DEPARTMENT OF THE NAVY
CRANE DIVISION
NAVAL SURFACE WARFARE CENTER
300 HIGHWAY 361
CRANE, INDIANA 47522-5001

IN REPLY REFER TO:
5090/S4.7.3
Ser PRCR4/7231
13 JUL 2007

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 responses to comments and change pages for the Solid Waste Management Unit (SWMU) 09 Draft Interim Measures Work Plan (IMWP). Comment responses are provided as enclosure (1). Enclosure (2) contains the change pages for the SWMU 09 IMWP. The permit required Certification Statement is presented 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 Mgr
By direction of the Commanding Officer

Enclosures: 1. Responses to U.S. EPA Comments
2. SWMU 09 IMWP Change Pages
3. Certification Statement

Copy to:
Administrative Record
NAVFAC MW (Howard Hickey) (w/o encl)
IDEM (Doug Griffin)
TTNUS (Ralph Basinski) (w/o encl)

Enclosure (1)
Responses to U.S. EPA Comments

RESPONSE TO EPA COMMENTS DATED JUNE 14 AND 21. 2007 FOR DRAFT INTERIM MEASURES WORK PLAN (IMWP) FOR SOLID WASTE MANAGEMENT UNIT (SWMU) 9 (PESTICIDE CONTROL AREA) NAVAL SURFACE WARFARE CENTER (NSWC) CRANE CRANE, INDIANA

EPA comments are shown in bold font. Navy responses to each comment are shown in regular font. Text changes to the IMWP are shown in italic font enclosed in quotation marks within the response.

REVISED RESPONSE TO EPA COMMENTS OF JUNE 14, 2007

NOTE: The following responses to the EPA comments of June 14, 2007 have been revised to address additional comments received from EPA on June 21, 2007.

Comment EPA-1: Could you tell me how you arrived at the "acceptable risk levels" you want to use for verification sampling as noted in the table on page 5-3? Are those driven by ecological/human risk?

Response to EPA-1: With one exception, the media clean-up goals (MCGs) presented below and in Section 5.2 are the TSCA standards for polychlorinated biphenyls (PCBs) for high occupancy and low occupancy areas ***or*** risk-based concentrations (RBCs) derived based on standard human health risk assessment exposure assessment assumptions and risk management benchmarks:

- The recommended MCGs for PCBs are the TSCA high occupancy areas standard of 1 ppm [40 CFR 761.61(a)(4)(i)(A)] and low occupancy areas standard of 25 ppm [40 CFR 761.61(a)(4)(i)(A)],

- The recommended MCG for diesel range organics (DRO) is the IDEM Default Closure Level for direct contact with soil assuming a residential land use scenario, and

- The MCGs for DDT, DDD, DDE, dieldrin, heptachlor, alpha-chlordane, and gamma chlordane are RBCs developed for exposure to soil assuming a residential land use scenario. The RBCs are based on a target hazard index of 0.1 or a cancer risk level (CRL) of 1E-05 (i.e., a one-in-one-hundred thousand probability of developing cancer) whichever value is lower. The risk-based MCGs were calculated based on an HI of 0.1 and a CRL of 1E-05 to assure that the "acceptable" ***cumulative*** non-cancer and cancer risk levels/benchmarks of a H1 = 1 and a CRL =1E-04 would not be exceeded.

All of these MCGs are based on the protection of human health (direct contact exposures). Please note that the cumulative non-cancer and cancer risk management benchmarks referenced above are those historically used to make risk management decisions at the NSWC Crane (i.e., an HI of 1 and a cumulative cancer risk level of 1E-04). The goal of the remediation is to assure that the receptor risk does not exceed these cumulative risk benchmarks. It should be noted that based on the current excavation plan, the somewhat isolated DDT detection in the subsurface soils at location 09SB046 which does exceed the MCG will not be excavated (surface soils at that location will be excavated). However, this detection (10,000 mg/kg) does not exceed a RBC established at a HI = 1 (36,000 mg/kg). When evaluated with other contaminant concentrations anticipated to be left in place (not excavated) this detection does not result in risk estimates exceeding the stated cumulative non-cancer and cancer risk levels/benchmarks. This conclusion will be further evaluated when data for the post-excavation soil confirmation samples are available.

The second table in Section 5.2 has been revised as follows:

"Contaminant Group	*COCs*	*Media Clean-up Goals*
PCBs	*Total PCBs (surface soil)*	*1 ppm(1)*
	Total PCBs (subsurface soil)	*25 ppm(1)*
DRO	*DRO*	*1,600 ppm(2)*
Pesticides	*4,4'-DDD*	*24,300 ppb(4)*
	4-4'-DDE	*17,150 ppb(4)*
	4,4'-DDT	*3,600 ppb(3)*
	Dieldrin	*300 ppb(4)*
	Heptaclhor	*1,050 ppb(4)*
	Alpha-chlordane	*3,500 ppb(3)*
	Gamma-chlordane	*3,500 ppb(3)*

1 - Toxic Substances Control Act (TSCA) high occupancy areas standard of 1 ppm [40 CFR 761.61(a)(4)(i)(A)] and low occupancy areas standard of 25 ppm [40 CFR 761.61(a)(4)(i)(A)].

2 - IDEM Default Closure Level for direct contact to soil under a residential scenario.

3 - Risk-based concentration for residential exposures to soil based on a target hazard index (HI) of 0.1.

4 - Risk-based concentration for residential exposure to soil based on the 1E-05 cancer risk level.

As discussed in response to Comment EPA-5, risks to ecological receptors were also considered in the identification of soil excavation areas.

The first sentence of the second paragraph of Section 5.2 has been replaced with the following text:

> *"The COC media cleanup goals for achieving acceptable human health risks in soil at SWMU 9 are listed in the following table:"*

A new second paragraph has been added to Section 5.2 as follows:

> *"Risks to ecological receptors are based on the evaluation of average chemical concentrations at a particular site. Based on the proposed excavation areas, risks to ecological receptors will be acceptable at SWMU 9 because the excavated areas will be backfilled with clean fill as detailed in Section 3.2.7 and the average concentrations of COCs left in place at SWMU 9 will not exceed remediation goals established for the protection of ecological receptors."*

Comment EPA-2: What QAPP are you using for this work?

Response to EPA-2: The Quality Assurance Project Plan (QAPP) for this work will be developed.

Comment EPA-3: You need to use grab samples for DRO verification.

Response to EPA-3: The Navy agrees. Details on the Diesel Range Organic (DRO) verification gab samples will be included in the QAPP.

For clarification, the following has added to the end of the first paragraph in Section 5.2:

> *"In the case of DRO, grab samples will be analyzed at a rate of one grab sample per 1,000 square feet of excavation floor area and one grab sample per 100 square feet of exposed sidewall."*

Comment EPA-4: How many points make up your proposed composites?

Response to EPA-2: Although the QAPP has not been developed, it is anticipated that the composite sample procedures will be similar to those for SWMU 8 (Building 106 Pond) where composite were collected from four discrete locations.

JUNE 21, 2007 EPA COMMENTS

Comment EPA (6-21-07)-1: For the pesticides, why not apply RISC Residential Default Closure numbers as the Media Cleanup Goals [DDT - 20,000 ppb; Dieldrin - 46 ppb; Heptachlor - 930 ppb; Chlordanes - 9,600 ppb]? It doesn't seem to increase any excavation volumes. In looking at Figure A-1, it looks like everything is pretty well laterally bounded to "No Exc" of screening numbers (which appear to be lower than the Residential Defaults noted above).

Response to EPA (6-21-07)-1: The Media Cleanup Goals (MCGs) for soils were selected or calculated as detailed in the Navy's response to Comment EPA-1 of June 14, 2007. With the exception of reviewer's referenced value for dieldrin (a groundwater protection criterion), the MCGs recommended by the Navy are similar to (or even more conservative than) the IDEM default closure values. As noted above, the Navy's MCGs were derived to assure that cumulative cancer and non-cancer risk benchmarks are not exceeded (for direct contact exposure to soils). The MCGs are not based on groundwater protection because the COCs have not been detected in groundwater at significant concentrations (i.e., the soil COCs are not COCs for groundwater).

MCGs are the maximum concentration, which if present at the excavation sidewalls or floors, would not result in excess human health risk [i.e., ILCR (Incremental Lifetime Cancer Risk) greater than than 1E-04 or Hazardous Indices (HIs) greater than 1]. These values are based on the assumption that all excavation material will be replaced with clean fill as detailed in Section 3.2.7. Achieving these concentrations at the excavation boundaries would result in a no further action (NFA) determination for both human and ecological receptors.

In order to determine whether the proposed soil removal action at SWMU 9 would be protective of ecological receptors, Preliminary Remediation Goals (PRGs) were developed for the short-tailed shrew and American Woodcock, for 4,4'-DDD, 4,4'-DDE, and 4,4'-DDT. The pesticide concentrations remaining in the surface soils post the planned excavation were then compared to the PRGs. The following briefly discusses this evaluation.

Tables 1 and 2 in Attachment 1 present the calculation of the PRGs for the shrew and the woodcock. The PRGs were calculated in an iterative manner by lowering the potential exposure concentration (i.e., the potential PRG) until the Ecological Effects Quotients (EEQs) were slightly less than 1.0. Tables 1 and 2 provide the equations and exposure factors that were used in these calculations. The PRGs were calculated for both receptors using No Observed Adverse Effects Levels (NOAELS) and Lowest Observed Adverse Effects Levels (LOAELs). Table 3 in Attachment 1 is a summary of the PRGs from Tables 1 and 2. The Table 3 shaded cells are the lower value for the NOAEL and LOAEL PRGs between the shrew and woodcock receptors.

Table 4 in Attachment 1 lists the concentrations of selected pesticides for each surface soil sample at SWMU 9. The shaded lines of cells in the spreadsheet list the sample locations that

will be removed as a result of the soil excavation recommended under this Interim Measure. The shaded concentrations in Table 4 are one-half of the contaminant detection limit and are used as surrogate concentrations for the calculation of statistics representing the COC levels post the removal action. The pre-removal pesticide concentrations for the samples to be excavated are presented at the end of Table 4. Additionally, Table 4 presents the recalculated average concentrations, the lowest NOAEL and LOAEL PRGs, and the EPA Region 5 Ecological Screening Levels (ESLs). As shown in Table 4, the PRGs are actually lower than the EPA Region 5 ESLs because different assumptions were used in the food-chain model used to derive the PRGs. The average post-removal SWMU 9 contaminant concentrations are lower than, or just slightly greater than the NOAEL PRGs, and are also lower than the Region 5 ESLs. Therefore, this evaluation indicates that the proposed removal action will be protective of ecological receptors.

Also, why not include cleanup goals for those few other pesticides noted on Figure A-1 as being over screening such as DDD, DDE? That way, we can confirm you're OK across the board for pesticides post-IM removal.

See response to Comment EPA-1. The Navy has calculated and they have been added to the second table in Section 5.2 MCGs for DDD and DDE as presented in the response to Comment EPA-1 on June 14, 2007.

Additionally, clean fill limits have been incorporated into the IMWP through the addition of new seventh and eighth new bullets in the first paragraph of Section 3.2.7 as follows:

- *"4,4'-DDE, USEPA method SW-846 8081 – Less than 3.2 milligrams per kilogram (mg/kg)*
- *4,4'-DDD, USEPA method SW-846 8081 – Less than 3.2 mg/kg"*

Excavation areas were determined based on a risk-based "Media Pick-up Level" (MPL) approach to establish excavation/treatment areas for SWMU 9 because the approach is both protective and cost effective. MPLs are the highest concentrations which, if left in place at a site (i.e., not excavated/treated), would not result in risk estimates exceeding cumulative cancer and non-cancer risk benchmarks established for receptor exposure. The MPLs are determined by an iterative evaluation of the dataset available for a site to determine the concentrations (and associated sampling locations) that are "driving" the risk estimates to exceed acceptable risk management benchmarks. MPLs are determined as follow:

1) The available data (and associated sampling locations) for each significant chemical of concern is listed from highest to lowest concentration for purposes of identifying those samples (and associated contaminant concentrations) most likely to be causing the risk estimates to exceed risk management benchmarks (i.e., the contaminant "hot spot" locations are identified).

2) Once the most significant (i.e, most contaminated) sample locations are identified, exposure point concentrations (EPCs) are re-calculated assuming the most contaminated location(s) are excavated/treated. The risk assessor then recalculates risk estimates based on the new EPCs to determine if the presumed excavation of a sample location(s) would result in risk estimates not exceeding risk management benchmarks established for the project. If the resultant risk estimates still exceed risk management benchmarks, the EPCs (and risk estimates) are re-calculated again based on the assumption that the ***next*** most contaminated sample location(s) are excavated. This iterative process continues until all samples with concentrations causing risk management benchmarks to be exceeded are identified.

3) The maximum concentration that may be left in place (i.e., not excavated/treated) for a particular chemical because risk estimates based on the EPC calculated for ***all*** detected concentrations at or below that value do not exceed risk management benchmarks is referred to the MPL. (MPLs are not strictly risk-based concentrations for a particular chemical [i.e., the values do not represent a particular cancer risk benchmark or a hazard index equal to 1 for a chemical]).

Comment EPA (6-21-07)-2: The DRO goal is noted as 1,600 ppm and the footnote states that is the RISC default residential number. In looking at Table 3-1 of the June 15, 2006 RISC TPH guidance, I find 80 ppm as the residential default closure value for DRO Industrial is 1,000 ppm.

Response to EPA(6-21-07)-2: The DRO value of 1,600 ppm is for direct contact exposures and is listed in the appendix to the RISK TPH guidance. The referenced value from Table 3-1 is the *lowest* of the IDEM criteria values presented in the appendices and is the groundwater protection criterion. All of the MCGs presented in Section 5.2 are based on the protection human receptors potentially directly contacting soils at SWMU 9.

Comment EPA (6-21-07)-3: How do sediments look?

Response to EPA (6-21-07)-3: The draft Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) report did not identify any ecological or human risk for contaminants in sediments.

Comment EPA (6-21-07)-4: Any idea on QAPP submittal timeline?

Response to EPA (6-21-07)-4: Development of the QAPP will commence upon resolution of EPA comments. The draft QAPP is anticipated to be available for EPA review during the first week of August 2007.

Additional Technical Changes

1. To ensure due diligence for backfill material, new third and fourth sentences in the first paragraph of Section 3.2.7 have been added as follows:

   "The backfill soil should come from a source where due diligence shows no evidence of a release of a regulated substance (i.e., clean fill). A certification must be provided regarding the origin of the clean fill, including a statement that, to the best of the provider's knowledge, the backfill soil has not been contaminated with the release of regulated substances."

TABLE 1

SHORT-TAIILED SHREW - NOAEL AND LOAEL PRG CALCULATION
SWMU 9 SOUTH (FORMER BUILDING 55)
NSWC CRANE, INDIANA

NOAEL PRG

Parameter	PRGs (mg/kg)[1]	Invertebrate Concentration (mg/kg)	Dose (mg/kg/day) from: Surface Soil	Inverts.	Total Dose (mg/kg/day)	NOAEL (mg/kg/day)	NOAEL EEQ
4,4'-DDD	0.338	1.499	2.97E-04	1.46E-01	1.47E-01	1.47E-01	9.98E-01
4,4'-DDE	0.0953	1.503	8.38E-05	1.47E-01	1.47E-01	1.47E-01	9.99E-01
4,4'-DDT	0.138	1.498	1.21E-04	1.46E-01	1.46E-01	1.47E-01	9.96E-01

NOAEL PRG

Parameter	PRGs (mg/kg)[1]	Invertebrate Concentration (mg/kg)	Dose (mg/kg/day) from: Surface Soil	Inverts.	Total Dose (mg/kg/day)	LOAEL (mg/kg/day)	LOAEL EEQ
4,4'-DDD	0.825	2.793	7.25E-04	2.73E-01	2.74E-01	2.74E-01	9.98E-01
4,4'-DDE	0.193	2.798	1.70E-04	2.73E-01	2.73E-01	2.74E-01	9.98E-01
4,4'-DDT	0.283	2.795	2.49E-04	2.73E-01	2.73E-01	2.74E-01	9.97E-01

(1) - The PRGs were calculated in an interative approach by changing the values until the EEQs were close to 1.0.

Body Weight = (BW)	1.687E-02	kg
Food Ingestion Rate = (If)	1.648E-03	kg/day
Soil Ingestion Rate = (Is)	1.483E-05	kg/day
Home Range = (HR)	9.700E-01	acres
Contaminated Area = (CA)	Assume equal to home range	
H=HR/CA (Assume = to 1)	1	

Dose (surface soil) = (Cs * Is)(H)/BW
Dose (invertebrates) = (Ci * If)(H)/BW
Total Dose = Dose (surface soil) + Dose (surface water) + Dose (invertebrates)

Definitions:
EEQ - Ecological Effects Quotient
NOAEL - No Observed Adverse Effects Level
LOAEL - Lowest Observed Adverse Effects Level

TABLE 2

AMERICAN WOODCOCK - NOAEL AND LOAEL PRG CALCULATION
SWMU 9 SOUTH (FORMER BUILDING 55)
NSWC CRANE, INDIANA

NOAEL PRG

Parameter	PRGs (mg/kg)[1]	Invertebrate Concentration (mg/kg)	Dose (mg/kg/day) from: Surface Soil	Inverts.	Total Dose (mg/kg/day)	NOAEL (mg/kg/day)	NOAEL EEQ
4,4'-DDD	0.396	1.674	3.38E-03	2.23E-01	2.27E-01	2.27E-01	9.98E-01
4,4'-DDE	0.109	1.692	9.30E-04	2.26E-01	2.26E-01	2.27E-01	9.98E-01
4,4'-DDT	0.155	1.657	1.32E-03	2.21E-01	2.22E-01	2.27E-01	9.79E-01

LOAEL PRG

Parameter	PRGs (mg/kg)[1]	Invertebrate Concentration (mg/kg)	Dose (mg/kg/day) from: Surface Soil	Inverts.	Total Dose (mg/kg/day)	LOAEL (mg/kg/day)	LOAEL EEQ
4,4'-DDD	0.537	2.070	4.58E-03	2.76E-01	2.81E-01	2.81E-01	9.98E-01
4,4'-DDE	0.139	2.096	1.19E-03	2.79E-01	2.81E-01	2.81E-01	9.98E-01
4,4'-DDT	0.202	2.085	1.72E-03	2.78E-01	2.80E-01	2.81E-01	9.95E-01

(1) - The PRGs were calculated in an interative approach by changing the values until the EEQs were close to 1.0.

Body Weight = (BW)	1.895E-01	kg
Food Ingestion Rate = (If)	2.526E-02	kg/day
Soil Ingestion Rate = (Is)	1.617E-03	kg/day
Home Range = (HR)	6.133E+01	acres
Contaminated Area = (CA)	Assume equal to home range	
H=HR/CA (Assume = to 1)	1	

Dose (surface soil) = (Cs * Is)(H)/BW
Dose (invertebrates) = (Ci * If)(H)/BW
Total Dose = Dose (surface soil) + Dose (surface water) + Dose (invertebrates)

Definitions:
EEQ - Ecological Effects Quotient
NOAEL - No Observed Adverse Effects Level
PRG - Preliminary remediation Goals
Cs = Contaminant concentration in soil
Ci = Contaminant conc. in soil invertebrates (from U.S. EPA (2005)
4,4'-DDD = EXP(0.6975*ln(Cs)+1.1613)
4,4'-DDE = EXP(0.8804*ln(Cs)+2.4771)
4,4'-DDT = EXP(0.8689*ln(Cs)+2.1247)

TABLE 3

SUMMARY OF PRGS FOR SHORT-TAIILED SHREW AND AMERICAN WOODCOCK
SWMU 9 SOUTH (FORMER BUILDING 55)
NSWC CRANE, INDIANA

	Short-Tailed Shrew		American Woodcock	
	SUF 1		SUF 1	
Chemical	NOAEL PRG (mg/kg)	LOAEL PRG (mg/kg)	NOAEL PRG (mg/kg)	LOAEL PRG (mg/kg)
4,4'-DDD	**0.34**	0.825	0.396	**0.537**
4,4'-DDE	**0.095**	0.193	0.109	**0.139**
4,4'-DDT	**0.14**	0.283	0.155	**0.202**

The shaded cells are the values that were selected as the PRGs for evaluating the residual site data. (see Table 4)

NOAEL - No Observed Adverse Effects Level
LOAEL - Lowest Observed Adverse Effects Level
PRG - Preliminary Remediation Goal

TABLE 4

CALCULATION OF AVERAGE PESTICIDE CONCENTRATIONS AFTER THE PROPOSED REMOVAL ACTION IS COMPLETED
SWMU 9 SOUTH (FORMER BUILDING 55)
NSWC CRANE, INDIANA

Sample Location	4,4'-DDD	4,4'-DDE	4,4'-DDT	ALPHA-CHLORDANE	DIELDRIN	GAMMA CHLORDANE	HEPTACHLOR
09SB012	1.65	1.65	1.65	0.8	1.65	0.8	0.8
09SB013	1.6	1.6	1.6	0.75	1.6	0.75	0.75
09SB014	1.6	1.6	1.2	2.4	1.6	3.9	0.75
09SB015/TW001	49	8.1	81	0.75	1.55	0.75	0.75
09SB016	5.1	320	140	3.3	8.1	0.7	0.7
09SB017	1.55	3.8	1.5	0.75	1.55	0.75	0.75
09SB018	**1.6**	**1.6**	**1.6**	**0.75**	**1.6**	**0.75**	**0.75**
09SB019	**1.6**	**1.6**	**1.6**	**0.75**	**1.6**	**0.75**	**0.75**
09SB020	**1.6**	**1.6**	**1.6**	**0.75**	**1.6**	**0.75**	**0.75**
09SB021	**1.6**	**1.6**	**1.6**	**0.75**	**1.6**	**0.75**	**0.75**
09SB022	**1.6**	**1.6**	**1.6**	**0.75**	**1.6**	**0.75**	**0.75**
09SB023/TW004	**1.6**	**1.6**	**1.6**	**0.75**	**1.6**	**0.75**	**0.75**
09SB024/TW006	**1.6**	**1.6**	**1.6**	**0.75**	**1.6**	**0.75**	**0.75**
09SB025	**1.6**	**1.6**	**1.6**	**0.75**	**1.6**	**0.75**	**0.75**
09SB026	**1.6**	**1.6**	**1.6**	**0.75**	**1.6**	**0.75**	**0.75**
09SB027/TW005	**1.6**	**1.6**	**1.6**	**0.75**	**1.6**	**0.75**	**0.75**
09SB028	0.785	0.785	6.6	0.378	0.785	0.378	0.378
09SB029	0.825	0.825	0.825	0.3965	0.825	0.3965	0.3965
09SB030	0.885	0.885	0.885	0.426	0.885	0.426	0.426
09SB042	0.835	13	13	0.4015	0.835	0.4015	0.4015
09SB043	0.78	60	66	0.3765	0.78	3.3	0.3765
09SB044	1500	2200	570	900	0.835	820	0.403
09SB045	0.8	0.8	0.8	0.3855	0.8	0.3855	0.3855
09SB046	**1.6**	**1.6**	**1.6**	**0.75**	**1.6**	**0.75**	**0.75**
09SB047	**1.6**	**1.6**	**1.6**	**0.75**	**1.6**	**0.75**	**0.75**
09SB048	**250**	**560**	**830**	**0.4265**	**0.885**	**0.4265**	**0.4265**
09SB049	0.815	28	9.3	0.3935	0.815	0.3935	0.3935
09SB049A	92	900	690	0.389	0.81	9.6	0.389
09SB065	39	48	34	7.6	0.75	20	0.365
09SB066	**1.6**	**1.6**	**1.6**	**0.75**	**1.6**	**0.75**	**0.75**
09SB067	**1.6**	**1.6**	**1.6**	**0.75**	**1.6**	**0.75**	**0.75**
09SB068	**1.6**	**1.6**	**1.6**	**0.75**	**1.6**	**0.75**	**0.75**
09SB069	**1.6**	**1.6**	**1.6**	**0.75**	**1.6**	**0.75**	**0.75**
09SB070	**1.6**	**1.6**	**1.6**	**0.75**	**1.6**	**0.75**	**0.75**
09SB071	0.8	0.8	6.7	0.395	0.8	0.395	0.395
09SB072	36	210	71	0.42		0.42	0.42
09SB073	5.8	230	68	0.385	0.8	2.1	0.385
09SB074	10	76	83	4.6		5.3	0.345
09SB075	0.8	0.8	0.8	0.385	0.8	0.385	0.385
New Average Concentrations	**52**	**120**	**69**	**24**	**1**	**23**	**0.6**
NOAEL PRG[1]	**338**	**95**	**138**	**NA**	**NA**	**NA**	**NA**
LOAEL PRG[2]	**537**	**139**	**202**	**NA**	**NA**	**NA**	**NA**
Region 5 ESL[3]	**758**	**596**	**170**	**224**	**2.38**	**224**	**5.98**

Shaded cells are locations that will be excavated. The concentrations in the cell are 1/2 of the laboratory detection limits.

[1] - No Observed Adverse Effects Level (NOAEL) Preliminary Remediation Goal (PRG) is is based on the shrew (see Table 1 for calculation).

[2] - Lowest Observed Adverse Effects Level (LOAEL) Preliminary Remediation Goal (PRG) is is based on the woodcock (see Table 2 for calculation).

[3] - U.S. EPA Region 5 Ecological Screening Level (U.S. UPA, 2003).

Analytical results for Removed Samples

Sample Location	4,4'-DDD	4,4'-DDE	4,4'-DDT	ALPHA-CHLORDANE	DIELDRIN	GAMMA CHLORDANE	HEPTACHLOR
09SB018	22000	130000	2200000	170000	1650	210000	48000
09SB019	820	3100	27000	700	7	700	3.4
09SB020	1700	670	3500	140	420	150	1.985
09SB021	220	45	180	74	12	50	0.397
09SB022	65	10	66	19	0.845	11	0.406
09SB023/TW004	0.815	0.815	0.815	0.392	0.815	0.392	0.392
09SB024/TW006	0.795	70	350	7.2	0.795	16	0.3835
09SB025	19	400	990	800	17	760	59
09SB026	1800	30000	110000	1000	210	1100	46.9
09SB027/TW005	83	80	47	170	0.77	190	0.371
09SB046	517	1900	130000	249	517	249	249
09SB047	120	300	320	0.3995	6.6	0.3995	0.3995
09SB066	290	730	2500	220		260	
09SB067	160	1500	2000	790	6000	860	0.36
09SB068	0.85	5.9	17	0.42	0.85	0.42	0.42
09SB069	170	180	6400	78	360	73	21
09SB070	5400	3700	190000	360	4200	540	42

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

Env. Site Manager

TITLE

7/13/07

DATE

5090
Ser PRCR4/7231

13 July 2007

The letter SER PRCR4/7231 was for the submittal of the Draft Interim Measures Work Plan (IWMP) for SWMU 09 response to comments and change pages. The change pages were added to the draft report dated 6/15/07.