

Volume 2A

Final Remedial Investigation/Feasibility
Study Workplan & Associated Documents

Crab Orchard National Wildlife Refuge, Marion, IL

Additional and Uncharacterized Sites

SAMPLING & ANALYSIS PLAN *Standard Operating Procedures* APRIL, 2006



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ENTRIX

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APPENDIX A

**LABORATORY ANALYTICAL STANDARD OPERATING
PROCEDURES**

LIST OF LABORATORY SOPS

1. LP-SM-001 Burlington Sample Management
2. CORP-GC-0001NC Gas Chromatographic Analysis Based on Method 8000B, 8021B, 8081A, 8082, 8151A, 8310, 8141A, 8015B, and 615
3. CORP-MS-0001NC GC/MS Analysis Based on Method 8270C
4. CORP-MS-0002NC Determination of Volatile Organics by GC/MS Based on Method 8260B and 8260A
5. CORP-IP-0002NC Acid Digestion of Soils, SW846 Method 3050B
6. CORP-IP-0003NC Acid Digestion of Aqueous Samples by SW846 and MCAWW 200 Series Methods
7. CORP-MT-0001NC Inductively Coupled Plasma-Atomic Emission Spectroscopy, Spectrometric Method for Trace Element Analyses, SW-846 Method 6010B and EPA Method 200.7
8. CORP-MT-0005NC Preparation and Analysis of Mercury in Aqueous Samples by Cold Vapor Atomic Absorption, SW846 7470A and MCAWW 245.1
9. CORP-MT-0007NC Preparation and Analysis of Mercury in Solid Samples by Cold Vapor Atomic Absorption Spectroscopy, SW846 7471A and MCAWW 245.5
10. CORP-WC-0002NC Determination of Solids in Waters and Wastes
11. SAC-ID-0005 Rev. 6 Method 8290 and TO-9A – Polychlorinated Dioxins and Furans By HRGC/HRMS
12. SAC-LC-0009 Rev. 1 Determination of Nitroaromatics, Nitroamines, and Specialty Explosives based on Method 8339 and SW846
13. LM-SL-D5084 Rev 1 Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter ASTM 5084
14. NC-QA-0021 Evaluation of Method Detection Limits for Chemical Tests
15. NC-GC-0032 Analysis of Dissolved Gases in Groundwater by Modified Method RSK-175
16. NC-IP-0009 DI Leachate Procedure for Solids
17. NC-SC-0005 Sample Receiving and Sample Control
18. NC-WC-0001 Nitrite (NO₂), Nitrate/Nitrite (NO₃ NO₂) and Nitrate (NO₃) Automated
19. NC-WC-0006 Alkalinity (Total)
20. NC-WC-0010 pH Electrometric Method
21. NC-WC-0018 Total Organic Carbon (TOC) Analysis for Non-Waters
22. NC-WC-0031 Cyanide Automated, Pyridine-Barbituric Acid Method
23. NC-WC-0032 Cyanide Preparation Method

24. NC-WC-0050 Phosphorus: Total, Ortho, and Organic
25. NC-WC-0060 Sulfide
26. NC-WC-0084 Determination of Inorganic Anions by Ion Chromatography
27. LM-SL-D422-M, Rev. 1 Particle-Size Analysis of Soils ASTM D422-63
28. LM-SL-D422, Rev. 5 Particle-Size Analysis of Soils ASTM D422-63
29. SAC-LC-0012 Determination of Perchlorate by Liquid Chromatography Coupled with Mass Spectrometry (LC/MS) or Tandem Mass Spectrometry (LC/MS/MS)
30. LM-SL-D2434, Rev 1 Permeability of Granular Soils (Constant Head)
31. SAC-QA-003 Sample Receipt and Procedures
32. S-Q-003 Method Detection Limit Studies
33. CORP-OP-0001NC Extraction of Organic compounds from Waters and Soils, Based on SW-846-3500 Series, 3600 Series, and 600 Series Methods
34. SOP AM-017 Organophosphorous Pesticides by EPA Method 614/8141A
35. SOP AM-002 Liquid/Liquid Water Extraction
36. SOP-AM-006 Procedure for Soxhlet Sample Extraction on Method 8330, SW846

Select laboratory information is subject to a claim of confidential business information. Selected pages in this pdf (00059882) from electronic page range 5 – 994(end) have been withheld in their entirety while FWS evaluates the claim.