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NSA CRANE
5090.3a

RESPONSES TO U S EPA COMMENTS ON CORRECTIVE MEASURES IMPLEMENTATION PLAN/QUALITY ASSURANCE PROJECT PLAN DYE BURIAL GROUNDS WITH TRANSMITTAL NSA CRANE IN 8/31/2006
NSA CRANE

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

IN REPLY REFER TO:
5090/S4.7.7
Ser PRCR4/6279
31 AUG 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 responses to the U. S. EPA comments dated August 8, 2006 on the Corrective Measures Implementation Plan/Quality Assurance Project Plan (CMIP/QAPP) for the Dye Burial Grounds (DBG), Solid Waste Management Unit 02. The comment responses are presented as enclosure (1). Enclosure (2) contains the resulting change pages for the DBG CMIP/QAPP. The responses and change pages were previously emailed to you on August 21, 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. Responses to Comments on the DBG CMIP/QAPP
2. DBG CMIP/QAPP Change Pages
3. Certification Statement

Copy to:
ADMINISTRATIVE RECORD
NAVFAC SE (Code OPGEVR) (w/o encl)
IDEM (Doug Griffin)
TTNUS (Ralph Basinski) (w/o encl)
NAVFAC MW (Howard Hickey)

ENCLOSURE (1)
RESPONSES TO COMMENTS ON THE DBG CMIP/QAPP

RESPONSES TO USEPA COMMENTS (8 AUGUST 2006) RECEIVED BY ELECTRONIC MAIL ON THE DRAFT CORRECTIVE MEASURES IMPLEMENTATION PLAN/QUALITY ASSURANCE PROJECT PLAN (CMIP/QAPP) FOR SOLID WASTE MANAGEMENT UNIT (SWMU) 2 AT NAVAL SURFACE WARFARE CENTER (NSWC) CRANE

Comment 1. ...Additionally, with respect to USEPA comment 21, per Table 3-5, field duplicates should be collected at the prescribed frequency. I suspect that the QAPP writers meant to state that it is field blanks which need not be collected so frequently (p. 7 of 9, section 3.11).

Response. The reviewer is correct in deducing that the reference to "field duplicates" in the last sentence of the third paragraph of Section 3.11 should be "field blanks." The necessary change has been made to reflect this, as follows:

"No field blanks are required unless cross contamination is suspected."

Comment 2. ... The responses indicate no MCS can be computed for Acid Blue, Acid Red 64, and Solvent Red 24, but the Table [3-3] has values for Acid Blue 45 and Solvent Red 24, but no values for Acid Red 64 or Solvent Red 1.

Response 2. The apparent conflict derived from not having enough information at the time of the original comment response to compute MCSs for certain compounds but later locating the information required to compute the appropriate values. Sufficient information has now been found to compute MCSs for all compounds in Table 3-3 except Acid Red 64. To resolve the identified conflict between Table 3-3 and the response to previous USEPA comments 3 and 6, the Media Cleanup Standard for Solvent Red 1 has been changed in Table 3-3 to "730 [(7)]". Footnote 7 has been changed as follows:

"MCS is based on using Acid Yellow 3 as a surrogate for Solvent Yellow 33 and using Solvent Orange 7 as a surrogate for Solvent Red 1."

ENCLOSURE (2)
DBG CMIP/QAPP CHANGE PAGES

3.0 LONG-TERM GROUNDWATER MONITORING FIELD OPERATIONS

The list of wells included in the LTM program for SWMU 2 is presented in Table 3-1 along with rationales for their inclusion. The locations of wells included in the LTM program for SWMU 2 (and additional wells not included in the program) are shown on Figure 1-4. A complete list of existing SWMU 2 wells and well construction details are presented in Table 3-2. This list is more comprehensive than the wells shown on figures in Section 1.0. Analytical requirements for the long-term groundwater monitoring program are summarized in Tables 3-3 through 3-5. The sampling frequencies are described in the text below, and the sampling dates for the first eight sampling rounds are shown in Table 3-3. Well screen depths and lengths were re-evaluated to ensure that they will support attainment of project objectives. The wells are situated to provide data sufficient for characterizing groundwater conditions and site risks. Maintaining the current well screen depths and lengths for the long-term monitoring will ensure comparability of future and historical data. The wells selected for inclusion in the monitoring program are those that are believed to best reflect the ability to detect changing groundwater or geologic conditions across the site.

Field SOPs are provided in Appendix B. Groundwater purge data and well construction logs are provided in Appendix C for the eight existing wells that are scheduled to be monitored. If any more existing wells are added to the LTM program, similar information can be obtained from past reports for those wells (TtNUS 2004 and 2005a).

The sampling and analysis program incorporates flexibility to change based on changing site conditions. Additional details concerning potential changes in sampling frequencies is provided in the remainder of this section and Section 5.0.

3.1 WELL AND PUMP INSPECTION, CLEANING, AND MAINTENANCE

All exterior features and well depths of monitoring wells to be sampled will be inspected in accordance with SOP 01 at the beginning of each sampling round. Well casings, caps, or locks that appear to be broken, vandalized, or disturbed, either by natural causes or human activities, will be reported at once to the FOL, and steps will be immediately taken to either repair the well or find a suitable replacement for the well.

Inspection, cleaning, maintenance, and repair (if necessary) of the well caps, tubing, and pumps will also be conducted every 10 years or more frequently as required. These activities may occur in conjunction with a sampling event. The maintenance will begin with retrieval of the pumps and tubing from each well

and inspection of them to ensure that the intakes, bladders, and tubing are not fouled. The pumps and tubing should be cleaned and repaired as necessary to ensure that the groundwater collected is chemically and physically representative of the groundwater in the screened geologic unit. Needed repairs will be conducted according to manufacturer's recommendations. Well pumps, well caps, and other metallic materials will be checked for corrosion when the pumps are inspected. A log sheet for each well inspection will be completed, and details of all cleaning, maintenance, and repairs will be recorded, including the dates when bladders in the pumps are replaced (see SOP 01).

3.2 WATER LEVEL ELEVATIONS AND SURVEYING

A synoptic round of water level measurements will be made at the beginning of each sampling round in accordance with SOP 02. These water level measurements will be obtained at every DBG monitoring well shown on Figure 1-4, regardless of whether or not it is included in the LTM program for chemical analysis. All water level measurements will be made within an 8-hour period using an electronic water level meter. No dyes or dye degradation products have been detected in groundwater; however, future detections are possible. If contamination is detected in the future, the groundwater level measurements during subsequent events will begin at uncontaminated wells and progress to the most contaminated wells to prevent carryover of contamination from one well to the next. The depth to water in each well will be recorded to within 0.01-foot precision from a marked reference point on the well riser pipe. A blank water level form is provided in SOP 02. The water level meter will be decontaminated between measurements at each well in accordance with SOP 03. Water elevations in each well will be computed using the depth to water from a notch on the riser and the surveyed top of riser elevation.

Surveying may occur at any time, as required. Any new wells that are installed or wells that are repaired in a manner that changes the top of riser elevation shall be surveyed in accordance with State of Indiana requirements. The horizontal coordinates, the top of riser elevation, and the ground surface elevation will be surveyed for each well. Surveying coordinates will be State Plane Coordinate System – Indiana West coordinates [Horizontal = North American Datum (NAD) 1983 feet, Vertical = North American Vertical Datum (NAVD) 1988 U.S. Survey feet]. The survey data will eventually be used to generate a permanent tag with well-specific information that will be placed on each new well. The required information is identified in Section 5.0 of SOP 04. In addition, the survey information will be used to update water elevations at SWMU 2 for assessing groundwater flow and will be added to the Navy environmental geographical information system (EGIS).

3.3 WELL DEVELOPMENT

By the time the first round of LTM sampling occurs, the wells will not have been sampled for 4 years or more. Therefore, well development may be required prior to sampling. Groundwater purge data and well construction logs are provided in Appendix C to support an evaluation of whether development is necessary. A field geologist will be responsible for making this assessment. Well development may also be required prior to subsequent sampling activities, and the need for this will be determined by the field geologist. Well development will be accomplished and documented in accordance with SOP 05.

If a well cannot be developed or does not yield sufficient water for purging and sampling, this will be noted on the appropriate log sheet.

3.4 DEDICATED PUMP INSTALLATION

At the beginning of the LTM program, a dedicated bladder pump and Teflon sample collection tubing will be installed in each of the five wells to be sampled. The pump and tubing will remain in each of these wells until monitoring in the well has been completed, the well is removed from the list of wells to be monitored, or the pump or tubing is replaced. Pumps and other materials installed in the wells must be made of stainless steel, Teflon, or similar corrosion-resistant materials.

3.5 MONITORING FREQUENCIES

Monitoring will be conducted approximately every 2 years unless data indicate that this frequency should be changed. During the first 5-year period following U.S. EPA approval of this plan, sampling and analysis of the LTM well network will be conducted three times (year 1, year 3, and year 5). Whether to increase or decrease the monitoring frequency or the number of wells to be monitored will be determined in accordance with the data evaluation process described in Section 5.0.

3.6 GROUNDWATER PURGING AND SAMPLING PROCEDURES

Groundwater purging and sampling will be accomplished using low-flow purging and sampling techniques. SOPs 06 and 07 provide present requirements for well purging and sampling, respectively. SOPs 08 and 09 provide details on the calibration and use of field equipment used for worker safety and well stabilization measurements.

The intake of each pump will be placed at the midpoint of the saturated screened interval for purging and sampling. The target drawdown to be maintained during purging is 0.3 foot or less. Purging will continue

until field parameter readings for pH, specific conductance, temperature, and turbidity stabilize as required in SOP 06. Oxidation-reduction potential (ORP) and dissolved oxygen (DO) concentrations will also be measured at the well head using a flow-through cell, but these parameters will not be used to indicate well stabilization. Some wells may not produce enough water to support the purging requirements of SOP 06. The PM will be notified in those cases to ensure that field conditions do not compromise data quality.

Pre-preserved sample collection containers will be obtained from the laboratory to yield conditions shown in Table 3-4 when full of sample.

As monitoring progresses, the number of wells sampled and analyses performed in future sampling events may be changed, upon approval by the U.S. EPA and IDEM. Monitoring results will be tabulated and presented to the Navy in biennial and 5-year review reports (see Sections 7.0 and 8.0).

3.7 FIELD MEASUREMENTS

Parameters to be measured in the field are listed in Table 3-3. The field measurements will meet the specifications in SOP 06 prior to collecting samples.

In addition to measurements of well water chemical and physical parameters, depth to groundwater in each well will be measured as described in Section 3.2. Repaired wells or new wells will be surveyed in accordance with Section 3.2. The survey will be conducted in enough time to support groundwater elevation calculations to be included in the periodic monitoring reports (See Sections 7.0 and 8.0).

3.8 SAMPLE NOMENCLATURE AND CUSTODY

Each sample is to be assigned a unique sample identification number. The well and sample numbering schemes have changed occasionally, and past sample numbers reflect these changes. New sample numbers will use the convention that has been established for NSWC Crane, as described in SOP 10 of Appendix B. Care must be taken to ensure that the correct sequential sampling round number is used for each sampling event. For each well scheduled to be sampled, the list below shows the number of the most recently collected sample and the sample number to be used in the first (i.e., year 1) LTM sampling event.

Well	Last Sample Collected	LTM Year 1 Sample
02-01	02GW0101	02LTMGW0101
02-02	02GW0201	02LTMGW0201
02-05	02GW0501	02LTMGW0501
02-06	02-06 (92) (03/28/92)	02LTMGW0601
02-07	02GW0701	02LTMGW0701
02-08	02GW0801	02LTMGW0801
02C17P2	02C17P2 (92) (03/28/92)	02LTMC17P201
02C18P2	02C18P2 (92) (03/28/92)	02LTMC18P201

Subsequent sample numbers will be increased by one for each sampling round - with one exception. For internal Navy purposes duplicate samples will be labeled with the same sample number as the original sample, but with "-D" appended to the number. For example, the original sample collected from well 02-02 in year 1 will be 02GW0201. If a duplicate of this sample is collected, its number would be 02GW0202-D. Duplicate samples will be submitted blind to the laboratories so the laboratories do not know the samples are duplicates and cannot relate the duplicate samples to the corresponding original sample. Details concerning numbering of field duplicates and other field QC samples such as trip blanks are provided in SOP 10.

Each sample bottle must be maintained under chain of custody in accordance with SOP 11 at all times until analysis is complete.

3.9 SAMPLE PACKAGING AND SHIPMENT

Samples will be shipped by overnight courier to the analytical laboratory within a time frame that permits analysis of the samples within the specified holding times (See Section 4.0). SOP 12 governs this operation. A copy of the airway bill or other sample documentation must be retained for inclusion in the NSWC Crane Administrative Record.

Sample preservation and holding time requirements are presented in Table 3-4 for all analyses conducted in the field and at a fixed-base laboratory.

3.10 INVESTIGATION-DERIVED WASTE MANAGEMENT

It is anticipated that this investigation will, or may, generate the following types of potentially contaminated residues or investigation-derived waste (IDW):

- Personal protective equipment (PPE) and groundwater sample tubing
- Well development and purge fluids
- Equipment decontamination fluids
- Drill cuttings (if new wells are installed)

IDW generated during LTM activities will be handled as follows:

PPE - All PPE will be double-bagged and placed in trash receptacles at the facility.

Well Development and Purge Fluids - All well development and purge fluids will be collected and stored on site in a plastic holding tank (recommended capacity of 300 to 500 gallons). Discharge will occur at a manhole designated by NSWC Crane. This point shall be far enough upstream of the NPDES monitoring point that there is not risk of exceeding current NPDES permit requirements.

Equipment Decontamination Fluids - All decontamination fluids will be combined with well development and purge fluids and handled in the same manner.

Tubing Used for Development, Purging, or Sampling - All tubing used to develop, purge, or sample a well will be double-bagged and placed in a trash receptacle at the facility.

Drill Cuttings - Drill cuttings will be scanned for volatile organic compounds (VOCs). Drill cuttings with field screening VOC concentrations at background levels will be spread out at the drilling locations. Drill cuttings with readings greater than background will be placed in 55-gallon drums, and the Prime Contractor PM will be contacted to determine the appropriate means for off-site disposal.

3.11 FIELD QUALITY CONTROL SAMPLE COLLECTION

Table 3-5 presents the minimum frequencies at which field QC samples will be collected and analyzed during the first round of sampling. It will be necessary to collect extra sample volume for laboratory matrix spike (MS) and MS duplicate (MSD) analyses. This volume is typically two to three times the normal sample volume, but specific requirements should be obtained from the analytical laboratory.

The temperature blank is a vial of water that is packaged and shipped with the samples to the laboratory to verify that the samples were maintained at a proper temperature during transit and storage. The temperature of samples received at the laboratory should be within the range of 2 to 6 degrees Celsius. Rinsate blanks will be collected at a frequency of one per non-dedicated sampling device or instrument.

An equipment rinse water (source blank) blank will be collected per each rinsate water source used. No field blanks are required unless cross contamination is suspected.

If dyes or dye degradation products are detected in groundwater, MS samples should be collected from wells that rank in the top 30 percent of dye or dye degradation product concentrations. Otherwise, MS samples may be collected from any well. One set of matrix spike/matrix spike duplicate (MS/MSD) samples must be collected per field event to monitor accuracy and precision. If the number of samples collected per field event increases, the rate of one MS/MSD pair per 20 environmental samples will be used to determine the number of MS and MSD samples for which additional sample volume will be collected.

Field QC samples will be handled and shipped in the same way as normal field samples.

3.12 FIELD DATA REPORTING

All records regarding field measurements (i.e., field logbooks, sampling logbooks, and sample log sheets) will be placed in a central file upon completion of the field effort. An out card system will be used to ensure that documents removed from the files are replaced. All original records will be sent to NSWC Crane for inclusion in the final evidence files.

Field logs included in the SOPs, or their equivalent, must be completed and included in the project files and reports, as necessary.

Electronic copies of the hardcopy natural attenuation and well stabilization parameters measured in the field will be provided to the Navy through the Prime Contractor. For well stabilization parameters, the final value that represents conditions at the time of sampling is the value to be reported. The data deliverable content and format specification may be found at the following Internet link:

https://www.sdirport.com/customer/ttnus/irgateway.nsf/MAINLOADER?OpenFrameSet

The information at this link provides detailed instructions for reporting environmental data generated by site investigation and LTM. The intent is to standardize reporting formats to improve how environmental data are acquired, managed, and transmitted. The following items are available at the "Electronic Data Exchange (EDE) Examples button located at the link:

- SOP
- Electronic Data Deliverable (EDD) spreadsheets and databases
- Electronic data processor
- Example electronic data submittal

Throughout the LTM program, environmental data will be submitted by the data generator to the Prime Contractor.

3.13 FIELD REPORTS TO MANAGEMENT

While field activities are in progress, the FOL will provide the Prime Contractor PM with daily verbal field progress reports. These reports will describe accomplishments, deviations from the CMIP/QAPP, and upcoming activities and will include a QA summary.

3.14 NEW WELL INSTALLATION

It may be necessary during the course of implementing this Plan to install new wells. Well boring and well installation shall be done in accordance with State of Indiana requirements reference and SOPs 04, 13, and 14 (located in Appendix B).

3.15 FENCE CONSTRUCTION AND SIGNAGE

A 6-foot high chain link fence will be installed along the LUC Boundary 1 shown on Figure 1-4. The fence shall incorporate a single, 12-foot wide access gate aligned and positioned between LUC Boundary 1 Vertices 2 and 3 to allow access from the SWMU 2 access road. This gate shall comprise two, 6-feet wide gate leaves. The estimated linear feet of fence is 1,350 feet (including the gate). The approximate position of this gate is shown on Figure 1-4.

Six signs shall be attached to the fence and gate as shown on Figure 1-4. The sign placement shall be such that the sign centers fall within 5 feet of the indicated sign locations. The sign on the gate shall be placed on one of the gate leaves near the center of the gate closure.

Detailed fence and sign specifications are provided in Appendix D.

3.16 FIELD CORRECTIVE ACTIONS

Field nonconformances or conditions adverse to quality must be identified and corrected as quickly as possible so that work integrity and/or product quality is not compromised. The need for corrective action may arise based on deviations from project plans and procedures, adverse field conditions, or other unforeseen circumstances. Corrective action needs may become apparent during the performance of daily work tasks or as a consequence of internal or external field audits. Corrective action may include resampling and may involve amending previously approved field procedures. Minor modifications to field activities, such as the collection of additional samples, will be initiated at the discretion of the FOL, subject to on-site approval by NSWC Crane personnel. Major modifications, such as the elimination of a sampling point or other situations that affect compliance with or achievement of DQOs, must be approved and documented via an FTMR. Approval of the field corrective action will be obtained by the Navy (in conjunction with IDEM). The FOL is responsible for initiating FTMRs. An FTMR will be prepared for all deviations from the project plan documents, as applicable. An example FTMR is provided in Figure 3-1. Copies of all FTMRs will be maintained with the on-site project planning documents and will be placed in the final evidence file.

A digging permit and utility clearance must be obtained prior to intrusive activities and arrangements for this may be coordinated through the NSWC Environmental Protection Department. Compliance with LUCs will be required (see Section 6.0).

3.17 PREVENTIVE MAINTENANCE

The field crew equipment manager and the equipment operator will be responsible for ensuring that equipment is operating properly prior to use and that routine maintenance is performed and documented. Field measurements of pH, specific conductance, temperature, and turbidity in groundwater will be measured using an electronic instrument. Maintenance procedures for the instrument are detailed in SOP 08. Any problems encountered while operating the instrument will be recorded in the field logbook, including a description of the symptoms and corrective actions taken. If problems with the equipment are detected and service is required, the equipment will be logged, tagged, and segregated from equipment in proper working order. Use of the equipment will not resume until the problem is corrected.

All field equipment shall be inspected prior to use to ensure that necessary parts are available. Most equipment planned for use in this project is simple, with few to no moving parts. Therefore, a visual inspection prior to use shall be sufficient to ensure that the equipment is suitable for use. This visual inspection shall occur during mobilization and during each use by the person using the equipment.

TABLE 3-3

PARAMETERS, DETECTION AND REPORTING LIMITS, AND
MEDIA CLEANUP STANDARDS [1]
NSWC CRANE, CRANE , INDIANA

Parameter	Target Laboratory MDL (µg/L) [2]	Target RL (µg/L) [2]	MEDIA CLEANUP STANDARD (MCS) (µg/L) [2]	Sampling And Analysis Times (Years) [3]								
				1	3	5	7	9	11	13	15	Etc.
DYES (NSWC CRANE METHOD CR4052 PD 2500, LONG GRADIENT OPTION) [4]												
1-Aminoanthraquinone	**15.0**	***20.0***	2.01 [6]	X	X	X	X	X	X	X	X	(5)
2-Aminoanthraquinone	**15.0**	***25.0***	2.01 [6]	X	X	X	X	X	X	X	X	(5)
Acid Blue 1	45.0	100	450 [6]	X	X	X	X	X	X	X	X	(5)
Acid Blue 45	30.0	100	230000	X	X	X	X	X	X	X	X	(5)
Acid Blue 9	25.0	100	230000 [6]	X	X	X	X	X	X	X	X	(5)
Acid Orange 10	15.0	50.0	100 [6]	X	X	X	X	X	X	X	X	(5)
Acid Red 64	15.0	50.0	--	X	X	X	X	X	X	X	X	(5)
Acid Yellow 23	15.0	50.0	30000	X	X	X	X	X	X	X	X	(5)
Acid Yellow 3	25.0	100	1800	X	X	X	X	X	X	X	X	(5)
Acid Yellow 73	15.0	50.0	570	X	X	X	X	X	X	X	X	(5)
Basic Violet 10	15.0	50.0	570 [6]	X	X	X	X	X	X	X	X	(5)
Basic Yellow 2	**200**	**250**	60 [6]	X	X	X	X	X	X	X	X	(5)
Disperse Blue 14	20.0	50.0	365	X	X	X	X	X	X	X	X	(5)
Disperse Red 9	15.0	50.0	365	X	X	X	X	X	X	X	X	(5)
Disperse Violet 1	15.0	50.0	365	X	X	X	X	X	X	X	X	(5)
Solvent Green 3	20.0	50.0	75	X	X	X	X	X	X	X	X	(5)
Solvent Orange 3	15.0	50.0	600 [6]	X	X	X	X	X	X	X	X	(5)
Solvent Orange 7	10.0	50.0	730 [6]	X	X	X	X	X	X	X	X	(5)
Solvent Red 1	10.0	29.0	730 [7]	X	X	X	X	X	X	X	X	(5)
Solvent Red 24	5.0	25.0	730	X	X	X	X	X	X	X	X	(5)
Solvent Yellow 14	15.0	50.0	460 [6]	X	X	X	X	X	X	X	X	(5)
Solvent Yellow 2	**15.0**	***20.0***	0.01 [6]	X	X	X	X	X	X	X	X	(5)
Solvent Yellow 3	**20.0**	***40.0***	0.02 [6]	X	X	X	X	X	X	X	X	(5)
Solvent Yellow 33	13.7	17.5	1800 [7]	X	X	X	X	X	X	X	X	(5)
REPRESENTATIVE DYE DEGRADATION PRODUCTS SW-846 METHOD 3520C/8270C [8]												
1-Naphthylamine	2.0	10.0	12 [9]	X	X	X	X	X	X	X	X	(5)
2-Methylpyridine	10.0	40.0	36 [10]	X	X	X	X	X	X	X	X	(5)
Aniline	**15.0**	**50.0**	12 [11]	X	X	X	X	X	X	X	X	(5)
Benzidine	5.0	20.0	0.00029	X	X	X	X	X	X	X	X	(5)
Indole	10.0	40.0	0.021 [12]	X	X	X	X	X	X	X	X	(5)
Naphthalene	5.0	**10.0**	6.2	X	X	X	X	X	X	X	X	(5)
o-Toluidine	**5.0**	**10.0**	0.28	X	X	X	X	X	X	X	X	(5)
Pyridine	10.0	**40.0**	36	X	X	X	X	X	X	X	X	(5)
Quinoline	10.0	40.0	0.021	X	X	X	X	X	X	X	X	(5)

TABLE 3-3

PARAMETERS, DETECTION AND REPORTING LIMITS, AND
MEDIA CLEANUP STANDARDS [1]
NSWC CRANE, CRANE , INDIANA

Parameter	Target Laboratory MDL (µg/L) [2]	Target RL (µg/L) [2]	MEDIA CLEANUP STANDARD (MCS) (µg/L) [2]	Sampling And Analysis Times (Years) [3]								
				1	3	5	7	9	11	13	15	Etc.
WELL STABILIZATION PARAMETERS [9]												
Dissolved oxygen (DO), at well head with flow-through cell	NA	100	NA	X	X	X	X	X	X	X	X	(5)
Oxidation/reduction potential (ORP), at well head using flow-through cell	NA	NA	NA	X	X	X	X	X	X	X	X	(5)
pH, at the well head using flow-through cell	NA	NA	NA	X	X	X	X	X	X	X	X	(5)
Specific conductance, at well head using flow-through cell	NA	NA	NA	X	X	X	X	X	X	X	X	(5)
Temperature, at the well head using flow through cell	NA	NA	NA	X	X	X	X	X	X	X	X	(5)
Tubidity, at well head using direct reading meter	NA	1 NTU	NA	X	X	X	X	X	X	X	X	(5)

COC = Chemical of concern.
FBL = Analysis will be done in fixed base laboratory.
MDL = Method detection limit.
NA = Not available.
RL = Reporting limit.
µg/L = micrograms per liter.
INS = Insufficient Information.
NTU = Nephelometric Turbidity Units.

Shaded cells indicate target MDLs that exceed a risk-based target level.
Shaded cells indicate target RLs that exceed a risk-based target level.
MDLs and RLs represent the most current information as of April 2006.

1 Refer to Table 3-1 to detemrine which wells are to be analyzed for the indicated parameters.
2 If an MCS is shown as "---", default to the Target RL because the "---" indicates that an MCS could not be calculated for lack of toxicity data. Target RLs will be replaced with actual RLs when the laboratory services are contracted.
3 The nominal sampling and analysis frequency is every 2 years after the first sampling event (year 1). Range of ±45 days from the nominal sampling time is allowed.
4 MDL and RL values are based on the long gradient low level method low spike.
5 Subsequent analyses will depend on data trends. See Section 4.0.
6 These values were developed by U.S. EPA Region 5 specifically for the RFI (TtNUS, 2001a).
7 MCS based on using Acid Yellow 3 as a surrogate for Solvent Yellow 33 and using Solvent orange 7 as a surrogate for Solvent Red 1.
8 See Appendix A for explanation of how these chemicals were selected to represent dye degradation products. MDLs and RLs are estimates based on best available data and will be revised based on project-specific MDL study.
9 MCS based on using aniline as a surrogate for 1-naphthylamine.
10 MCS based on using pyridine as a surrogate for 2-methylpyridine.
11 MCS based on using 2-nitroaniline as a surrogate for aniline.
12 MCS based on using quinoline as a surrogate for indole.

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 Hamrick
SIGNATURE

Manager, Environmental Protection
TITLE

8/31/06
DATE