FINAL
CONTRACTOR QUALITY CONTROL PLAN

Project Action
Rapaport Building
Windsor, Connecticut

Prepared for

U.S. Army Corps of Engineers
New England District

Contract No. DACW33-98-D-0001

October 12, 1999

Environmental Chemical Corporation
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Bloomfield, New Jersey 07003

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I hereby certify that the enclosed Contractor Quality Control Plan, shown and marked in this submittal, is that proposed to be incorporated with Contract Number DACW33-98-D-0001, "Project Action at the Rapaport Building, Windsor, Connecticut". This Contractor Quality Control Plan is in compliance with the Contract drawings and specifications, and is submitted for Government approval.

Reviewed by:

A IC SIEBEN 10/11/99

Project Manager Date

A IC SIEBEN FOR SCOTT ZOLLER 10/11/99

Quality Control System Manager Date

Accepted By:

USACE Contracting Officer Date

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LIST OF ACRONYMS

AEC	Atomic Energy Commission
CE	Combustion Engineering
CO	Contracting Officer
COR	Contracting Officer's Representative
CQC	Contractor Quality Control
CQCP	Contractor Quality Control Plan
DQCR	Daily Quality Control Report
ECC	Environmental Chemical Corporation
ESSAP	Environmental Survey & Site Assessment Program
FIO	For Information Only
FUSRAP	Formerly Utilized Environmental Remedial Action Program
GA	Government Approval
MDC	Metropolitan District Commission
MSDS	Material Safety Data Sheet
NCR	Nonconformance Report
ORISE	Oak Ridge Institute for Science & Education
PM	Project Manager
PRM	Program Manager
QC	Quality Control
QCSM	Quality Control System Manager
SOW	Scope of Work
SSHO	Site Safety and Health Officer
USACE	United States Army Corps of Engineers

1.0 INTRODUCTION

This Contractor Quality Control Plan (CQCP) was developed by Environmental Chemical Corporation (ECC) for the U.S. Army Corps of Engineers (USACE), New England District, in accordance with the Contract No. DACW33-98-D-0001, and the Revised Scope of Work (July 1, 1999) for the Project Action at the Rapaport Building, Windsor, Connecticut. As directed by the USACE, this plan was prepared and submitted as a simplified plan.

Work conducted under this contract will be performed in accordance with all applicable Federal, State, and local laws and regulations. As an outline of the planned quality control (QC) procedures for this project, the CQCP is the foundation of the project QC system.

The primary function of quality management is the performance of tasks to ensure that project activities are performed according to plans and specifications, on time, and within a defined budget. This is achieved through the execution of a realistic plan to ensure that the required standards of quality will be met and to preclude problems resulting from poor quality. This CQCP defines the procedures to manage and control activities of ECC personnel, subcontractors, and suppliers to ensure that the completed project complies with contract requirements.

1.1 Quality Control Objectives

The objective of the CQCP is the establishment and description of the quality management system to ensure that the project activities are conducted and documented in a planned and controlled manner. This plan will define the management structure, organization, responsibilities, and authorities to ensure that project activities are performed according to plans and specifications, on time, and within a defined budget. Performing quality work and implementing a quality assurance program are the responsibilities of all ECC staff members and subcontractors and can be achieved only through a cooperative effort and commitment to quality by all personnel.

ECC's goal in the implementation of this CQCP is to ensure compliance with the contract requirements, and applicable regulations and procedures, and to ensure that the appropriate quality standards for project activities are achieved and maintained. The Quality Control System Manager (QCSM) is responsible for implementing this program and assuring the performance of quality work. The QCSM has the full support of management and is given the independence and authority necessary to accomplish assigned tasks.

1.2 Site Quality Control Plan

This CQCP describes the QC requirements for the Rapaport project. The CQCP is designed to monitor project contract compliance utilizing the Three Phase Control system (Preparatory, Initial, and Follow-Up). The QC program is designed to plan, modify, implement, and complete all tasks relating to the inspections of the project tasks and operations in compliance with contract requirements using proper recordkeeping and reporting procedures. (Section 4.0,

contains a detailed description of the Three Phase Control System)

ECC will maintain responsibility for its work and the work of its subcontractors, except for work or tests expressly specified to be performed by the government. To ensure compliance with contract requirements and maintain responsibility of all work performed under this contract, ECC will:

- Provide a continuous inspection program to examine the quality of materials, maintain standards of workmanship, ensure standards of excellence, evaluate unit performances, identify and correct deficiencies, and provide a finished project which meets or exceeds the contract requirements; and

- Maintain qualified personnel, equipment, and facilities which are required for the completion of the project.

ECC will not consider this plan to be in effect without formal written acceptance of the Contracting Officer (CO). ECC understands that acceptance of this plan is conditional and will be based on continued compliance with the contract specifications. ECC acknowledges that the CO or Contracting Officer's Representative (COR) may require changes or periodic updates to the CQCP to maintain contract compliance. The QCSM is responsible for managing and coordinating the Three Phase Control system and QC documentation. No work or testing may be performed unless the QCSM or a designated alternate is on-site.

2.0 SITE BACKGROUND

2.1 Site Description and Location

The Rapaport Warehouse is an L-shaped facility consisting of three attached buildings designated A, B, and C (Figure 1). Building C is a three-story structure on the northeast section of the warehouse complex, located at 33 Mechanic Street in Windsor, Connecticut (Figure 2). The exterior of the site has a gentle topographic slope from the west to the east side of the property.

2.2 Site History

The Rapaport Building Complex was originally constructed in 1920 as a tobacco storage warehouse. Currently the facility is leased to ABB/Combustion Engineering (CE) for storage.

In 1955, CE leased the Rapaport Warehouse as a temporary fuel manufacturing site until its facility at 2000 Day Hill Road in Windsor was completed (Figure 2). Between May 16, 1956 and early 1957, Building C was utilized by CE in their contract work for the Atomic Energy Commission (AEC). The work involved the manufacturing of two prototype fuel assemblies - one from natural uranium and one from fully enriched uranium - to validate the manufacturing process. The first floor of the building accommodated the fuel manufacturing processes, which included melting metallic uranium, vapor blasting, acid cleaning, forming, welding, and machining. The majority of the material was moved in and out of the facility at the loading platform on the south side of the building. Smaller items were carried through the door on the north side. In 1957, the manufacturing process was relocated to the new CE Facility at Day Hill Road (Figure 2).

Subsequently, Building C was used for storage of contaminated equipment from reactor critical experiments and Navy fuel manufacturing equipment and is currently used as a maintenance supply facility. Buildings A and B are used for general maintenance storage. The site is presently *being considered* under the FUSRAP as a "vicinity property." FUSRAP identifies and eliminates residual radioactive contamination that exceeds current guidelines from sites utilized during the early years of the Nation's atomic energy program.

2.3 Previous Sampling and Analysis

In March 1998, the Environmental Survey and Site Assessment program (ESSAP) of the Oak Ridge Institute for Science and Education (ORISE) conducted a radiological scoping survey of the Rapaport Building site for the U.S. Army Corps of Engineers. The survey did not detect any residual uranium surface activity levels in excess of current guidelines within the Rapaport Building. However, low levels of enriched uranium were discovered in the sediment of a storm drain located adjacent to the south side of Building C. The residual uranium concentrations based on alpha spectrometry analysis are presented in Table 1. These results equate to a total

concentration of 38 pCi/g and a U-235 enrichment of approximately 20%.

The results of the survey prompted the resampling of the south storm drain and two additional drains in November 1998 (Figure 3). This survey confirmed the uranium concentration within the sediments of the south storm drain. Results also indicated low levels of radiological contamination exist in a water gate valve pit (Table 1).

After the uranium concentrations were verified, ORISE evaluated the potential risk associated with the low levels of residual uranium concentrations in the storm drain. The results are documented in the draft Hazard Assessment Report for Concentrations in Storm drains, Rapaport Building, Windsor, Connecticut (ORISE, 1999). The report indicates that the potential for present or future dose due to the residual radioactivity material within the storm drains is minimal and that leaving the material in place does not pose a significant risk to either the hypothetical construction worker (assumed maximally exposed individual) or to a member of the general public. Two areas of concern remain. First, the outlet of the drain was not determined, and it is unknown if the drain is contaminated.

In April 1999, CE performed a field walkover in an attempt to locate the potential fallout of the drain. The study found a potential location of 8 to 12 parallel pipes, approximately 8 to 12 feet apart, from the general vicinity of the building to the Farmington River (Figure 4).

2.4 Definable Features of Work

The scope of work for the project action at Rapaport Building requires the following definable features of work to be completed during the *project* activities:

- Mobilization;
- Establish radiation monitoring;
- Removal and temporary storage of storm drain sediment;
- Conduct sampling and testing of the sediment;
- Dispose of radiological contaminated sediment at an approved off-site disposal facility;
- Coordinate dye test with Hartford MDC to determine the outfall location;
- Sample drainpipe and/or outfall location;
- Demobilization

ECC will provide all necessary equipment and personnel to perform required project activities as defined in the contract Statement of Work (SOW).

3.0 QUALITY CONTROL ORGANIZATION

This CQCP describes the QC system that will be implemented by ECC to ensure that field work, and sampling activities comply with the requirements of the project scope, project work plans, and the required field and analytical testing methods. The following sections describe the roles, responsibilities, and lines of authority of ECC's personnel associated with the activities for this project. The project organization chart for the Rapaport Building project action is presented in Appendix A. Personnel resumes are provided in the Appendix B.

3.1 Program Manager

The ECC Program Manager (PRM), Mr. Mitch Clark, is responsible for overall conformance of the work to Federal, State, and local regulations and project specifications, including technical, cost, and schedule. Mr. Clark has the overall responsibility for the success and proper execution of the contract and all Delivery Orders. This responsibility includes the review and timely submission of all required submittals, designation of the Project Manager (PM) and QCSM, and seeing that the project schedule and budget allow sufficient resources to properly implement the required elements of the work in accordance with the approved work plans. The PRM also has primary responsibility to track any proposed changes in the Statement of Work (SOW) for the overall project and will report any proposed changes to the PM, QCSM, and the CO.

3.2 Project Manager

The ECC PM, Ms. Ann Sieben, organizes the assigned project staff and initiates project planning and implementation activities at the Task Order level. The PM controls the budget and schedule with the concurrence of the PRM, ensuring the contract requirements are met. Ms. Sieben is responsible for managing all field activities related to the requirements of the USACE scope of work, including subcontractors. The PM reports directly to the PRM and is responsible for ensuring that all project activities conform to Federal, State, and local regulations. PM duties also include the assignment of responsibilities for the preparation of the various reports and the review of each form/report for accuracy and content.

3.3 Program Quality Control Manager

In accordance with the ECC Quality Assurance Program, the Corporate Quality Control Manager (QCM), Ms. Rick Ebel, has overall responsibility and authority for development and management of the Corporate Quality Control Program. He will serve as a technical advisor and resource on quality-related matters to the QCSM. In keeping with the audit portion of the ECC program, all project quality control records and activities are subject to review by the QCM.

3.4 Quality Control System Manager

Mr. Scott Zoller will be the QCSM and also will be responsible for the collateral duties of the SSHO. The QCSM is responsible for supervising all QC aspects of the project to ensure

compliance with contract plans and specifications and for overall management of the Contractor Quality Control (CQC) Program. The QCSM has the authority to act independently in all QC matters. As supervisor of the CQC Program, the QCSM approves all submittals and supervises all QC procedures. The QCSM maintains communications between project management and project team members and acts as primary spokesman on quality matters when interfacing with external organizations, including formal communications with the USACE.

QCSM Authority and Responsibility

The QCSM reports to the Program Manager, Mr. Mitch Clark, so that required authority and organizational freedom are provided, including sufficient independence from cost and schedule considerations. The QCSM has the overall responsibility and authority for the administration of all CQC Program-related activities. A copy of the QC System Manager appointment letter, describing the responsibilities and authority of the QCSM, is included as Appendix C. To carry out the position responsibilities, the QCSM is given sufficient authority and organizational freedom to perform the following functions:

- Identify quality problems;
- Initiate, recommend, or provide solutions to quality problems through designated channels;
- Identify the need for corrective action;
- Verify implementation of solutions and corrective actions;
- Assure that further processing, delivery, installation, or use of items or services are controlled until proper disposition of a nonconformance, deficiency, or unsatisfactory condition has occurred;
- Halt work, if work is not in compliance with the contract requirements;
- Certify that all submittals are in compliance with contract requirements; and
- Ensure that all certifications provided by others (e.g., equipment and material vendors or suppliers) are accurate and in compliance with contract requirements.

3.5 Subcontractors

When other companies and/or subcontractors are involved in performing activities governed by the requirements of the CQCP, the responsibility and authority of such organizations will be clearly established and documented. Although ECC may delegate the work of establishing and executing certain portions of the CQCP, ECC will retain the responsibility of the project quality control program.

3.6 Organizational Changes

Changes to the CQC organization require the USACE CO's acceptance. Changes will be submitted in writing seven days prior to the proposed change. Requests will include the names, qualifications, duties, and responsibilities of the proposed replacement. All such changes to CQC organization and notification/acceptance of the CO will be routed through the PM.

4.0 THREE PHASES OF CONTROL

The QCSM is responsible for implementing the core of the Quality Management System, the Three Phase Control system to ensure that all project work complies with requirements of the contract plans and specifications. The Three Phases of Control will be implemented for each definable feature of work delineated in the Task Work Plan. These phases are described as follows, with required actions listed for each phase.

4.1 Preparatory Phase

The QCSM will notify the CO or COR at least 48 hours before beginning any of the required preparatory phase actions. The preparatory phase will be performed prior to the beginning of work on each definable feature of work. This phase will include a meeting conducted by the QCSM and attended by personnel responsible for the definable feature. The results of the preparatory phase actions will be documented by separate minutes prepared by the QCSM and attached to the Daily Quality Control Report (DQCR). ECC will instruct workers as to the acceptable level of workmanship required to meet contract specifications. This preparatory phase will include the following:

- Review of each paragraph of the applicable specification sections;
- Review of the contract plans;
- Check to ensure that all materials and/or equipment were tested, submitted, and approved;
- Check to ensure that provisions were made to provide required control;
- Review of the testing plan and ensure that provisions were made to provide the required QC inspection and testing;
- Examination of the work area to ensure that the required preliminary work is completed;
- Examination of the required materials and equipment to ensure that they are on-site and conform to the specifications;
- Review the SSHP and appropriate activity hazard analysis to ensure that applicable safety requirements are met and that required material safety data sheets (MSDS) were submitted;
- Discuss construction methods and procedures for conducting the work, including elimination of repetitive deficiencies, document tolerances, and workmanship standards for the work; and
- Check to ensure that the portion of the plan for the work to be performed is accepted by the CO or COR.

4.2 Initial Phase

The QCSM will notify the CO or COR at least 48 hours before each initial phase activity. The initial phase will be accomplished at the beginning of each definable feature of work. The

QCSM will ensure that the personnel responsible for the definable feature of work are instructed concerning the acceptable level of workmanship required. The QCSM will document the results of the initial phase meeting as separate meeting minutes attached to the Daily Quality Control Report. The following will be accomplished during the initial phase:

- Check preliminary work to ensure that it is in compliance with contract and task order requirements;
- Review minutes of the preparatory meeting;
- Establish the level of workmanship required;
- Resolve conflicts;
- Check site and personnel safety to ensure compliance with the SSHP and the appropriate activity hazard analysis; and
- Ensure that inspections and testing are scheduled.

The initial phase must be repeated for each new crew starting work on-site or if acceptable quality standards are not being maintained.

4.3 Follow-Up Phase

The QCSM or QC personnel will perform daily checks to ensure continuing compliance with the contract requirements, including control testing, until the completion of each definable feature of work. The inspections and/or tests will be documented and included in the Daily Quality Control Report. Final follow-up checks will be conducted and all deficiencies corrected prior to the start of additional features of work. The follow-up checks will include the following:

- Ensure the work is in compliance with contract requirements;
- Check site and personnel safety to ensure compliance with the SSHP and the appropriate activity hazard analysis;
- Ensure the quality of workmanship required is maintained;
- Ensure that scheduled testing is performed; and
- Ensure that nonconforming work is corrected.

The QCSM may hold additional preparatory and initial phase meetings on the same definable feature of work if the quality of the work is unacceptable, if there is a change order for that specific activity, or if other problems develop.

4.4 Additional Preparatory and Initial Phases

Additional preparatory and initial phases may be conducted on the same definable features of work as determined by the USACE if the quality of on-going work is unacceptable; or if there are changes in the Project Management staff, or the work crew; or if work on a definable feature is resumed after a substantial period of inactivity, or if other problems develop.

4.5 Project Coordination Meetings

A Pre-work Conference will be held prior to commencement of site work between the ECC PM, QCSM, andSSHO, subcontractor supervisory personnel, and the USACE to review project procedures and contract administration. Other subjects concerning the project may be discussed at the discretion of ECC or the USACE. The minutes of this meeting will be prepared by ECC's QCSM and distributed to the organizations involved.

After the commencement of work, subsequent coordination meetings may be called by either ECC or the USACE to reconfirm mutual understandings and/or address deficiencies in the CQC system or project procedures which may require corrective action by ECC. The QC forms associated with the quality control process are provided in Appendix D.

4.6 Deficiency Tracking

Deficiencies may be identified at any stage of the Three Phases of Control process. Defects and deficiencies identified will be recorded in the Daily Quality Control Report. Once identified, defects and deficiencies will be monitored closely until resolved. The status of each deficiency will be recorded on the Daily Quality Control Report until resolved.

ECC requires its subcontractors to adhere to the CQCP in addition to the SSHP, including the provisions of EM 385-1-1 (September 1996). Acceptance of these plans and policies is in written form. In addition, ECC requires subcontractors to have their own quality control procedures specific to the type of work performed. Appropriate subcontractor QC plans and procedures directly affecting project work will be documented and written copies maintained on-site. All QC functions will be coordinated through the QCSM and documented in daily reports. While on-site, all subcontractor personnel will be under the supervision and preview of the QCSM and CS. Subcontractor deficiencies will be recorded, in the same manner as ECC deficiencies, on the Daily QC Report.

4.7 Safety Inspections

The SSHO will perform daily safety inspections throughout the project. The inspections will evaluate site operations and will be reported daily in the Daily Quality Control Report In addition, the SSHO will conduct Daily Tailgate Safety Meeting with site personnel. This meeting is documented using the Daily Tailgate Safety Meeting form. This form will be attached to the Daily Quality Control Report and sent to the COR daily. ECC will maintain adequate provisions to ensure for the health and safety of personnel on or near the site. All ECC QC and Safety and Health personnel are adequately experienced and trained to identify and correct any deficiencies in site operations. Deficiencies and corrections will be duly noted on the Daily Quality Control Report. Information noted will include the area of deficiency, type of deficiency, corrective action to be taken or which was taken, the responsible party for corrective action, date of follow-up inspection(s), and signature of the investigating QCSM.

All on-site inspections will be considered a matter of record for each project. The inspections will be filed in ECC's Quality Control Section and submitted in the appropriate contract formats. In addition, summary tables will be presented to facilitate contract reporting.

4.8 Completion Inspection

The QCSM will conduct a completion inspection of all definable features of work to verify that the work performed meets the requirements of plans, specifications, quality, workmanship, and completeness. Three types of completion inspections are performed:

- Quality Control Completion Inspection;
- Pre-Final Inspection; and
- Final Acceptance Inspection.

Completion inspections are discussed and defined in Section 6.3, *Completion Inspections*, of this plan.

5.0 SUBMITTAL CONTROL

ECC will submit the items discussed in Section 5.2.2 and any submittals required by the contract specifications. Each submittal will be in compliance with the SOW and the contract requirements. The QCSM will check and approve each submittal prior to presenting the submittal to the USACE for approval.

5.1 Submittal Procedures

The Submittal Register (ENG Form 4288) is included as Appendix E. The register is the submittal scheduling document and will be used to track the project submittals. The Submittal Register will be periodically updated by the QCSM throughout the project. The updated register will be submitted to the COR for review to ensure that required submittals and re-submittals are noted.

5.1.1 Transmittal

Each submittal to the USACE will be accompanied by a transmittal letter (ENG Form 4025) identifying each item submitted along with the specification paragraph of the SOW pertinent to the item.

5.1.2 Certification

The QCSM is responsible for certifying that all submittals are in compliance with contract requirements and for ensuring that any certifications provided by others (i.e., vendors and suppliers) are accurate and in compliance with contract requirements.

5.2 Daily Quality Control Report

The QCSM will maintain a record of all QC activities, procedures, and tests performed, including activities of subcontractors and suppliers. These records will include evidence that the required QC activities and tests were executed. The Daily QC Report will include, but is not limited to, the following:

- Work performed each day, location, description;
- Submittals reviewed, specification reference, by whom, action taken;
- Test and/or control activities performed, results with specification and CQCP reference requirements, CQC phase identified, deficiencies noted with corrective action taken;
- Daily site safety inspection, results, and corrective actions;
- Instructions given/received and conflicts in plans and/or specifications; and
- Subcontractors/trades working on project, number of personnel, weather conditions, and any delays encountered.

6.0 TESTING

Testing and test control practices support project work activities. Testing is conducted for two purposes:

- To verify conformance to quality requirements (i.e., proof tests prior to installation, pre-operational tests and construction tests, product certification tests); and
- To provide data for use in other activities (i.e., field and/or laboratory tests conducted to provide design input data).

6.1 List of Definable Features of Work

The definable features of work for the project actions at the Rapaport Building are listed in Section 2.4 of this CQCP.

6.2 Testing Requirements

ECC and its subcontractors will utilize the methods listed in Table 2 to analyze samples collected at the Rapaport Building.

7.0 INSPECTIONS

A structured control system will be implemented for each major work task and will include preparatory, initial, follow-up, and safety inspections. The QCSM will ensure that no work proceeds until the appropriate inspection phase is performed. In addition to the QC staff, other personnel will implement this control system as part of their normal duties/responsibilities.

7.1 Inspection Phases

The ECC inspection program consists of three phases of inspections prior to and during the task performance. This inspection approach ensures QC in the field through multiple inspections during all phases of job performance for each definable feature of work. The three phases of inspections are outlined in detail in Section 4.0 of this CQCP.

7.2 Inspection Activities

The different types of quality control inspection activities that may be performed under the CQCP, include:

- Field Inspections
- Field Tests
- Laboratory Tests
- Receiving Inspections
- Surveys
- Review of Manufacturers' Certificates
- Compilation of Checklists

7.3 Completion Inspections

Three types of completion inspections are performed to verify that the work performed meets the requirements of plans, specifications, quality, workmanship, and completeness:

- Quality Control Completion Inspection - Based on the USACE's concurrence that the work is nearing completion and prior to the prefinal inspection, the QC staff conducts a detailed inspection for conformance to requirements. The COR is notified of the inspection date so he may participate. An itemized deficiencies list is prepared identifying items that do not conform to plans and contract specifications. The list is submitted to the USACE. All deficiencies will be corrected within five (5) days of the inspection.

- Pre-Final Inspection - Notice is given to the USACE 14 days prior to the Pre-Final Inspection. The notice includes assurance that all specific items previously identified as being unacceptable along with all remaining contract work will be

completed by the date scheduled for the Pre-Final Inspection.

- Final Acceptance Inspection - Notice is given to the USACE 14 days before the Final Acceptance Inspection and includes assurance that all specific items previously identified as being unacceptable, if any, along with all remaining work performed under the contract will be complete and acceptable by the date scheduled for the Final Acceptance Inspection.

8.0 NOTIFICATION OF NONCOMPLIANCE

This section describes the procedures for controlling items that are noncompliant with specified design requirements by tracking them from identification through acceptable corrective action. All individuals are responsible for identifying deficiencies and notifying the QCSM.

8.1 Identifying Deficiencies

The QCSM will be notified of all deficiencies identified during the course of site activities to ensure that each deficiency is documented, reported, and tracked, corrective actions are taken, and follow-up verification is conducted. The identified deficiencies will be included in the Daily Quality Control Report with the item found to be deficient, date, time, location, applicable drawing number, specification number, the person who identified the deficiency, and the status of the item to which the deficiency applies noted.

The QCSM will complete a Nonconformance Report (NCR), and enter the NCR in the project database tracking system so the status of the deficiency can be monitored. The NCR form provides the hard documentation of the deficiency status and includes the documented history of the deficiency as corrective action proceeds.

The QCSM will update the status of the deficiency in the database tracking system daily or when there is a change in status. Before the daily work activities begin, the QCSM will access the database tracking system and note the deficiencies that require follow-up verification that day. The Daily Quality Control Report will include a report on each NCR/deficiency that was completed and closed out for that day.

8.2 Completion Inspection Punch List

Completion inspections conducted by the QCSM will document items of noncompliance and will develop a punch list of items that do not conform to project plans and specifications. The punch list database will serve as the tracking system for the follow-up of open items and identify when they are completed and closed out. The QCSM will monitor the punch list corrective action database on a daily basis until the corrective actions are complete and the punch list is closed out.

8.3 Notification

The CO or COR will be informed of the identification and progress toward resolution of nonconforming items/conditions.

9.0 FIELD QUALITY CONTROL

The field control component of the CQCP includes:

- Procedures for documenting and justifying any field actions contrary to the CQCP;
- Documentation of all pre-field activities such as equipment check-out, calibrations, and manufacturer inspections;
- Documentation of field measurement QC data;
- Documentation of field inspection activities during the project; and
- Documentation of post-field activities including sample shipment, receipt, and laboratory analysis.

9.1 Field Changes to CQCP

Changes to this CQCP, procedures, testing requirements, or personnel may be required to adjust for unforeseen circumstances. Changes may be required by the USACE in the event that identified procedures do not provide adequate control, or may be pro-actively initiated by ECC to ensure that QC objectives are met.

Should modifications to this CQCP become necessary or desirable, the QCSM will notify the CO in writing. The notification will include a description of the proposed change, the reason(s) for requesting the change, and the date upon which the change needs to become effective, along with other pertinent information. Proposed or requested changes will not be considered in effect until written approval is granted by the USACE. ECC will make every effort to provide as much lead time to the USACE as possible.

9.2 Pre-Field Activities

Pre-field activities include equipment calibrations, preparation inspections, and a copy of the manufacturer inspections for materials to be incorporated into the project.

Prior to field use, testing and monitoring equipment will be inspected and calibrated according to manufacturer's requirements by persons with specific training and experience in the operation of the equipment. The calibration of the equipment will be recorded on the Equipment Calibration Form.

9.3 Inspection of Field Activities

Field activities will be inspected on a daily basis, and more frequently as required by the QCSM. The QCSM will make daily inspections of all work in progress, recording all deficiencies on the Daily Quality Control Report along with a notation as to the corrective action taken. Additionally, the SSHO will also inspect all activities for safety in addition to conformance to the project plans and specifications.

9.4 Post-Field Activities

Post field activities will include samples shipped for analysis off-site. These items will be tracked by the QCSM. Upon receipt of test results or other disposition of the post-field activities, such activity will be recorded in the Daily Quality Control Report.

9.5 Subcontractor Control

Activities of subcontractors will be under the direct supervision of the PM. Inspections of all subcontractor work, including preparatory, initial and final phase inspections will be conducted by the QCSM.

10.0 DOCUMENTATION AND CERTIFICATIONS

QC reports include the following:

- Quality Control Report (required daily):
    - Definable features of work,
    - Results of all meetings and work on and off site,
    - Rework items corrected and unresolved,
    - Remarks, and
    - Certification;
- Inspection Reports;
- Equipment Daily Checklist;
- Field Activity Daily Log;
- Nonconformance Report;
- Deficiency Report; and
- Record of SOW clarifications.

10.1 Files

ECC maintains three distinct forms of files for project documentation:

- Hard copy
- MIS software
- MIS backup discs

ECC will provide other data documentation as required.

10.2 Completion Certification

The QCSM will present a certificate of completion stating that the "work has been completed, inspected, tested, and is in compliance with the contract".

TABLES

Table 1
Uranium Concentrations in Sediment Samples
Rapaport Building Storm Drains *

Location/Sample Identification [a]	Radionuclide Concentration (pCi/g)		
	U-234	U-235	U-238
South Storm Drain/2	36.00 ± 3.96 [b]	1.29 ± 0.19	0.80 ± 0.13
South Storm Drain/7 (Resample)	15.18 ± 1.76	0.46 ± 0.14	0.18 ± 0.10
PI Valve Pit/8	2.30 ± 0.28	0.12 ± 0.04	0.83 ± 0.12
Southwest Storm Drain/9	0.78 ± 0.12	0.04 ± 0.02	0.63 ± 0.10

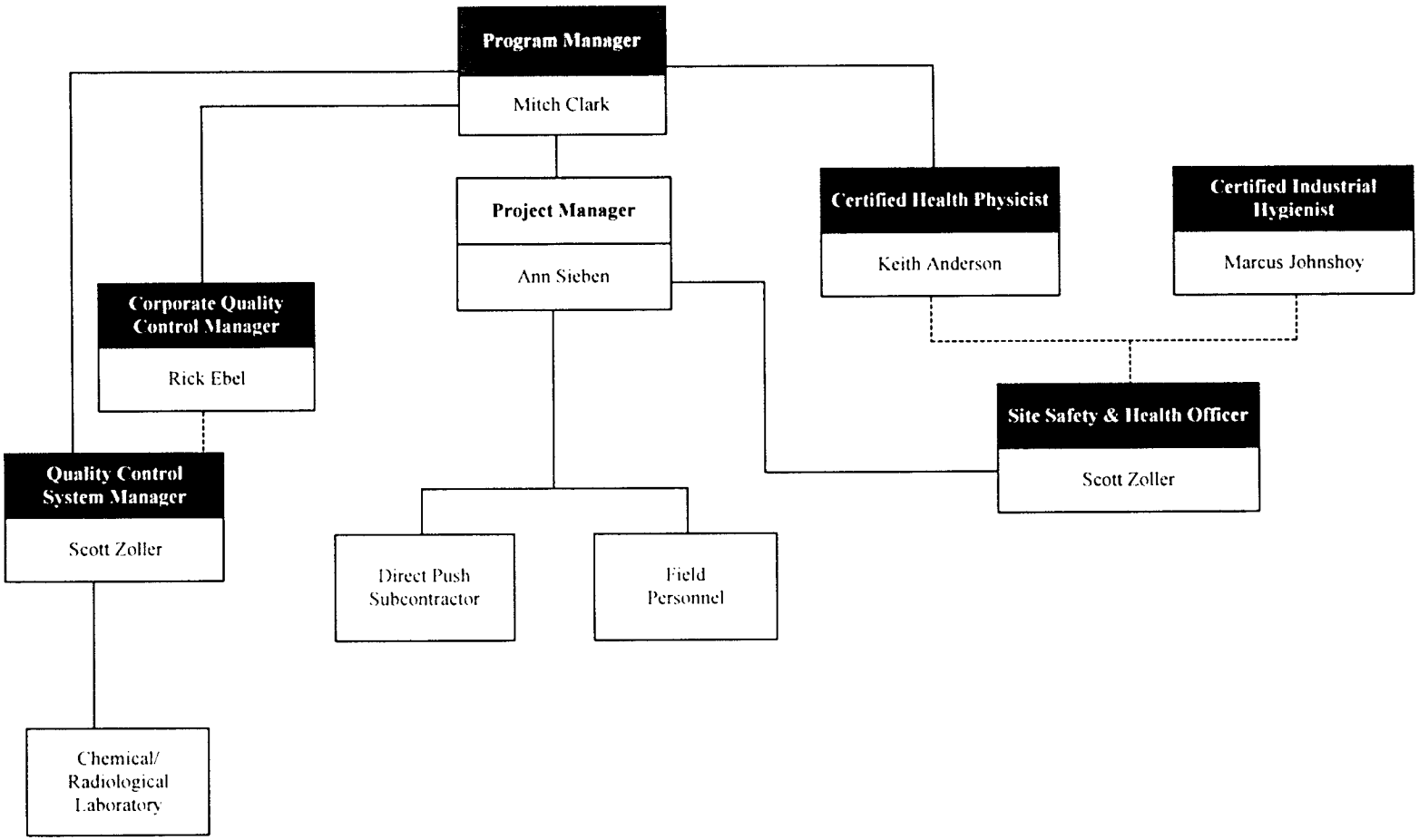
* Studies conducted in 1998.
[a] Refer to Figure 3.
[b] Uncertainties are total propagated uncertainties at the 95% confidence level.

Table 2
Analytical Testing Requirements

Type of Sample	Matrix	Type of Analysis	Method
Sediment Samples	Soil	VOCs TCLP RCRA Metals Ignitability Corrosivity Isotopic Uranium	8260B 6010B/7000 1010 150.1/9040B Alpha Spectroscopy
Personal Lapel	Air	Gross alpha	2929 Scaler
Work Zone	Air	Gross alpha	2929 Scaler
Direct Read	Storm Drain Invert/Gate Valve Pit Solid surface	Gross Alpha Gross Beta/gamma	Ludlum 2350-1 or equivalent with alpha scintillation detector and GM beta/gamma detector
		External gamma exposure	Ludlum Model 9 Exposure Rate Meter
Smear		Removable Alpha Removable Beta/gamma	2929 Scaler
Direct Push Samples	Soil	Isotopic Uranium	Alpha Spectroscopy
Direct Read	Sample Jars/Packed Sample Cooler Solid surface	Gross Alpha Gross Beta/gamma	Ludlum 2350-1 or equivalent with alpha scintillation detector and GM beta/gamma detector
		External gamma exposure	Ludlum Model 9 Exposure Rate Meter
Smear		Removable Alpha Removable Beta/gamma	2929 Scaler

APPENDIX A

PROJECT ORGANIZATION CHART



Appendix A	Date 07/28/99
Drawn By: T. Cota	I:\Rapaport Project\Org Chart.dwg chart

Rapaport Building Warehouse

ECC Project Organization Chart

Environmental Chemical Corporation

APPENDIX B

PERSONNEL RESUMES

PROJECT CHEMIST/HEALTH PHYSICIST
SCOTT ZOLLER

Special Qualifications

- ✓ Experience in the development and preparation of SAPs, Radiological Laboratory SOWs, SSHPs, QAPPs, and FSPs
- ✓ Over 1 year experience using USEPA methods for collecting environmental and hazardous waste samples
- ✓ Over 1 year experience in calibrating and operating field screening equipment
- ✓ Over 1 year of radioactive waste management/ remediation experience

a. Education

- B.S. Environmental Health (Health Physics), Purdue University, W. Lafayette, IN, 1996
- B.S. Environmental Health (Industrial Hygiene), Purdue University, W. Lafayette, IN, 1997

Registration/Certification/ Training

- 40-Hour HAZWOPER Training, 1998
- 8-Hour HAZWOPER Refresher Training, 1999
- CPR and First Aid Certification, 1999

Company Exp. Cross Ref.

✓ C.E. #2 USBR ID/IQ

Past Performance Cross Ref.

✓ P.P. #4 USBR ID/IQ

b. Experience

11/97 - present, ECC, Denver, Colorado, Project Chemist/Health Physicist.

USGS, Denver Federal Center, Denver, CO - Supervised remediation of a Depleted Uranium/Mercury contaminated laboratory. Created SAP and supervised sampling for removal of a process flow tank connected to laboratory. Supervised packaging, sampling, and segregation of resulting waste streams.

USBR, Benton Harbor Superfund Site, Benton Harbor, MI - Health Physicist on $2.5 million project involving the remediation of Radium contaminated material. Managed and operated the Quality Control (QC) laboratory containing 3 NaI detectors and a Canberra NaI Multichannel Analyzer. Responsible for QC and statistical analysis for the release of 1500 yd3 of materials and debris to a Class II landfill. Performed waste characterization for RCRA listed waste. Interfaced with regulatory personnel on radiation safety and radioactive waste management issues. Performed radiological characterization of (Ra 226) contaminated oversized objects for shipment. Operated and calibrated radiation detection equipment. Quality Assurance (QA) for shipment of 66 55-gallon drums and 4 B-25 boxes containing radioactive (Ra 226) aircraft gauges and materials. QA for shipment of 23 intermodals containing shredded debris. Trained personnel on Standard Operating Procedures (SOPs) and radiation safety

5/96 to 8/96, Calvert Cliffs Nuclear Power Plant, Lusby, MD, Plant Health Physicist Internship. Evaluated and modified calibration procedures. Assessed radiological materials and waste postings. Incorporated FEMA dose conversion factors for accidents. Compared and recommended RADDOSE IV dose models to ERPIP hand calculations. Developed waste activity spreadsheets to eliminate hand calculation errors for shipments of radioactive material. Conducted inventory of stored material and ensured compliance to USNRC licence.

c. Regulatory Knowledge

Working knowledge of federal, state, and local laws, regulations, and guidance including RCRA/HSWA, CERCLA/SARA, CAA, CWA, OSHA, USDOT, and NRC through experience in USEPA Regions V and the states of MI, TX, UT, and WA as they pertain to chemical safety, hazardous and radioactive/mixed waste disposal operations.

APPENDIX C

QCSM APPOINTMENT LETTER

ENVIRONMENTAL
CHEMICAL
CORPORATION

1240
Bayshore Highway
Burlingame, CA

TEL: (650) 347-1555
FAX: (650) 347-4571

October 12, 1999

Mr. Scott Zoller
Environmental Chemical Corporation
1240 Bayshore Highway
Burlingame, CA 94010

Subject: Appointment as Contractor Quality Control System Manager; Contract No. DACA45-95-D-0026-0001

Dear Mr. Zoller:

This is with reference to USACE Contract No. DACW33-98-D-0001, titled "Project Action at the Rapaport Building, Windsor, Connecticut".

You have been appointed as the Quality Control System Manager for this project. As a part of your job, you are required to perform the following duties:

Responsibilities:

1) Inspect the work performed each day for compliance with plans and specifications.
2) Supervise and coordinate the inspections and test made by other members of the Quality Control staff. Keep the testing plan and log up to date at the job site.
3) Check and certify that all materials and equipment delivered to the job site comply with the specifications, drawings, and approved submittals.
4) Ensure that all tests required or necessary are performed and report the results.
5) File certified daily inspection reports on forms provided with the USACE. These reports will cover all work performed, test performed, and all material and equipment received at the job site on that particular day.
6) Any deviation from the plans and specifications will be reported and corrective action will be taken and reported.
7) Recommend removal of any individual from the project who consistently fails to perform his/her work properly.
8) Report any subcontractor who consistently does not conform to contract plans and specifications.
9) Immediately stop any segment of work which does not comply with the plans and specifications.
10) Consult with the appropriate USACE Personnel, if there are any questions as to the interpretation of the plans and/or specifications.
11) At no time are you to accept or approve any changes without written instructions from the appropriate authority.
12) Recommend withholding of partial payments to any subcontractor who consistently does not conform to the project plans and specifications.

13) Keep a copy of the Government approved QC plan on file at the job site. This copy shall be kept complete and up to date with the latest revisions.
14) You will be authorized to direct removal and replacement of any defective work. Maintain the rework list current at the job site.
15) As a QCSM, you are not subordinate to the Task Manager or Project Manager. You will report directly to the Program Manager and no one else.
16) Review and/or supervise the review, and approve all submittal data for conformance to the requirements of the contract.
17) Provide punch lists for all completed work and ensure that the deficiencies have been corrected prior to the final inspection with the Government.

Authority

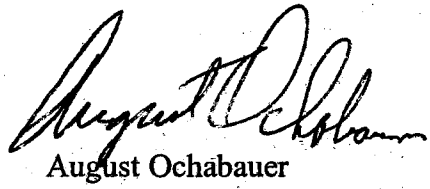
In order to allow you to perform your duties in the best interest of ECC and the client, you have the authority to stop work in case it is not of adequate quality. In addition, you may require the Project Manager, with the concurrence of the Program Manager, to remove and replace defective work.

Reporting Relationship

You will report to the Program Manager for this program. However, it is a crucial part of your responsibilities to ensure that you coordinate all you activities with the Project Manager on site, who is charged with ensuring that production and deadlines are met.

If you have any questions, or need additional information, please contact me at 650-347-1555.

Sincerely,



August Ochabauer
Environmental Division Director

cc: USACE Technical Manager

APPENDIX E

SUBMITTAL REGISTER

SUBMITTAL REGISTER

CONTRACT NO. DACW33-98-D-001/0912-98-800298

TITLE AND LOCATION: Project Action at the Rapaport Building, Windsor, Connecticut

CONTRACTOR : Environmental Chemical Corporation (ECC)

SPECIFICATION SECTION

TRANS-MITTAL NO.	ITEM NUMBER	SPECIFI-CATION PARAGRAPH NUMBER	DESCRIPTION OF ITEM SUBMITTED	TYPE OF SUBMITTAL									CLASSI-FICATION			CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION			GOVERNMENT ACTION		REMARKS
				DATA	DRAWINGS	INSTRUCTIONS	SCHEDULES	STATEMENTS	REPORTS	CERTIFICATES	SAMPLES	RECORDS	INFORMATION ONLY	GOVERNMENT APPROVAL	REVIEWER	SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	CODE	DATE	SUBMIT TO GOV-ERN-MENT	CODE	DATE	
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y
001	001A	SOW - 3.3	**Draft Task Work Plan**						x					x		8/27/99	9/3/99	NA			8/27/99			
002	002A	SOW - 3.3.1	**Draft Sampling and Analysis Plan**						x					x		8/27/99	9/3/99	NA			8/27/99			
003	003A	SOW - 3.3	**Draft Contractor Quality Control Plan**						x					x		8/27/99	9/3/99	NA			8/27/99			
004	004A	Sow - 3.4	**Draft Site Safety and Health Plan**						x					x		8/27/99	9/3/99	NA			8/27/99			
005	005A	SOW- 5.2.1	**Response to Comments**						x					x										Submit 7 days after receipt from reviewers.
	006A	SOW - 5.2.2	Daily Quality Control Reports						x					x										Submit daily; Final submital 7 days after project completion
	007A	SOW - 5.2.2	Laboratory Results	x										x										Submit 7 days after received
	008A	SOW - 5.2.2	Project Action Completion Letter Report						x					x										Submit 30 days after project completion
006	001B	SOW - 3.3	**Final Task Work Plan**						x					x		10/13/99		NA			10/13/99			
007	002B	SOW - 3.3.1	**Final Sampling and Analysis Plan**						x					x		10/13/99		NA			10/13/99			
008	003B	SOW - 3.3	**Final Contractor Quality Control Plan**						x					x		10/13/99		NA			10/13/99			
009	004B	Sow - 3.4	**Final Site Safety and Health Plan**						x					x		10/13/99		NA			10/13/99			

ENG FORM 4288, Aug 89

EP= ENG DIV EP-D, GL=ENG DIV EP-GL, RE=RESIDENT ENG, AE=ARCHITECT/ENG
EG=ENG DIV NAP, GEOTECH SECTION,SA=SAFETY OFFICE,
EN-C=CONSTRUCT BR PHILADELPHIA