

N00101.AR.003009
NAS SOUTH WEYMOUTH
5090.3a

FINAL QUALITY ASSURANCE PROJECT PLAN MUNITIONS AND EXPLOSIVES OF
CONCERN NOMANS LAND ISLAND NAS SOUTH WEYMOUTH MA
08/01/2014
TETRA TECH EC INC

**DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND, ATLANTIC
REMEDIAL ACTION CONTRACT (RAC)
CONTRACT NO. N62470-13-D-8007
CONTRACT TASK ORDER NO. WE05**

**FINAL
QUALITY ASSURANCE PROJECT PLAN
MUNITIONS AND EXPLOSIVES OF CONCERN
NOMANS LAND ISLAND
CHILMARK, MASSACHUSETTS**

August 2014

Prepared for



Department of the Navy
Naval Facilities Engineering Command, Midlant
9742 Maryland Avenue
Norfolk, VA 23511-3095

and

Base Realignment and Closure
Program Management Office, Northeast
4911 South Broad Street
Philadelphia, PA 19112-1303

Prepared by

Tetra Tech EC, Inc.
5250 Challedon Drive
Virginia Beach, Virginia 23462

Revision
0

Date
8/21/14

Prepared By:
G. Joyce

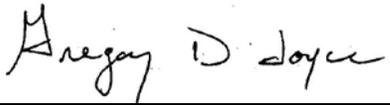
Approved By:
B. Corbett

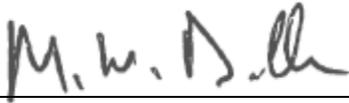
Pages Affected:
All

This page intentionally left blank

**QUALITY ASSURANCE PROJECT PLAN
MUNITIONS AND EXPLOSIVES OF CONCERN
NOMANS LAND ISLAND
Chilmark, Massachusetts**

August 2014

Prepared by: 
Gregory Joyce
Program QC Manager

Reviewed by: 
Mark Dollar
UXO Program Quality Control Manager

Approved by: 
Brian Corbett
TtEC Task Order Manager

This page intentionally left blank

TABLE OF CONTENTS

1.0	INTRODUCTION	1
2.0	QAPP WORKSHEETS	1
3.0	REFERENCES	1

LIST OF APPENDICES

Appendix A QAPP Worksheets

This page intentionally left blank

ACRONYMS AND ABBREVIATIONS

CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CQC	Contractor Quality Control
CMS	Conceptual Site Model
CTO	Contract Task Order
DCN	Design Change Notice
DGPS	differential global positioning system
DN	Deficiency Notice
DoD	Department of Defense
DQCR	daily quality control reports
DQOs	Data Quality Objectives
EPA	U.S. Environmental Protection Agency
FCR	Field Change Request
EFA	Engineering Field Activity
GPS	Global Positioning System
IVS	Instrument Verification Strip
Mass DEP	Massachusetts Department of Environmental Protection
MDAS	Material Documented as Safe
MDEH	Material Documented as an Explosive Hazard
MEC	munitions and explosives of concern
MP	man portable
MPPEH	material potentially presenting an explosive hazard
NAVFAC MIDLANT	Naval Facilities Engineering Command MIDLANT
NCR	Nonconformance Report
PM	Project Manager
PQCM	Program Quality Control Manager
PQOs	project quality objectives
QA	quality assurance
QAPP	Quality Assurance Project Plan
QC	quality control
RAC	Remedial Action Contract
RPM	Remedial Project Manager
SOP	standard operating procedure
SSHSP	Site-Specific Health and Safety Plan
TOI	Target of Interest
TtEC	Tetra Tech EC, Inc.
UFP	Uniform Federal Policy
UFP-QAPP	Uniform Federal Policy for Quality Assurance Project Plans
USFWS	U.S. Fish and Wildlife Service
UXO	unexploded ordnance
UXOQCS	UXO Quality Control Specialist

This page intentionally left blank

INTRODUCTION

This Munitions and Explosives of Concern (MEC) Quality Assurance Project Plan (QAPP) has been prepared to support the surface clearance on Nomans Land Island, Chilmark, Massachusetts. This project will be conducted under Remedial Action Contract (RAC) No. N62470-13-D-8007 Contract Task Order (CTO) No. WE05.

This QAPP is one of the planning documents for this project and refers to other project plans (Accident Prevention Plan, Work Plan, etc.). This QAPP also documents the project organization and the assessment and oversight planning that will help ensure the quality of the surface clearance. The site description of the island, its background, and previous investigations and actions are discussed in the Work Plan.

The format of this document is based on the Uniform Federal Policy (UFP) for QAPP, which was designed specifically for chemical sampling. The worksheets in the UFP QAPP that are not applicable to MEC projects have either been modified to meet the intent of the worksheet as it applies to MEC, or labeled *Not Applicable* in Appendix A. The function of other worksheets are found in the Work Plan (or other plans), and references to their locations are annotated on those sheets.

A short section discussing the worksheets in this QAPP and a section containing the references follow this introduction. Appendix A has an index page that lists all worksheets in the QAPP and the following individual worksheets.

QAPP WORKSHEETS

Worksheets #1 through #37, which specify the required elements of this QAPP, are provided in Appendix A. Worksheets #1 and #3 contain the approval and distribution lists for this QAPP, respectively. Identifying information in regards to this document, including a “crosswalk” relating text sections and worksheets to specified QAPP elements/information, is provided in Worksheet #2.

REFERENCES

EPA (U.S. Environmental Protection Agency). 2002. Guidance for Quality Assurance Project Plans. EPA QA/G-5. Washington, D.C. December.

EPA. 2006. Guidance on Systematic Planning Using the Data Quality Objectives Process. EPA QA/G-4. Washington, D.C. February.

IDQTF (Intergovernmental Data Quality Task Force). 2005a. Uniform Federal Policy for Quality Assurance Project Plans, Evaluating, Assessing, and Documenting Environmental Data Collection and Use Programs, Part 1: UFP-QAPP Manual, Final, Version 1. Intergovernmental Data Quality Task Force. EPA-505-B-04-900A/ DTIC ADA 427785. March.

IDQTF. 2005b. Uniform Federal Policy for Quality Assurance Project Plans, Evaluating, Assessing, and Documenting Environmental Data Collection and Use Programs, Part 2A: UFP-QAPP Workbook, Final, Version 1. Intergovernmental Data Quality Task Force. EPA-505-B-04-900C / DTIC ADA 427486. March.

APPENDIX A

QAPP WORKSHEETS

QAPP Worksheet #1	Title and Approval Page
QAPP Worksheet #2	QAPP Identifying Information
QAPP Worksheet #3	Distribution List
QAPP Worksheet #4	Project Personnel Sign-Off Sheet
QAPP Worksheet #5	Project Organizational Chart
QAPP Worksheet #6	Communication Pathways
QAPP Worksheet #7	Personnel Responsibilities and Qualifications Table
QAPP Worksheet #8	Special Personnel Training Requirements Table
QAPP Worksheet #9	Project Scoping Session Participants Sheet
QAPP Worksheet #10	Problem Definition
QAPP Worksheet #11	Project Quality Objectives/Systematic Planning Process Statements (<i>NOT APPLICABLE</i>)
QAPP Worksheet #12	Measurement Performance Criteria (<i>NOT APPLICABLE</i>)
QAPP Worksheet #13	Secondary Data Criteria and Limitations Table (<i>NOT APPLICABLE</i>)
QAPP Worksheet #14	Summary of Project Phases and Tasks
QAPP Worksheet #15	Reference Limits and Evaluation Table (<i>NOT APPLICABLE</i>)
QAPP Worksheet #16	Project Schedule/Timeline Table
QAPP Worksheet #17	Sampling Design and Rationale (<i>NOT APPLICABLE</i>)
QAPP Worksheet #18	Sampling Locations and Methods/SOP Requirements Table (<i>NOT APPLICABLE</i>)
QAPP Worksheet #19	Analytical SOP Requirements Table (<i>NOT APPLICABLE</i>)
QAPP Worksheet #20	Field Quality Control Sample Summary Table (<i>NOT APPLICABLE</i>)
QAPP Worksheet #21	Project Sampling SOP References Table (<i>NOT APPLICABLE</i>)
QAPP Worksheet #22	Field Equipment Calibration, Maintenance, Testing, and Inspection Table (<i>NOT APPLICABLE</i>)
QAPP Worksheet #23	Analytical SOP References Table (<i>NOT APPLICABLE</i>)
QAPP Worksheet #24	Analytical Instrument Calibration Table (<i>NOT APPLICABLE</i>)
QAPP Worksheet #25	Analytical Instrument and Equipment Maintenance, Testing, and Inspection Table (<i>NOT APPLICABLE</i>)
QAPP Worksheet #26	Sample Handling System (<i>NOT APPLICABLE</i>)
QAPP Worksheet #27	Sample Custody Requirements (<i>NOT APPLICABLE</i>)
QAPP Worksheet #28	QC Samples Table (<i>NOT APPLICABLE</i>)
QAPP Worksheet #29	Project Documents and Records Table
QAPP Worksheet #30	Analytical Services Table (<i>NOT APPLICABLE</i>)
QAPP Worksheet #31	Planned Project Assessments Table
QAPP Worksheet #32	Assessment Findings and Corrective Response Actions
QAPP Worksheet #33	QC Management Reports Table
QAPP Worksheet #34	Tier 1 QC Process, Team Training and Certification Process
QAPP Worksheet #35	Tier 2 QC Process, Summary Table
QAPP Worksheet #36	Product QC Tier 3 Summary Table
QAPP Worksheet #37	MEC Usability Assessment

Title: Limited MEC Surface Clearance
QAPP
Revision No. 0
Revision Date August 2014
Worksheet No. QAPP Worksheet #1
Page Nos. 1 of 1

QAPP Worksheet #1
Title and Approval Page

Title: MEC Quality Assurance Project Plan
Site Name/Project Name: MEC Surface Clearance, Nomans Land Island, Chilmark, Massachusetts
Site Location: Nomans Land Island
Revision Number: 0
Revision Date: July 2014

Lead Organization

Naval Facilities Engineering Command Mid-Atlantic

Preparer's Name and Organizational Affiliation

Preparer's Address, Telephone Number, and E-mail Address

Gregory Joyce
1050 NE Hostmark Street, Ste. 202
Poulsbo, WA
98370

Preparation Date (Month and Year)

July 2014

Organization's Project Manager:
Brian Corbett, Tetra Tech EC, Inc.

Signature

Organization's Program QC Manager:
Mark Dollar, Tetra Tech EC, Inc.

Signature

Lead Agency's Remedial Project Manager:
Brian Helland, NAVFAC NE

Signature

Approval Signatures: (See above)

Document Control Number: 4659-WE05-14-0303

Title: Limited MEC Surface Clearance
QAPP
Revision No. 0
Revision Date August 2014
Worksheet No. QAPP Worksheet #2
Page Nos. 1 of 3

QAPP Worksheet #2 **QAPP Identifying Information**

Site Name/Project Name: Limited MEC Surface Clearance, Nomans Land Island

Site Location: Nomans Land Island, Chilmark, Massachusetts

Operable Unit: NA

Work Assignment Number: NA

Title: Limited MEC Surface Clearance QAPP

Revision Number: 0

Revision Date: July 2014

Contractor Name: Tetra Tech EC, Inc.

Contract Title: RAC VI

Contract Number: N62470-13-D-8007

1. Identify guidance used to prepare QAPP: *Uniform Federal Policy for Quality Assurance Project Plans* (IDQTF 2005a and 2005b); *Guidance for Quality Assurance Project Plans* (EPA QA/G-5) (EPA 2002); *Guidance on Systematic Planning Using the Data Quality Objectives Process* (EPA QA/G-4 2006) (EPA 2006)

2. Identify regulatory program: Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

3. Identify approval entity: Naval Facilities Engineering Command MIDLANT (NAVFAC Midlant)

4. Indicate whether the QAPP is a generic or a project-specific QAPP. (circle one)

5. List dates of scoping sessions that were held: TBD

6. List dates and titles of QAPP documents written for previous site work, if applicable:

<u>Title</u>	<u>Approval Date</u>
MEC Surface Clearance QAPP	June 2008

7. List organizational partners (stakeholders) and connection with lead organization:

NAVFAC- Mid-Atlantic, lead organization

U.S. Environmental Protection Agency (EPA) Region 1, stakeholder

Massachusetts Department of Environmental Protection (MassDEP)

U.S. Fish and Wildlife Service (USFWS), stakeholder and land manager

Wampanoag Tribe of Aquinnah

Town of Chilmark

8. List data users:

NAVFAC (Brian Helland, Remedial Project Manager)

USFWS

9. SAP elements and required information not applicable to the project are noted below. An explanation is provided above and in the appropriate SAP worksheet(s), as necessary.

UFP-QAPP Worksheet #	Required Information	Crosswalk to Related Information
A. Project Management		
<i>Documentation</i>		
1	Title and Approval Page	
2	Table of Contents SAP Identifying Information	
3	Distribution List	
4	Project Personnel Sign-Off Sheet	
<i>Project Organization</i>		
5	Project Organizational Chart	
6	Communication Pathways	
7	Personnel Responsibilities and Qualifications Table	
8	Special Personnel Training Requirements Table	
<i>Project Planning/Problem Definition</i>		
9	Project Planning Session Documentation (including Data Needs tables) Project Scoping Session Participants Sheet	
10	Problem Definition, Site History, and Background Site Maps (historical and present)	
11	Site-Specific Project Quality Objectives	Not applicable
12	Measurement Performance Criteria Table for Samples	Not applicable
13	Sources of Secondary Data and Information Secondary Data Criteria and Limitations Table	Not applicable
14	Summary of Project Tasks	
15	Reference Limits and Evaluation Table	Not applicable
16	Project Schedule/Timeline Table	
B. Measurement Data Acquisition		
<i>Sampling Tasks</i>		
17	Sampling Design and Rationale	Not applicable
18	Sampling Locations and Methods/ SOP Requirements Table Sampling Location Map(s)	Not applicable
19	Analytical Methods/SOP Requirements Table	Not applicable
20	Field Quality Control Sample Summary Table	Not applicable
21	Project Sampling SOP References Table	Not applicable
22	Field Equipment Calibration, Maintenance, Testing, and Inspection Table	Not applicable
<i>Analytical Tasks</i>		
23	Analytical SOPs Analytical SOP References Table	Not applicable

UFP-QAPP Worksheet #	Required Information	Crosswalk to Related Information
24	Analytical Instrument Calibration Table	Not applicable
25	Analytical Instrument and Equipment Maintenance, Testing, and Inspection Table	Not applicable
<i>Sample Collection</i>		
26	Sample Handling System, Documentation Collection, Tracking, Archiving and Disposal Sample Handling Flow Diagram	Not applicable
27	Sample Custody Requirements, Procedures/SOPs Sample Container Identification Example Chain-of-Custody Form and Seal	Not applicable
<i>Quality Control Samples</i>		
28	QC Samples Table Screening/Confirmatory Analysis Decision Tree	Not applicable
<i>Data Management Tasks</i>		
29	Project Documents and Records Table	
30	Analytical Services Table Analytical and Data Management SOPs	Not applicable
C. Assessment Oversight		
31	Planned Project Assessments Table Audit Checklists	
32	Assessment Findings and Corrective Action Responses Table	
33	QA Management Reports Table	
D. Data Review		
34	Verification (Step I) Process Table	
35	Validation (Steps IIa and IIb) Process Table	
36	Validation (Steps IIa and IIb) Summary Table	
37	Usability Assessment	

Title: Limited MEC Surface Clearance
 QAPP
Revision No. 0
Revision Date August 2014
Worksheet No. QAPP Worksheet #3
Page Nos. 1 of 1

QAPP Worksheet #3
Distribution List

[List those entities to whom copies of the approved QAPP, subsequent QAPP revisions, addenda, and amendments are sent]

QAPP Recipient	Title	Organization	Telephone Number	E-mail Address
Brian Helland	Remedial Project Manager	NAVFAC	215-897-4912	brian.helland@navy.mil
Brian Corbett	Contractor's Project Manager	TtEC	617-443-7517	brian.corbett@tetrattech.com
TBD	Contractor's Project QC Officer/UXOQCS	TtEC	-	-
Mark Dollar	Contractor's UXO Program QC Manager	TtEC	970-206-4263	mark.dollar@tetrattech.com
TBD	Contractor's Site Superintendent	TtEC	-	-
TBD	Contractor's Site Safety and Health Specialist	TtEC	-	-
Carl Tippmann	Contractor's Program Manager	TtEC	215-702-4044	carl.tippmann@tetrattech.com
Greg Joyce	Contractor's Program Quality Control Manager	TtEC	360-780-0371	greg.joyce@tetrattech.com

Abbreviations and Acronyms:

NAVFAC – Naval Facilities Engineering Command
 QC – quality control
 UXO – unexploded ordnance

Title: Limited MEC Surface Clearance
 QAPP
Revision No. 0
Revision Date August 2014
Worksheet No. QAPP Worksheet #4
Page Nos. 1 of 2

QAPP Worksheet #4
Project Personnel Sign-Off Sheet

[Have copies of this form signed by key project personnel from each organization to indicate that they have read the applicable sections of the QAPP and will perform the tasks as described; add additional sheets as required. Ask each organization to forward signed sheets to the central project file.]

Organization: NAVFAC

Project Personnel	Title	Telephone Number	Signature	Date QAPP Read
Brian Helland	Remedial Project Manager	215-897-4912		

Title: Limited MEC Surface Clearance
 QAPP
Revision No. 0
Revision Date August 2014
Worksheet No. QAPP Worksheet #4
Page Nos. 2 of 2

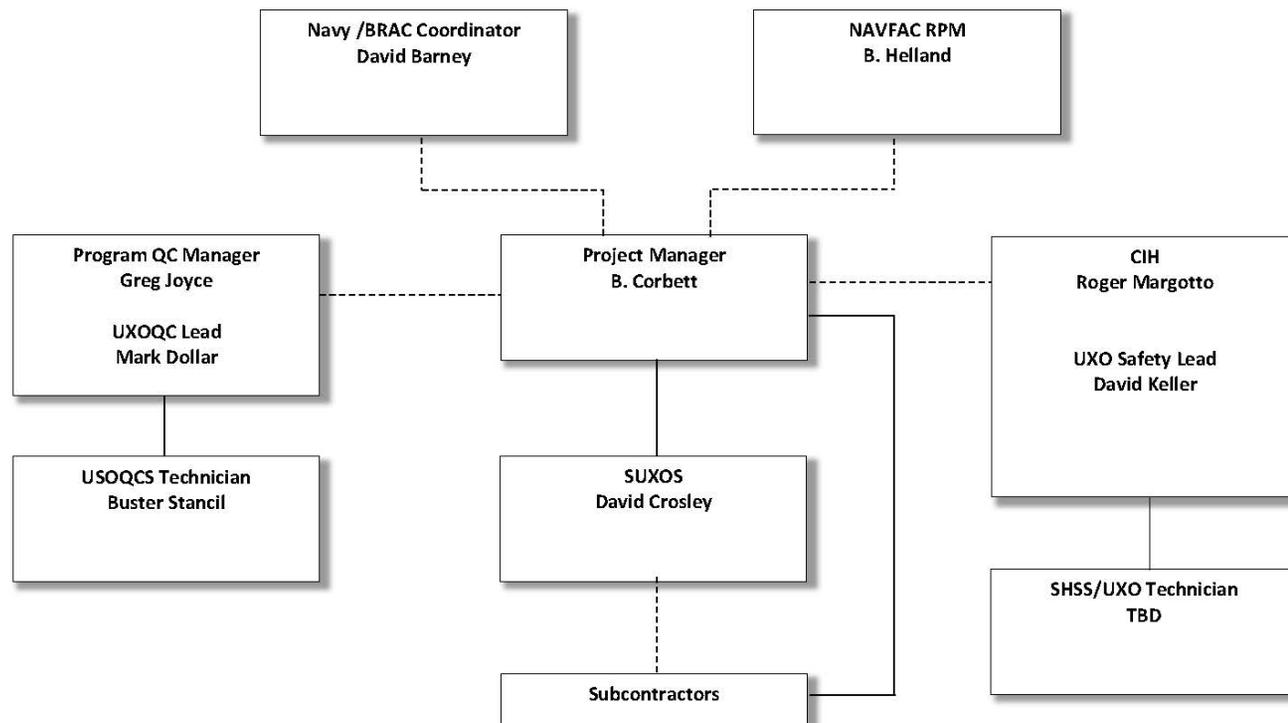
QAPP Worksheet #4
Project Personnel Sign-Off Sheet

Organization: Contractor – Tetra Tech EC, Inc.

Project Personnel	Title	Telephone Number	Signature	Date QAPP Read
Brian Corbett	Contractor's Project Manager	617-443-7517		
TBD	Contractor's Project QC Officer/UXOQCS			
TBD	Site Superintendent			

QAPP Worksheet #5 Project Organizational Chart

Project Organization Chart



Legend:
----- In regular contact and coordination
————— Directly reports to above

QAPP Worksheet #6 Communication Pathways

Communication Drivers	Responsible Entity	Name	Phone Number	Procedure (Timing, Pathways, etc.)
Overall implementation of the project	Remedial Project Manager	Brian Helland	215-897-4912	Primary point of contact for NAVFAC
Technical issues during implementation of the project	Remedial Project Manager	Brian Helland	215-897-4912	Will be notified of significant technical issues by the Contractor
Point of contact with NAVFAC NE	Contractor's Project Manager	Brian Corbett	617-443-7517	All technical, QA, and administrative matters in regard to the Contractor's implementation of the project (verbal, written or electronic)
Minor change to MEC QAPP	Contractor's Project Manager	Brian Corbett	617-443-7517	Will notify Contractor's FTL of approval of minor change (verbal, written or electronic); must sign official corrective action documentation (written only)
Major change to MEC QAPP	Contractor's Project Manager	Brian Corbett	617-443-7517	Will notify NAVFAC prior to implementation for review/approval; will notify Contractor's FTL of approval of major change (verbal, written or electronic); NAVFAC and Contractor's PM must sign official corrective action documentation (written only)
Deviation from MEC QAPP	Remedial Project Manager	Brian Helland	215-897-4912	Will notify Contractor's PM
Field program quality issue	Project QC Officer/ UXOQCS	TBD	TBD	Will notify the Contractor's Project Manager and/or Contractor's Program Quality Control Manager to determine corrective action (verbal, written or electronic)
Corrective action for field program issues	PQCM	Mark Dollar	970-206-4263	Will respond to a field program issue with potential corrective action (verbal, written or electronic)

Abbreviations and Acronyms:

UXOQCS – UXO Quality Control Specialist
 PQCM – Program Quality Control Manager
 PM – Project Manager

Title: Limited MEC Surface Clearance
 QAPP
Revision No. 0
Revision Date August 2014
Worksheet No. QAPP Worksheet #7
Page Nos. 1 of 4

QAPP Worksheet #7
Personnel Responsibilities and Qualifications Table

Name	Title	Organizational Affiliation	Qualifications (as appropriate)	Responsibilities
Brian Helland	Remedial Project Manager	NAVFAC	NA	<ul style="list-style-type: none"> • Performing project management for the Navy • Ensuring the project scope of work requirements are fulfilled • Overseeing the project cost and schedule • Providing direction to the contractor's project team, according to the Navy's contracting process • Acting as lead interface with agencies • Reviewing and approving this QAPP • Providing oversight of the contractor's Quality Control Program • Providing technical and administrative oversight of the contractor's surveillance audit activities • Coordinating training on matters pertaining to generation and maintenance of quality of data • Authorizing the suspension of project execution if quality assurance requirements are not adequately followed
Brian Corbett	Contractor's Project Manager	TtEC	Contractor required training and experience	<ul style="list-style-type: none"> • Coordinating work activities of contractor's personnel and subcontractors, and ensuring that all personnel adhere to the administrative and technical requirements of the project • Monitoring and reporting the progress of work, and ensuring that the project deliverables are completed on time and within project budget • Monitoring the budget and schedule, and notifying the client and the Remedial Project Manager (RPM) of any changes that may require administration actions • Ensuring adherence to the quality requirements of the contract, project scope of work, and the QAPP • Ensuring that all work meets the requirements of the technical specifications and complies with applicable codes and regulations • Ensuring all work activities are conducted in a safe manner in accordance with the Site Health and Safety Plan • Serving as the primary contact between NAVFAC NE and the contractor for actions and information related to the work and including appropriate

Name	Title	Organizational Affiliation	Qualifications (as appropriate)	Responsibilities
				technical personnel in the decision-making <ul style="list-style-type: none"> • Coordinating satisfactory resolution and completion of evaluation and acceptance report for nonconformance reports
Mark Dollar	Contractor's MMRP QC Manager	TtEC	PMP	<ul style="list-style-type: none"> • Establishing and maintaining the Quality Program • Overseeing program QC, including remediation and chemical data acquisition • Working directly with the contractor and NAVFAC NE to ensure implementation of the Program QC Plans • Acting as a focal point for coordination for quality matters across all aspects of this project and resolving quality issues • Suspending project activities if quality standards are not maintained • Interfacing with NAVFAC NE on quality-related items • Performing reviews of surveillance reports conducted by others
TBD	Project QC Officer/ UXO Quality Control Specialist	TtEC	Contractor required training and experience in QC Qualified in accordance with DDESB TP-18	<ul style="list-style-type: none"> • Provide and maintain an effective QC system for all project tasks • Monitor QC activities to ensure conformance with authorized policies, procedures, and sound construction practices, and recommend improvements, as necessary • Conduct site meetings covering the requirements of the QC procedures, as appropriate • Perform reviews, inspections, and surveillances of task order activities to ensure that task order procedures are being followed • Inform, identify, and resolve non-conformances in accordance with the requirements of the construction QC procedure • Stop work or require re-performance of any nonconforming activity resulting from improper application of prescribed procedures • Maintain awareness of the entire task order to detect conditions that may be adverse to quality • Monitor corrective action documentation for conditions adverse to quality, verify implementation of corrective actions • Track and evaluate corrective action • Close out corrective action documentation upon completion • Concur with Nonconformance Report (NCR) dispositions, and maintain a system for tracking and analyzing NCRs

Name	Title	Organizational Affiliation	Qualifications (as appropriate)	Responsibilities
				<ul style="list-style-type: none"> • Function as a liaison with NAVFAC Northeast's and subcontractors' quality personnel.
TBD	Site Superintendent/ SUXOS	TtEC	Qualified in accordance with DDESB TP-18	<ul style="list-style-type: none"> • Managing/supervising field activities daily in accordance with the work plan and the regulatory requirement • Responsible for the health and safety of field personnel • Responsible for all aspects of explosive safety for the project
TBD	Contractor's Site Health and Safety Specialist	TtEC	Qualified in accordance with DDESB TP-18	<ul style="list-style-type: none"> • Overseeing all aspects of explosive safety on this project • Documenting site conditions and photographing MEC recovery and disposal operations • Ensuring all fieldwork is conducted in accordance with the Work Plan • Providing direction to field staff and subcontractors to ensure safe execution of field activities
TBD	Contractor's UXOQCS	TtEC	Qualified in accordance with DDESB TP-18	<ul style="list-style-type: none"> • Providing and maintaining an effective QC system for all material potentially presenting an explosive hazard (MPPEH)-related field activities; • Monitoring MPPEH-related QC activities to ensure conformance with the Work Plan, authorized policies, procedures, contract specifications, and sound practices; • Maintaining sufficient staff to perform all MPPEH-related QC activities to ensure QC for all work phases, work shifts, and work crews; • Ensuring that the three phases of inspection (preparatory, initial, and follow-up) are implemented for all field tasks; • Ensuring that all required tests and inspections are performed and results reported; • Taking responsibility for issuance and enforcement of any NCR; • Providing surveillance of MPPEH-related activities; • Attending required meetings, including the pre-construction conference, all weekly QC meetings, and other scheduled meetings, as required; • Preparing the daily Contractor Quality Control (CQC) reports; • Performing reviews of audits and surveillance reports; • Implementing the Navy technical directives relating to quality; and • Discontinuing work that is not in compliance with the contract.
UXO Technicians	Others: UXO Technician III, II, I)	TtEC	UXO Technician will be qualified in accordance with DDESB TP-18.	<ul style="list-style-type: none"> • Submitting field information data for upload into the Navy's database • Adequately reviewing/understanding/executing all SOPs and guidance applicable to their tasking for the project

Title: Limited MEC Surface Clearance
 QAPP
Revision No. 0
Revision Date August 2014
Worksheet No. QAPP Worksheet #7
Page Nos. 4 of 4

Name	Title	Organizational Affiliation	Qualifications (as appropriate)	Responsibilities
				<ul style="list-style-type: none"> • Notifying field management of any activities that do not appear safe or consistent with the WP.

Abbreviations and Acronyms:

DDESB – Department of Defense Explosives Safety Board
 EFA – Engineering Field Activity
 NA – not applicable
 NAVFAC – Naval Facilities Engineering Command, QAPP – Quality Assurance Project Plan
 QC – quality control
 RPM – Remedial Project Manager
 UXO – unexploded ordnance

Title: Limited MEC Surface Clearance
 QAPP
Revision No. 0
Revision Date August 2014
Worksheet No. QAPP Worksheet #8
Page Nos. 1 of 1

QAPP Worksheet #8
Special Personnel Training Requirements Table

Project Function	Specialized Training – Title or Description of Course	Training Provider	Training Date	Personnel/Groups Receiving Training	Personnel Titles/ Organizational Affiliation	Location of Training Records/Certificates ¹
Surface Sweep	Sensor familiarization	Senior UXO Supervisor	Training will be conducted prior to start of field activities	UXO Teams, UXOQCS	TtEC	Documentation of special training requirements will be maintained on site by TtEC
	MEC Safety Training					

Abbreviations and Acronyms:

DGPS – differential global positioning system
 MEC – munitions and explosives of concern
 QC – quality control
 SOP – standard operating procedure
 UXO – unexploded ordnance
 TtEC – Tetra Tech EC, Inc.

Title: Limited MEC Surface Clearance
 QAPP
Revision No. 0
Revision Date August 2014
Worksheet No. QAPP Worksheet #9
Page Nos. 1 of 2

QAPP Worksheet #9
Project Scoping Session Participants Sheet

[Complete this worksheet for each project scoping session held. Identify project team members who are responsible for planning the project. Example attendees and decisions/items are provided.]

Site Name/Project Name: Limited MEC Surface Clearance

Site Location: Nomans Land Island, Chilmark, MA

Operable Unit: N/A

Work Assignment Number: N/A

Date of Sessions: June 2013

Scoping Session Purpose: Obtain a shared vision with specific scoping and objective boundaries for the project.

Name	Title	Affiliation	Phone #	E-mail Address	Project Role
Brian Helland	Remedial Project Manager	NAVFAC NE	215-897-4912	brian.helland@Navy.mil	NAVFAC Remedial Project Manager
Eartha Garrett	Contract Specialist	NAVFAC MIDLANT	757-341-1974	brenda.a.perkins@navy.mil	Contract Specialist
Brian Corbett	Task Order Manager	Tetra Tech EC, Inc.	617 457 8246	brian.corbett@tetrattech.com	Project Manager
Carl Tippmann	Program Manager	Tetra Tech EC	215-702-4044	carl.tippmann@tetrattech.com	Program Manager

Comments/Decisions: N/A

Action Items: N/A

Consensus Decisions: N/A

QAPP Worksheet #10
Problem Definition
Nomans Land Island Limited MEC Surface Clearance Data Quality Objectives

The EPA developed a quality assurance (QA) program for environmental data, including a process for developing Data Quality Objectives (DQOs) as outlined in the *Guidance for the Data Quality Objective Process* EPA QA/G-4 (EPA 240/B-06/001) (EPA 2006). The DQO process is a series of seven planning steps that are designated to ensure that the type, quantity, and quality of the environmental data used in the decision making are appropriate for their intended application. The DQO process outlined in the EPA guidance document was used to support development of site-specific DQOs. Each of the seven plan steps are addressed in this section.

DQO STEP	TTEC PROCESS
STEP 1 (State the Problem)	<p>Nomans Land island contains MPPEH and may contain MEC. Although there have been multiple removal activities on the island in the past, it has been 5 years since the last effort so an additional surface clearance effort is needed to remove potential hazards to authorized visitors and trespassers that are posed by explosives.</p> <p>As stated in the RFP dated May 7, 2013, TtEC is to perform a Limited MEC surface clearance in accordance with the approved ESS. This will include the following activities:</p> <hr/> <ol style="list-style-type: none"> 1. Prepare a detailed project work plan; 2. Conduct a detector-aided survey for surface MEC; 3. Identify all MEC by type, nomenclature, and condition; 4. Document the location of all MEC via Global Positioning System (GPS); 5. Digitally photograph all MEC; 6. Neutralize, certify, and demilitarize all recovered munitions scrap in accordance with Department of Defense (DOD) 4160.21-M and 4160.21-M-1, respectively; 7. Prepare a project close-out report; and 8. Prepare an After-Action Report documenting the surface clearance and scrap disposal in accordance with NOAA Instruction 8020.15A.
STEP 2 (Identify the Goals of the Study)	<p>Have MEC and/or MPPEH been encountered during the visits to the island by authorized visitors and trespassers?</p> <p>Will the instrument aided visual survey confirm the presence or detection of MEC or MPPEH?</p> <p>There is the potential for subsurface MEC to rise to the surface at Nomans Land Island due to frost heaves and erosion.</p> <hr/> <p>How much MEC material is remaining on the surface of the site and what is the</p>

	<p>extent to which frost heaving and erosion is taking place such that it acts as a vehicle for the migration of MEC to the surface?</p>
<p style="text-align: center;">STEP 3 (Identify Information Inputs)</p>	<p>Instrument aided surface clearance to identify MEC and MPPEH</p> <p>Dual inspection process to positively identify MEC and MPPEH to certify and verify each item.</p> <p>If minimal amounts of MEC are encountered on the surface of the island then the answer to the principle study question is that erosion is not a problem for uncovering potential subsurface MEC. If large volume of materials (compared with the 2008 removal effort) is encountered then MEC migration will be a larger concern.</p> <p>Information we have to help resolve the decision statement and sources:</p> <p>The accessible roads and shoreline will be divided into numbered grids. These grids will be surface cleared. The resulting data on the MPPEH/MEC encountered per grid will be the primary information input along with the locations where such MPPEH/MEC was located. These volumes and locations will be compared to that of the 2008 MEC surface clearance that was performed.</p>
<p style="text-align: center;">STEP 4 (Define the Boundaries of the Study)</p>	<p><i>Horizontal boundaries:</i></p> <p>The physical boundaries of the accessible roads and shoreline (shoreline to high-tide line) form the horizontal boundaries for the work.</p> <p><i>Vertical boundaries:</i></p> <p>This project will remove MPPEH/MEC on or protruding from the ground surface. Minor removal may be necessary to remove partially buried objects.</p> <p><i>Temporal Boundaries:</i></p> <p>The surface clearance is limited to the period between June and October each year depending on specific weather conditions.</p>
<p style="text-align: center;">STEP 5 (Develop the Analytic Approach)</p>	<p>The purpose of the decision rules is to integrate the outputs from previous steps into a single statement that describes the logical basis for choosing among alternative actions.</p> <hr/> <p>If MEC or MPPEH are identified during the surface clearance, the items will be positively identified, geo-referenced (with a DGPS), documented in an MPPEH log (to be developed on site), photographed, and will either be left as-found, undisturbed, or will be consolidated at a temporary collection point. Otherwise, the area will be considered surface cleared of MEC and MPPEH.</p> <p>If the surface clearance confirms the presence of MEC or MPPEH, then the grid(s) being swept will be reclassified as "Known MEC," and labeled as such on the master grid map. This map will be continually updated to aid the SUXOS in maintaining a record of grids known to contain MEC until it can be destroyed.</p> <p>If the volume of MEC encountered during this effort is close to or greater than</p>

	<p>that encountered during the 2008 MEC surface clearance, the site will be evaluated to determine if erosion is uncovering MEC.</p> <p>If MEC is encountered to a greater extent in areas prone to erosion (such as cliffs and roads) then future clearance activities may be limited to these areas.</p>
<p style="text-align: center;">STEP 6 (Specify Performance or Acceptance Criteria)</p>	<p>Field crews will review the Work Plan, ESS and MEC QAPP before beginning of the surface clearance effort, and will sign the appropriate pages in each document.</p> <p>Prior to beginning each day's surface clearance operations, each hand-held detector operator will pass his detector over two metal items representative of the material to be recovered during the surface clearance. These items will be positioned on the surface near the equipment storage area. This check is only for testing to ensure the detector is functioning properly. If the detector does not detect the item as it should, based on the operator's familiarity/experience, the detector will be taken out of service until the deficiency is corrected.</p> <p>The UXOQCS or designee will record the name of the person operating the survey instrumentation and the operational settings used to locate the surface targets. The UXOQCS will verify the equipment is working properly by passing it over an established target location. Personnel and equipment certification will be documented on the daily quality control reports (DQCR).</p> <p>A 10% QC re-sampling of swept lanes will be conducted, and if any MEC or MPPEH is found in the QC check, the grid is rejected and will require rework. NOTE: Finding MD will not be considered a failure.</p> <p>Similarly, a 100% verification check of items that have been subjected to the certification inspection process will be completed. If any of items inspected during the QC check have been misidentified (i.e., Material Documented as an Explosive Hazard (MDEH) wrongfully characterized as MDAS), the barrel of MDAS will be rejected and subject to rework.</p> <p>A 10% QC check of all non-munition debris items cleared for removal from the island will be performed. If any MEC or MPPEH are found in the QC check, the container will be rejected, and subject to rework.</p> <p>Specific QC initiatives are provided for in this QAPP for the definable features of work (ie MEC surface clearance). The performance and acceptance criteria for the data will be used to collect, store, and manage the data such that the data will be incorporated into the project GIS and into the project completion report.</p>
<p style="text-align: center;">STEP 7 (Develop the Plan for Obtaining Data)</p>	<p>A grid network will be installed over the area of Nomans Land Island to be cleared. Using a systematic sweep process, an instrument aided survey will be used to prosecute 100% of each grid. All extraneous debris, regardless of type, will be cataloged and entered daily into the project data base.</p> <p>The pertinent data for three distinct types of debris will be obtained, specifically;</p> <ul style="list-style-type: none"> - <i>MEC</i> – all will be positively identified and their positional data obtained so MEC data per grid may be recorded. - <i>MPPEH</i> – after completing the inspection process, MPPEH will be re-categorized as either MDEH, or MDAS. Positional data for MDEH will be

Title: Limited MEC Surface Clearance
QAPP
Revision No. 0
Revision Date August 2014
Worksheet No. QAPP Worksheet #10
Page Nos. 4 of 3

	<p>obtained so MDEH data per grid may be recorded. MDAS data (type, quantity) will be obtained for general reporting purposes.</p> <p>A field GIS/GPS will be used which has been previously proven on this site. When MEC is encountered in the grids, this system will survey the location (sub-meter accuracy) and log specific information on the item such as type, nomenclature, and condition.</p>
--	---

Title: Limited MEC Surface Clearance
QAPP
Revision No. 0
Revision Date August 2014
Worksheet No. QAPP Worksheet #11
Page Nos. 1 of 1

QAPP Worksheet #11
Project Quality Objectives/Systematic Planning Process Statements

Note: This worksheet was not filled out for the MEC QAPP because it pertains to chemical analysis and related activities, not to MEC surface clearance work.

NOT APPLICABLE

Title: Limited MEC Surface Clearance
QAPP
Revision No. 0
Revision Date August 2014
Worksheet No. QAPP Worksheet #13
Page Nos. 1 of 2

QAPP Worksheet #12
Measurement Performance Criteria

Note: This worksheet was not filled out for the MEC QAPP because it pertains to chemical analysis and related activities, not to MEC surface clearance work.

NOT APPLICABLE

Title: Limited MEC Surface Clearance
QAPP
Revision No. 0
Revision Date August 2014
Worksheet No. QAPP Worksheet #13
Page Nos. 2 of 2

QAPP Worksheet #13
Secondary Data Criteria and Limitations Table

Note: This worksheet was not filled out for the MEC QAPP because it pertains to chemical analysis and related activities, not to MEC surface clearance work.

Secondary Data	Data Source (Originating Organization, Report Title, and Date)	Data Generator(s) (Originating Org., Data Types, Data Generation/ Collection Dates)	How Data May Be Used (if deemed usable during data assessment stage)	Limitations on Data Use

NOT APPLICABLE

QAPP Worksheet #14 **Summary of Project Phases and Tasks**

The implementation of the Limited MEC surface clearance has been divided into phases, and the tasks required to complete each phase have been identified.

Project Phases and Tasks

Phase/Definable Feature of Work	Tasks
Certification/Training	Locator Test-Bed Certification/3 Phase Inspections
Site Preparation	Field Geographic Information System/Global Positioning System Test (known benchmark or point)
	Grid/Transect Construction
MEC/MPPEH Prosecution	Surface Clearance
MEC/MPPEH Disposal	MEC/MDEH Demolition
	MDAS Certification/Verification
	MDAS Staging
Product QC	Tier 3 QC Process using Fixed Acceptance Sampling Protocol (see Worksheet 36)
	Off-site Transportation and Disposal of Debris
Data/Document Management	Date Entry and Management

Title: Limited MEC Surface Clearance
 QAPP
Revision No. 0
Revision Date August 2014
Worksheet No. QAPP Worksheet #16
Page Nos. 1 of 1

QAPP Worksheet #16
Project Schedule/Timeline Table

Activities	Organization	Dates (MM/DD/YY)		Deliverable	Deliverable Due Date
		Anticipated Date(s) of Initiation	Anticipated Date of Completion		
Finalization of Work Plan and MEC QAPP	TtEC/NAVFAC	On-going	August 2014	Final WP and MEC QAPP	August 2014
Mobilization to Nomans Land Island	TtEC	August 2014	August 2014	NA	NA
Locator Test Bed Testing	TtEC	August 2014	September 2014	Contractors Quality Control Daily Report	TBD
Site-Specific Training	TtEC	August 2014	August 2014	Training Documentation	TBD
Field Work	TtEC	August 2014	September 2014	Supporting Field Forms, QC Records	TBD

Title: Limited MEC Surface Clearance
QAPP
Revision No. 0
Revision Date August 2014
Worksheet No. QAPP Worksheet #17
Page Nos. 1 of 1

QAPP Worksheet #17
Sampling Design and Rationale

Note: This worksheet was not filled out for the MEC QAPP because it pertains to chemical analysis and related activities, not to MEC surface clearance work.

NOT APPLICABLE

Title: Limited MEC Surface Clearance
QAPP
Revision No. 0
Revision Date August 2014
Worksheet No. QAPP Worksheet #18
Page Nos. 1 of 1

QAPP Worksheet #18
Sampling Locations and Methods/SOP Requirements Table

The site will have numbered grids to survey and perform removal operations. The clearance area will be divided into lanes approximately 5 feet wide. Lanes will be pre-marked with pin flags/stakes , rope, or traffic cones to facilitate 100 percent coverage of the work area, as appropriate. Clearance personnel will use Schonstedt or Vallon detectors to pinpoint metallic surface items within their assigned areas. MPPEH will be divided into two categories: material documented as an explosive hazard (MDEH) or material documented as safe (MDAS). MDEH found and considered acceptable to move will be staged in the southeast grid corner and later removed for consolidated disposal at a pre-selected location. MDEH considered unacceptable to move will be marked, and left in place until the next scheduled disposal/demolition operation. The location of the MDEH will also be marked. Disposal operations will be conducted in accordance with the procedures presented in Section 5.0 of the Work Plan. MDAS and non-MEC related metal debris (if any) will be consolidated in the southwest corner of the grid (opposite side from the MDEH); however, these materials will be segregated from each other to facilitate proper management. All MDAS located during the surface clearance will be inspected, processed, and disposed off-site as detailed on Worksheet 23.

Title: Limited MEC Surface Clearance QAPP
Revision No. 0
Revision Date August 2014
Worksheet No. QAPP Worksheet #19
Page Nos. 1 of 1

QAPP Worksheet #19
Analytical SOP Requirements Table

Note: This worksheet was not filled out for the MEC QAPP because it pertains to chemical analysis and related activities, not to MEC surface clearance work.

Matrix	No. of Samples	Analytical Group	Analytical and Preparation Method/SOP Reference ¹	Sample Volume	Containers (number, size, and type) ^a	Preservation Requirements	Maximum Holding Time (preparation/analysis)

NOT APPLICABLE

QAPP Worksheet #20
Field Quality Control Sample Summary Table

Note: This worksheet was not filled out for the MEC QAPP because it pertains to chemical analysis and related activities, not to MEC surface clearance work.

[Summarize by matrix, analytical group, and concentration level the number of field quality control (QC) samples that will be collected and sent to the laboratory.]

Matrix	Analytical Group	Analytical and Preparation SOP Reference ¹	No. of Sampling Locations ²	No. of Field Duplicate Pairs	No. of Extra Volume Laboratory QC (e.g., MS/MSD) Samples	Estimated No. of Source Blanks ³	Estimated No. of Rinsates ³	No of PE Samples

Title: Limited MEC Surface Clearance
 QAPP
Revision No. 0
Revision Date August 2014
Worksheet No. QAPP Worksheet #21
Page Nos. 1 of 1

QAPP Worksheet #21
Project SOP References Table

SOP Reference Number	Project Phase	Task	Responsible Organization	Title, Revision Date and/or Number	Equipment Type or Instrument	Comments
SOP 1	UXO Demolition Procedure	MPPEH accountability/munitions disposal	TtEC	Demolition Procedure	Explosives	Procedures for maintaining accountability of explosives on site Contains procedures for conducting blow-in-place and consolidated shot operations

Note: SOPs are contained in Appendix E of the Work Plan.

NOT APPLICABLE

Title: Limited MEC Surface Clearance
 QAPP
Revision No. 0
Revision Date August 2014
Worksheet No. QAPP Worksheet #22
Page Nos. 1 of 1

QAPP Worksheet #22
Field Equipment Calibration, Maintenance, Testing, and Inspection Table

Equipment	Operational Checks	Frequency	Responsible Person	Acceptance Criteria	Corrective Action	SOP Reference
All-metals detector (Analog hand-held detector) and Schonstedt (ferrous metals)	Battery Strength Test	Three times per day	Operator	Audio response over ferrous object	Replace batteries; re-work if necessary	
	Standardization Check	At start of operations	Operator	Audio response over Instrument Verification Strip (IVS) standardization item	Assess/correct instrument set-up (cables, settings); perform instrument maintenance; replace unit; re-work if necessary	

NOT APPLICABLE

Title: Limited MEC Surface Clearance
QAPP
Revision No. 0
Revision Date August 2014
Worksheet No. QAPP Worksheet #23
Page Nos. 1 of 1

QAPP Worksheet #23
Analytical SOP References Table

Note: This worksheet was not filled out for the MEC QAPP because it pertains to chemical analysis and related activities, not to MEC surface clearance work.

Reference Number	Title, Revision Date, and/or Number	Definitive or Screening Data	Analytical Group	Instrument	Organization Performing Analysis	Modified for Project Work? (Y/N)

NOT APPLICABLE

Title: Limited MEC Surface Clearance
QAPP
Revision No. 0
Revision Date August 2014
Worksheet No. QAPP Worksheet #24
Page Nos. 1 of 1

QAPP Worksheet #24
Analytical Instrument Calibration Table

Note: This worksheet was not filled out for the MEC QAPP because it pertains to chemical analysis and related activities, not to MEC surface clearance work.

Instrument	Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)	Person Responsible for CA	SOP Reference¹

NOT APPLICABLE

Title: Limited MEC Surface Clearance
QAPP
Revision No. 0
Revision Date August 2014
Worksheet No. QAPP Worksheet #25
Page Nos. 1 of 1

QAPP Worksheet #25
Analytical Instrument and Equipment Maintenance, Testing, and Inspection Table

Note: This worksheet was not filled out for the MEC QAPP because it pertains to chemical analysis and related activities, not to MEC surface clearance work.

Instrument/ Equipment	Maintenance Activity	Testing/Inspection Activity	Frequency	Acceptance Criteria	Corrective Action	Responsible Person	SOP Reference¹

NOT APPLICABLE

Title: Limited MEC Surface Clearance
 QAPP
Revision No. 0
Revision Date August 2014
Worksheet No. QAPP Worksheet #26
Page Nos. 1 of 1

QAPP Worksheet #26
Sample Handling System

Note: This worksheet was not filled out for the MEC QAPP because it pertains to chemical analysis and related activities, not to MEC surface clearance work.

SAMPLE COLLECTION, PACKAGING, AND SHIPMENT
Sample Collection (Personnel/Organization): NA
Sample Packaging (Personnel/Organization): NA
Coordination of Shipment (Personnel/Organization): NA
Type of Shipment/Carrier: NA
SAMPLE RECEIPT AND ANALYSIS
Sample Receipt (Personnel/Organization): NA
Sample Custody and Storage (Personnel/Organization): NA
Sample Preparation (Personnel/Organization): NA
Sample Determinative Analysis (Personnel/Organization): NA
SAMPLE ARCHIVING
Field Sample Storage (No. of days from sample collection): NA
Sample and Extract/Digestate Storage: NA
Biological Sample Storage (No. of days from sample collection): NA
SAMPLE DISPOSAL
Personnel/Organization: NA
Number of Days from Analysis: NA

Title: Limited MEC Surface Clearance
QAPP
Revision No. 0
Revision Date August 2014
Worksheet No. QAPP Worksheet #27
Page Nos. 1 of 1

QAPP Worksheet #27
Sample Custody Requirements

Note: This worksheet was not filled out for the MEC QAPP because it pertains to chemical analysis and related activities, not to MEC surface clearance work.

Sample Identification Procedures: NA
Field Sample Custody Procedures (sample collection, packaging, shipment, and delivery to laboratory): NA
Laboratory Sample Custody Procedures (receipt of samples, archiving, disposal): NA

Title: Limited MEC Surface Clearance QAPP
Revision No. 0
Revision Date August 2014
Worksheet No. QAPP Worksheet #28
Page Nos. 1 of 1

QAPP Worksheet #28
QC Samples Table

Note: This worksheet was not filled out for the MEC QAPP because it pertains to chemical analysis and related activities, not to MEC surface clearance work.

Matrix	NA
Analytical Group	NA
Concentration Level	NA
Sampling SOP(s)	NA
Analytical Method/SOP Reference	NA
Sampler's Name	NA
Field Sampling Organization	NA
Analytical Organization	NA
No. of Sample Locations	NA

Lab QC Sample:	Frequency/Number	Method/SOP QC Acceptance Limits	Corrective Action	Person(s) Responsible for Corrective Action	Data Quality Indicator (DQI)	Measurement Performance Criteria

Title: Limited MEC Surface Clearance
 QAPP
Revision No. 0
Revision Date August 2014
Worksheet No. QAPP Worksheet #29
Page Nos. 1 of 1

QAPP Worksheet #29
Project Documents and Records Table

Field Documents and Records	QC Documents and Records	Daily Reports and Records	Other
<ul style="list-style-type: none"> • Daily Logs (QC, SUXOS, etc.) • Three Phase Inspection Checklist • Rework Items Log • Health and Safety Forms • Weekly QC Meeting Minutes • Instrument Run Logs • Field Notes • Visitors Log • Instrument Daily Check 	<ul style="list-style-type: none"> • Preparatory Phase Inspection Form • Initial Phase Inspection Form • Follow-up Phase Inspection Form • Deficiency Notice (DN) • NCR • Quality Incident Report • Field Change Request (FCR) • Design Change Notice (DCN) • FCR/DCN Log • QC Meeting Minutes • EVA Construction Report • Data Interpretation QC Acceptance Report 	<ul style="list-style-type: none"> • Daily Production Report • Daily QC Report 	<ul style="list-style-type: none"> • Manifests (MPPEH certification/verification, demilitarization and disposal) • Munitions ID, Acquisition and Accountability Form • Munitions Disposition Database • Audit results

Title: Limited MEC Surface Clearance
QAPP
Revision No. 0
Revision Date August 2014
Worksheet No. QAPP Worksheet #30
Page Nos. 1 of 1

**QAPP Worksheet #30
Analytical Services Table**

Note: This worksheet was not filled out for the MEC QAPP because it pertains to chemical analysis and related activities, not to MEC surface clearance work.

Matrix	Analytical Group	Concentration Level	Analytical SOP	Data Package Turnaround Time	Laboratory/Organization (Name and Address, Contact Person and Telephone Number)	Backup Laboratory/Organization (Name and Address, Contact Person and Telephone Number)
NA	NA	NA	NA	NA	NA	NA

NOT APPLICABLE

Title: Limited MEC Surface Clearance
 QAPP
Revision No. 0
Revision Date August 2014
Worksheet No. QAPP Worksheet #31
Page Nos. 1 of 1

QAPP Worksheet #31
Planned Project Assessments Table

Task	100%	Daily	Weekly	As Needed
Locator Test Bed Certification/ Checkout	X ^{1/, 3/}	X ^{1/}		
Field GIS/GPS Test (known benchmark or point)		X ^{1/}	X ^{1/, 3/}	
Grid or Transect Construction		X ^{1/}	X ^{1/, 3/}	X ^{1/, 3/}
Surface Clearance		X ^{1/}	X ^{1/, 3/}	X ^{1/, 3/}
MEC Identification/ Documentation		X ^{1/}	X ^{1/, 3/}	X ^{1/, 3/}
MEC/MDEH Demolition	X ^{1/, 3/}	X ^{1/}		X ^{1/, 3/}
MDAS Certification/Verification		X ^{1/}		X ^{1/, 3/}
MDAS Staging		X ^{1/}	X ^{1/, 3/}	X ^{1/, 3/}
Data/ Document Management		X ^{1/}	X ^{2/}	

- 1/ Observations will be documented on a QC Daily Report.
- 2/ Observations will be documented on a QC Daily Report and Surveillance Report as required.
- 3/ Three-phase inspection conducted (preparatory, initial, and follow-on inspections).

QAPP Worksheet #32
Assessment Findings and Corrective Action Responses

Deficiencies that are identified during project activities will be documented and corrected.

MEC Surface Clearance Assessment Findings and Corrective Action Responses

Assessment Type	Nature of Deficiencies Documentation	Individual(s) Notified of Findings (Name, Title, Organization)	Timeframe of Notification	Nature of Corrective Action Response Documentation	Individual(s) Receiving Corrective Action Response (Name, Title, Org.)	Timeframe for Response
Surveillance, Inspection, Audit (internal or external)	Nonconformance Report (NCR) or Deficiency Notice (DN)	UXO PQCM, TtEC UXO PQCM, Navy RPM	Within 24 hours	Recommendations on NCR or DN and Follow-on Surveillance and QC Reports	TBD, UXOQCS/SO, TtEC	Within 48 hours

Title: Limited MEC Surface Clearance
QAPP
Revision No. 0
Revision Date August 2014
Worksheet No. QAPP Worksheet #33
Page Nos. 1 of 2

QAPP Worksheet #33
QC Management Reports Table

Type of Report	Frequency (Daily, Weekly, Monthly, Quarterly, Annually, etc.)	Projected Delivery Date(s)	Person(s) Responsible for Report Preparation (Title and Organizational Affiliation)	Report Recipient(s) (Title and Organizational Affiliation)
Daily QC Report	Daily	Daily, by noon of following day	Project Quality Control Manager (PQCM)	Navy RPM, NTR
QC Meeting Minutes	Weekly	Close of business of second day after weekly QC meeting	PQCM	Navy RPM, NTR
QC Certifications instrument test area	Daily when instrument test area certification is completed	Maintained on site; summarized in Daily QC Report	PQCM	Navy RPM, NTR
Rework Items List	Monthly	Attached to Daily QC Report for the last day of each month	PQCM	Navy RPM, NTR
Project QC Report	Draft and Final	Section in After Action Report	PQCM	Navy RPM
After Action Report	Once/after QA Management Reports and Risk Assessment completed	6 months following completion of field activities	PQCM	Navy RPM, NTR
QC Project Checklist	Once at the beginning of each project	At first QC meeting	PQCM	Navy RPM, NTR
Preparatory Phase Inspection Form	Before each inspection	Daily, by noon of following day	PQCM	NTR, Program QCM
Initial Phase Inspection Form	Before each inspection	Daily, by noon of following day	PQCM	NTR, Program QCM

Title: Limited MEC Surface Clearance
 QAPP
Revision No. 0
Revision Date August 2014
Worksheet No. QAPP Worksheet #33
Page Nos. 2 of 2

QAPP Worksheet #33
QC Management Reports Table

Type of Report	Frequency (Daily, Weekly, Monthly, Quarterly, Annually, etc.)	Projected Delivery Date(s)	Person(s) Responsible for Report Preparation (Title and Organizational Affiliation)	Report Recipient(s) (Title and Organizational Affiliation)
DN	As required	As soon as possible	PQCM	Navy RPM, NTR, TOM
NCR	As required	Daily, by noon of following day	PQCM	Navy RPM, NTR, TOM
Quality Incident Report	As required	Within 48 hours of incident	PQCM	Navy RPM, NTR, TOM
FCR	As required	Before planned changes are implemented	PQCM	Navy RPM, NTR, TOM
DCN	As required	Before planned changes are implemented	PQCM	Navy RPM, NTR, TOM
FCR/DCN Log	As required	Not applicable	PQCM	Navy RPM, NTR, TOM

NTR = Navy Technical Representative

QAPP Worksheet #34

Tier 1 QC Process

Team Training and Certification Summary Table

Task	Description	Ref./SOP	Responsible for Verification (Name, Organization)
Pre-Operational Team Training	<p>QC Specialist will:</p> <ul style="list-style-type: none"> • Verify that all personnel possess the requisite training and experience for the position assigned • Document each employee's qualifications on the Personnel Qualification Verification Form <p>Personnel determined to be unqualified will be replaced or provided training prior to conducting tasks for which training is required.</p>	Project WP	TtEC PQCM/UXO QC
Instrument Training and certification	Instrument and procedures teams training is required for all UXO teams at the instrument test area. The training will validate the ability of the system, personnel, and procedures to meet the project objectives. Instrument test area certification is required prior to beginning fieldwork, or when an uncertified person is assigned to the geophysical, or new instruments (i.e.Schonstedt) is issued to a team.	Project WP	UXO QCM
UXO Training	UXO Technicians will be required to demonstrate capability by detecting/prosecuting targets in the instrument test area, handling surrogate MEC, and other requirements as described in the project WP.	Project WP	TtEC UXO QCM
Preparatory Phase Inspection	<p>A preparatory phase inspection will be performed prior to beginning each DFW. This inspection reviews applicable specifications and verifies that the following necessary resources, conditions, and controls are in place and compliant before the start of work activities:</p> <ul style="list-style-type: none"> • Verify that appropriate plans and procedures are developed, approved, and available. • Verify that personnel identified are available and meet the requirements/ qualifications for the position. • Verify that the required training has been performed. 	Project WP; Record on QC Preparatory Phase Inspection form	TtEC Geophysical QCM and UXO QCM

Title: Limited MEC Surface Clearance
QAPP

Revision No. 0

Revision Date August 2014

Worksheet No. QAPP Worksheet #34

Page Nos. 2 of 2

	<ul style="list-style-type: none">• Verify that identified equipment is available, functional, and appropriate for the job.• Verify that the preliminary work and coordination have been accomplished.• Verify that the level of quality expected is understood.• Verify that the project WP and SOPs have been reviewed and are understood by the workers.• Verify that field crew has been trained on the applicable portions of the APP/SSHSP and AHAs.		
--	--	--	--

QAPP Worksheet #35

Tier 2 QC Process Summary Table

Section 8 in the project WP (TtEC 2014) addresses QC Inspections. Specific QC inspection points are established for all of the work processes on the project. These inspection points outline the QC procedure and the causal analysis criteria for each process. The planned assessments schedule for these tasks is outlined in QAPP Worksheet #31. This component of the QC function is an integral part of each process and will be managed by the PQCM and UXO QC (or designee), who will work closely with the TOM and the field supervisors to identify and meet project and quality objectives. Identified quality criteria for the inputs and outputs of each process will be identified and used as a basis for the assessment of each process. Process QC completes the three-phase control process by conducting initial and follow-up (surveillance) inspections to ensure that processes are under control, and that opportunities for improving processes are captured and implemented.

Tasks	Frequency of Oversight Activity	Ref./SOP	Forms to be Used	QC Checks	Causal Analysis Criteria
Instrument test area (ITA) Construction	At Mobilization	NA	- NA	PQCM (or designee) will: <ul style="list-style-type: none"> • Verify ITA meets the objective of ensuring that the equipment is properly working in accordance with the instrument specifications 	<ul style="list-style-type: none"> • Any element not conforming to the specifications
Instrument Test Area	As Needed	NA	<ul style="list-style-type: none"> - Preparatory Phase Inspection Checklist - Initial Phase Inspection Checklist - QC Follow-up/ Surveillance 	PQCM (or designee) will: <ul style="list-style-type: none"> • Verify all UXO personnel who utilize handheld (analog) sensors have been trained in the ITA. 	<ul style="list-style-type: none"> • Any element not conforming to the specifications

Tasks	Frequency of Oversight Activity	Ref./SOP	Forms to be Used	QC Checks	Causal Analysis Criteria
Site-Specific Trainings`	As Needed	Work Plan	<ul style="list-style-type: none"> - Preparatory Phase Inspection Checklist - Initial Phase Inspection Checklist - QC Follow-up/ Surveillance 	PQCM will: <ul style="list-style-type: none"> • Verify site personnel meet the experience and training requirements • Verify all site personnel attend the Site-Specific Orientation Training • Verify the general training agenda for the personnel have been completed in accordance with the WP and SOPs 	<ul style="list-style-type: none"> • Any element not conforming to the specifications
Geodetic Survey	Per Occurrence	Work Plan	<ul style="list-style-type: none"> - Daily QC Report - Preparatory Phase Inspection Checklist - Initial Phase Inspection Checklist - QC Follow-up/ Surveillance 	PQCM (or designee) will: <ul style="list-style-type: none"> • Verify location consistency between all primary control points and monuments (office and field checks). • Verify coordinate system being used is North American Datum (WGS 1984 and/or UTM Zone 18N) • Verify field crew knowledge of “relative” coordinate systems if used (North and East +, West and South -) • Verify existence of corner stakes by the emplacement of metal rebar or nails. • Verify markers (pin flags, etc.) are pushed into the ground at least 3 to 4 inches • Monitor coordinates in real time to verify interpreted location is reacquired within ± 1.0 meter accuracy • Verify that the initial certification and recertification for any change in personnel or equipment is performed and documented 	<ul style="list-style-type: none"> • Any element not conforming to the specifications • Where appropriate, a NCR will be issued and a causal analysis will be developed

Tasks	Frequency of Oversight Activity	Ref./SOP	Forms to be Used	QC Checks	Causal Analysis Criteria
Grid or Transect Construction	Daily	Work Plan	<ul style="list-style-type: none"> - Daily QC Report - Preparatory Phase Inspection Checklist - Initial Phase Inspection Checklist - QC Follow-up/Surveillance 	<p style="text-align: center;">PQCM (or designee) will:</p> <ul style="list-style-type: none"> • Verify coordinate system being used is WGS 84 and/or UTM Zone 18N • Verify field sketch map with proper “North” direction indicated if relative coordinate systems are used <ul style="list-style-type: none"> • Verify stakes/flags are placed at grid corner locations or as required along transects, and verify corner points or transect markers are clearly marked and legible. • Verify markers (pin flags, etc.) are pushed into the ground at least 3 to 4 inches • Verify field notes and logbooks are accurate, complete, and consistent • Verify setup of DGPS by reacquiring at least one known control point (grid corner, geodetic control point, survey monument, etc.) and the offset from the known point is within ± 1.0 meters accuracy • Verify that the initial certification and recertification for any change in geophysicists or equipment is performed and documented • Verify the site has been divided into the appropriate grid size as indicated in the work plan 100-foot by 100-foot grids for the surface clearance activities 	<ul style="list-style-type: none"> • Any element not conforming to the specifications • Where appropriate, a NCR will be issued and a causal analysis will be developed

Tasks	Frequency of Oversight Activity	Ref./SOP	Forms to be Used	QC Checks	Causal Analysis Criteria
Surface Clearance	As Needed	Work Plan	- Daily QC Report - Preparatory Phase Inspection Checklist - Initial Phase Inspection Checklist - QC Follow-up/ Surveillance	PQCM (or designee) will: <ul style="list-style-type: none"> • Verify exclusion zones have established in accordance with the Work Plan • Verify the site has been divided into grids per the WP • Verify potential munitions that have been identified have been verified by the SUXOS and if determined to be MEC, the munitions discovery and notification procedures in the project work plan have been followed • Verify field notes and logbooks are accurate, complete, and consistent - • UXO QC will verify SUXOS's (or UXO Team Leader's) evaluation of site terrain for accessibility and safety considerations for performing surface clearance • UXO QC will verify complete land coverage is obtained • Verify daily that the surface clearance is being performed correctly and the appropriate removal of surface targets is obtained • Verify daily that the UXO Technicians are performing daily function checks of the Vallon and/or Schonstedt • Verify weekly that the detection equipment is functioning properly • Verify the grids searched, personnel utilized, items recovered, and any modified procedures implemented are documented • Verify the areas disturbed during the surface clearance are raked smooth, as applicable 	<ul style="list-style-type: none"> • Any element not conforming to the specifications • Where appropriate, a NCR will be issued and a causal analysis will be developed

Tasks	Frequency of Oversight Activity	Ref./SOP	Forms to be Used	QC Checks	Causal Analysis Criteria
Munition item removal	Per Occurrence	Work Plan	<ul style="list-style-type: none"> - Daily QC Report - Preparatory Phase Inspection Checklist - Initial Phase Inspection Checklist - QC Follow-up/ Surveillance 	<p>UXO QC (or designee) will:</p> <ul style="list-style-type: none"> • Verify exclusion zones have established • Verify intrusive package includes the location (northings and eastings) of each item, the adjusted estimated depth, and indication of the degree of other metallic items surrounding the particular item to be investigated, and an Investigation Data Sheet/ MEC Accountability Log • Verify handheld operational and sensitivity settings used in field are consistent with settings determined from the ITA • Verify instrument functional checks for hand-held sensor are performed prior to start of day's activities as specified in instrument manual, and instrument is passed over a known target prior to start of day's activities • Re-sweep 10% of area cleared that day. Verify the information on Investigation Data Sheet & MEC Accountability Log is correct. Verify a photograph of each piece of MEC item recovered is taken to document the item and a gridded background board is used to document the relative size of the item. Verify the location has been documented with DGPS • Verify the UXO team completes the Investigation Data Sheet/ MEC Accountability Log at the time of discovery, a photograph of each piece of MEC item recovered is taken to document the item, and a gridded background board is used to document the relative size of the item. • Verify at the end of each working day that the completed Investigation Data Sheet & MEC Accountability Log and photographs have been turned over to the SUXOS for review and correction, as necessary, prior to transfer to the Data Manager for incorporation into the removal action database. • Verify that if a suspect or potential MEC item is discovered, UXO observer stopped work and cleared the immediate area, and notified the SUXOS to confirm item. If item is determined to be MEC, the SUXOS has followed the munitions discovery and notification procedures • Verify that replacement analog detectors units are tested at ITA by PQCM, GTM, or their designee and meet ITA requirements (specifications of the instrument) 	<ul style="list-style-type: none"> • Any element not conforming to the specifications • A grid will require causal analysis if a MEC item or MEC look-alike is located above the detectable depth • Failed grids will be returned to the team for cure. Where appropriate, NCR will be issued and a causal analysis will be developed
4659-WE05-14-0362					

Tasks	Frequency of Oversight Activity	Ref./SOP	Forms to be Used	QC Checks	Causal Analysis Criteria
MPPEH Storage and Disposal	As Needed	Work Plan	<ul style="list-style-type: none"> - Daily QC Report - Preparatory Phase Inspection Checklist - Initial Phase Inspection Checklist - QC Follow-up/ Surveillance 	UXO QC (or designee) will: <ul style="list-style-type: none"> • Verify exclusion zones have established • PQCM will verify MEC/MPPEH is tracked from discovery in the field to destruction by explosives, and that each aspect of the handling and disposal is documented on the Investigation Data Sheet & MEC Accountability Log • Verify required notifications are made prior to demolition operations • Verify blast protection is utilized to mitigate potential damage in the case of accidental detonation • Verify collection points are separated from each other by the K11 of the total NEW that may be stored at that location • Verify communications between the UXO teams and site office are operating properly • Verify the SUXOS (or Demolition Supervisor) visually inspects the exclusion zone and surrounding area, inspects the road barricades (if necessary), and ensures the safety warnings are made prior to initiating demolition shot • Verify the demolition team dons the proper PPE • Verify the SUXOS (or Demolition Supervisor) completes the Demolition Operations Checklist and Explosive Logs provided in SOP 1 • Visually verify the designated Explosive Vehicle is configured 	<ul style="list-style-type: none"> • Any element not conforming to the specifications • Where appropriate, a NCR will be issued and a causal analysis will be developed

Tasks	Frequency of Oversight Activity	Ref./SOP	Forms to be Used	QC Checks	Causal Analysis Criteria
				<ul style="list-style-type: none"> • Verify the SUXOS has obtained a local weather report confirming suitable weather conditions for demolition operations prior to commencement of demolition operations • PQCM will verify that recovered MEC is destroyed, packaged, stored, and transported (as applicable) under chain-of-custody procedures • Verify the donor explosives are primed • Verify the firing systems are prepared and initiated • Verify disposal shots are set up safely and in accordance with • Verify the misfire procedures are utilized, if necessary, with proper wait-times observed • Verify proper reentry control is utilized when checking/verify shot holes after detonation (two-man rule, one utilized as safety observer). • Verify the Demolition Supervisor has performed a visual sweep of the detonation site and surrounding area to gather fragments and explosive residue, if present • If MPPEH is found and after evaluation by the SUXOS, verify the SUXOS determination of whether the material is “Material Documented as Safe” (MDAS) or Material Documented as an Explosive Hazard” (MDEH). If MDAS, verify the material is documented on DD Form 1348-1A and signed by both the SUXOS and UXO QC. If MDEH, the item will be destroyed by detonation • Verify 100% of all material has detonated; all remaining material is MDAS • Verify the SUXOS informs all parties on the notification list that the demolition operation is complete 	

Tasks	Frequency of Oversight Activity	Ref./SOP	Forms to be Used	QC Checks	Causal Analysis Criteria
Scrap Metal Management	Weekly	Project WP	<ul style="list-style-type: none"> - Daily QC Report - Preparatory Phase Inspection Checklist - Initial Phase Inspection Checklist - QC Follow-up/ Surveillance 	PQCM (or designee) will: <ul style="list-style-type: none"> • Perform weekly inspections of Scrap Processing Area (waste storage area) to verify no MEC has been inadvertently placed with the waste • Verify that items classified as MDAS have a completed DD Form 1348-1A in place prior to transport to a metals recycling • Verify the scrap metal has been shredded and recycled 	<ul style="list-style-type: none"> • Any MEC found in the Scrap Processing Area • Any element not conforming to the specifications • Where appropriate, a NCR will be issued and a causal analysis will be developed
After Action Report	As needed	WP Section 9	<ul style="list-style-type: none"> - QC Surveillance Inspection 	PQCM (or designee) will: <ul style="list-style-type: none"> • Verify the information presented in the report conforms to NOSSA Instruction 8020.15D • Verify a document review has been conducted by the applicable experts (SUXOS, Geophysicist Manager, Program QC Manager, PQCM, etc.) and is documented on the document review form 	<ul style="list-style-type: none"> • Any element not conforming to the specifications • Where appropriate, a NCR will be issued and a causal analysis will be developed • Document review not conducted or documented

Title: Limited MEC Surface Clearance
 QAPP
Revision No. 0
Revision Date August 2014
Worksheet No. QAPP Worksheet #36
Page Nos. 1 of 1

QAPP Worksheet #36
Product QC Tier 3 Summary Table

To ensure that project quality objectives (PQOs) are met, the sampling protocols contained within this MEC QAPP will be used for production QC. The following table summarizes the operations/attributes that will be assessed using acceptance sampling.

MEC Quality Control Acceptance Sampling

Operation/ Attribute	Sample Unit	Lot Definition	Sampling Protocol	Acceptance Criteria	Causal Analysis	Person(s) Responsible for Ensuring CA	SOP
Blow-in-Place/ Consolidated Shot	100% of All Material	Each Detonation	Inspection by SUXOS/ UXO QC	100% Completeness	Redo Blow-in-Place/ Consolidated Shot until 100% Completeness Acquired	SUXOS Certified UXO QC Verified	SOP 1

QAPP Worksheet #37 MEC Usability Assessment

Area ID:	Expected CSM Primary Source Type:	Investigation Method (circle one): Geophysical Survey Site Reconnaissance
<p>How well did the investigation implementation for this area conform to contract and plan specifications? (check one)</p> <p> <input type="checkbox"/> Met all contract and plan specifications <input type="checkbox"/> Deviated in minor instances from contract/plan specifications – Project objectives met <input type="checkbox"/> Significant deviations from some contract/plan specifications – Some project objectives may not be met <input type="checkbox"/> Significant deviations from contract/plan specifications –Project objectives not met </p>		
<p>COMMENT: Did the investigation data for this area meet the applicable PQOs? (check one)</p> <p> <input type="checkbox"/> YES – All PQOs met <input type="checkbox"/> NO – A few PQOs not met <input type="checkbox"/> NO – Multiple PQOs were not met, overall project objectives not likely to be met. </p>		
<p>COMMENT: Briefly describe the investigation results for this area. Summarize the results of all Target of Interest (TOI) excavations undertaken in the area.</p>		
<p>Do the investigation results tend to confirm or refute the expected Conceptual Site Model (CSM) primary source type for this area? (check one) Provide a brief explanation for this judgment</p> <p> <input type="checkbox"/> CONFIRM <input type="checkbox"/> REFUTE </p>		
<p>RATIONALE: If the results tend to confirm the CSM, was sufficient data collected to perform a hazard assessment and an analysis of the need for future actions? (check one) If not, describe additional information required to meet these requirements.</p> <p> <input type="checkbox"/> YES <input type="checkbox"/> NO </p>		
<p>COMMENT: If the results tend to refute the CSM, what CSM primary source type is indicated by the results? Has sufficient information been collected to perform a hazard assessment and an analysis of the need for future actions? If not, describe additional information required to meet these requirements.</p>		
<p>Provide any additional comments regarding the usability of the data for decision making about this area:</p>		