



DEPARTMENT OF THE NAVY

CRANE DIVISION
NAVAL SURFACE WARFARE CENTER
300 HIGHWAY 361
CRANE INDIANA 47522-5001

N00164.AR.001048
NSWC CRANE
5090.3a

IN REPLY REFER TO:

5090/S4.7.5
Ser PRCR4/6223

21 JUL 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 Proposal (CMP) for the Old Rifle Range and Old Pistol Range (ORR/OPR), Solid Waste Management Unit 07 as enclosure (1). The responses to the U. S. EPA comments are presented as enclosure (2). 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 CMP for ORR/OPR
2. Responses to EPA Comments
3. Certification Statement

Copy to:

ADMINISTRATIVE RECORD

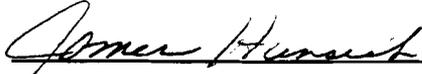
SOUTHNAVFACENCOM (Code OPGEVR) (w/o encl)

IDEM (Doug Griffin)

TTNUS (Ralph Basinski) (w/o encl)

NAVFAC MW (Howard Hickey)

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.


SIGNATURE

Manager, Environmental Protection
TITLE

7/21/06
DATE

**RESPONSES TO US EPA COMMENTS
FROM PETER RAMANAUSKAS (MAY 23, 2006) VIA E-MAIL
ON THE CORRECTIVE MEASURES PROPOSAL (CMP)
FOR SWMU 7 – OLD RIFLE RANGE/OLD PISTOL RANGE
NSWC CRANE
CRANE, INDIANA**

Comments are shown in bold font. Peter Ramanauskas's comments are prefix with EPA-. Responses follow each comment and are shown in regular font. Changes to CMP text are shown in italicized text and are enclosed in quotation marks.

Comment EPA-1: Section 1.4.3.3 erroneously states groundwater at one well (06C16) is contaminated with TNT and metals. TNT is found at 06C15 and metals are found at multiple wells.

Response to comment EPA-1: The 1st sentence of the 2nd paragraph in Section 1.4.3.3 has been revised as follows:

"Groundwater at one well (06C15) at the ORR has been shown to be contaminated with one explosive compound [2,4,6-trinitrotoluene (TNT)]. The ORR is subject to RCRA groundwater monitoring requirements for hazardous waste treatment facilities, including corrective action. A RCRA groundwater compliance monitoring program is currently being conducted at the ORR. The results of the groundwater monitoring show that metal concentrations (primarily arsenic, barium, and manganese) are in excess of upgradient concentrations and risk-based target levels (RBTLs) that are established in the RCRA permit in several wells.

Comment EPA-2: Section 1.5.3.2 erroneously refers to SWMU 8.

Response to comment EPA-2: The 4th sentence of the 1st paragraph in Section 1.5.3.2 has been revised as follows:

"Cross section G-G passes through the northern end of SWMU 7, and cross section H-H passes through the center of SWMU 7."

Comment EPA-3: Referring to Section 2.1.2 (Explosives), update the trend plots in Appendix B with 2005 data.

Response to comment EPA-3: Appendix B temporal plots and input data have been updated to include the data from the 2005 Groundwater Monitoring Program and are provided as Attachment 1 to this response document.

Comment EPA-4: Referring to Section 2.3, while a 2 ug/L MCS for Arsenic is acceptable, the MCL is 10 ug/L.

Response to Comment EPA-4: Previous submittals have used the Maximum Contaminant Level (MCL) as the Media Cleanup Standard (MCS) when an MCL is available. For consistency and because there is an MCL for arsenic, Section 2.3 has been revised to incorporate the arsenic MCL as the arsenic MCS as follows:

"2.3 MCSs

"As stated above, arsenic in groundwater and lead in soil are considered potential COCs; therefore, MCSs were developed for these constituents.

"An arsenic MCS of 10 µg/L is based on the National Primary Drinking Water Regulations' Maximum Contaminant Level (MCL).

ENCLOSURE (2)

"A lead MCS of 400 mg/kg is required for soils to protect the current on-site construction worker. This is based on the U.S. EPA Region 9 Preliminary Remediation Goal (PRG) for lead (Appendix D)."

Comment EPA-5: Referring to the second bullet of Section 2.4, here or in another appropriate section, present a quick discussion of any residual TNT remaining in subsurface after the VIM removal. Supplement the final bullet of this section with basis for the statement (i.e., was this determined from the CCCRA or Phase III Soils Assessment or both?)

Response to Comment EPA-5:

Residual TNT: As detailed in Section 2.1.1 Subsection, Explosives, the Current Contamination Conditions Risk Assessment (CCCRA) did not identify any explosives in soil as chemicals of concern (COCs). However, The Phase III Soils RCRA Facility Investigation (RFI) Report and the Voluntary Interim Measures (VIM) identified an area near surface soil sample 07SS16 where surface soil was contaminated with explosives. For clarification, information obtained from the Phase III Soils RFI Report (TtNUS, 2003) and the VIM Report (TtNUS, 2005a) has been added to the CMP. The 2nd paragraph in Section 2.1.1 Subsection, Explosives, has been revised as follows:

"The CCCRA did not identify any explosives in soil as COCs (B&RE, 1997). The Phase III Soils RFI at the ORR identified excess risk associated with one explosive (TNT) for one sample (07SS16) (TtNUS, 2005a). In the summer of 2003, the Navy conducted a VIM to excavate this localized high concentration of TNT. The two VIM pre-excavation TNT soil samples had concentrations as high as 9,900 milligrams per kilograms (mg/kg). The six VIM post-excavation samples collected from the sidewalls and bottom of the excavated areas averaged 47.7 mg/kg with individual concentrations ranging from non-detection (0.5 mg/kg) to 250 mg/kg. Thus, the post-excavation VIM sampling indicated that the removal was effective in eliminating the excess risk associated with TNT at the ORR (TtNUS, 2003). Therefore, explosives in soil will not be discussed further in this CMP Report."

Ecological Risk Assessment: The statement in the final bullet in Section 2.4, "There is no unacceptable risk to ecological receptors at SWMU 7" was based on information in the CCCRA and further evaluations of data collected during the Phase III Soils Assessment. The following modifications have been made to provide information to supplement this statement.

The following text has been added to the end of Section 1.5.8.2:

"The CCCRA states, 'Population studies within and outside of the impacted area of the ORR do not indicate on the basis of abundance and diversity any adverse effect to the indicator species investigated resulting from operation of the ORR. As a result, the combination of the low trace levels of metals and organics detected in the media and tissues associated with the ORR and the population studies conducted at the site, the effects of the current activities at this SWMU are not considered to be adversely impacting the ecological population at this site.'

"Following the CCCRA studies, a Phase III Soils RFI (TtNUS, 2005a) was conducted for the ORR. As part of the Phase III Soils RFI a screening ecological risk evaluation was conducted for the Hillside Range 1 and Range 2 berms and their firing lanes. The Phase III Soils RFI concluded that metals in the Hillside Range 1 and Range 2 firing lanes did not present a risk to ecological receptors and that the metals in the berm areas (primarily lead) had the potential to adversely impact ecological receptors."

The following text has been added the end of Section 2.1.1, Subsection, Metals:

"The X-Ray fluorescence analysis indicated that lead concentrations in the berms may also present potential significant risk to ecological receptors. However, as discussed in U.S. EPA (1999) Issuance of Final Guidance: Ecological Risk Assessment and Risk Management Principles for Superfund Sites, remedial actions generally should not be designed to protect

organisms on an individual basis (with the exception of certain protected species) but to protect local populations and communities of biota.

"The contaminated areas at the Hillside Range 1 and Range 2 berms total approximately 3,000 square feet. The adverse risk to ecological receptors would only occur in this very small area which is much less than 0.1 percent of the surrounding contiguous forested area. Based on observations during site visits, it does not appear that populations of plants/invertebrates and/or plant invertebrate community are being significantly impacted by the metals in these berms. Even if impacts would occur, these impacts would be limited to the areas of the berms where the metals concentrations are elevated. Furthermore, because these berms comprise only a small portion of the overall habitat for ecological receptors in this area, any localized impacts to individual ecological receptors will not impact the overall ecology in this area. Therefore, with regard to the protection of SWMU 7 ecological receptors, metals in these berms will not be discussed further in this CMP Report."

Comment EPA-6: Referring to Section 3.1.1 (Metals in Groundwater, second bullet), if LTM is not proposed for metals, mention that monitoring will continue under ORR permit driven monitoring.

Response to Comment EPA-6: The following new sentence has been added to the end of the 2nd paragraph in Section 3.1.1, for the two CMs that will be considered for metals in groundwater:

"It should be noted that although Alternative GW-2-Metal does not include LTM for metals, the existing Groundwater Monitoring Program at SWMU 7 which is required by the RCRA Operating Permit for the Open Burning Unit includes monitoring for metals."

Comment EPA-7: Referring to Section 4.1.2.2, can existing quarterly monitoring be used to roughly predict attainment of TNT MCS?

Response to Comment EPA-7: Appendix B has been updated for the 2005 quarterly monitoring data. Based upon monitoring well 06C15 and the temporal plots presented in Appendix B, it is anticipated that concentration of TNT will achieve a non-detection concentration in 2018.

Comment EPA-8: Appendix C HHRSE, Section 1.0: Of the bulleted list of chemicals in Section 1.1, lead, silver, and selenium do not appear to be evaluated or eliminated from concern in Section 1.2 or other text of the document.

Response to Comment EPA-8: Section 1.2 of Appendix C, HHRSE states that "A chemical was selected as a COPC for this HHRSE if the maximum detected concentration in the groundwater exceeded the primary (health-based) Safe Drinking Water Act (SDWA) Maximum Contaminant Level (MCL), the Indiana Department of Environmental Management (IDEM) default closure level for groundwater, or a screening level based on the U.S. EPA Region 9 Preliminary Remediation Goals (PRGs) for tap water."

Lead, silver, and selenium did not exceed a SDWA MCL, IDEM default closure level for groundwater, or a screening level U.S. EPA Region 9 PRG for tap water. Therefore, lead, silver, and selenium were not selected as COPCs.

For clarification, a new 2nd paragraph has been added to Section 1.2 of Appendix C, Human Health Risk Screening Evaluation for the Old Rifle Range (ORR) Portion of SWMU 7 as follows:

"Lead, silver, and selenium did not exceed an SDWA MCL, IDEM default closure level for groundwater, or a screening level U.S. EPA Region 9 PRG for tap water. Therefore, lead, silver, and selenium were not selected as COPCs."

ATTACHMENT 1

REVISED APPENDIX B

APPENDIX B

TEMPORAL PLOTS FOR 2,4-TRINITROTOLUENE

AND

DEGRADATION PRODUCT

4-AMINO-2,6-DINITROTOLUENE AND 2-AMINO-4,6-DINITROTOLUENE

FIGURE B-1.1
Monitoring Well 06C15 Temporal Plot
(No Duplicate Sample Data)

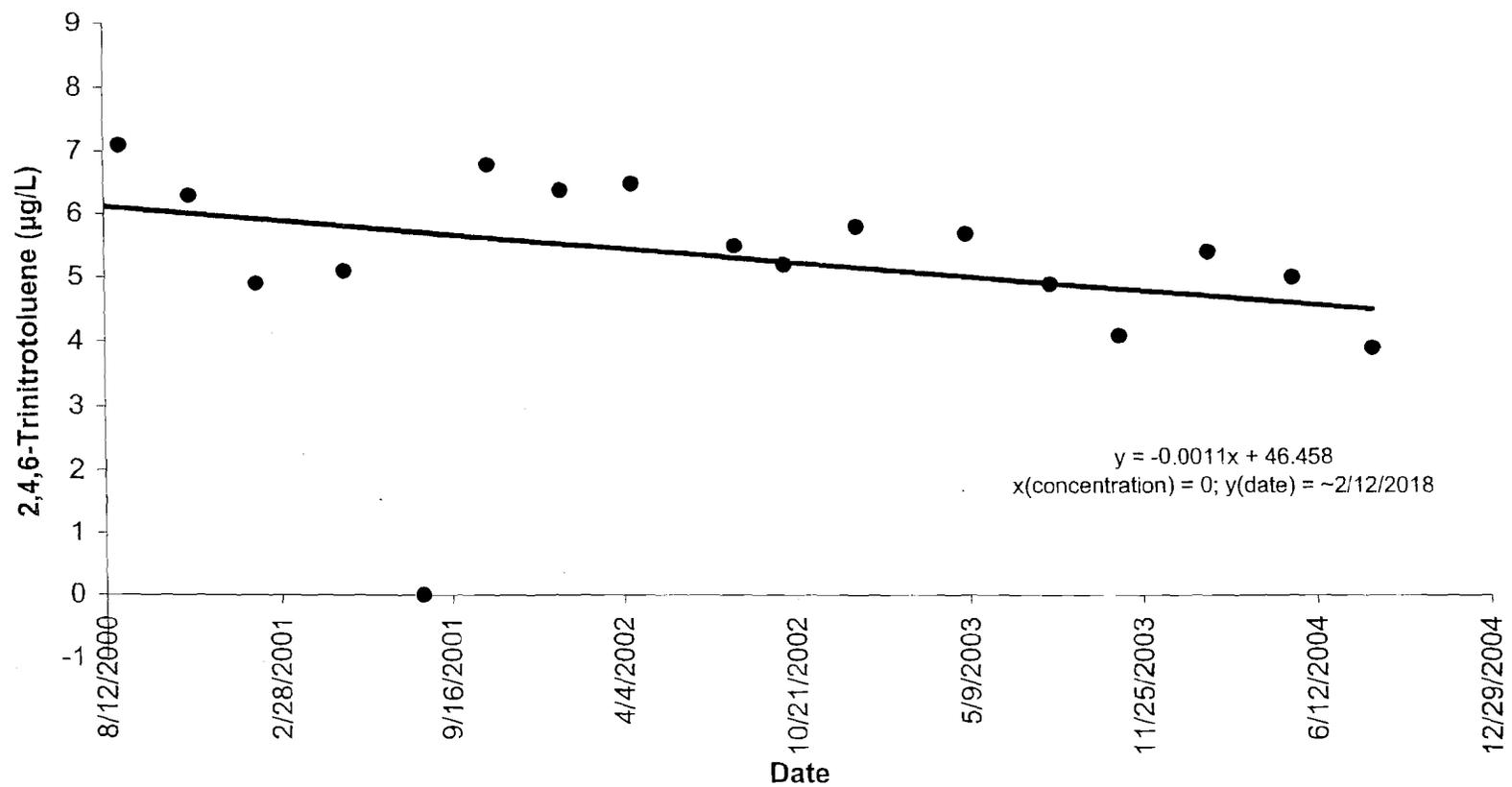


TABLE B-1.1

MONITORING WELL 06C15
 TEMPORAL CONCENTRATION DATA
 2,4,6-TRINITROTOLUENE
 (NO DUPLICATE SAMPLE DATA)
 NSWC CRANE
 CRANE, INDIANA

Sample Date	Sample Results (µg/L)
3/13/2000	7.8 J
4/26/2000	6.5
8/29/2000	7.1
11/17/2000	6.3
2/1/2001	4.9
5/14/2001	5.1
8/13/2001	0 U
10/31/2001	6.8
1/24/2002	6.4
4/16/2002	6.5
8/13/2002	5.5
10/9/2002	5.2
1/1/2003	5.8
5/7/2003	5.7
8/12/2003	4.9 J
10/30/2003	4.1
2/10/2004	5.4
5/17/2004	5
8/17/2004	3.9
11/16/2004	6.2
2/24/2005	4.3
4/20/2005	3.8
8/12/2005	4.2
10/24/2005	4.4

FIGURE B-1.2
Monitoring Well 06C15 Temporal Plot
(No Duplicate Nor Non-Detections Sample Data)

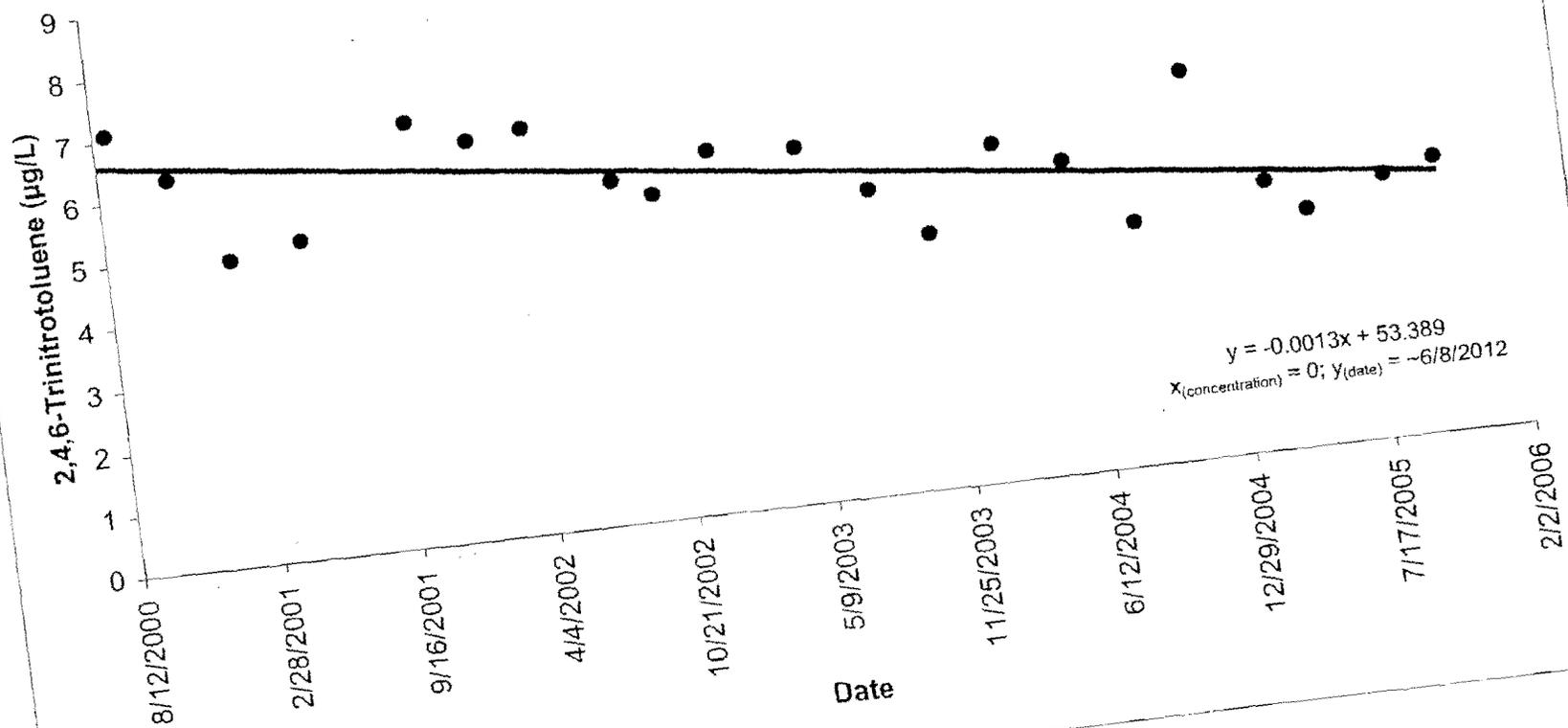


TABLE B-1.2

MONITORING WELL 06C15
 TEMPORAL CONCENTRATION DATA
 2,4,6-TRINITROTOLUENE
 (NO DUPLICATE AND NO NONDETECT SAMPLE DATA)
 NSWC CRANE
 CRANE, INDIANA

Sample Date	Sample Results (µg/L)
3/13/2000	7.8 J
4/26/2000	6.5
8/29/2000	7.1
11/17/2000	6.3
2/1/2001	4.9
5/14/2001	5.1
10/31/2001	6.8
1/24/2002	6.4
4/16/2002	6.5
8/13/2002	5.5
10/9/2002	5.2
1/1/2003	5.8
5/7/2003	5.7
8/12/2003	4.9 J
10/30/2003	4.1
2/10/2004	5.4
5/17/2004	5
8/17/2004	3.9
11/16/2004	6.2
2/24/2005	4.3
4/20/2005	3.8
8/12/2005	4.2
10/24/2005	4.4

FIGURE B-2.1
Monitoring Well 06C15 Temporal Plot
(No Duplicate Sample Data)

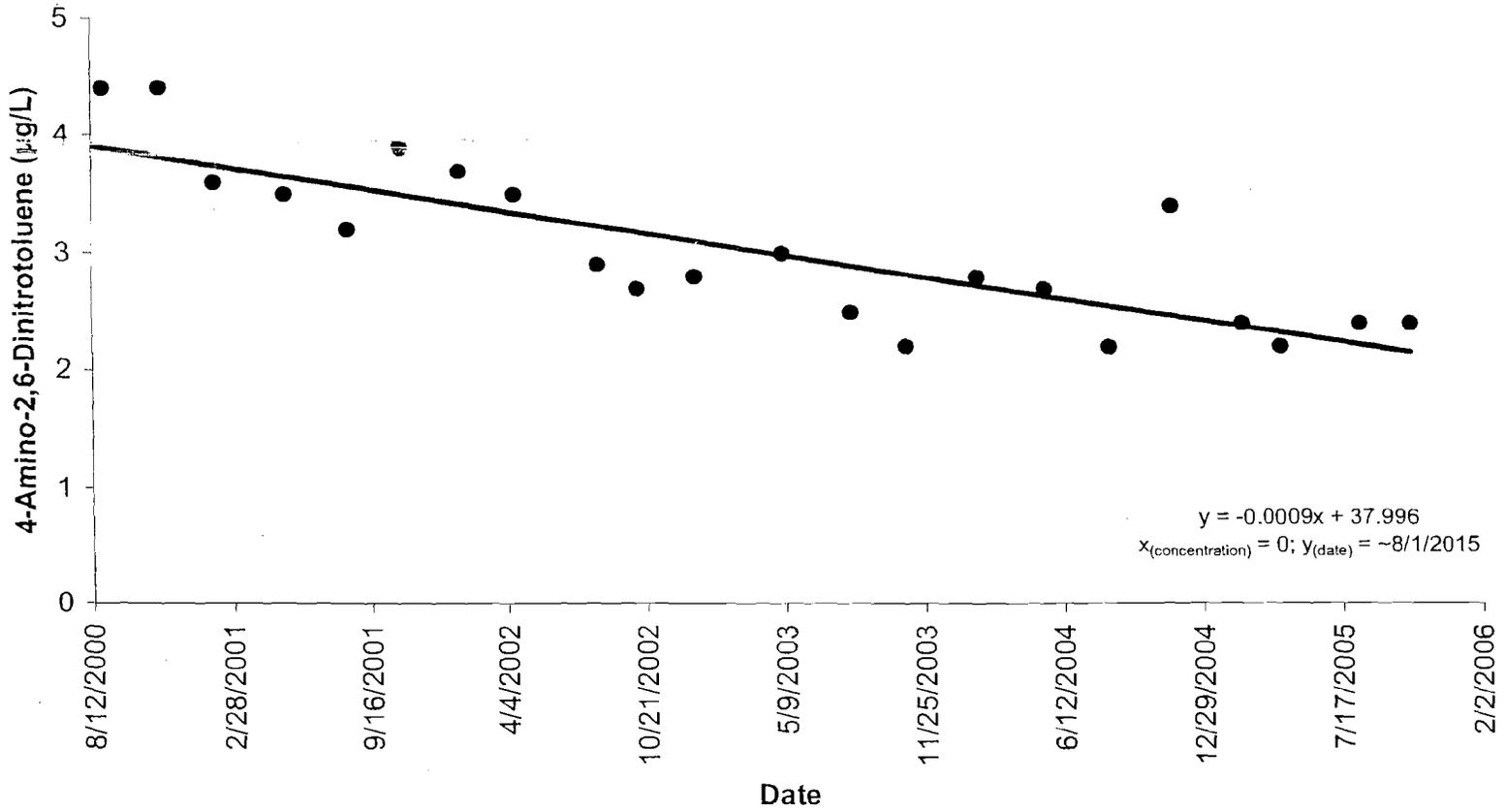


TABLE B-2.1

MONITORING WELL 06C15
 TEMPORAL CONCENTRATION DATA
 4-AMINO-2,6-DINITROTOLUENE
 (NO DUPLICATE SAMPLE DATA)
 NSWC CRANE
 CRANE, INDIANA

Sample Date	Sample Results (µg/L)
3/13/2000	4.3 J
4/26/2000	3.6
8/29/2000	4.4
11/17/2000	4.4
2/1/2001	3.6
5/14/2001	3.5
8/13/2001	3.2
10/31/2001	3.9
1/24/2002	3.7
4/16/2002	3.5
8/13/2002	2.9
10/9/2002	2.7
1/1/2003	2.8 J
5/7/2003	3 J
8/12/2003	2.5 J
10/30/2003	2.2
2/10/2004	2.8
5/17/2004	2.7
8/17/2004	2.2
11/16/2004	3.4
2/24/2005	2.4
4/20/2005	2.2
8/12/2005	2.4
10/24/2005	2.4

FIGURE B-2.2
Monitoring Well 06C15 Temporal Plot
(No Duplicate Sample Data)

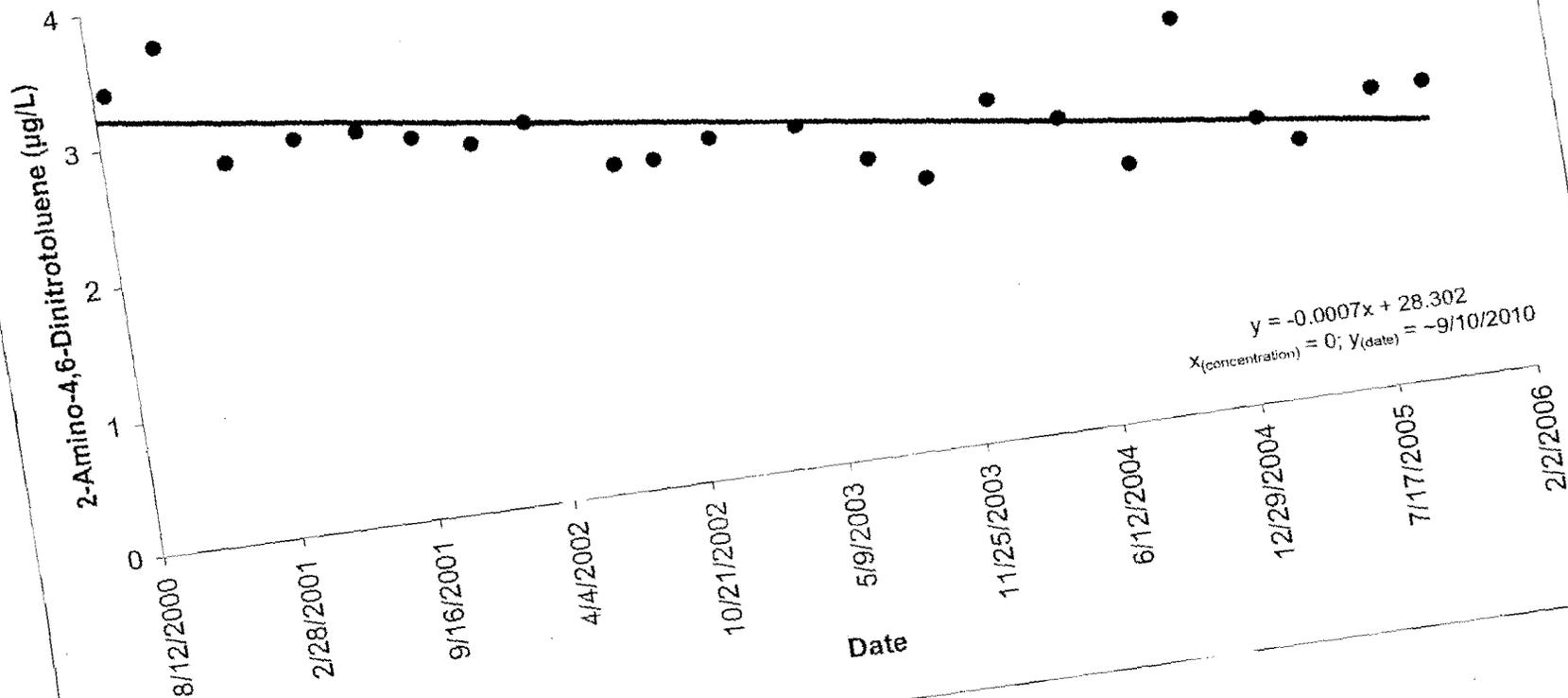


TABLE B-2.2

MONITORING WELL 06C15
TEMPORAL CONCENTRATION DATA
2-AMINO-4,6-DINITROTOLUENE
(NO DUPLICATE SAMPLE DATA)
NSWC CRANE
CRANE, INDIANA

Sample Date	Sample Results ($\mu\text{g/L}$)
3/13/2000	3.7 J
4/26/2000	3.4
8/29/2000	3.4
11/17/2000	3.7
2/1/2001	2.8
5/14/2001	2.9
8/13/2001	2.9
10/31/2001	2.8
1/24/2002	2.7
4/16/2002	2.8
8/13/2002	2.4
10/9/2002	2.4
1/1/2003	2.5 J
5/7/2003	2.5 J
8/12/2003	2.2 J
10/30/2003	2 J
2/10/2004	2.5
5/17/2004	2.3
8/17/2004	1.9
11/16/2004	2.9
2/24/2005	2.1
4/20/2005	1.9
8/12/2005	2.2
10/24/2005	2.2

5090

Ser PRCR4/6223

21 July 2006

The letter Ser PRCR4/6223 was for the submittal of the Final Corrective Measures Proposal for the Old Rifle Range and Old Pistol Range (ORR/OPR) SWMU 07/09. This report updates the draft report dated 3/23/06 making it the final report.