant groundwater concentrations of RDX. Concentration-time graphs of RDX in wells 10-02 and 10C60 (see Appendix B) shown that the RDX concentrations have decreased over time and are now at or less than 10 µg/L. The RDX concentrations in well 10-01, however, are greater than 20 µg/L and do not appear to be decreasing over time (1983 through 1992). It is believed that RDX has been discharged directly to the ravine as surface water and/or has discharged to the ravine in the form of groundwater seepage between 1940 and the present. The RDX has traveled down the gully as surface water. Once the surface water in the gully migrated to the lower reaches, some of the surface water reenters the shallow groundwater system. This may be the reason that RDX was detected in the three wells located close to a mile downslope of the main plume area. It is not believed that the plume is continuous from the main plume area shown in Figure A-1 all the way eastward to wells 10-01 and 10-02.

The US ACE WES RFI Report (US ACE WES, 1995) reported that wells with mean concentration above the DL as follows: "...Ten wells had mean amounts of at least one explosive above the DL of 0.02 mg/l. All of the wells with amounts above DL were in the drainage way northeast and downslope of Rockeye. Referring to Plate 1, the wells with mean amounts of HMX, RDX, and TNT above DL were 10-07 and 10-08, 10-17 and 10-18, 10-21 (RDX only), 10C55 and 10C55P2, all atop the ridge, and 10C60, 10-01 and 10-02, downslope of Rockeye..." These ridge top wells are the same wells as used in the CMS discussion.

As noted in the SWMU 10 RFI (USACE, 1995), seven wells were identified on the top of the ridge as containing RDX or other explosive compounds. Time-concentration graphs for these seven wells are included in Appendix B. By visually observing these graphs, RDX concentrations in 10-07, 10-08, 10-17, 10-18, and 10C55P2 decreased over the time interval for which they were sampled. RDX concentrations in wells 10-21 and 10C55 appear to be relatively stable over time. RDX concentrations in none of the wells appear to have increased over time. Based on these graphs, the total mass of RDX in the plume and the overall size of the plume appear to have decreased slowly over time (between 1983 and 2001). RDX concentrations in 10-02 and 10C60 located east of SWMU 10 and next to the gully have also decreased over time; however, concentrations in 10-01 has remained relatively steady (see Appendix B). Overall, the wells located downslope of the plume are less affected by RDX now than they were in the 1980s and early 1990s

The following changes have been made in Appendix A to address these comments:

- Text in Appendix A has been expanded to include a discussion of how the plume area was defined and why wells 10-01, 10-02, and 10C60 are not considered to be part of the main plume area.

- The text in Appendix A has also been expanded to include a discussion of how the RDX plume size and concentrations have changed over time.

A new 2nd paragraph has been added to Section 3.5.1 as follows:

> *"The 'hot-spot' concept was not developed to accurately delineate particular areas of contamination outside of which groundwater quality meets the cleanup criteria. Instead, this concept was meant to identify and approximately size the two general areas within the contaminant plume that contain the highest levels of groundwater contamination and would therefore benefit the most from remedial action. Therefore, the centers of Hot-Spots Nos. 1 and 2 were selected as the two monitoring wells where the highest*

concentrations of explosives have been detected (33 µg/L at 10-17 for Hot-Spot No. 1 and 240 µg/L at 10C55 for Hot-Spot No. 2) and the approximate boundaries of these hot spots were delineated by assuming that they extend to the eastern edge of the plume on one side and halfway towards the nearest monitoring well where much lower explosives concentrations were detected (10-18 with 127 µg/L for Hot-Spot No. 1 and 10-21 with 66 µg/L for Hot-Spot No. 2) on the other side. For both hot-spots, this corresponds to a distance of approximately 100 feet and; therefore, it was decided to identify each hot-spot as a circular area with a 100-foot diameter."

Attachment 1 contains the revised Appendix A text, calculations, and figures.

5) Referring to Section 4.2.2.3, Effectiveness, it is stated that preliminary modelling of explosives plume degradation time is presented in Appendix A. There is no such information in Appendix A.

Text and tables have been added to Appendix A which present an evaluation of the natural attenuation processes that are operating in the RDX plume area, the overall attenuation rate that is occurring in the plume, and the estimated length of time for natural attenuation before the maximum concentrations in the groundwater reach the MCS of 0.5 µg/L. Based on the current understanding of the plume, the estimated length of time for the RDX MCS to be attained is roughly 100 years. It is not known whether a significant source of RDX is still adsorbed to the soil and/or bedrock upgradient (south) of the plume area. Therefore, it is difficult to make a reliable estimate of time to cleanup relying solely on natural attenuation.

6) There appears to be an error in the "Retain?" column on page 2 of 3 for Table 4-1 under Equalization.

Response to Comment 6: Agreed. The "2" has been changed to "$Y^{(2)}$" to represent retained for the reason presented in footnote number 2.

7) Referring to page 3 of 3 for Table 4-1, why would Direct Discharge of extracted water to the Crane industrial wastewater treatment be unacceptable to the wastewater treatment facilities? How is explosives contaminated water from SWMU 10 (or other production/active areas) currently treated and why wouldn't it be feasible or acceptable to route low-level explosives contaminated extracted groundwater to that system?

Response to Comment 7: Current SWMU 10 operations include a pre-treatment carbon filter system (pre-treatment system) for filtering explosive from wastewater. The pre-treatment carbon filter system is located in Building 3044 and designed to batch approximately 40,000 gallons per day. The explosive containing wastewater is received from various locations throughout NSWC Crane. The explosive contaminated wastewater is typically received by tank truck and batched through the carbon filter system prior to discharge into the NSWC Crane sanitary water sewer system. The water currently being treated is relatively clean (i.e., low in suspended solid).

The proposed groundwater recovery system would generate approximately 7,200 gallons per day of additional wastewater for treatment by the pre-treatment system. The pre-treatment system is capable of filtering this additional wastewater but is not operated continuously and would require additional equipment (e.g., surge tank) to be able to accept and batch the extracted groundwater.

Upon review of the existing system and the requirements of the groundwater extraction system, indirect discharge of groundwater via the existing SWMU 10 pre-treatment system is not practical for the following reason:

1. Installation of approximately 1,500 feet of piping would be required to route the extracted groundwater from the two "Hot Spots" to Building 3044. This piping would be dedicated

to transferring extracted groundwater to the pre-treatment system. Additionally, this piping would be required to traverse a roadway and two railroad sidings. Most likely the piping routing would require the installation of a combination of above ground pipe racks and underground sleeved piping. The installation of the pipe racks and underground sleeved piping would disrupt of SWMU 10 operations.

2. To facilitate the batch operations of the pre-treatment filter system, a pumping system would need to be installed at the extraction wells as well as a surge/storage tank near Building 3044. The pumping system would require the installation of an electric power supply near the proposed location of the extraction system including but not limited to three phase power lines, transformer, motor control center (i.e., breaker room), etc.

3. The pre-treatment system operating costs are $0.20 per gallon ($1,440 per day). Additional costs would include maintenance costs associated for both the pre-treatment and extraction pumping systems as well as operating costs for the extraction pumping system.

4. As previously stated, the wastewater which is currently being treated in the pre-treatment system is relatively clean (i.e., low suspended solids). However, it is anticipated that the extracted groundwater will have sufficient suspended solid such as manganese and silt to create a fouling problem for the carbon filters. To minimize fouling, the groundwater would require treatment before being transferred to Building 3044 so that suspended solids are minimized. This would increase installation and operating costs for the extraction system.

5. Furthermore, it will be necessary to determine if the local discharge point to the sanitary sewer piping is adequately sized to accommodate the additional flow from the groundwater extraction system. If not, extensive modification to the sanitary sewer system would be required.

Finally, for any screening evaluation it is critical to consider the last word of the comment (i.e., practical). Based upon the aforementioned reasons, the extensive modifications and operating and maintenance costs associated with discharge to the existing sanitary sewer system, this option is "not practical."

No change has been made to the document in response to this comment.

8) Referring to Section 5.3.2., page 5-6: Isn't it estimated that Alternative 3 would attain MCS in less than 100 years? Section 6.2 states that Alternatives 1 and 2 would attain MCS within approximately 100 years, but an earlier prediction calculated 159 years.

Response to Comment 8: The model calculations for natural attenuation have been included in Appendix A of the CMS Report. These calculations indicate that natural attenuation will result in RDX concentrations below 0.5 µg/L in approximately 100 years. Therefore, Alternative 1 (no action) will achieve the MCS in approximately 100 years. Additionally, Alternative 2 (which includes monitoring to ensure that the plume size is not increasing and that the RDX concentration is not increasing with time) will also take approximately 100 years (i.e., no action monitoring will also take approximately 100 years).

Therefore, any active treatment will take less than 100 years. However, insufficient data exists to make an estimate of how the active treatment will impact the groundwater plume.

For consistency, the 4th sentence in the 1st paragraph of Section 5.3.2 has been revised as follows:

"However, preliminary estimations indicate that this impact should be significant and that Alternative 3 should attain MCS within somewhat less than 100 years."

9) When preparing the CMS for Rockeye, it would be good to provide the historical perspective which shows that most of the explosives contaminated soils based on the Army Corps studies was remediated via Interim Measure composting and the RFI looked at residual risks from the various media. The RFI does not seem to describe this. This is what was done, correct?

Response to Comment 9: The United States Army Corps of Engineers Waterways Experiment Station (USACE) Phase II Soils Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) (USACE WES, 1998) recommended that additional soil sampling to be conducted near production building exhaust vents to determine the extent of explosives contamination near these buildings and other locations near the perimeter where explosives concentrations were higher. The recommendations for additional sampling at these locations were implemented as part of the Interim Measures (IM) pre-characterization sampling. The RFI investigation did not address theses areas. However, the confirmation sample data obtained during the IM was included in the RFI risk assessment. Therefore, the RFI considered residual risk as stated in the comment.

Further discussion of the IM associated with soils at SWMU 10 has been added. Section 1.3.3.3 has been revised as follows:

"Based on the results of the Phase II Soil Characterization, NSWC Crane evaluated SWMU 10 to determine if the area would be amenable to accelerated cleanup action, otherwise known as interim measure (IM). SWMU 10 was identified for IM cleanup because of explosive-contaminated surface soil.

"From March 1996 to June 1997, a 5½-acre bioremediation complex was constructed in the southwest quadrant of NSWC Crane near the Crane Landfill. Based upon the favorable results of pilot scale testing and full scale operations at SWMU 12 Mine Fill A and SWMU 13 Mine Fill B, the bioremediation occurred at SWMU 10.

"From November 2000 through July 2001 the following activities occurred at SWMU 10 near Building 2733 (Figure 1-4) (Toltest, 2002):

- *Collection and analysis of 96 initial site characterization samples from 34 grids of potentially-impacted soil. Sampling in each grid consisted of two composite samples and one grab sample. The composite samples were collected from a zero to 12 inched and from 24 to 36 inches.*
- *Of the 34 grids that were sampled, seven grids required excavation because the explosive content of the soils sampled exceeded industrial cleanup goals. Soil excavation was performed on the blast wall berm between Buildings 2733 and 2734 and adjacent to the west side of Building 2733.*
- *Approximately 1,300 tons of contaminated soil and approximately 20 tons of rock were excavated and then screened. During excavation, all oversized material was separated into soil clods that were mixed with gravel and large rock. The rejected soil that was mixed with gravel was re-screened several times to separate as much soil from the gravel as possible.*
- *Soil samples were collected from each grid during excavation activities to assist in determining the extent of excavation that was required. Field screening test kits were used to test the RDX levels for the in-process soil samples to provide quick field screening results. Post-excavation samples were collected following excavation and field screening to determine the levels of contaminants remaining in the soil. Twenty-two post-excavation samples, which included one composite and one grab sample from the base of each grid and one grab sample from each*

20 feet of the side wall, were collected to ensure that the soil contamination levels were below SWMU-specific cleanup goals.

- *Screened material was transported to the on-site Bioremediation Facility where treatment of the explosives-contaminated material through composting to degrade the explosive compounds to below the SWMU-specific cleanup goals occurred.*
- *At the on-site Bioremediation Facility, organic amendments, which serve as a food source for the microorganism, were mixed with the contaminated soil to form the compost windrows. The bioremediation resulted in a greater volume of compost being generated than the original volume of soil excavated.*
- *Confirmatory sampling of treated material to ensure that the cleanup goals were achieved included:*
    - *Fifteen samples plus quality control samples from each of the five windrows cross-sections for Windrows 203 through 208,*
    - *Twelve samples from each of the four cross section of Windrow 202, and*
    - *Three samples from the Control Windrow at one cress section.*
- *All treated materials met residential cleanup for explosives.*
- *Approximately 2.200 tons of treated soil compost was transported back to SWMU 10 for use as backfill in the excavation sites. Because composting generates more compost than the original soil excavated, after backfilling the excavations, it was necessary to convert the temporary storage area at SWMU 10 into a permanent placement area for the excess compost.*

"In summary, at SWMU 10, the IM work included the identification (e.g., soil adjacent to Building 2733 and the berm wall between Buildings 2733 and 2734), excavation, and bioremediation of explosives contaminated soils. All excavated soils were successfully treated at the Bioremediation Facility to levels below residential cleanup goals and returned to SWMU 10 for use as backfill. The confirmatory sampling was utilized in the RFI Report human health and ecological risk assessments (TtNUS, 2005)."

ATTACHMENT 2

RESPONSE TO U.S. EPA COMMENTS DATED JANUARY 19, 2006 (E-MAIL) ON DRAFT RCRA CORRECTIVE MEASURES STUDY REPORT OCTOBER 4, 2005 REPONSES FOR SWMU 10 – ROCKEYE

RESPONSE TO US EPA COMMENTS DATED JANUARY 19, 2006 (E-MAIL) ON DRAFT RCRA CORRECTIVE MEASURES STUDY REPORT OCTOBER 4, 2005 REPONSES FOR SWMU 10 – ROCKEYE NAVAL SURFACE WARFARE CENTER CRANE, INDIANA

Comments provided by the United States Environmental Protection Agency (US EPA) are shown in bold font. Responses following each comment are shown in regular font. Changes are italicized and enclosed in quotation marks.

Comment 1) The October 4, 2005 response to comment 4 states that the levels of RDX at 10-17 and 10C55 are 337 ug/L and 361 ug/L, respectively. This is not what is reflected in Figure 2-1. These do not appear to be part of the historical values given in Appendix A.

Response to Comment 1. The sited levels in the Response to Comments (RTCs) dated October 4, 2005 for wells 10-17 and 10C55 are incorrect. The correct concentrations of RDX for the latest sample round (January 2001) at 10-17 and 10C55 are 33 and 240 µg/L as shown on Figure 2-1 and revised Appendix A. The last two paragraphs in the response to Comment 4 have been revised as follows:

> *"A new 2nd paragraph has been added to Section 3.5.1 as follows:*
>
> *"The 'hot-spot' concept was not developed to accurately delineate particular areas of contamination outside of which groundwater quality meets the cleanup criteria. Instead, this concept was meant to identify and approximately size the two general areas within the contaminant plume that contain the highest levels of groundwater contamination and would therefore benefit the most from remedial action. Therefore, the centers of Hot-Spots Nos. 1 and 2 were selected as the two monitoring wells where the highest concentrations of explosives have been detected (33 µg/L at 10-17 for Hot-Spot No. 1 and 240 µg/L at 10C55 for Hot-Spot No. 2) and the approximate boundaries of these hot spots were delineated by assuming that they extend to the eastern edge of the plume on one side and halfway towards the nearest monitoring well where much lower explosives concentrations were detected (10-18 with 127 µg/L for Hot-Spot No. 1 and 10-21 with 66 µg/L for Hot-Spot No. 2) on the other side. For both hot-spots, this corresponds to a distance of approximately 100 feet and; therefore, it was decided to identify each hot-spot as a circular area with a 100-foot diameter."*

The revised pages 3 of 7 and 4 of 7 for the October 4, 2005 RTCs are attached.

Comment 2) Referring to Figure A-1, it would be better to use 'ND' - non-detect rather than zero for wells with no RDX.

Response to Comment 2: Figure A-1 has been revised to indicate non-detection values as "ND" rather than zero for wells with RDX.

Comment 3) Referring to the second to last paragraph of page ES-3, if all groundwater values for nickel are below MCS (specifically, the RFI states that they are all below IDEM RISC closure values), why does Figure 2-1 have IDEM flags next to nickel detections?

Response to Comment 3: This section of the CMS presents a summary of the current contamination conditions for SWMU 10. Section 2.0 summarizes the findings of the RFI Report. The data presented in Figure 2-1 was taken directly from Figure 7-14 of the RFI Report and has been further evaluated in comparison to CAOs Section 3.0 of this CMS. In the case of nickel, a site specific media cleanup standard was developed. All nickel concentrations in groundwater were found to be less than the site specific cleanup level of 700 µg/L.

Furthermore, the values for nickel in groundwater presented in Figure 2-1 range from ND to 695 µg/L which is less than the site specific MCS for nickel of 700 µg/L.

The Executive Summary statement was based upon the information presented in Section 3.4.1, Subsection Nickel.

For clarification, the 2nd sentence in the 1st paragraph of Section 2.0 has been modified as follows:

> *"The information presented in this section is used as the basis for the development of site-specific media cleanup standards and CAOs which are presented in Section 3.0."*

ATTACHMENT 3

RESPONSE TO U.S. EPA REGION 5 REQUEST FOR FURTHER CLARIFICATION [DATED FEBRUARY 15, 2006 (E-MAIL)] ON THE NAVY RESPONSES TO COMMENTS (DATED FEBRUARY 6, 2006) FOR CORRECTIVE MEASURES STUDY REPORT FOR SWMU 10 – ROCKEYE

RESPONSE TO U.S. EPA REGION 5 REQUEST FOR FURTHER CLARIFICATION [DATED FEBRUARY 15, 2006 (E-MAIL)] ON THE NAVY RESPONSES TO COMMENTS (DATED FEBRUARY 6, 2006) FOR CORRECTIVE MEASURES STUDY REPORT FOR SWMU 10 – ROCKEYE NAVAL SURFACE WARFARE CENTER CRANE CRANE, INDIANA

Comments provided by the United States Environmental Protection Agency (U.S. EPA) are shown in bold font. Responses following each comment are shown in regular font. Changes are italicized and enclosed in quotation marks.

Comment 1) ...I don't quite follow the response to comment 3. The response still doesn't tell me why there are IDEM flags next to nickel detections if all groundwater values are below the calculated MCS of 700 ug/L which is below the default IDEM RISC Closure number. Furthermore, Figure 2- 1 and RFI Figure 7-14 are not identical - for example, Figure 2-1 shows and IDEM flag next to nickel at 10C35P2 (283 ug/L), but Figure 7-14 does not for the same sample.

Response to Comment 1: The information in Figure 2-1 of the March 2005 version of the Corrective Measures Study (CMS) Report was taken from the December 2004 Draft Final Resource Conservation and Recovery Act Facility Investigation Report for SWMUs 4 (McComish Gorge), 5 (Old Burn Pit), 9 (Pesticide Control/R-150 Tank Area), and 10 (Rockeye) (RFI) Report Figure 7-14.

The United States Environmental Protection Agency (U.S. EPA) provided comments on the tag maps in the Draft Final version of the RFI Report during May 2005. As a result of the U.S. EPA comments on the Draft Final RFI Report, changes were made to the tag maps in the Final RFI Report (dated July 2005).

Therefore, the flags on Figure 2-1 of the CMS Report (March 2005) do not match the final Figure 7-14 of the final version of the RFI Report (July 2005) which does not contain the Indiana Department of Environmental Management (IDEM) flags.

In the CMS Report, Figure 2-1 is utilized only to provide location information on various samples. The CMS text does not discuss or reference data or the tag information.

The following changes have been made in response to this comment:

1. Figure 2-1 has been modified to remove the tags.
2. Figure 2-1 has been modified to better show the locations (e.g., Area).
3. All references to Figure 2-1 throughout the document have been revised as follows: *"(see Figure 2-1 for locations)."*

5090
Ser PRCR4/6085

15 March 2006

The letter Ser PRCR4/6085 was for the submittal of the final Corrective Measures Study (CMS) report for Rockeye SWMU 10 and responses to comments. The final report replaces the report dated 3/28/05, making it the final report.