



**DEPARTMENT OF THE NAVY**

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

N00164.AR.001118  
NSWC CRANE  
5090.3a

IN REPLY REFER TO:

5090/S4.7.5  
Ser PRCR4/7263

2 AUG 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 the revised Table 3-5 for the Mustard Gas Burial Grounds (MGBG), solid waste management unit 01, Corrective Measures Implementation Plan/Quality Assurance Project Plan (CMIP/QAPP). A copy of the table with tracked changes is presented as enclosure (1). Enclosure (2) contains the revised version of Table 3-5. The permit required Certification Statement is provided as enclosure (2).

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  
Environmental Site Mgr  
By direction of the Commanding Officer

- Enclosures: 1. MGBG CMIP/QAPP Table 3-5 With Tracked Changes  
2. Updated MGBG CMIP/QAPP Table 3-5  
3. Certification Statement

Copy to:  
ADMINISTRATIVE RECORD  
NAVFAC MW (Howard Hickey)  
IDEM (Doug Griffin)  
TTNUS (Ralph Basinski)  
SAIC (Kim Hughes)

ENCLOSURE (1)  
MGBG CMIP/QAPP  
TABLE 3-5 REVISED  
WITH TRACKED CHANGES

TABLE 3-5

**SUMMARY OF ANALYTICAL METHODS, BOTTLEWARE, PRESERVATIONS, AND HOLDING TIME  
REQUIREMENTS FOR LONG TERM GROUNDWATER MONITORING  
SWMU 01 - MUSTARD GAS BURIAL GROUND  
NSWC CRANE, CRANE, INDIANA**

Analytical Method	Parameter	Container Material	Container Volume <sup>(1)</sup>	Preservation <sup>(2)</sup>	Holding Time <sup>(3)</sup>
SW-846 5030/8260B	Appendix IX Volatile Organic Compounds or subsets thereof	Glass vial, Teflon-lined septa	<del>Three</del> <u>3</u> x 40 mL	Cool to 4°C; HCl to pH < 2; Zero headspace	14 days to analysis
Lloyd Kahn	Total organic carbon	Amber glass, septa cap	<u>2</u> x <del>40</del> <u>125</u> mL	Cool to 4°C, <del>H<sub>2</sub>SO<sub>4</sub></del> , <u>H<sub>3</sub>PO<sub>4</sub></u> to pH < 2	28 days to analysis
EPA 300	Chloride, <del>nitrate plus nitrite, orthophosphate</del> , sulfate	High density polyethylene or glass, with plastic cap.	<del>100 to</del> 250 mL	<del>Cool to 4°C</del> <u>None</u>	28 days to analysis
<u>EPA 365.1</u>	<u>Total orthophosphate, nitrate + nitrite</u>	<u>Polyethylene with plastic cap</u>	<u>250 mL</u>	<u>Cool to 4°C, H<sub>2</sub>SO<sub>4</sub> to pH &lt; 2</u>	<u>28 days to analysis</u>
AM20Gax or comparable	Ethane, ethene, methane, dissolved	Glass VOC vial with butyl rubber septum	2 x 40 mL	Cool to 4°C, dark, zero headspace, trisodium phosphate to pH < 2	14 days to analysis
EPA Method 376.1 or 376.2	Sulfide, total	Polyethylene with plastic cap	250mL	Zinc Acetate, NaOH	7 days to analysis

°C Degrees Celsius.

EPA Chemical Methods for Analysis of Water and Waste.

L liter.

mL milliliter.

SW-846 Test Methods for Evaluating Solid Waste Physical/Chemical Methods.

1 Container volume may vary based on laboratory.

2 HCl - Hydrochloric acid; H<sub>3</sub>PO<sub>4</sub> - Phosphoric acid; H<sub>2</sub>SO<sub>4</sub> - Sulfuric acid; NaOH - Sodium hydroxide

3 Measured from time of sample collection.

**Enclosure (2)**  
**MGBG CMIP/QAPP**  
**Revised Table 3-5**

TABLE 3-5

**SUMMARY OF ANALYTICAL METHODS, BOTTLEWARE, PRESERVATIONS, AND HOLDING TIME  
REQUIREMENTS FOR LONG TERM GROUNDWATER MONITORING  
SWMU 01 - MUSTARD GAS BURIAL GROUND  
NSWC CRANE, CRANE, INDIANA**

Analytical Method	Parameter	Container Material	Container Volume <sup>(1)</sup>	Preservation <sup>(2)</sup>	Holding Time <sup>(3)</sup>
SW-846 5030/8260B	Appendix IX Volatile Organic Compounds or subsets thereof	Glass vial, Teflon-lined septa	3 x 40 mL	Cool to 4°C; HCl to pH < 2; Zero headspace	14 days to analysis
Lloyd Kahn	Total organic carbon	Amber glass, septa cap	2 x 40 mL	Cool to 4°C, H <sub>3</sub> PO <sub>4</sub> to pH <2	28 days to analysis
EPA 300	Chloride, sulfate	High density polyethylene or glass, with plastic cap.	250 mL	None	28 days to analysis
EPA 365.1	Total orthophosphate, nitrate + nitrite	Polyethylene with plastic cap	250 mL	Cool to 4°C, H <sub>2</sub> SO <sub>4</sub> to pH <2	28 days to analysis
AM20Gax or comparable	Ethane, ethene, methane, dissolved	Glass VOC vial with butyl rubber septum	2 x 40 mL	Cool to 4°C, dark, zero headspace, trisodium phosphate to pH <2	14 days to analysis
EPA Method 376.1 or 376.2	Sulfide, total	Polyethylene with plastic cap	250mL	Zinc Acetate, NaOH	7 days to analysis

°C      Degrees Celsius.  
 EPA      Chemical Methods for Analysis of Water and Waste.  
 L          liter.  
 mL        milliliter.  
 SW-846   Test Methods for Evaluating Solid Waste Physical/Chemical Methods.

- 1      Container volume may vary based on laboratory.
- 2      HCl - Hydrochloric acid; H<sub>3</sub>PO<sub>4</sub> – Phosphoric acid; H<sub>2</sub>SO<sub>4</sub> – Sulfuric acid; NaOH – Sodium hydroxide
- 3      Measured from time of sample collection.

TABLE 3-6

**NON-CALIBRATION QUALITY CONTROL SAMPLE USAGE FREQUENCIES,  
ACCEPTANCE LIMITS, AND CORRECTIVE ACTIONS  
SWMU 01 - MUSTARD GAS BURIAL GROUND  
NSWC CRANE, CRANE, INDIANA**

QC Sample Type	Collection Frequency	Acceptance Limits	Corrective Action
Field Duplicate	1 per 20 investigative samples collected. At least one per sampling round.	Aqueous = 30% RPD	Qualify data according to data validation requirements.
Equipment Rinsate Blank	1 per non-dedicated sampling device or instrument.	< RL (soil and water)	Identify source of contamination, if possible. Qualify data according to validation criteria. Qualify use of data if contamination appears to have adversely affected its usability.
Source Water Blank	1 per rinse water source.	< RL (soil and water)	Identify source of contamination, if possible. Qualify data according to validation criteria. Qualify use of data if contamination appears to have adversely affected its usability.
Trip Blanks	1 per cooler of VOC samples.	< RL (soil and water)	Identify source of volatiles contamination, if possible. Qualify data according to validation criteria. Qualify use of data if contamination appears to have adversely affected its usability.
Matrix Spike*	1 per 20 environmental samples. At least one per sampling round.	See Table 4-3	Laboratory action taken per applicable analytical SOP. Navy action taken per validation protocols and Section 5.8.
Matrix Spike Duplicate*	1 per 20 environmental samples analyzed for organic target analytes. At least one per sampling round.	See Table 4-3	Laboratory action taken per applicable analytical SOP. Navy action taken per validation protocols and Section 5.8.
Temperature Blank	1 blank per sample cooler.	4 ± 2 °C	Laboratory action taken per applicable analytical SOP. Navy action taken per validation protocols and Section 5.8.

\* Matrix spikes and matrix spike duplicates are not analyzed in the field, but additional sample material must be collected in the field to ensure that the laboratory has enough material for spiking and duplicate analysis. The extra volume requirements should be arranged with the analytical laboratory prior to the sampling event.

°C = degrees Celsius.

FOL = Filed Operations Leader.

RL = Reporting limit.

RPD = Relative percent difference.

VOC = Volatile organic compound.

LTM = Long-term monitoring.

SOP - Standard operating procedure.

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

Environmental Site Mgr  
TITLE

8/2/07  
DATE