PHASE 2 DREDGING CONSTRUCTION QUALITY CONTROL/QUALITY ASSURANCE PLAN FOR 2015

Appendix A

To

Remedial Action Work Plan for Phase 2 Dredging and Facility Operations in 2015

HUDSON RIVER PCBs SUPERFUND SITE

Prepared for:

GENERAL ELECTRIC
319 Great Oaks Boulevard
Albany, New York 12203

Prepared by:

PARSONS

GE Company – Parsons Project Office
381 Broadway, Bldg 40-2
Fort Edward, NY 12828

Revised April 2015

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LIST OF ATTACHMENTS

ACRONYMS AND ABBREVIATIONS

ASTM	American Society for Testing and Materials
CD	Consent Decree
CM	Construction Manager
CQAO	Construction Quality Assurance Officer
CU	Certification Unit
cy	Cubic yard
DQAP	Dredging Construction Quality Control/Quality Assurance Plan
DGPS	differential global positioning system
D&FO	Dredging and Facility Operations
EPA	United States Environmental Protection Agency
FDR	Final Design Report
FI	Field Inspector
FRA	Federal Railroad Administration
GE	General Electric Company
GPS	Global Positioning System
HPPSC	Habitat Planting and Plant Supply Contractor
NYCRR	New York Codes and Regulations
NYSDOT	New York State Department of Transportation
PCB	Polychlorinated biphenyl
PFOC	Processing Facility Operations Contractor
PSCP	Performance Standards Compliance Plan
QA	Quality assurance
QC	Quality control
QC/QA	Quality control and quality assurance
RA	Remedial Action
RAM QAPP	Remedial Action Monitoring Quality Assurance Project Plan
RAWP	Remedial Action Work Plan
ROD	Record of Decision
RTK DGPS	Real Time Kinematic Differential Global Positioning System
RYOC	Rail Yard Operations Contractor

ACRONYMS AND ABBREVIATIONS (CONTINUED)

SOW	Statement of Work
SVOC	Semi-volatile organic compound
TAL	Target Analyte List
TCL	Target Compound List
TOC	Total organic carbon
TSCA	Toxic Substances Control Act
VOC	Volatile organic compound

SECTION 1

INTRODUCTION

In 2005, the General Electric Company (GE) and the United States Environmental Protection Agency (EPA) executed a Consent Decree (CD) relating to the performance of the Remedial Action (RA) selected by EPA to address polychlorinated biphenyls (PCBs) in sediments of the Upper Hudson River, located in New York State, through dredging, as described in EPA's February 2002 Record of Decision (ROD) for the Hudson River PCBs Superfund Site. The CD was filed in federal district court on October 6, 2005 and was approved and entered by the court as a final judgment on November 2, 2006, when it went into effect.

In accordance with the ROD and the CD, the RA was to be conducted in two phases. Phase 1 was defined as the first year of dredging and was conducted by GE in 2009 (with habitat replacement/reconstruction in Phase 1 dredge areas completed in 2011). Phase 2 consists of the remainder of the dredging project. The CD provided that, following the completion of Phase 1 dredging and a peer review process, EPA would issue a decision regarding the performance standards and scope for Phase 2, and GE would notify EPA as to whether it would perform Phase 2 under the CD. EPA issued its decision regarding the performance standards and scope for Phase 2 in December 2010; and GE notified EPA (also in December 2010) that it elected to perform Phase 2 under the CD.

The CD includes, as Appendix B, a Statement of Work (SOW) for Remedial Action and Operations, Maintenance and Monitoring, which sets forth a number of general requirements for the RA and includes several attachments specifying requirements for various aspects of the RA. EPA issued revised versions of the SOW and its attachments for Phase 2 in December 2010. For the work to be performed in each construction year of Phase 2, Section 3.1 of the revised SOW requires GE to submit a Remedial Action Work Plan (RAWP) for Phase 2 Dredging and Facility Operations (D&FO) for such year, along with any remaining design documents (or revisions or addenda to previously approved design documents) for the dredging and related operations to be performed in that year. The revised SOW also specifies a number of specific plans to be included in the Phase 2 RAWP, including a Phase 2 Dredging Construction Quality Control/ Quality Assurance Plan (DQAP), which is to describe the quality control and quality assurance (QC/QA) systems that will be established and followed to verify compliance with the technical specifications included in the Phase 2 design for the year in question.

In the spring of 2011, GE submitted the required design documents and work plans for the first year of Phase 2 dredging, known as Phase 2 Year 1. These included a *Phase 2 Dredging Construction Quality Control/Quality Assurance Plan for 2011* (2011 DQAP), which was Appendix A to the RAWP for 2011 and was approved by EPA as part of that RAWP on April 26, 2011. GE conducted Phase 2 Year 1 dredging and associated activities in 2011 (excluding

habitat construction in areas dredged in 2011, which was initiated in 2012). During the course of that season, GE submitted two addenda to the RAWP, which included modifications to the 2011 DQAP. Addendum #1, submitted on June 21, 2011, included an updated table for the 2011 DQAP and was approved by EPA on July 1, 2011. Addendum #2, submitted on September 2, 2011, included another revised table for the 2011 DQAP and an additional attachment (presenting a standard operating procedure for sampling and analysis of cap isolation material) and was approved by EPA on November 2, 2011.

The revised SOW provides (in Section 3.1) that, for any Phase 2 year after the first year of Phase 2, GE need only submit "any necessary revisions and/or addenda" to a previously approved work plan. In the case of the DQAP, very few changes to the 2011 DQAP were necessary for the dredging to be conducted in 2012 (known as Phase 2 Year 2), 2013 (known as Phase 2 Year 3), and 2014 (known as Phase 2 Year 4). As a result, the Phase 2 DQAPs submitted for 2012 (2012 DQAP), 2013 (2013 DQAP) and 2014 (2014 DQAP) incorporated by reference the majority of the 2011 DQAP (including the modifications and additions in the above-referenced addenda) and described only the revisions to that plan that apply to the respective year.

During the course of the 2012 season, GE submitted eight addenda to the 2012 RAWP, two of which included modifications to the 2012 DQAP. Addendum #2, submitted on May 25, 2012, included a revised Table A2-1 of the DQAP to reflect GE's submittal of the *Phase 2 Transportation and Disposal Plan for 2012*. Addendum #8, submitted on October 26, 2012, included a revised Table A2-2 of the DQAP and a new form to be included in Attachment 3 (i.e., a Backfill and Cap Material Source Inspection Checklist). These addenda were approved by EPA.

During the course of the 2013 season, GE submitted four addenda to the 2013 RAWP, one of which included modifications to the 2013 DQAP. Addendum #1, submitted on June 18, 2013, included a new Table A2-3 of the DQAP for habitat construction inspections and tests. This addendum was approved by EPA.

During the course of the 2014 season, GE submitted additional addenda to the 2013 and 2014 RAWPs, one of which included modifications to the 2014 DQAP. Addendum #2 to the 2014 RAWP, submitted on September 12, 2014, included the attachments to the 2014 DQAP (which had been inadvertently omitted from the 2014 RAWP), including updated versions of Tables A2-3 and A2-5 relating to habitat construction inspections and tests.

Again, for the dredging to be conducted in 2015 (Phase 2 Year 5), very few additional changes to the DQAP will be necessary. In this situation, in accordance with the revised SOW, this *Phase 2 Dredging Construction Quality Control/Quality Assurance Plan for 2015* (2015 DQAP) incorporates by reference the majority of the 2011 DQAP (including addenda) and the revisions in the 2014 DQAP (including the attachments submitted in September 2014), and describes only the revisions that apply to 2015. This 2015 DQAP is an appendix to and part of

the *Remedial Action Work Plan for Phase 2 Dredging and Facility Operations in 2015* (2015 RAWP), which covers the majority of dredge areas slated for dredging in 2015. It should be noted that the 2015 RAWP does not cover: (a) dredging in Certification Unit (CU) 60 near the Thompson Island Dam, which is covered by a separate RAWP (CU 60 RAWP), originally submitted in February 2015 and to be revised in April 2015, describing modified approaches to dredging in that CU; or (b) dredging in the remaining portions of the area known as the Landlocked Area in Reach 7 of the River (where dredging was not completed in 2014), which are covered by a separate Reach 7 RAWP, submitted in 2014, and Addendum No. 1 to the Reach 7 RAWP, originally submitted in February 2015 and revised in April 2015. However, the provisions of this 2015 DQAP (and the portions of prior DQAPs incorporated herein) will apply to dredging in those areas to the extent that they are not inconsistent with the dredging approaches specified in those separate RAWPs.

Each subsequent section of this 2015 DQAP incorporates by reference the comparable section of the 2011 DQAP (or, for one section, the 2014 DQAP) and identifies any substantive changes from those documents. In addition, as a general matter, for purposes of this 2015 DQAP, all references in the 2011 DQAP to the *Phase 2 Final Design Report for 2011* (2011 FDR) should be understood to refer to the applicable Final Design Reports or Supplemental Design Revisions covering 2015 activities (as described in the 2015 RAWP); all references in the 2011 DQAP to the 2011 RAWP and its attached plans should be understood to refer to the 2015 RAWP and its comparable attached plans (or, as applicable, the Reach 7 RAWP or the CU 60 RAWP); all references in the 2011 DQAP to the *2011 Remedial Action Monitoring Quality Assurance Project Plan* (2011 RAM QAPP) should be understood to refer to the *Phase 2 Remedial Action Monitoring Quality Assurance Project Plan* (Phase 2 RAM QAPP) submitted in 2012; and all references in the 2011 DQAP to the relevant contracts should be understood to refer to the following contracts for 2015:

- Contract 30 for the operation of the sediment processing facility by the Processing Facility Operations Contractor (PFOC);
- Contract 42A for dredging in the main stem of the river, transport of dredged material to the processing facility, backfilling/capping, and related in-river operations, as well as operation of the Isthmus Transload Area (ITA) in the Landlocked Area, to be performed by the Dredging Contractor;
- Contract 43B for dredging in the Landlocked Area of the river, to be performed by the Landlocked Dredging Operations Contractor;
- Contract 53A for supply of submerged aquatic vegetation (SAV) plants and riverine fringing wetlands (RFW) plants, as well as the installation of RFW plants, by the Habitat Contractor for certain areas dredged in 2014; and
- Contract 60 for the operation of the rail yard by the Rail Yard Operations Contractor (RYOC).

In addition, this 2015 DQAP contains two revised attachments – Attachment 1 (DQAP Staffing List and Resumes) and Attachment 2 (Dredging and Facility Operations Test and Inspection Tables). The remaining attachments are the same as those in the 2011 DQAP, as supplemented by Addendum #2 to the 2011 RAWP (which added Attachment 6 to the DQAP) and by Addendum #2 to the 2014 RAWP (which included an additional inspection checklist in Attachment 3 to the DQAP and the CU Acceptance Forms in Attachment 4 to the DQAP), except that all references to prior years and plans should be considered to refer to 2015 and the 2015 plans.

As in prior years of this project, GE's approach to management of the quality of the RA implementation in 2015 will include an integrated system of quality control (QC) by its contractors and quality assurance (QA) by its Construction Manager (CM), which will be responsible for the day-to-day coordination of QA and QC measures in the field.

SECTION 2

PROJECT QC/QA ORGANIZATION

This section incorporates by reference Section 2 of the 2011 DQAP, except that: (a) the references to the 2011 D&FO should refer to the 2015 D&FO; and (b) the references to contract numbers should refer to the contract numbers given in Section 1 above.; and (c) Section 2.1.3 is revised as follows:

2.1.3 Engineers of Record

The Engineers of Record are independent, duly qualified, licensed design professionals, retained directly by GE to provide design and engineering services in connection with the project. This definition includes all subcontractors to the Engineers of Record.

The Engineers of Record to be used for the dredging and facility operations in 2015 are listed below, together with their roles:

Organization	Engineer's Certifying Role
ARCADIS	2015 Dredging and Facility Operations
Anchor QEA	2015 Habitat Construction

SECTION 3

SUBMITTALS

This section incorporates by reference Section 3 of the 2011 DQAP.

SECTION 4

PERFORMANCE MONITORING REQUIREMENTS

This section incorporates by reference Section 4 of the 2011 DQAP except that the references to the 2011 RAM QAPP and the 2011 Performance Standards Compliance Plan (PSCP) should refer to the Phase 2 RAM QAPP and the 2015 PSCP (which largely incorporates the 2014 PSCP).

SECTION 5

INSPECTION AND VERIFICATION ACTIVITIES

This section incorporates by reference Section 5 of the 2011 DQAP, except for changes to the FDR and contract numbers as described in Section 1 above.

SECTION 6

CONSTRUCTION DEFICIENCIES

This section incorporates by reference Section 6 of the 2011 DQAP.

SECTION 7

DOCUMENTATION

This section incorporates by reference Section 7 of the 2011 DQAP.

SECTION 8

EPA APPROVALS FOR CERTIFICATION UNITS

This section incorporates by reference Section 8 of the 2011 DQAP, as modified by Section 8 of the 2014 DQAP, except for the changes to the cross-references as described in Section 1 above, and except that the CU dredging completion approval procedures described in said Section 8 will be modified or omitted in certain dredge areas, notably sub-unit 2 of CU 60 and sub-unit 2 of CU 95, as described in the CU 60 RAWP and the 2015 RAWP, respectively.

SECTION 9

FIELD CHANGES

This section incorporates by reference Section 9 of the 2011 DQAP.

SECTION 10

FINAL QC/QA REPORTING

This section incorporates by reference Section 10 of the 2011 DQAP, except that: (a) the annual report on 2015 work activities will be submitted within 30 days after completion of dredging, backfilling, capping, shoreline reconstruction/stabilization, sediment processing, and off-site transport of processed sediments for that season; and (b) that annual report will include the documentation specified in Section 5.5 of the PSCP applicable to 2015.

ATTACHMENT 1

DQAP STAFFING LIST AND RESUMES

DQAP STAFFING LIST

DQAP

2015 Dredging and Facility Operations
Hudson River PCB's Superfund Site

February 13, 2015

The following personnel are assigned DQAP functions effective as indicated below. Periodic updates to this list are to be issued by the CM.

FUNCTION	NAME	ORGANIZATION
Construction Quality Assurance Officer (CQAO)	Cynthia Zicker	Construction Management
CQA Field Inspector (FI)	Richard Robinson	Construction Management
CQA FI	Zachary Evans	Construction Management
CQA FI	Michael Vaillant	Construction Management
CQA FI	Jason Bierly	Construction Management
CQA FI	Susan Green	Construction Management
CQA FI	Kathleen Farrell	Construction Management

/s/ Aric Barto
CM Approval

February 13, 2015
Date

Years of Experience
27

Education / Training

- B.S., Chemical Engineering, University of California, Los Angeles

License / Registration

- E.I.T. Certified, State of California, License #XE096338

Special Training

- 40-hour OSHA Hazardous Wastes Operations Training (HAZWOPER), June 1995
- 8-hour HAZWOPER refresher, June 2014
- 8-hour HAZWOPER Supervisor, December 2010
- 30-hour CAL/OSHA Construction, January 2011
- 10-hour OSHA Construction Safety & Health, March 2011

Cynthia K. Zicker

CQA Officer

Summary of Relevant Qualifications

Experience includes quality management; permit compliance and reporting; safety management; data management; data validation; laboratory and compliance auditing; risk assessment; design, operation, maintenance and monitoring of remediation strategies; and failure mode effect analysis. Led weekly meetings for project management and staff of planned field activities and safety updates. Field experience in soil, soil vapor, and groundwater sampling. Worked as a chemist in an environmental laboratory. Worked on industrial and federal projects. Performed safety oversight and subcontract management of demolition (including asbestos abatement) project.

Work Experience

Project Engineer and Quality Assurance Officer - Parsons, Pasadena, California. Establish quality control program for site investigations, remedial investigations, and feasibility studies, which includes writing Sampling and Analysis Plans (SAPs) for federal and industrial projects. Ensure environmental permit compliance. Provide data management and data validation for various hazardous waste projects. Perform technical evaluation of prospective subcontract laboratories and laboratory audits. Perform failure mode effect analysis and risk assessment of pollution abatement system for Chemical Stockpile Disposal Program. Perform safety oversight and contract management on demolition project (including asbestos abatement).

- *GE Hudson River Dredging Project* – Quality Assurance management through quality conformance tracking and evaluation of project operations. Coordinates with contractor's quality control staff to achieve overall performance and conformance with contract documents.
- *Defense Fuel Supply Point-Norwalk* – Defense Logistics Agency-Energy. NPDES / AQMD permit compliance and reporting; soil, soil vapor, and groundwater sampling; remediation evaluation and optimization; data validation; and safety management for demolition (including asbestos abatement) subcontract management. Maintain QA program compliance and training records. Manage submittals to RWQCB database.
- *El Toro Pipeline Release Site* – Soil and groundwater sampling; free product recovery; data validation; and safety management. Manage submittals to RWQCB database.
- *Remedial Investigation/Feasibility Study* – MCB Camp Pendleton. Establish quality assurance program. Ensure quality control compliance and assess impacts on usage of project data. Perform data management. Perform quality and safety compliance audits. Perform soil and groundwater sampling.
- *Engineering Evaluation/Cost Analysis)* – MCAS Miramar. Establish quality assurance program. Ensure quality control compliance and assess impacts on usage of project data. Perform data management.
- *Wilmington Drainage Restoration Project* – Work area delineation for habitat restoration allowing removal of non-native vegetation while protecting resident endangered species.
- *Broad Agency Announcement* – MCB Camp Pendleton. Establish quality assurance program. Performed technical evaluation of prospective laboratories and data validation.
- *MCLB Barstow* – Establish quality assurance program. Ensure quality control compliance and assess impacts on usage of project data. Perform data validation, data management, and technical evaluation of prospective laboratories.
- *Honeywell* – Perform data validation and data management.
- *McClellan AFB* – Perform technical evaluation of prospective laboratories.
- *CSDP Umatilla* – Perform failure mode effect analysis and risk assessment.

Cynthia M. Zicker (Continued)

Associate Engineer - Brown and Caldwell Consulting Engineers, Irvine, California. Responsibilities for industrial projects included: Soil Vapor Extraction System (SVES) OM&M, regulatory compliance, groundwater and soil sampling, data validation, scheduling of field staff, quarterly reporting of SVES and groundwater monitoring activities, SVES pilot study and site closure reports. Responsibilities for federal projects included data management, data validation and risk assessment (following Risk Assessment Guidance for Superfund – RAGS).

Scientist - BC Analytical, Glendale, California. Responsibilities included: Organic and inorganic chemical extraction and analysis; database management; data package generation; maintenance of quality control and data integrity and support project management.

Years of Experience

29

Education / Training

- A.A.S. – Construction Technology
- A.A.S, Human Resource Management, Community College of the Air Force
- 147 Semester Hours toward B.S.O.E, Wayland Baptist University, Texas

Special Training

- American Heart Association CPR/First Aid
- OSHA 40-Hour Hazardous Waste Safety Training
- OSHA 30-Hour Construction Safety Course
- OSHA 8-Hour Supervisor Training
- Quality Teams and Tools
- ISO 9000 Audit Course

Richard Robinson

Chief River Operations Inspector

Summary of Relevant Qualifications

Mr. Robinson has 29 years of experience in environmental restoration, military and highway construction projects. As a result of his diverse experience in various sectors, he provides management, coordination, oversight, and synergy to a diverse team dedicated to personal, professional, and organization goals. Mr. Robinson project experience includes construction management, quality assurance, multi-site operations, facility maintenance, project and, crisis management, asset management, contingency engineering, motivational team building skills, staffing, planning, organizing and budgeting.

Work Experience

Chief River Operations Inspector, GE Hudson River Dredging Project - Ft. Edward, New York. Mr. Robinson is responsible for inspecting and providing quality assurance to the various facets of this multi-year river operations project. Mr. Robinson manages quality assurance staff for all on river operations. This includes scheduling and management of the Field Inspectors on a 24 hour, 6 day /week basis. He provides overall review of QA efforts related to river operations including tracking production and quantities, and verifying work completed by Contractors. He also coordinates the operational activities with the contractors and performs complex inspection tasks of assigned construction activities to ensure compliance with all applicable codes and standards. Other responsibilities include documenting, tracking and working to correct all conformance, compliance, and construction deficiencies as described by contract documents.

Construction Quality Control Manager, GE Hudson River Dredging Project - Ft. Edward, New York. Mr. Robinson served as the Contractor's Quality Control Manager for the GE Hudson River Processing Facility Site Work Construction (civil works). He was responsible for implementing the overall Contractor Quality Control Plan. This plan included 35 Definable Features of Work, US Army Corp of Engineer's inspection process documenting preparatory, initial, follow-up, and final inspection. He documented, tracked and corrected all conformance, compliance, and construction deficiencies' as described by contract documents. Scheduled all applicable material testing requirements, in field soil density test, ACI concrete test and managed the CQC staff. In addition, he managed the overall Safety Program with a staff of 1 Site Safety Officer and 4 Site Safety Representatives. Responsible for conducting daily safety briefings, accident investigation, near miss incident reporting, behavioral based safety observation program, administering the drug and alcohol testing program, air and noise monitoring.

United States Air Force Military Leader with 22 years of experience in government construction projects, facility maintenance, civil engineer operations, contract management, project management, and construction management. He has worldwide experience in the US, Pacific, Europe, Central America, and Southwest Asia. Acknowledged as an expert in civil engineering contingency operations, construction, operations and maintenance, security and sustainment in austere environments.

Luzerne Road Remedial Construction - Glen Falls Municipal Landfill – Field Engineer, Construction Quality Control Manager and Environmental Health and Safety Officer for this 16 acre $4.7 million landfill closure and cap construction project. Responsible for implementing the overall Contractor Quality Control Plan and Site Safety Plan. The CQC plan included Definable Features of Work, US Army Corp of Engineers inspection process documenting Preparatory, Initial, Follow-up, and Final inspection. Tracked and corrected all conformance, compliance, and construction deficiencies as described by contract documents. Scheduled all applicable material testing requirements, conducted waste characterization sampling, pre and post excavation soil sampling, and puff matrix sampling.

Richard Robinson (Continued)

Safety Officer responsibilities included HASP implementation, Personal Air Monitoring Program, Community Air Monitoring Program, VOC Monitoring, and Particulate Monitoring. In addition, responsible for processing submittals, change orders, field orders and overall administration of project documentation

COLONIE LANDFILL AREA 6, PHASE II LANDFILL CELL LINER CONSTRUCTION, COLONIE, NEW YORK. - Field Engineer for this 13 acre $4.5 million landfill cell construction project. Mr. Robinson was responsible for processing submittals, change orders, field orders, and overall administration of project documentation. His duties included monitoring quality, production, and safety. Produced and maintained job schedules and coordinated with subcontractors and suppliers. He worked directly with the owner, engineer, inspectors, and NYS Department of Conservation representative to resolve construction issues. In addition, he coordinated and conducted all material source sampling for imported materials, and assists the Construction Manager in testing and sampling in place materials throughout construction.

NYS THRUWAY AUTHORITY, LOCK 6E REHABILITATION PROJECT, WATERFORD, NEW YORK. Mr. Robinson was the Night Shift Superintendent for this $15 million project to resurface the lock chamber, intake, outlet, bypass tunnels, and install new miter gates. He directly supervised Carpenters, Laborers, and Crane Operators in the demolition and reconstruction of the Lock 6E concrete surfaces. Responsible for the quality, production, and safety of personnel and equipment.

RECONSTRUCT SEVEN INTERSECTIONS ALONG U.S. ROUTE 9 AND NYS ROUTE 254. Project Manager for the $2.3 million reconstruction of seven intersections along U.S. Route 9 and NYS Route 254 in Queensbury NY. The scope of work included repairing existing culverts, installing new drainage structures, extending existing utilities, adding additional lanes and milling and resurfacing of existing pavement. In addition, new traffic signal and inductance loop systems were installed at the intersections.

U.S. CENTRAL COMMAND HEADQUARTERS FORCE PROTECTION PROJECTS Project Manager for the Congressional Funded force protection initiatives at the Command Headquarters Building at MacDill Air Force Base, Tampa Florida. The Scope of work included reconstruction of the building entrance, security systems, 3M Mylar film blast protection, vehicle entry security gate systems, hydraulic barrier and bollard systems, and the perimeter security wall.

Years of Experience
6

Education / Training

- B.S. Civil Engineering, Syracuse University, Syracuse, NY 2009
- Minor Engineering Management, Syracuse University, Syracuse, NY 2009

License / Registration

- E.I.T.: Fundamentals of Engineering, New York – April 2009

Special Training

- 40-Hour HAZWOPER: Hazardous Waste Operations and Emergency Response
- OSHA 10-Hour: Construction Training
- Boaters Certificate: New York State
- First Aid, CPR, AED
- Microsoft: Office Programs
- Primavera:
  - Project Management v621
  - Project Management v13 Oracle
  - SharePoint
- CAD:
  - MathCAD
  - MicroStation
  - AutoCAD
- dbo2 - Design Build Own Operate:
  - Health & Safety Inspections
- Surveying:
  - Proficient in surveying techniques – Traditional, Theodolite, and GPS

Zachary T. Evans

CQA Field Inspector

Summary of Relevant Qualifications

Mr. Evans has experience as a construction and field inspector, and engineering experience in the Structural and Transportation fields.

Work Experience

Lead Field Inspector, River Operations - Parsons – Fort Edward, NY - General Electric Co. Hudson River Dredging Project. Responsible for supervision of 8 person team providing oversight of active dredge and backfill plants during the dredging of over 2 Million cubic yards of Tri+ PCB laden sediments from a 40 mile stretch of the Hudson River. Track and analyze quantities, efficiencies, budgets, and percent complete on a wide range of operations including those noted below. Perform post-dredging data analysis and statistical evaluation of tracked quantities. Actively address concerns relating to artifacts, including the protection of areas containing known cultural resources. Interface with state agencies and collaborate with archeologists to evaluate previously unidentified artifacts. Monitor quality of life issues including noise, air, odor, and water quality. Review and evaluate material certifications, chemical analyses, contractor submittals, proposals, and requests for information. Provide insight for, and contribute to, development of contract documentation including field orders, work orders, requests for information responses, proposals, technical specifications, and cost estimates. Address time sensitive client requests in adherence to project documentation. Provide point of contact for communication with the client and between contractors. Coordinate with QA/QC manager on contractor compliance and deficiencies. Oversee cost sensitive operations from startup to completion, tracking budget with percent complete and efficiencies. Establish and maintain professional relationships with clients personnel, contractors, and state and federal agency representatives.

Transportation Engineer Intern - Herbert, Roland & Grubic, Inc – Dunmore, PA – Performed a detailed roadway cross-sectional design using MicroSation and performed inspections of concrete and reinforcing bars for installation of interstate logo signboards. Performed trip generation calculations, and completed drawings using AutoCAD drawings for Highway Occupancy Permits. Updated property deeds in accordance with CAD drawing details to ensure accuracy of work.

Structural Engineer Intern - Dubai Contracting Company, L.L.C., – Dubai, U.A.E. - Performed inspection work on high-rise construction sites including the Rolex, Sama, Code, and 014 Towers. Oversaw operations associated with construction of the reinforced concrete sheer walls, foundations, foundation water tanks and repairs, block walls, building utilities (HVAC, plumbing and electrical), curtain walls, parking garages. Conducted weekly site progress meetings.

ESTI Construction Inspector - Pennsylvania Department of Transportation, District 4-0 – Construction Unit – Dunmore, PA. Performed inspections and maintained accurate legal documentation of daily roadway construction processes including manpower, equipment, safety, and quality control. Assured compliance with codes, standards, and project contract. Oversaw work crew of 15 personnel. Documented and issued pay for daily work performed by subcontractors. Inspected procedures including paving milling of roadways, pipe and drainage installation, and line painting and testing.

Years of Experience
10

Education / Training

- B.S. – Civil Engineering, Columbia University, New York, NY, 2004
- B.S – Physics & Environmental Studies, Hobart College, Geneva, NY, 1996

License / Registration

- Engineering in Training , New York

Special Training

- 40-Hr O.S.H.A – 29 CFR 1910.120 HAZWOPER w/ Eight Hour Refresher

Michael T. Vaillant

CQA Field Inspector

Summary of Relevant Qualifications

Mr. Vaillant has 10 years experience in various structural building design, civil & site engineering, waterfront development, and bridge analysis and inspection projects. Mr. Vaillant has relevant experience on complex projects including design work, construction and bridge inspections, and construction management. He has proven abilities in utilizing his engineering judgment and knowledge, providing unique and cost-effective solutions and working within time and budget constraints.

Work Experience

River Inspector – Parsons, Hudson Falls, NY - Responsible for daily oversight and documentation of construction activities related to river operations, including dredging, backfill, and land-based operations in support of river work at the GE Hudson River Dredging Project. Acted as the project owner's representative to ensure work was performed in compliance with project plans and specifications. Provided oversight for construction of the new unloading wharf at project processing facility along the Champlain Canal. Performed survey and evaluation of existing structures in the Hudson River to evaluate condition of the structure and potential impacts the structure may have on future dredging operations.

Assistant Team Leader/Design Engineer II – MJ Engineering & Land Survey, Clifton Park, NY - Responsible for assisting with NYSDOT Region 1 & Region 8 Biennial and Interim Bridge Inspections by documenting erosion, scour, and undermining at abutments and piers, measuring section loss of steel primary members, and preparing reports and sketches detailing findings. Operated special access equipment on a variety of inspections including Under Bridge Inspection Units (UBIU), bucket trucks, and motorized lifts. Oversaw setup of lane closures to ensure safety of inspection team and the public. Scheduled all inspections, including lane closures and special access equipment needs. Coordinated with other consultants and NYSDOT to schedule inspections and meet deadlines.

Staff Engineer – Green International Affiliates, Westford, MA - Reviewed original construction plans and inspection reports for steel, precast concrete, and block arch railroad bridges. Prepared detailed analysis calculations and models for technical rating reports. Performed field inspections of structures and documented conditions in detailed inspection reports.

Site Engineer, Lincoln, RI –T-Pier Rehabilitation & Mooring Field - Assisted with above and below water level inspections of existing timber pier. Inspection included removal of select timber piles for visual analysis of pile condition. Proposed multiple options for pier rehabilitation and cost estimates based inspection. Designed various mooring field layouts in adjacent harbor, allowing for a variety of boat sizes and mooring options.

Middle School Construction - Assisted with preparation of site engineering documents for permitting and construction, including site layout, grading, utility, and drainage plans, including tiered detention ponds and athletic fields. Construction oversight and administration tasks for site and structural work. Tasks included site inspections and field reports, responses to RFI's, and review of shop drawings.

Youth Assessment & Development Facilities – Completed a site layout, grading, drainage, and utility design for two separate youth correctional facility sites from conceptual design to construction phase.

Years of Experience:
15+

Education:

- Bachelor of Arts, Environmental Science, Boston University

Certifications:

- Parsons Project Manager Certification
- OSHA HAZWOPER 40 HR
- OSHA Competent Person
- Safety - ExxonMobil Loss Prevention System (LPS)
- DOT Hazardous Materials General Awareness
- RCRA Hazardous Materials Generator

JASON BIERLY

Chief Operations Processing Inspector

Summary of Relevant Qualifications

Mr. Jason Bierly has extensive leadership, project and program management, and supervision experience in environmental construction, remediation, operation, troubleshooting, design and disposal. Jason's experience is in the construction, waste management (characterization and disposal), manufacturing, and petroleum industries. His experience includes office and field management and oversight for site construction and remediation projects and large scale fabrication facilities. Other areas of expertise include detailed project scheduling, value engineering and site construction management.

Work Experience

Chief Processing Inspector. Hudson River Dredging Project, Fort Edward, NY (2014-Present) Chief Processing Inspector for 24/7 dredging operations associated with the Hudson River Dredging Project. Processing operations consists of unloading, size separation and processing of between four to eight sediment hopper barges per day at a peak capacity of approximately 27,000 cubic yards per week. Processed coarse and filter cake material is staged in designated areas and loaded into up to three unit trains per week for off-site disposal. Water from the processing and size separation (including facility storm water) is treated on-site through a 2,000,000 gallon per day treatment plant consisting of clarifiers, multimedia filters, granular activated carbon vessels, and final polishing filtration.

Daily responsibilities include, but are not limited to:

- Training, direction and daily supervision of up to five Processing Operations Inspectors.
- Assist with the review of work plans, requests for information and submittals and ensure that the approved work plans and submittals are routed to the inspectors.
- Ensure that all facets of the scope of work are being inspected and that required supervision is being provided to ensure the compliance and safety of the work being conducted by the contractor in regards to the applicable codes, standards, specifications and drawings and other contract documents.
- Review daily inspector reports to verify accuracy of observed activities and quantities including manpower, equipment, materials, health, safety and quality control.
- Maintain frequent contact with Contractors' representatives concerning the execution of the work and issues encountered. Ensures the effective implementation of all the client and project procedures, and resolve field operational issues, as needed.
- Review, check and sign disposal manifests for unit trains.

Deputy Project Manager and Project Engineer. ExxonMobil Environmental Services, Bayonne, NJ. (2009-Present) Deputy Project Manager and Project Engineer for a large scale oil (LNAPL) recovery remediation project at a former oil refinery in New Jersey. Responsible for various project management activities including, but not limited to, oversight of two onsite operators and subcontractor management of major subcontractor consisting of up to fifteen daily personnel, value engineering, proposal development, invoicing and financial tracking, and scheduling. Engineering tasks include the design, upgrade, installation, operation & maintenance, daily site check review and troubleshooting of approximately ten groundwater and soil remediation systems along with scope of work (SOW), request for proposal (RFP) development and construction management for large scale remediation and site construction tasks. Typical remediation system equipment

installed and operated onsite include, but are not limited to, air compressors, oils water separators, pumps (pneumatic, centrifugal and progressive cavity), Liquid Ring Pumps, Regenerative Thermal Oxidizers, PLC and relay based Control Panels and various types of discrete and analog instrumentation.

Additional responsibilities include in-situ and ex-situ waste characterization via sample plan development and review and associated disposal management (including disposal facility contracting, profile generation, manifest review and tracking and invoice validation) of remediation generated waste, subcontractor invoicing validation and purchase order management for the client associated with both Lump Sum and Time and Materials contracts.

Recent relevant large scale project activities include:

- Onsite supervision and management for demolition activities of former site pipelines. Scope of work included work plan generation, request for quotation generation, subcontractor evaluation, selection and onsite oversight for the demolition and disposal of 8,000 linear feet of aboveground and underground total fluids and electrical pipeline associated with a warehouse redevelopment. Daily onsite tasks included conducting twice daily health and safety meetings, schedule development and work progress management with subcontractor foreman, generation of daily progress reports, work coordination with two other site contractors and change order management. Provided environmental and safety training and served as safety back-up whenever necessary.
- Scope development, execution, daily tracking and management of two large scale excavation and disposal events totaling approximately 115,000 tons of hazardous and non-hazardous chromium impacted soils and associated debris. Scope of work associated with the project included development of in-situ sampling programs for waste characterization, request for quotation preparation, bid review and coordination with transportation and disposal contractors, profile and manifest generation and tracking, daily report review and daily waste tracking for two soil excavation and disposal projects. Based upon the developed in-situ waste characterization programs, the impacted soils were segmented into Hazardous and Non-Hazardous grids and were live loaded into trucks for transportation and disposal in lieu of stockpiling saving the client time and money. Daily logs of trucks, weights and manifests were generated, tracked, verified and compared to disposal contractor invoices. Provided environmental and safety training and served as safety back-up whenever necessary.
- Evaluation and reinstallation of site remediation system damaged by Superstorm Sandy. Responsible for the evaluation and recommendation for excessive site hurricane related damage of all site systems. All site systems were thoroughly reviewed and tested for operability. Demolition, redesign and reinstallation scopes of work were developed for all systems. Responsible for system specification, vendor acquisition and submittal review of equipment and instrumentation. Also responsible for monitoring of site contractor status and onsite startup, operation and maintenance manual preparation and troubleshooting. Provided environmental and safety training and served as safety back-up whenever necessary.

Technical Director. ExxonMobil Environmental Services, Edison, NJ. (2012-2013) Technical director for biosparge system design, construction, installation, start-up, operation and optimization at a former research laboratory. Scope of work included design, vendor selection and submittal review of a containerized biosparge system. Tasks included development of site construction plan, subcontractor submittal review and interface/coordination with site facility operations.

Technical Director. Rohm and Haas, Spring, TX. (2012-Present) Technical director for operation, troubleshooting and optimization of two pump and treat (air strippers, transfer pumps and granular activated carbon) groundwater remediation systems at a former chemical facility. Job duties include review of monthly operation reports, work plan

generation for troubleshooting results, design optimization and remote operator training.

Operations Manager. BISCO Environmental (2007-2009). Served as the operations manager for an industry leading remediation system manufacturing and design facility. Responsible for fabrication facility management, scheduling, coordination and oversight of all aspects of the design, production, testing and delivery of multiple ongoing containerized and skid mounted environmental remediation systems encompassing all types of media and technologies ranging from air strippers to fully integrated modular trailer systems equipped with dual phase extraction pumps and catalytic oxidizers, including scheduling, resource allocation, backlog management, value engineering, testing, troubleshooting and QA/QC. Responsible for management, hiring, supervision, training, safety and evaluation of up to 30 concurrent shop personnel. In addition, responsible for OSHA regulation safety and reporting for all facility activities and company lead for remote customer troubleshooting support. Working knowledge of all types of equipment and instrumentation used in the soil and groundwater remediation industry, PLC and relay based control panel wiring and troubleshooting, mechanical, electrical, plumbing and carpentry means and methods, National Electric Code (NEC) for Hazardous Environments and Underwriters Laboratories (UL) Certification requirements.

Senior Project Manager and Remediation Engineer, Clean Harbors Environmental Services. (2000-2007) Served as a senior project manager for the Remediation and Environmental Construction Division. Responsible for the management of multiple ongoing environmental remediation and environmental construction projects with total values of up to $3,000,000 throughout the United States. Typical job tasks included project budgeting, onsite supervision of site construction activities, submittal development and review based upon project specifications, health and safety management, client interface and personnel evaluation. In addition, was responsible for bidding and proposal development for job opportunities and evaluation, design, construction, implementation, operation, troubleshooting, and management of groundwater and soil remediation systems in accordance with local, state, and federal requirements.

Major projects included:

- Management and supervision of a full time five person staff at a 400-500 gallon per minute treatment plant located at a former EPA superfund site. Activities included management of onsite staff, review of daily reports, client reporting, billing and budget tracking. Major system components included permanganate and polymer injection, inclined plate clarifiers, plate and frame filter press, granular activated carbon, sludge decanters, process pumps (diaphragm, centrifugal and progressive cavity), fully automated SCADA control system and reinjection basins. Provided environmental and safety training and served as safety back-up whenever necessary.
- In-Situ Soil Mixing Treatment Project at a former Army Facility. Developed a project sequence, scheduling and tracking program for a large scale soil reagent mixing project at a former missile silo location. Project required the development of a scheduling, soil management and daily tracking system for the excavation, staging and reagent mixing program for iron impacted soils within a confined site to depths in excess of twenty feet below grade. Project was completed using a cell/grid tracking and stockpile sequencing program requiring daily update, tracking and modification to complete the scope of work on time within a very confined area. Provided environmental and safety training and served as safety back-up whenever necessary.
- Management of turnkey environmental construction and remedial installation projects. Managed numerous site environmental construction and system installation projects throughout the United States. Projects typically involved underground vault, pipeline and building installations, subcontractor and vendor selection and management in accordance with client specifications, budget tracking, project invoicing in accordance with earned value management, health and safety monitoring and reporting and project

schedule tracking. Provided environmental and safety training and served as safety back-up whenever necessary.

Environmental/Remediation Scientist. Marin Environmental. (1998-2000) Served as the lead environmental and remediation scientist for a small environmental firm located in Vermont and Massachusetts. Responsibilities included field oversight and supervision of site construction, excavation and drilling activities, project management, operation and troubleshooting of groundwater and soil remediation systems throughout New England. Job tasks also included drilling oversight, site sampling and mechanical or electrical equipment installation.

Susan Ann Green, P.G.

CQA Field Inspector

Years of Experience
27

Education / Training

- B.S., Iowa State University
- Graduate Coursework, Physical Geography and Geology, University of Utah

License / Registration

- Licensed Professional Geologist in Arkansas and Pennsylvania

Special Training

- OSHA 40-hour HAZWOPER
  - Level B-trained
  - Level C Site Safety Coordinator
- OSHA 10-hour Site Construction Outreach Safety Training
- BERS Proprietary Marine Vessel Tracking System
- Primavera P6 and Construction Manager Reporting Systems
- DBO2 Safety Software
- NYS-accredited Defensive Driving Certification

Publications and Presentations

- Completed twelve professional publications, technical papers, or presentations

Professional Affiliations

- Association of Environmental and Engineering Geologists
- National and Pennsylvania Ground Water Associations

Summary of Relevant Qualifications

Ms. Green has over 27 years as an accomplished groundwater geologist whose experience includes but is not limited to designing, implementing, inspecting, and managing multi-disciplinary environmental construction and remediation investigation oversight, geologic, and potable water supply projects. She excels in completing emergency construction oversight tasks. She has proven abilities in managing projects to schedule and budget; complex problem solving; and nurturing cohesive teams. Her projects have spanned 21 states supporting a wide range of Federal, state, municipal agencies as well as leading industries in the private sector.

Work Experience

Senior Construction Inspector/Processing Office Engineer, Hudson River Dredging Project, Fort Edward, NY. (2009, 2011-Present) Ms. Green is currently a Senior Construction Inspector at the Hudson River Dredging Project Processing Facility. She completed diverse duties including inspection of sediment barge unloading, size separation of river dredge spoils, filter press sediment dewatering operations, and associated data management. Key progress metrics for this 24/7 facility were managed contemporaneously to support daily Client progress meetings, Quality of Life environmental response reports, and weekly production reports to the EPA and to the Client. Other data management tasks included but not limited to Quality Assurance review of Barge Travel Logs, management of the Processing Facility Contractor QC sample database, as well as the logging, shipment, and tracking of rail car processing waste characterization samples. Monitored the contractor's bulk material handling and management of all on site processed material stockpiles throughout the site for compliance with contract.

Auxiliary projects in support of Processing Facility Operations and Facilities included but were not limited to:

- Monitoring the Processing Facility under drain well network to prevent failure of the site protective liner.
- Designed and implemented a soil boring and sampling program to facilitate the expansion of the Coarse Material Storage Area and verify that the area was not contaminated with PCBs from adjacent work areas.
- Provided inspection of Processing Facility geotechnical drilling in support of the construction of the new Gravity Thickener as well as expansion of the Wharf and other potential structures. Inspection duties included logging boreholes and collection of geotechnical samples.
- Designed and inspected the asphalt sampling of the footprint for the new Gravity Thickener. The porous media-based sampling plan was designed to facilitate characterization of TSCA or non-TSCA disposal classification.
- Designed and inspected the asphalt sampling of the footprint for the new Wharf expansion bulkhead. The porous media-based sampling plan was designed t facilitate characterization of TSCA or non-TSCA disposal classification.
- Tracked and evaluated processing downtime for the Construction Manager.
- Reviewed contractor work and quality plan submittals.
- Inspected the final decontamination of heavy equipment, laboratory trailer, and associated peripheral equipment prior to leaving the Exclusion Zone and the Processing Facility at the completion of the primary field season. Inspection included splitting of wipe test samples for laboratory quality assurance.

Construction Inspector/Senior Geologist, Municipal Brownfield Development Site, Philadelphia, PA. Confidential Client. Ms. Green was the oversight inspector for the jet grouting operation to augment the thickness of the natural basal clay strata underlying the former Superfund Site beneath the future Runway 8-26 at the Philadelphia International Airport. The task included drilling of pilot holes on 5-foot centers concurrent with jet grouting over a 5 acre area.

Construction Inspector, Municipal Brownfield Development Site, Philadelphia, PA. Confidential Client. Inspected inspection of demolition and environmental remediation of soil surrounding the footprint of the future Runway 8-26 at the Philadelphia, International Airport. Operations included salvaging of concrete and other inert materials for beneficial reuse at the job site, reclaiming contaminated soils following thermal treatment for reuse as construction backfill material, and PA Act 2 waste characterization for determination of disposal options. Minimized contractor removal of reusable concrete to reduce offsite disposal and onsite backfill costs incurred by the Division of Aviation. Reviewed for the Airport's Lead Construction Manager, labor and equipment expenditure records, contractor soil remediation confirmation sampling results, transportation manifests, disposal confirmations, and beneficial use of remediated site soil and construction demolition debris. Co-designed an innovative PA DEP Act 2-compliant sampling scheme for beneficial reuse or disposal of target materials, LUSTs, contaminated soil and water. Provided oversight of on-site orphan USTs and third party UST removals.

Construction Inspector/Senior Geologist, Municipal Brownfield Development Site, Philadelphia, PA. Confidential Client. Ms. Green provided inspection of the installation of nested sentinel wells into the Sole Source Potomac Aquifer to monitor potential migration of contamination into the aquifer from the nearby delisted Superfund site. She also assisted in the extension of the landfill dewatering wells through cap materials; installation and data acquisition from meters installed in the landfill dewatering wells; and inspection of the installation, extension, and rehabilitation of monitoring and recovery wells.

Site Manager/Construction Inspector/Senior Geologist, Phase II Real Estate Due Diligence Investigation with Demolition and Pa Act 2 Remediation, Former Transformer Testing Facility, Philadelphia, PA, Confidential client. Ms. Green designed and implemented a second investigational phase with limited inspection of the remediation and demolition at a former TSCA SQG facility. She participated in field operations that included but were not limited to extensive on-site file reviews, surface geophysical surveys, LUST/ multi-media, rapid turn sampling, monitoring well installation, hydrologic testing and groundwater modeling to secure a PA DEP Non-use Aquifer Determination. Coordinated multiple personnel for all project phases. Inspected voluntary facility demolition by the property owner. Procured laboratory and drilling services subcontractors. Interfaced with the property owner to complete an extensive supplemental file review and to dispose of investigation-derived TSCA waste.

Years of Experience
16

Education / Training

- B.S. – Civil Engineering, Union College, Schenectady, NY, 1999

Special Training

- 40-Hr OSH.A – HAZWOPER
- 30-Hr OSHA – General Industry Outreach Training

Kathleen Lynch Farrell, P.E.

CQA Field Inspector

Summary of Relevant Qualifications

Ms. Farrell has 16 years experience supporting environmental projects as an environmental technician, supervisor, field geologist and processing operations inspector.

Work Experience

Processing Inspector, Hudson River Dredging Project, Ft. Edward, NY (2012-Present)

Monitors process operation activities by the contractor and vendors to ensure compliance with the applicable codes, standards, project contract documents and quality assurance procedures. Provides general inspection of all contractor work/operations to assure a safe and professional operation conducted in as efficient manner as possible. Completes daily field reports in electronic data format that documents contractor activities including: weather conditions, general progress of the work, manpower hours, productivity ,equipment, materials used, cost reimbursable items, pay quantities, and description of problems encountered.

Senior Engineer, Clough Harbour and Associates, Albany, NY June 2008–May 2012

Major Responsibilities include:

Albany Pool Communities Combined Sewer Overflow Study, Albany, NY

- Develop, calibrate, and analyze a hydraulic model (SWMM5) of over 10 miles of combined interceptor sewer including 15 regulating structures and 2 pump stations
- Analyze existing model results and provide summary of volumes, frequency and duration of CSO
- Develop, model & evaluate effectiveness of alternative solutions on the volumes, frequency and duration of CSO
- Assist in the development of the CSO Long Term Control Plan for submission to the EPA for approval

Sewer Improvements Project, Indian Lake, NY

- Develop construction documents for wastewater treatment plant and collection system improvements
- Complete construction inspection and administration including change orders, payments, and meetings with the clients

NYSERDA, Energy Efficiency Evaluation Services, Various Locations, NY

- Develop alternatives and cost estimates for WWTP expansion and prioritize options for equipment and process upgrades
- Compare motor types, pump sizes and configurations for optimizing energy efficiencies for WWTP upgrades
- Review and summarize existing energy usage at various wastewater treatment plants
- Identified and summarized additional energy efficiency measures for possible inclusion in the project.

Planning and WWTP Evaluation Study, Bethlehem, NY

- Evaluate existing components of WWTP including mechanical screens and aeration systems
- Estimate future flow and loads to the existing WWTP for a 30 year planning period

George Mason University, Point of View Development, Fairfax VA

- Complete a feasibility study for a new wastewater treatment system for a remote conference center
- Provide preliminary design with a view to obtaining LEED platinum certification.

Cumberland Farms Wastewater Permitting, Multiple Locations, New England

- Secure all applicable wastewater permits for Cumberland Farms store renovations

Senior Design Engineer and Construction Manager - RPS Consulting Engineers, Dublin, Ireland, Aug 2005–May 2008

Major Projects with associated responsibilities included:

Portlaoise Sewer Improvement Works, County Laois, Ireland

- Manage resident engineering and site staff for major infrastructure expansion project including the construction of pump stations and the installation of large diameter gravity HDPE, PVC and RCP sanitary and storm sewer pipes
- Provide technical guidance and all design clarification of gravity and force mains, pump stations equipment and controls.
- Responsible for all aspects of construction administration and coordination, including site meetings with RE staff, client representatives, and contractor's project mangers
- Review and Certify Contractor's accounts for itemized works and change orders

Mulhuddart Flood Alleviation Work, Fingal, County Dublin, Ireland

- Design of and equipment selection for a storm water pumping station
- Prepare Contract Documents for the design and construction of a flood protection wall and a pumping station.

Engineer, Fay, Spofford, & Thorndike, Inc., Burlington, MA, March 2002–July 2005

Major Projects with associated responsibilities included:

CSO Abatement Project - 090 CSO Area, Contracts 5, 7 and 8, Dorchester, MA

- Field Inspection and observation of sewer, storm drain and water main construction on an as needed basis
- Provide construction management services such as design evaluation, field redesign of storm drain and sanitary sewer system, quantity measurements, and
- Provide engineering support for compiling of construction change order documents
- Review and approve contractor shop drawings submittals

Nonresidential Storm Sewer Disconnection Project -093/095 CSO Area, Neponset, MA (Construction cost: $500,000) CSO Abatement Project - 088/089 CSO Area, Contract 3, Dorchester, MA (Construction cost: $13,000,000)

CSO Abatement Project - 088/089 CSO Area, Contract 4 Dorchester, MA (Construction cost: $11,000,000) CSO Abatement Project - Fort Point Channel, Boston, MA (Construction cost: $10,000,000)

- Field investigation including building and site drainage investigations, topographic and site features survey
- Design storm drainage and sanitary sewer systems, as well as water main pipes through utility laden urban environment
- Develop construction documents for each contract, including plans, specifications and engineer's estimate
- Coordinate with the municipal client and subconsultants
- Project team management including assigning tasks, scheduling and quality control

Hill Street/Root Avenue Reconstruction Project, Ansonia, Connecticut

- Identify catchments areas, land use and soil types to be used in the drainage analysis and modeling
- Develop model of drainage facilities to relieve roadway flooding conditions using StormCAD software
- Prepared Drainage Design Report
- Responsible for coordinating drafting efforts, developing standards and an AutoCAD layering system to produce a set of As-Built record plans

Environmental Engineer, PEER Consultants, Cambridge, MA, August 1999–March 2002

Major Projects with associated responsibilities included:

Greenfield Wastewater Treatment Plant Record Drawings, Greenfield, MA

- Coordinate drafting efforts, develop standards and an AutoCAD layering system to produce a set of As-Built record plans

Participated in MWRA Deer Island Secondary Treatment Facilities Performance Certification, Phase 2, Boston, MA

- Collect data for Deer Island Secondary Treatment Facilities Phase 2 Performance Certification including interviews with MWRA Deer Island operations, engineering, and training staff
- Review vendor training manuals and vendor operations and maintenance manuals

ATTACHMENT 2

DREDGING AND FACILITY OPERATIONS TEST AND INSPECTION TABLES

Table A2-1 Processing Facility Operations Inspections and Tests

Inspection Schedule				
Inspection Parameter	**Specification Reference**	**Inspection Method**	**Minimum Inspection Frequency**	**Acceptance Criteria**
Sediment dewatering – filter cake and coarse material	Not applicable	Visual observation for appearance of free liquid or conditions that may result in the release of free liquid	Every batch	No apparent free liquid or sufficiently saturated condition of the material that could result in the release of free liquid
Test Schedule				
Test Parameter	**Specification Reference**	**Test Method**	**Minimum Testing Frequency**	**Acceptance Criteria**
Sediment dewatering – filter cake	Contract 30, Section 13750 3.09**.C**	Visual + Paint Filter Liquids Test	Periodically confirm visual observation	Pass: Paint Filter Liquids Test
Sediment dewatering - coarse material	Contract 30, Section 13750 3.11.C	Visual + Paint Filter Liquids Test	Periodically to confirm visual observation	Pass: Paint Filter Liquids Test
Non-TSCA coarse material	Not applicable	Total PCBs Method GEHR8082	A five-point composite sample every 500 cy placed in Non-TSCA Coarse Material Staging Area. (Once test data have proven that process controls are effective and with the concurrence of the non-TSCA disposal facility, the frequency of confirmation testing may be reduced.	Pass: less than 50 parts per million (ppm) Total PCBs. (Note: Materials with Total PCBs ≥ 40 ppm will be re-tested or disposed of as TSCA material.)

Table A2-1 Processing Facility Operations Inspections and Tests

Test Schedule con't				
Test Parameter	**Specification Reference**	**Test Method**	**Minimum Testing Frequency**	**Acceptance Criteria**
Non-TSCA fine material (filter cake)	Not applicable	Total PCBs Method GEHR8082	A five-point composite sample every 300 cy placed in Non-TSCA Filter Cake Staging Enclosure. (Once test data have proven that process controls are effective and with the concurrence of the non-TSCA disposal facility, the frequency of confirmation testing may be reduced.)	Pass: less than 50 ppm Total PCBs. (Note: Materials with Total PCBs ≥ 40 ppm will be re-tested or disposed of as TSCA material.)

Note: Technical Specification, Contract 30, Section 13750 (Processing Facility Operations)

Table A2-2 Contract 42A Dredging Operations Inspections and Tests

DREDGING

Inspection Schedule				
Inspection Parameter	**Specification Reference**	**Inspection Method**	**Minimum Inspection Frequency**	**Acceptance Criteria**
Water quality	Contract 42A Section 13805	Visual observations for turbidity plume, floatables or sheen	Daily during each shift by visual observations	Per contract specifications
(Note: The above is contractor operational monitoring, not compliance monitoring under Resuspension Performance Standard.)				
Bucket closure	Contract 42A Section 13803	Operator observation and limit switch monitor	Ongoing throughout dredging via operator and inspector observations	To the extent possible, complete closing of the dredge bucket before it is lifted from the river bottom, unless prohibited by debris.
Dredge positioning	Contract 42A Section 13803	Operator observation of in-cab monitor	Ongoing throughout dredging via real time kinematic differential global positioning system (RTK DGPS)	No dredging outside project limits
Heavy equipment inspection	01350 1.03 E 1.14 C	Visual	Daily (each shift)	No leakage of liquids observed
Crane inspection	Section 01350 1.03 D.4 1.14 C	Visual	Annual by qualified third party and daily (each shift) for QC	Annual Certificate of Compliance Per manufacturer requirements for safety and per specifications for quality (deficiencies)

Table A2-2 Contract 42A Dredging Operations Inspections and Tests

DREDGING

Inspection Schedule				
Inspection Parameter	**Specification Reference**	**Inspection Method**	**Minimum Inspection Frequency**	**Acceptance Criteria**
Marine vessel inspection	Section 13897 1.03 A.2	Visual	Prior to Mobilization	Pre-mob: Certificate of Compliance Per Coast Guard and project specifications
RTK & GPS: Field Verification Calibration Check	Section 13803 2.01 B.5	Visual	Verify:30 days before equipment usage Calibrate: Daily	Per contract specifications and manufacturer's procedures
Night Work Lights	Section 13803 2.01 F	Visual	Each shift	Per manufacturer and project specifications
Anchor Systems Check	Section 13820 3.02 A	Visual	Daily: Prior to deployment	Per manufacturer requirements
Noise Management Reports	Section 02931 3.01 C	Decibel meter	Daily or per approved Noise Control Plan	Per contract specifications
(Note: The above is contractor operational monitoring, not compliance monitoring under Noise Performance Standard.)				
Light Management Reports	Section 02936 3.01 C	Light meter	Nightly or per approved Light Control Plan	Per contract specifications
(Note: The above is contractor operational monitoring, not compliance monitoring under Lighting Performance Standard.)				

Table A2-2 Contract 42A Dredging Operations Inspections and Tests

DREDGING

Test Schedule				
Test Parameter	**Specification Reference**	**Test Method**	**Minimum Testing Frequency**	**Acceptance Criteria**
Dredging depths (elevations)	Contract 42A Section 13803	Post-dredge survey by third-party survey contractor	At completion of each CU	Required dredge depths (plus allowable over dredge depth)
Dredging extents (northings and eastings)	Contract 42A Section 13803 D-2736 thru D-2740 (CUs 94-95), D-2748 (CU 99-6 & 99-7), and D-2117 (CU 60)	Post-dredge survey by third-party survey contractor	At completion of each CU	Required dredging extents

Table A2-2 Contract 42A Dredging Operations Inspections and Tests

[Note: This table provides samples of required tests and inspections - confirmatory sampling is detailed in Phase 2 RAM QAPP]

BACKFILLING, CAPPING, AND PLACING ARMORING MATERIALS

Inspection Schedule				
Inspection Parameter	**Specification Reference**	**Inspection Method**	**Minimum Inspection Frequency**	**Acceptance Criteria**
Water quality	Contract 42A Section 13805	Visual observations for turbidity plume, floatables or sheen	Daily during each shift by visual observations	Per contract specifications
(Note: The above is contractor operational monitoring, not compliance monitoring under Resuspension Performance Standard. Remedial action monitoring crews will note in field records any significant visual contrast due to increased turbidity and cause if known.)				
Bucket positioning	Contract 42A Section 13720 & Section 13803	Operator observation of in cab monitor and limit records from Third-party survey contractor	Ongoing throughout via differential global positioning system (DGPS) system	No material placement outside project limits

Table A2-2 Contract 42A Dredging Operations Inspections and Tests

[Note: This table provides samples of required tests and inspections - confirmatory sampling is detailed in Phase 2 RAM QAPP]

BACKFILLING, CAPPING, AND PLACING ARMORING MATERIALS

Inspection Schedule				
Inspection Parameter	**Specification Reference**	**Inspection Method**	**Minimum Inspection Frequency**	**Acceptance Criteria**
Backfill and cap layer depths	Contract 42A Section 02206 & Section 13720	Multi-beam bathymetric surveys	Post-backfill/cap surveys completed after placement in each CU	Meet layer and thickness requirements (plus allowable over placement)
Topsoil and Granular Material Types “1”, “2”, “N”, “O”, “P” & “Q”	Section 02206 2.02	Site Visual Inspection	Every Two Days (during time of delivery)	Prior to delivery and placement, the material will not exhibit any physical or other characteristics that indicate that the material has been modified by the addition of man-produced chemicals or contains other materials that do not meet requirements of the contract specifications.

Table A2-2 Contract 42A Dredging Operations Inspections and Tests

BACKFILLING, CAPPING, AND PLACING ARMORING MATERIALS

Test Schedule				
Test Parameter	**Specification Reference**	**Test Method**	**Minimum Testing Frequency**	**Acceptance Criteria**
Tests for backfill/cap materials gradation by weight (per Contract 42A Specification 02205 Part 2.02)				
Granular Materials Type "1" & "2"	Section 02206 2.02	ASTM C136	Once every 5,000 tons initial (more or less frequent at direction of CM based on visible variations in material characteristics)	Gradation criteria from Specification 02206 2.01 A, B
Granular Materials Type "1" & "2"	Section 02206 2.02	DRO/GRO Analysis TPH 8015	Once every 5,000 tons initial (more or less frequent at direction of CM based on visual inspection of material)	Acceptance criteria is non-detect (PQL 10 mg/kg)
Granular Materials Type "2" with TOC"	Section 02206 2.02	Lloyd Kahn	Once every 5,000 tons initial (more or less frequent at direction of CM based on visible variations in material characteristics)	Criteria from Specification 02206 2.01 C

Table A2-2 Contract 42A Dredging Operations Inspections and Tests

BACKFILLING, CAPPING, AND PLACING ARMORING MATERIALS

Test Schedule				
Test Parameter	**Specification Reference**	**Test Method**	**Minimum Testing Frequency**	**Acceptance Criteria**
Granular Materials Type "1" & "2" New burrow source)	Section 02205 2.02	DRO/GRO TPH 8015	One test pit at a depth of 5 feet or greater per 10,000 sq feet of area to be mined.	Acceptance criteria is non-detect PQL10 mg/kg
Topsoil (Physical test only)	Section 02206 2.02	Visual Inspection	Once per 1,000 cy initial (more or less frequent at direction of CM based on visible variations in material characteristics)	Criteria from Specification 02206 2.01 I
Granular Materials Type "3" (Blend of Type 1 and topsoil)	Section 02206 2.02 C	ASTM D2974	Once per 1,000 cy initial (more or less frequent at direction of CM based on visible variations in material characteristics)	Criteria per approved plan and must allow compliance with Specification 13720 3.02.B.3.

Table A2-2 Contract 42A Dredging Operations Inspections and Tests

BACKFILLING, CAPPING, AND PLACING ARMORING MATERIALS

Test Schedule				
Test Parameter	**Specification Reference**	**Test Method**	**Minimum Testing Frequency**	**Acceptance Criteria**
Granular Materials Type "N"	Section 02206 2.02 B	703 NYSDOT, 2008 and errata	Once every 5,000 tons initial (more or less frequent at direction of CM based on visible variations in material characteristics)	Gradation criteria from Specification 02206 2.01 E
Granular Materials Type "O", "P"	Section 02206 2.02 B	Visual Inspection	Once every 5,000 tons initial (more or less frequent at direction of CM based on visible variations in material characteristics)	Gradation criteria from Specification 02206 2.01 F, G

Table A2-2 Contract 42A Dredging Operations Inspections and Tests

BACKFILLING, CAPPING, AND PLACING ARMORING MATERIALS

Test Schedule				
Test Parameter	**Specification Reference**	**Test Method**	**Minimum Testing Frequency**	**Acceptance Criteria**
Granular Materials Type "Q"	Section 02206 2.02 B	ASTM D2974 620 NYSDOT, 2008	Once every 5,000 tons initial (more or less frequent at direction of CM based on visible variations in material characteristics)	Gradation criteria from Specification 02206 2.01 H
Backfill/cap materials tests for chemical constituents (per Contract 42A Specification 02206), including laboratory analysis for PCBs, pesticides, VOC, SVOC, herbicides, TAL metals, cyanide, TOC				
Granular Materials Type "1" & "2"	Section 02206 2.02 C & D	EPA SW-846 Region 2 Methods: 8260B for TCL VOCs; 8270C for TCL SVOCs; 8082 for Pesticides / PCBs; 8150 for Herbicides; 6000 / 7000 for TAL Metals; and 9012 for Cyanide. Lloyd Kahn Method for TOC.	Once every 20,000 tons initial (more or less frequent at direction of CM based on visible variations in material characteristics)	Acceptance criteria are that no organic compounds shall be detected and inorganics shall be within background range for Eastern United States as identified in Table 375-6.8(a) of the 6 New York Codes and Regulations (NYCRR), Part 375 (2006) with the exception of magnesium and calcium.

Table A2-2 Contract 42A Dredging Operations Inspections and Tests

BACKFILLING, CAPPING, AND PLACING ARMORING MATERIALS

Test Schedule				
Test Parameter	**Specification Reference**	**Test Method**	**Minimum Testing Frequency**	**Acceptance Criteria**
Granular Materials Type "2 with TOC" (In-Situ Sampling for TOC)	02206 2.02 D & 13720 3.02.B.3	Lloyd Kahn Method, following the sampling and analysis procedure detailed in Attachment 6 of this document.	Three homogenized cores at every eighth residual node (1 sample / acre)	Minimum in-situ post-placement TOC content is 2%.
Topsoil (Multiple chemical analyses)	Section 02206 2.02.F.1	ASTM D4972	Once per 1,000 cy initial (more or less frequent at direction of CM based on visible variations in material characteristics)	Acidity Range (pH): 5.5 to 7.5
Topsoil (cont'd)	02206 2.02.F.2	EPA SW-846 Region 2 Methods: 8260B for TCL VOCs; 8270C for TCL SVOCs; 8082 for Pesticides / PCBs; 8150 for Herbicides; 6000 / 7000 for TAL Metals; and 9012 for Cyanide. ASTM Method D2974 for TOC	Once per 1,000 cy initial (more or less frequent at direction of CM based on visible variations in material characteristics)	Acceptance criteria as identified in Table 375-6.8(a) of the 6 NYCRR, Part 375 (2006) with the exception of magnesium and calcium.

Table A2-2 Contract 42A Dredging Operations Inspections and Tests

BACKFILLING, CAPPING, AND PLACING ARMORING MATERIALS

Test Schedule				
Test Parameter	**Specification Reference**	**Test Method**	**Minimum Testing Frequency**	**Acceptance Criteria**
Granular Materials Type "N", "O", "P"	Section 02206 2.02 C & D	EPA SW-846 Region 2 Methods: 8260B for TCL VOCs; 8270C for TCL SVOCs; 8082 for Pesticides / PCBs; 8150 for Herbicides; 6000 / 7000 for TAL Metals; and 9012 for Cyanide. Lloyd Kahn Method for TOC.	Once every 20,000 tons initial (more or less frequent at direction of CM based on visible variations in material characteristics)	Acceptance criteria are that no organic compounds shall be detected and inorganics shall be within background range for Eastern United States as identified in Table 375-6.8(a) of the 6 NYCRR, Part 375 (2006) with the exception of magnesium and calcium. [Part 375]

Notes:

1. Technical Specification: Contract 42A, Section 13803 (Dredging); Contract 42A, Section 13720 (Backfilling/Capping) and 13898 (Shoreline Stabilization).
2. QC Testing will be performed by Contractors. Quality analytical source QA Testing by CM via CM's third party testing contractor.
3. Borrow soil must be from approved on-site borrow source with test results provided in Specification 02206. Any change in material must be consistent with approved material characteristics as determined by CM. New moisture content curves will need to be plotted for change in material.

Table A2-3 SAV Plant Supply Inspections and Tests

SAV PLANTING

Inspection Schedule				
Inspection Parameter	**Specification Reference**	**Inspection Method**	**Minimum Inspection Frequency**	**Acceptance Criteria**
SAV Plantings	Technical Specification: 53A Drawing H-2501 Section 13705	Visual Observation	Daily of area planted that day	Planting units are present at an average spacing of 2' with planting units a maximum of 0.5' from each target location. Minimum density for SAV planting units is 10,000 planting units per acre (not inclusive of tubers). Roots and rhizomes to be installed below the backfill surface and shoots, leaves and stems protrude above backfill surface

Table A2-3 SAV Plant Supply Inspections and Tests

SAV PLANTING

Inspection Parameter	Specification Reference	Inspection Method	Minimum Inspection Frequency	Acceptance Criteria
Wild Celery Planting Unit (*Vallisneria Americana*)	Technical Specification: SAV Plant Supply Contract 53A Section 13705	Visual Inspection	5 planting units from each delivery	Acceptance criteria are that plants shall be free of insects and diseases, appear healthy and exhibit visible signs of viability such as green leaves and stems; plants do not appear chlorotic or exhibit signs of desiccation. Plants do not exhibit visible signs of herbivory. Roots and rhizomes/runners are present. Tubers are firm, healthy and brownish-white in color Planting unit consists of minimum of two individual plants or tubers and growing medium contained within a biodegradable pot. No more than 20% of the planting units within a 50-plant unit tray are flowering.
American Pondweed (*Potamogeton nodusus*)	Technical Specification: SAV Plant Supply Contract 53A Section 13705	Visual Inspection	5 planting units from each delivery	Acceptance criteria are that plants shall be free of insects and diseases, appear healthy and exhibit visible signs of viability such as green leaves and stems; plants do not appear chlorotic or exhibit signs of desiccation. Plants do not exhibit visible signs of herbivory. Roots and rhizomes/runners are present. Planting unit consists of minimum of two individual plants or tubers and growing medium contained within a biodegradable pot.

Table A2-3 SAV Plant Supply Inspections and Tests

SAV PLANTING

Inspection Parameter	Specification Reference	Inspection Method	Minimum Inspection Frequency	Acceptance Criteria
Water Lily (*Nymphaea Odorata*)	Technical Specification: SAV Plant Supply Contract 53A Section 13705	Visual Inspection	5 planting units from each delivery	Acceptance criteria are that plants shall be free of insects and diseases, appear healthy and exhibit visible signs of viability such as an observable "eye" or small protruding bulb or a growing tip; plants do not appear chlorotic or exhibit signs of desiccation. Plants do not exhibit visible signs of herbivory. Tubers are firm, healthy and brownish-white in color. Planting unit consists of minimum of an individual tuber and growing medium contained within a biodegradable pot. At the time of planting, it is acceptable for a water lily tuber to contain leaves and stems.
Marine Navigational Equipment	Manufacturer Operation Manuals	Per manufacturer equipment manual(s)	Daily	Calibrate and/or operate marine equipment in accordance with manufacturer's specifications and guidelines Inspect in accordance with Health and Safety Plan Complete vessel and equipment checklists

Table A2-4 Contract 60 Rail Yard Operations Inspections and Tests

Inspection Schedule				
Inspection Parameter	**Specification Reference**	**Inspection Method**	**Minimum Inspection Frequency**	**Acceptance Criteria**
Inspect Locomotives	Contract 60, Section 13900	Physical inspection per Federal Railroad Administration (FRA) regulations	Daily	Per FRA regulation
Inspect rail cars	Contract 60, Section 13900, 1.01 D2	Physical inspection	100% of cars on inbound trains and on outbound trains	No defects as defined by Associate of American Railroads rule for interchange No Safety Appliance Act defects
Inspect, test and arm End of Train devices for each outbound train.	Contract 60, Section 13900, 1.01 A	Physical inspection	For every outbound train	Successful illumination of marker light
Inspect track structure and switches	Contract 60, Section 13900, 1.01	Physical inspection and repairs as required	Weekly	Track and switches maintained to FRA Class 1
Inspect tools	Contract 60, Section 13900, 1.01 D and 2.02 A	Physical and per applicable manufacturer specifications	Before each use	Repair or remove from service

Table A2-4 Contract 60 Rail Yard Operations Inspections and Tests

Inspection Schedule				
Inspection Parameter	**Specification Reference**	**Inspection Method**	**Minimum Inspection Frequency**	**Acceptance Criteria**
Inspect off track mechanical equipment	Contract 60, Section 13900, 1.01	Physical and per applicable manufacturer specifications	Daily, before use	Repair or remove from service
Inspect Air Compressor	Contract 60, Section 13900, 1.01 D 13	Per manufacturer equipment manual	Weekly	Compressor generates 70 pounds per square inch air, properly dried to prevent condensation in train line
Rail yard site safety inspection	Contract 60 Section 13900 1.01 C4	Physical inspection of rail yard area for safety defects	Daily	Correct defects and deficiencies as identified
Inspect & maintain weigh-in-motion scale	Contract 60 Section 13900 1.01, 1.02, 3.01 A 10	Per manufacturer equipment manual(s)	Daily as required	Per manufacturer specified requirements
Weigh empty rail cars placed into service	Contract 60 Section 13900 3.01 A. 13.	Weigh-in-motion scale	Weigh approx. 10% of the inbound empty cars	Per manufacturer specified requirements
Rail car loaded quantity	Contract 60 Section 13900 1.01 I. 5.	Weigh-in-motion scale	Each car	≥103 tons, ≤108 tons (net weight)

Table A2-4 Contract 60 Rail Yard Operations Inspections and Tests

Test Schedule				
Test Parameter	**Specification Reference**	**Test Method**	**Minimum Testing Frequency**	**Acceptance Criteria**
Calibrate & certify weigh-in-motion scale	Contract 60 Section 13900 1.01, 1.02, 3.01 A	Per manufacturer equipment manual(s)	Calibrated by the first day of operations, approx. every 90 days, and after any scale outage or event that provides incorrect weights	Per manufacturer specified requirements
Perform Initial Terminal Brake Test	Contract 60, Section 13900 1.01 D	Perform initial terminal brake test according to applicable federal regulations	For every outbound train	100% effective brakes on each outbound train
Test rails and turnouts for defects	Contract 60, Section 13900 1.01 D	Ultrasonic rail testing device	Annually at end of shipping season	All rails and turnouts free of defects

Table A2-5 RFW Planting and Plant Supply Inspections and Tests

RFW PLANTING

Inspection Parameter	Specification Reference	Inspection Method	Minimum Inspection Frequency	Acceptance Criteria
Riverine Fringing Wetland Planting Unit	Technical Specification: Contract 54A, Section 13702	Visual Inspection	5 planting units from each delivery	Acceptance criteria are that plants shall be free of insects and diseases, appear healthy and exhibit visible signs of growth; plants do not appear chlorotic or exhibit signs of desiccation. Leaf margins are predominantly green with limited spots or blotches. No live plants shall contain weed species. Live stakes/cuttings shall be one half to two (1/2 to 2) inches in diameter for shrub species and three quarters to four (3/4 to 4) inches in diameter for tree species. Live stakes/cuttings shall be from two to six (2 to 6) feet in length. No leaf buds shall have initiated growth beyond one quarter (1/4) inch and the cambium layer shall be moist, green and healthy. Water lily tubers must have an observable "eye" or small protruding bulb or a growing tip. At the time of planting, it is acceptable for a water lily tuber to contain leaves and stems.
Zone A Seed	Technical Specification: Contract 54A, Section 13702	Air Temperature Thermometer	Daily	Seed shall not be installed when air temperatures drop below 35°F or rise above 90°F.

Table A2-5 RFW Planting and Plant Supply Inspections and Tests

RFW PLANTING

Inspection Parameter	Specification Reference	Inspection Method	Minimum Inspection Frequency	Acceptance Criteria
Zone B Wild Rice (*Zizania aquatica*)	Technical Specification: Contract 54A, Section 13702	Water Temperature Thermometer	Daily	Seed shall only be installed when water temperatures are less than 40°F for a minimum of three days.
RFW Seeding	Technical Specification: Contract 54A,	Visual Inspection	Daily	Seed shall not be applied with wind velocity exceeds 15 mph or on days with heavy precipitation.
Marine Navigational Equipment	Manufacturer Operation Manuals	Per manufacturer equipment manual(s)	Daily	Calibrate and/or operate marine equipment in accordance with manufacturer's specifications and guidelines Inspect in accordance with Health and Safety Plan Complete vessel and equipment checklists

ATTACHMENT 3

TYPICAL CONSTRUCTION FORMS

This Attachment incorporates by reference Attachment 3 of the 2011 DQAP, as supplemented by the additional inspection checklist included in Attachment 3 to the 2014 DQAP (which was submitted as part of Addendum #2 to the 2014 RAWP on September 12, 2014).

ATTACHMENT 4

CU ACCEPTANCE FORMS

This Attachment incorporates by reference Attachment 4 of the 2014 DQAP (which was submitted as part of Addendum #2 to the 2014 RAWP on September 12, 2014).

ATTACHMENT 5

STANDARD OPERATING PROCEDURE FOR 2015 DREDGING OPERATIONS BATHYMETRIC SURVEYS

This Attachment incorporates by reference Attachment 5 of the 2011 DQAP except that all references to 2011 and 2011 plans should be considered to refer to 2015 and the comparable 2015 plans.

ATTACHMENT 6

STANDARD OPERATING PROCEDURE FOR CAP ISOLATION LAYER MATERIAL SAMPLING AND ANALYSIS FOR TOTAL ORGANIC CARBON

This Attachment incorporates by reference Attachment 6 of the 2011 DQAP (submitted as part of Addendum #2 to the 2011 RAWP on September 2, 2011) except that all references to 2011 and 2011 plans should be considered to refer to 2015 and the comparable 2015 plans.