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Duxbury Operations
397 Washington Street
Duxbury, Massachusetts 02332
Telephone 781-934-0571
Fax: 781-934-2124

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Ms. Laureen Borochaner
U.S. Army Corps of Engineers, New England District
696 Virginia Road
Concord, MA 01742-2751

CONTRACT NO. DACW33-01-D-0004
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SUBMITTAL OF DELIVERABLE -- Errata Sheet for the Interim Data Collection Quality Assurance Project Plan Addendum, Remedial Investigation and Feasibility Study (RI/FS), Centredale Manor Restoration Project Site

Dear Ms. Borochaner:

Enclosed please find two (2) copies of the final Quality Assurance Project Plan (QAPP) Addendum Errata Sheet, covering changes to existing text within the Final QAPP Addendum dated September 27, 2002 for the Centredale Manor Restoration Project Site RI/FS.

If you have any questions regarding the Errata Sheet, please contact William Steinhauer at (781) 952-5319 or Ms. Patty White at (781) 952-5279.

Sincerely,

William Steinhauer
Project Manager

Karen Foster
Program Manager

encl.

cc: A. Krasko, USEPA
A. Beliveau, USEPA
L. Maccarone, RIDEM

SDMS DocID 48755

# 1.0 TITLE AND APPROVAL PAGE (EPA WORKSHEET #1)

**Site Name/Project Name:** *Centredale Manor Restoration Project Superfund Site Baseline Risk Assessment, Initial Project Planning and Support*
**Site Location:** *Centredale Manor, Lyman Mill Pond and Allendale Pond, North Providence, Rhode Island*

**Document Title:** *Errata to Centredale Manor Tasks 19--22 Quality Assurance Project Plan -- Addendum (9/27/02)*

**Lead Organization (Agency, State, Tribe, Federal Facility, PRP, or Grantee):** *Battelle Duxbury Operations*

**Preparer's Name and Organizational Affiliation:** *Deirdre Dahlen/Battelle Duxbury Operations*

**Preparer's Address and Telephone Number:** *397 Washington Street, Duxbury, MA 02332 (781) 934-5253*

**Preparation Date (Day/Month/Year):** 11/6/02

**Investigative Organization's Project Manager:** Nov-6-2002

**Signature/Date**
*William Steinhauer/Battelle Duxbury Operations*
**Printed Name/Organization**

**Investigative Organization's Project QA Officer:** 11/5/02

**Signature/Date**
*Mark Guilmain/Battelle Duxbury Operations*
**Printed Name/Organization**

**Lead Organization's Project Manager:** Nov-6-2002

**Signature/Date**
*William Steinhauer/Battelle Duxbury Operations*
**Printed Name/Organization**

**Approval Signature:**

**Signature/Date**
*Andy Beliveau/ QA Officer*
**Printed Name/Title**
*EPA Region 1*
**Approval Authority**

**Other Approval Signatures:**

**Signature/Date**
*Laureen Borochaner/USACE NAE Project Officer*
**Printed Name/Title**

**Document Control Number:** *Not applicable.*

**Worksheet #9a, Pages 35 (Table 1), 37 (Soil Analysis Tasks) and 39 (Dioxin/Furan and HCX)**

Table 1 of the QAPP (9/27/02) should be updated to indicate that the residential soils will be analyzed for HCX (with Dioxin/Furan) in addition to the parameters specified. Similarly, page 37 paragraph #1 and page 39 paragraph #2 should be updated to reflect that the residential soils (in addition to commercial soils) will be analyzed for HCX. These changes are necessary because HCX analysis is also required for the residential soil samples.

**Worksheet #9a, Page 38 (GC/ECD Analysis)**

The QAPP (9/27/02) should be updated to indicate that qualitative confirmation column analysis will be conducted in cases where chlorinated pesticides are detected on the primary column. This change is necessary to clarify the GC/ECD analysis procedure.

**Worksheet #9c, Page 66**

The Field and Quality Control Sample Summary Table should be updated to indicate that 3 field duplicates, 3 MS, 3 MSD and 0 equipment blanks will be collected for VOCs in water; for a total of 44 to 46 samples to the lab. These changes are necessary because equipment blanks are no longer required for VOCs given that dedicated sampling equipment is used for the groundwater sampling. Further, groundwater sampling for VOCs will be conducted in two sampling events, not one. As a result, extra water needs to be collected during the second sampling event to satisfy the field and laboratory QC requirements (DU, MS and MSD).

**Worksheet #11a, Pages 70 and 71 (Measurement Performance Criteria)**

Under Precision, replace:

Applicable samples: MS/MSD, DUP.
Applicable analyses:
⇒ Pesticide/PCB Aroclors (No MS/MSD for Aroclors)
⇒ SVOCs
⇒ Dioxin/Furan/HCX
⇒ Metals, MeHg
⇒ Grain Size (DUP only)
⇒ TOC (DUP only)
⇒ VOCs

With

Applicable samples: MS/MSD, DUP.
Applicable analyses:
⇒ Pesticide/PCB Aroclors (No MS/MSD or DUP for Aroclors)
⇒ SVOCs (no DUP)
⇒ Dioxin/Furan/HCX (no DUP)
⇒ Metals, MeHg (no DUP)
⇒ Grain Size (DUP only)
⇒ TOC (DUP only)
⇒ VOCs (no DUP)

The change is necessary because USACE has directed Battelle not to prepare laboratory duplicates where an MS/MSD is also prepared.

**Worksheet #11b, Pages 73-76 and 79-80**

The Measurement Performance Criteria Tables presented on pages 73-76 and 79-80 should be updated to indicated that Laboratory (Analytical) Sample Duplicates are not applicable for the following parameters:

- Pesticide/PCBs and SVOCs (PAH) in soil (page 73)
- Dioxin/Furan/HCX in soil/groundwater (page 74)
- Metals in soil (page 75)
- MeHg in soil (page 76)
- SVOC (phenols and phthalates) in soil (page 79)
- VOC in water (page 80)

The change is necessary because USACE has directed Battelle not to prepare laboratory duplicates where an MS/MSD is also prepared.

**Worksheet #12b, Pages 83-85**

The types of field QC samples specified under the column heading "No. of Samples (Identify field duplicates and replicates)" should be updated for the following sampling locations, medium and parameters:

| QAPP Page# | Sampling Location | Medium/Matrix | Analytical Parameter | No. of Samples (Identify field duplicates and replicates) | |
|---|---|---|---|---|---|
| | | | | Replace: | With: |
| 83 | Lyman Mill Pond | Commercial Soil | Dioxin/Furan/HCX | QC: 1 DU | N/A |
| 84 | Lyman Mill Pond | Commercial Soil | SVOCs (phenols/phthalates) | QC: 1 DU | QC: 1 DU, 1 RB |
| 84 | Centredale Manor | Groundwater | Dioxin/Furan | QC: 1 DU, 1 DUP (b) | QC: 1 DU, 1 MS, 1 MSD (b) |
| 85 | Centredale Manor | Groundwater | VOC | QC: 2 DU, 2 DUP, 2 MS, 2 MSD, 2 RB, 2-4 TB (1 TB/cooler) (b) | QC: 3 DU, 3 MS, 3 MSD, 2-4 TB (1 TB/event) (b) |

Changes to Lyman Mill Pond field QC (commercial soil) are necessary because the QAPP (9/27/02) listed the incorrect field QC. Changes to Centredale Manor field QC (groundwater) are necessary because:

- per USACE, laboratory duplicates will no longer be prepared where an MS/MSD is also prepared
- the VOC sampling will be conducted in two sampling events, not one. As a result, extra water needs to be collected during the second sampling event to satisfy the field and laboratory QC requirements (DU, MS and MSD)
- groundwater sampling is conducted using dedicated sampling equipment, therefore rinsate blanks are not necessary

**Worksheet #22a, Page 106**

The Field Sampling QC Table for Dioxin/Furan/HCX in soil (page 106) should be updated to eliminate the (a) footnote. This change is necessary because all soils, residential and commercial, will be analyzed for HCX in conjunction with the Dioxin/Furan analysis.

**Worksheet #22a, Page 112**

The Field Sampling QC Table presented on page 112 should be updated to indicate that Equipment Blanks/Rinsate Blanks are not applicable for VOC in groundwater. This change is necessary because groundwater sampling was conducted using dedicated sampling equipment and as a result no rinsate blanks were collected or required.

**Worksheet #22b, Page 121-122**

The Field Sampling QC Table presented on pages 121-122 should be updated to indicate that Field Accuracy/Bias (Contamination) criteria are not applicable for VOC in groundwater. This change is necessary because groundwater sampling was conducted using dedicated sampling equipment and as a result no rinsate blanks were collected or required.

**Worksheet #24a, Pages 123, 125, 127-129 and 132-133**

The Fixed Laboratory Analytical QC Sample Tables presented on pages 123, 125, 127-129, and 132-133 should be updated to indicated that Laboratory Duplicates are not applicable for the following parameters:

- Pest/PCBs in soil (page 123)
- SVOCs (PAH) in soil (page 125)
- Dioxin/Furan/HCX in soil/groundwater (page 127)
- Metals in soil (page 128)
- MeHg in soil (page 129)
- SVOC (phenols and phthalates) in soil (page 132)
- VOC in groundwater (page 133)

Further, for Dioxin/Furan/HCX in soil/groundwater (page 127), footnote a should be modified:

Replace:
[a] HCX only analyzed in residential soils; not groundwater or commercial soils

With
[a] HCX only analyzed in soils; not groundwater

These changes are necessary because USACE has directed Battelle not to prepare laboratory duplicates where an MS/MSD is also prepared.

**Worksheet #24b, Pages 134-138 and 142-144**

The Fixed Laboratory Analytical QC Sample Tables presented on pages 134-138 and 141-144 should be updated to indicated that Analytical Precision criteria for the Laboratory Replicate is not applicable for the following parameters:

- Pesticides/PCB Aroclors in soil (page 134)
- SVOCs (PAH) in soil (page 135)
- Dioxin/Furan/HCX in soil (page 136)
- Metals in soil (page 137)
- MeHg in soil (page 138)
- Dioxin/Furan in groundwater (page 142)
- VOC in groundwater (pages 143-144)

The change is necessary because USACE has directed Battelle not to prepare laboratory duplicates where an MS/MSD is also prepared.

**Worksheet #24b, Page1 141**

The Fixed Laboratory Analytical QC Sample Table for SVOCs (phenols/phthalate) in soil (page 141) should be updated to indicate that 1) analytical precision criteria for the laboratory replicate is not applicable, 2) include a representative phthalate compound as a control analyte, and 3) tighten the analytical accuracy criteria for selected compounds. These changes have been implemented in response to review comments received from USACE (e.g. laboratory duplicates not required; tighten accuracy limits).

Replace:

**Sampling SOP**: S-1
**Analytical Method/SOP**: L-61 (Soil); SVOCs (Phenols and Phthalates)

| Analyte | Achievable Laboratory Sensitivity/ Quantitation Limits Wet Weight - ug/g (Dry Weight – ug/g)[1] | Analytical Precision | Analytical Accuracy/Bias | | |
|---|---|---|---|---|---|
| | | Laboratory Replicate & MS/MSD (a,b) | SRM | LCS | MS/MSD (b) |
| 2,4,5-Trichlorophenol | 330 (660) | ≤ 50% RPD | Not applicable | 40-112% R | 29-125% R |
| 2,4-Dinitrophenol | 1600 (3200) | ≤ 53% RPD | As above | 18-152% R | 1-191% R |
| 2-Nitrophenol | 330 (660) | ≤ 50% RPD | As above | 39-111% R | 29-182% R |
| 4-Methylphenol | 330 (660) | ≤ 50% RPD | As above | 30-110% R | 33-118% R |
| **4-Nitrophenol (control analyte)** | 1600 (3200) | **≤ 64% RPD** | **As above** | **22-128% R** | **10-148% R** |
| Bis(2-Ethylhexyl)phthalate | 330 (660) | ≤ 50% RPD | As above | 8-158% R | 8-158% R |
| Butylbenzylphtalate | 330 (660) | ≤ 50% RPD | As above | 1-152% R | 1-152% R |
| Carbazole | 330 (660) | ≤ 50% RPD | As above | 1-175% R | 1-175% R |
| Di-n-Butylphthalate | 330 (660) | ≤ 50% RPD | As above | 1-118% R | 1-118% R |
| Di-n-Octylphthalate | 330 (660) | ≤ 50% RPD | As above | 4-146% R | 4-146% R |
| **Pentachlorophenol (control analyte)** | 1600 (3200) | **≤ 87% RPD** | **As above** | **10-123% R** | **10-144% R** |
| **Phenol (control analyte)** | 330 (660) | **≤ 50 RPD** | **As above** | **35-110% R** | **10-148% R** |
| 2-Fluorophenol (surrogate) | Not applicable | Not applicable | Not applicable | 11-116% R | 11-116% R |
| Phenol-d5 (surrogate) | As above | As above | As above | 25-115% R | 25-115% R |
| Nitrobenzene-d5 (surrogate) | As above | As above | As above | 42-110% R | 42-110% R |
| 2-Fluorobiphenyl (surrogate) | As above | As above | As above | 43-110% R | 43-110% R |
| 2,4,6-Tribromophenol (surrogate) | As above | As above | As above | 35-116% R | 35-116% R |
| Terphenyl-d14 (surrogate) | As above | As above | As above | 37-137% R | 37-137% R |

RPD = Relative Percent Difference; R = % Recovery; MS = Matrix Spike; MSD = Matrix Spike Duplicate; SRM = Standard Reference Material; MDL = Method Detection Limit.

[1] Achieved laboratory detection limits presented on dry weight basis assuming 50% moisture.

(a) Replicates – for analytes detected at level >10×MDL; MS/MSD – see footnote (b)

(b) Concentration of spiked analytes in MS/MSD must be >5× background concentration to be used for data quality assessment

*Note – All target analytes will be fortified into the LCS/MS/MSD and recovery results reported – but only "control analytes" will be evaluated against the MPC. Control analytes for this analysis are identified above. Corrective action only taken when a control analyte fails to meet the MPC.*

With

**Sampling SOP**: S-1
**Analytical Method/SOP**: L-61 (Soil); SVOCs (Phenols and Phthalates)

| Analyte | Achievable Laboratory Sensitivity/ Quantitation Limits Wet Weight - ug/g (Dry Weight -- ug/g)[1] | Analytical Precision | Analytical Accuracy/Bias | | |
|---|---|---|---|---|---|
| | | MS/MSD (a) | SRM | LCS | MS/MSD (a) |
| 2,4,5-Trichlorophenol | 330 (660) | ≤ 50% RPD | Not applicable | 40-112% R | 29-125% R |
| 2,4-Dinitrophenol | 1600 (3200) | ≤ 53% RPD | As above | 18-152% R | 1-191% R |
| 2-Nitrophenol | 330 (660) | ≤ 50% RPD | As above | 39-111% R | 29-182% R |
| 4-Methylphenol | 330 (660) | ≤ 50% RPD | As above | 30-110% R | 33-118% R |
| **4-Nitrophenol (control analyte)** | **1600 (3200)** | **≤ 64% RPD** | **As above** | **22-128 % R** | **10-148% R** |
| Bis(2-Ethylhexyl)phthalate | 330 (660) | ≤ 50% RPD | As above | 10-158% R | 8-158% R |
| **Butylbenzylphtalate (control analyte)** | **330 (660)** | **≤ 50% RPD** | **As above** | **10-152% R** | **1-152% R** |
| Carbazole | 330 (660) | ≤ 50% RPD | As above | 10-175% R | 1-175% R |
| Di-n-Butylphthalate | 330 (660) | ≤ 50% RPD | As above | 10-118% R | 1-118% R |
| Di-n-Octylphthalate | 330 (660) | ≤ 50% RPD | As above | 10-146% R | 4-146% R |
| **Pentachlorophenol (control analyte)** | **1600 (3200)** | **≤ 87% RPD** | **As above** | **10-123 % R** | **10-144% R** |
| **Phenol (control analyte)** | **330 (660)** | **≤ 50 RPD** | **As above** | **35-110 % R** | **10-148% R** |
| 2-Fluorophenol (surrogate) | Not applicable | Not applicable | Not applicable | 11-116% R | 11-116% R |
| Phenol-d5 (surrogate) | As above | As above | As above | 25-115% R | 25-115% R |
| Nitrobenzene-d5 (surrogate) | As above | As above | As above | 42-110% R | 42-110% R |
| 2-Fluorobiphenyl (surrogate) | As above | As above | As above | 43-110% R | 43-110% R |
| 2,4,6-Tribromophenol (surrogate) | As above | As above | As above | 35-116% R | 35-116% R |
| Terphenyl-d14 (surrogate) | As above | As above | As above | 37-137% R | 37-137% R |

RPD = Relative Percent Difference; R = % Recovery; MS = Matrix Spike; MSD = Matrix Spike Duplicate; SRM = Standard Reference Material; MDL = Method Detection Limit.

[1] Achieved laboratory detection limits presented on dry weight basis assuming 50% moisture.

(a) Concentration of spiked analytes in MS/MSD must be >5× background concentration to be used for data quality assessment

***Note -- All target analytes will be fortified into the LCS/MS/MSD and recovery results reported -- but only "control analytes" will be evaluated against the MPC. Control analytes for this analysis are identified above. Corrective action only taken when a control analyte fails to meet the MPC***