

**FINAL**

**Quality Assurance Project Plan**

**Munitions Response Program  
for Munitions and Explosives of Concern  
at Munitions Response Sites  
at the Former Mare Island Naval Shipyard  
Vallejo, California**

**May 2012**

Document Control Number: PMP-2618-0003-0001  
Project No. N62473-09-D-2618-DO-003



Prepared for:  
Department of the Navy  
Base Realignment and Closure  
Program Management Office Southwest  
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Prepared by:



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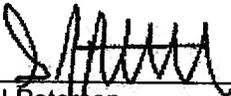
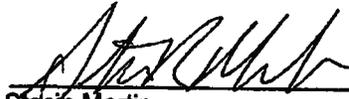
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Plan Review	 _____ Gregory J Peterson Contractor PM	_____ May 8, 2012 Date
Approval Signature	 _____ Steven Martin NAVFAC QAO	_____ MAY 9, 2012 Date
Approval Signature	 _____ Heather Wochnick NAVFAC LRPM	_____ May 8, 2012 Date

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## Acronyms and Abbreviations

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APP	Accident Prevention Plan
ESS	Explosive Safety Submission
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulation
DDESB	Department of Defense Explosive Safety Board
DFW	Definable Features of Work
DGM	Digital Geophysical Mapping
DOD	Department of Defense
DQOs	Data Quality Objectives
GeoQA	Geophysical Quality Assurance
GPS	global positioning systems
HAZWOPER	Hazardous Waste Operations and Emergency Response
IAW	in accordance with
MINS	Mare Island Naval Shipyard
MRP	(DON) Munitions Response Program
MEC	Munitions and Explosives of Concern
MPPEH	Material Potentially Presenting an Explosive Hazard
MRS	Munitions Response Site
NAVSCOLEOD	Navy School of Explosive Ordnance Disposal
NTCRA	Non-Time Critical Removal Action
OSHA	Occupational Safety and Health Administration
PIKA	PIKA International, Inc.
PIKA/PIRNIE JV	PIKA/Pirnie Joint Venture
PIRNIE	Malcolm Pirnie, Inc.
PM	Project Manager
PMA	Production Manufacturing Area
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
UXOQC	Unexploded Ordnance Quality Control
RPM	Remedial Project Manager
SAP	Sampling and Analysis Plan
SOP	standard operating procedures
SOW	Statement of Work
SSA	South Shore Area
SSHP	Site Safety and Health Plan

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## **Section 1. Introduction**

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The PIKA International, Inc. (PIKA)/Malcolm Pirnie, Inc (PIRNIE) Joint Venture (PIKA/PIRNIE JV), LLC under contract to the Department of the Navy (Navy), was tasked to develop and implement this Quality Assurance Project Plan (QAPP) to provide independent third-party quality assurance (QA) oversight services during the non-Time Critical Removal Action (NTCRA) at the Production Manufacturing Area (PMA) and Southern Shores Area (SSA) at the Mare Island Naval Shipyard (MINS), Vallejo, California (CA). This QAPP pertains specifically to QA oversight for the munitions and explosives of concern (MEC) component of the NTRCA of the PMA and SSA.

Procedures less stringent than those specified herein shall not be adopted without prior written authorization from the Navy and the PIKA/PIRNIE JV Project Manager (PM). The QA Compliance Check List and MEC QA Inspection/Audit log forms for use during field activities for the sites that are the subject of this QAPP are provided in Appendix A.

It is the responsibility of all personnel involved in site QA activities to understand and maintain the QA issues applicable to their work.

This QAPP has been developed to comply with “Admin – QA – 01 Creating QA Project Plans” from the “Uniform Federal Policy for Quality Assurance Project Plans Manual” (U.S. Environmental Protection Agency [USEPA], 2005). It will be used to ensure the following:

- QA-related activities are conducted in a planned and controlled manner, as specified within the approved QAPP.
- The product of QA activities conforms to the NTCRA SAP (Battelle, 2012) and SAP Addendum (Weston, 2012).
- Appropriate documentation exists to support each activity for which the PIKA/PIRNIE JV is responsible.

A detailed description of the site is contained within the Battelle SAP.

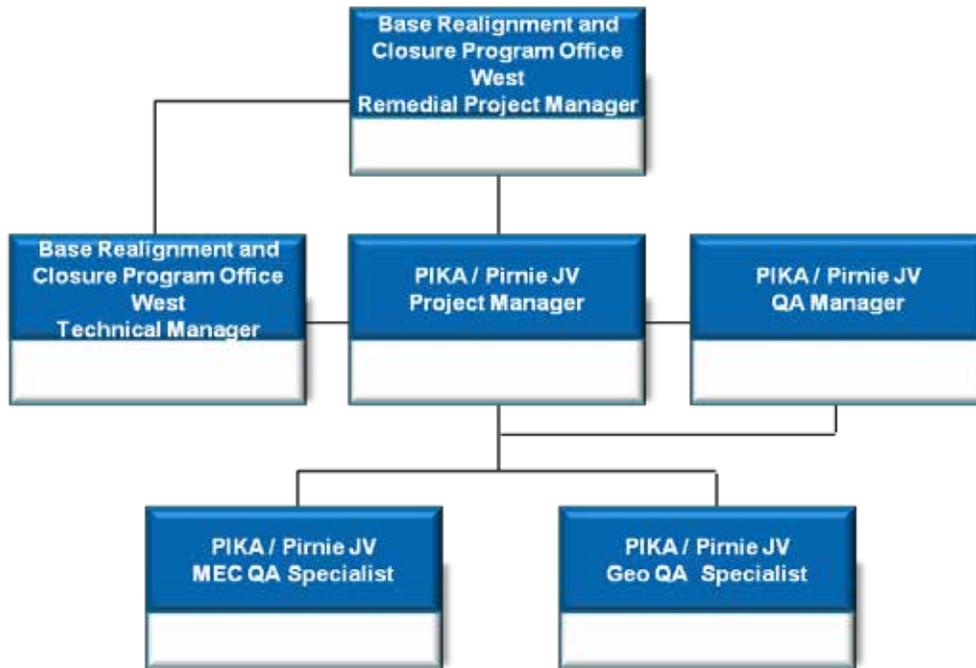
## 1.1. Scope of Work

This QAPP presents the procedures and organization necessary to monitor and guide the PIKA/PIRNIE JV in producing an end-product that meets the requirements of QA-01. The third-party QA oversight will include the following tasks:

- Document and verify the quality of the contractors' MEC investigation and removal activities.
- A review of the contractors' written MEC-related work plans (including the MEC SAP and SAP Addendum (Battelle, 2012 and Weston, 2012), and approved Explosives Safety Submission (ESS) (Battelle, 2011) to ensure the procedures and plans developed by the contractors are being followed and the objectives of the project are being met.
- Verify the contractors' removal action activities are in compliance with the requirements of the project SAP (Battelle, 2012) and SAP Addendum (Weston, 2012) and approved ESS (Battelle, 2011) and Work Plans.
- Support final verification that the NTCRA conducted on the sites were completed in accordance with the approved ESS. Verify that areas or grids are cleared with specific documentation and field verification checks.
- Ensure that all field processes are consistent and repeatable. These processes include detector usage, investigation of anomalies on the dig list, field data logs, equipment checks, and quality control (QC) procedures.
- Analyze, document, and report QA findings and identify corrective actions where necessary.
- Ensure discrepancies or problems found through the QA program are reported promptly, and that corrective actions are documented and their implementation is confirmed.
- Assist and support during any Navy or NOSSA audit of the site work.

## Section 2. Quality Assurance Organization

The PIKA/PIRNIE JV has selected the project QA personnel team to provide the specific technical and management capabilities and qualifications to perform the contract work. The project organization will ensure that all project objectives are met in a timely and cost-effective manner. A project organization flow chart is provided.



**Figure 1. Quality Assurance Organization Chart**

Table 2-1 provides contact information for the key PIKA/PIRNIE JV personnel. Key personnel will not be replaced without the approval of the Navy. If a change is required the PIKA/PIRNIE JV PM will provide the names, qualifications, duties, and responsibilities of each proposed replacement to the Navy RPM.

**Table 2-1. Quality Assurance Organization**

Name	Title	Organization	Telephone	E-mail
Brooks Pauly	Remedial Project Manager (RPM)	Base Realignment and Closure, Program Office – West	619-532-0789	<a href="mailto:brooks.pauly.ctr@navy.mil">brooks.pauly.ctr@navy.mil</a>

<b>Name</b>	<b>Title</b>	<b>Organization</b>	<b>Telephone</b>	<b>E-mail</b>
Heather Wochnick	Lead Remedial Project Manager (LRPM)	Base Realignment and Closure, Program Office – West	619-532-0763	<a href="mailto:heather.wochnick@navy.mil">heather.wochnick@navy.mil</a>
Patricia McFadden	Technical Manager	Base Realignment and Closure, Program Office – West	415- 743-4720	<a href="mailto:patricia.a.mcfadden@navy.mil">patricia.a.mcfadden@navy.mil</a>
Greg Peterson	Project Manager/MEC QA Specialist	PIKA/PIRNIE JV	760-888-7400	<a href="mailto:greg.peterson@arcadis-us.com">greg.peterson@arcadis-us.com</a>
Dan Hains	MEC QA Specialist	PIKA/PIRNIE JV	813-353-5723	<a href="mailto:dan.hains@arcadis-us.com">dan.hains@arcadis-us.com</a>
Steve Stacy	QA Manager	PIKA/PIRNIE JV	703-465-4234	<a href="mailto:steve.stacy@arcadis-us.com">steve.stacy@arcadis-us.com</a>
Marty Miele	Geo QA Specialist California Professional Geophysicist	PIKA/PIRNIE JV	916-798-2258	<a href="mailto:marty.miele@arcadis-us.com">marty.miele@arcadis-us.com</a>

## 2.1. Responsibilities and Authority

The following subsections briefly describe the overall project team organization, as well as specific responsibilities assumed by PIKA/PIRNIE JV.

### 2.1.1. PIKA/PIRNIE JV QA Project Manager

The PIKA/PIRNIE JV QA Project Manager is responsible for overall direction, coordination, technical consistency, and review of contract activities. The PIKA/PIRNIE JV QA PM has the following specific responsibilities and authorities:

- Performing final approval and review of work plans, project deliverables, schedules, contract changes, and labor allocations.
- Approving budgets and schedules, as well as changes in budgets and schedules.
- Ensuring availability of the MEC QA Specialist assigned to the project for the duration of the contract.
- Overseeing coordination between management, field MEC QA Specialist, and support to ensure consistency of performance.
- Communicating, as necessary, with the Navy to evaluate the progress of the project and to facilitate the avoidance of any potential problem.

### **2.1.2. QA Manager**

The QA manager will be responsible for reviewing and updating the QAPP, as needed, and for verifying compliance with the plan. Compliance will be verified through audits of MEC QA Specialist activities by the QA Manager to ensure compliance with the QAPP. The QA Manager has the following specific responsibilities:

- Ensuring the site QAPP is being properly implemented.
- Ensuring the MEC QA Specialist is properly trained and has adequate experience for the duties assigned.
- Defining project deliverables prior to commencement of the QA fieldwork, and submitting the deliverables as required by the QAPP.
- Evaluating implementation of the QAPP and its effectiveness on a regular basis.
- Scheduling to ensure that the MEC QA Specialist is on site during field activities.
- Communicating with the Navy on daily site activities through the preparation and submittal of daily reports and augmented as necessary via e-mail and telephone communication.

### **2.1.3. Geo QA Specialist**

The Geo QA Specialist is responsible for review of geophysical aspects of the MEC NTCRA and will work closely with the QA Manager and MEC QA Specialist to identify potential issues with overall data quality. The Geo QA Specialist has the following specific responsibilities:

- Ensuring the geophysical components of the site SAP are being properly implemented.
- Defining specific geophysical deliverables that are required prior to the commencement of fieldwork, and submitting the deliverables as required by the SAP.
- Scheduling to make sure the Geo QA Specialist is onsite when a new phase of geophysical work begins.
- Evaluating implementation of the SAP and its effectiveness on a regular basis.
- Review of geophysical reacquisition and dig results to ensure data meets the data quality objectives within the SAP.
- Communicating to the PIKA/PIRNIE JV Project Manager on the geophysical QA findings on a regular basis.

#### 2.1.4. MEC QA Specialist

The overall responsibility for MEC QA activities during fieldwork rests with the MEC QA Specialist (excluding the geophysical aspects of field QA); additionally, the MEC QA Specialist is responsible for administration of the QAPP. The MEC QA Specialist reports directly to the QA Manager during the performance of QA field duties. The MEC QA Specialist's specific responsibilities include:

- Conduct and ensure site surveillance activities and audits are conducted and documented in accordance with the QAPP.
- Prepare QA reports in proper format, as required by the QAPP.
- Track corrective actions to ensure all MEC investigation activities have been performed in accordance with the contractors' SAP and SAP Addendum (Battelle 2012 and Weston, 2012), with emphasis on the ESS (Battelle, 2011).
- Document that appropriate personnel are being used during all field operations.
- Perform and document audits and observations of project activities.
- Perform oversight of unexploded ordnance quality control (UXOQC) follow-up checks and correction of all deficiencies prior to beginning work in additional clearance areas.
- Verify that required equipment calibration has been performed by the contractor, and that inspection and standardization results comply with contract requirements and the SAP (Battelle, 2012) and SAP Addendum (Weston, 2012).
- Maintain all audit and observation documentation
- Perform QA inspections to verify clearances and investigations performed by the contractor have been performed to the specification in the work plan (Battelle, 2012). Inspections will be performed on a total of no less than 10 percent of all geophysical targets spread indiscriminately across the entire project site.
- Communicate, as necessary, with the Navy and the PIKA/PIRNIE JV QA Project Manager on daily field operations to facilitate the avoidance of any potential problems.

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## Section 3.      Project Task / Description

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### 3.1.    Task Objectives

This QA effort was established to be consistent with Munitions Response Program (MRP) requirements. The purpose of this MEC QA effort is to assess and document the quality of the field work performed at various munitions response sites; to verify that the required activities are executed in accordance with the SAP (Battelle, 2012) and SAP Addendum (Weston, 2012) and published SOPs, and conform to health and safety requirements related to the APP/SSHP and ESS; and to ensure that the contractors' stated and actual results exhibit a high degree of confidence of their work to perform MRP projects.

### 3.2.    MEC Quality Assurance Project Plan Objectives

The overall quality objective of this plan is to provide a documented record of the results of MEC Quality Assurance activities to be performed, which will allow the Navy to certify with confidence the results of the contractors' efforts. Also, the objective of this plan is to be proactive and resolve issues before they become problems and maintain the quality and productivity confidence of the Navy in the contractors' work.

### 3.3.    MEC Data Quality Objectives (DQOS)

The Data Quality Objectives (DQOs) for the assessment efforts determine the measurable quality elements for assessing compliance.

The assessment actions for the MEC field activities for the sites require the MEC QA Specialist to:

- Assess the contractors' field teams' overall explosive safety and management program
- Assess the contractors' field operations using their site-specific standard operating procedures (SOP)
- Assess the contractors' personnel qualifications
- .Assess the anomaly detection, reacquisition, and removal process
- Assess the documentation and handling of MPPEH and MEC.

The established project DQOs, associated contract Statement of Work (SOW) and contractor documents and records serve as the basis for the evaluation criteria to be used by the MEC QA Specialist to monitor Contractor performance. The MEC QA Daily Audit/Inspection Log and Weekly/Situational QA Checklist will be used by the MEC QA Specialist during each daily/weekly audit/inspection event to document the evaluation of project DQOs compliance.

#### **3.4. MEC Quality Assurance Standard Operating Procedures and Work Instructions for the MEC QA Specialist**

MEC QA activities are being conducted to ensure safe processes and to document contractor quality checks are being performed to ensure the land being remediated is safe for transfer and reuse. These QA measures in checking on compliance with the approved SAP and compliance with the approved ESS are confirming that all work is conducted in a safe and effective manner. The QA program also includes documentation of Navy efforts and notes when corrective actions are required and how they were corrected.

#### **3.5. Assessment of Contractors' Plans, Procedures and Processes**

The objective of reviewing all contractor plans, procedures and processes is to assess the quality of the processes to be used to obtain the desired results. The contractor documents shall meet or exceed the requirements of the contract SOW and its associated references. In reviewing these documents, safety shall be an overriding factor. Documents will be examined on a scheduled and timely manner for concurrence. Assessment will not be limited to the contractor, but the contractors' process for qualifying and monitoring subcontractors will also be the subject of a MEC QA audit. The review of these plans will be for quality and not acceptance. The MEC QA Specialist does not approve any of the contractors' plans. The initial QA project baseline will be documented on the QA Compliance Checklist (Appendix A). The Quality Assurance Checklist will be completed by the end of the second week of field operations, and submitted to the Navy RPM within 72 hours of being completed. All Daily/Weekly QA inspections will be documented using the MEC QA Daily Audit/Inspection Log and Weekly/Situational QA Checklist, and submitted to the Navy RPM within 72 hours of being completed.

### **3.6. Assurance of Contractor In-Process Activities**

The purpose of the in-process MEC QA activities is to ensure that the plans, practices, procedures and processes are implemented as written, and to monitor contractor adherence to the contractually specified requirements. The MEC QA Specialist will document in-process assessments using the MEC QA Daily Audit/Inspection Log and Weekly/Situational QA Checklist located in Appendix A.

### **3.7. MEC Quality Assurance Recording and Reporting of Contractor Non-Concurrence**

If, during the course of a contractor document review or in-process assessment, concurrence is withheld or findings indicate a failure to follow plans, practices, procedures or processes, or to meet specifications or requirements, these findings shall be documented on the MEC QA Daily Audit/Inspection Log and Weekly/Situational QA Checklist. These finding(s) will be forwarded to the RPM within 24 hours of discovery, if the failure requires the NTCRA contractor to stop work the RPM will be contacted by phone as soon as possible. The contractor will also be notified in writing through the RPM. Recommendations will be made to the contractor on a case-by-case basis. QA recommendations are to be considered suggestions in nature and not contractual direction. Contractual direction can only be given under the authority of the Contracting Officer. Issues regarding contractual direction will be the responsibility of the RPM. The MEC QA Specialist may provide input or data to support such contractual issues at the direction of the RPM.

### **3.8. Contractor Responsibility to Rectify Non-Concurrence / Findings**

The contractor will notify the RPM and Contracting Officer in writing within 3 working days of receiving the non-concurrence or finding. This notification will include action(s) to be taken by the contractor, the projected and actual date of correction and the root cause of the non-concurrence or finding, if appropriate. After corrective action, the RPM will schedule a review of the action taken to rectify the deficiency, practice or process in question. Failure to notify the RPM and Contracting Officer of action or projected actions will be addressed at the Contractors' Program Manager's level by the RPM or the Contracting Officer. The MEC QA Specialist will not contact the contractor Program Manager directly.

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## **Section 4. Quality Assurance Training / Certification / Experience Requirements for QA Personnel**

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The requirements for the training and certifications for project QA personnel are listed below. This includes, to the extent possible, the training/certification/experience necessary for compliance with OSHA and industry standards. Whenever feasible, QA personnel will have training/certification/experience equivalent to or greater than that required of the MEC NTCRA Contractors' personnel.

### **4.1. Training Records**

Copies of all training/certification/experience records will be maintained on site by the MEC QA Specialist and made available to the Navy for inspection on request for the life of the contract. Copies of these records will be attached to the QA Summary Report provided at the completion of the project.

### **4.2. Required Training / Certifications / Experience**

Records of training/certification/experience will be considered part of the project records and controlled and retained for inspection. Training/Certification/Experience requirements include:

#### **4.2.1. QA Manager**

The QA Manager will at a minimum have the following training/certification/experience prior to being assigned to manage the 3<sup>rd</sup> Party QA oversight of this project:

- Bachelors of Science Degree in Engineering, Geology, or Geophysics and 10 years of project field experience with 2 years of Project QC experience.
- HAZWOPER Initial Training (40 hours) IAW 29.CFR 1910.120 (or equivalent)
- HAZWOPER Refresher Training (8 hours annually) IAW 29.CFR 1910.120 (or equivalent)
- HAZWOPER- IAW 29.CFR 1910.120: 8 Hr. Supervisors Training
- Resume indicating that the QA Manager has experience serving as a QA Manager on MEC clearance and Geophysical mapping projects similar to this NTCRA.

### 4.2.2. MEC QA Specialist

The following is required for the MEC QA Specialist prior to being assigned to conduct audits in support of MEC activities for this project:

- NAVSCOLEOD Graduate and possess minimum qualifications IAW DDESB TP-18 for UXOQCS
- HAZWOPER Initial Training (40 hours) IAW 29.CFR 1910.120 (or equivalent)
- HAZWOPER Refresher Training (8 hours annually) IAW 29.CFR 1910.120 (or equivalent)
- HAZWOPER- IAW 29.CFR 1910.120: 8 Hr. Supervisors Training
- Resume indicating that the MEC QA Specialist has experience serving as a UXOQCS or MEC QA Specialist on similar NTCRA projects

### 4.2.3. Geo QA Specialist

The Geo QA Specialist will at a minimum have the following training/certification/experience prior to being assigned to conduct QA audits in support of project DGM data and field efforts:

- Bachelors of Science Degree in Geophysics and more than 8 years experience applying geophysical methods in support of munitions response sites
- Certification as a California Professional Geophysicist
- HAZWOPER Initial Training (40 hours) IAW 29.CFR 1910.120 (or equivalent)
- HAZWOPER Refresher Training (8 hours annually) IAW 29.CFR 1910.120 (or equivalent)
- HAZWOPER- IAW 29.CFR 1910.120: 8 Hr. Supervisors Training
- Resume indicating that the Geo QA Specialist has experience serving as a QA auditor on MEC clearance and Geophysical mapping projects similar to this NTCRA.

**5.1. MEC Quality Assurance Recording**

The results of MEC QA observations will be documented in the MEC QA Daily Audit/Inspection Log and Weekly/Situational QA Checklist and reported to the Navy RPM. The results of the observations will be discussed with the Navy RPM before any final reporting to the contractor, which will be done by the RPM or designated representative. The MEC QA Daily Audit/Inspection Log and Weekly/Situational QA Checklist will be used by the MEC QA Specialist to record all quality assurance activities, findings, and actions. The forms provide a format for consistent data collection as well as a documented record of an assessment. These forms serve as the basis for trend analysis, management and contractor reporting, as well as input into the corrective action system. These forms, combined with objective evidence and data, will be retained for the life of the project and enclosed in the QA Summary Report at the completion of the project.

At a minimum, the MEC QA Daily Audit/Inspection Log will contain:

- Name of the MEC QA Specialist
- Date(s) of the audit/ inspection
- Activities audited/ inspected
- Personnel contacted during the audit/ inspection
- Results of the audit/ inspection
- Corrective Action Report issued as a result of the audit/ inspection
- Signature of the MEC QA Specialist

It is the responsibility of the MEC QA Specialist to ensure that documentation generated during or following MEC QA audits or inspections is annotated to provide traceability to the MEC QA Daily Audit/Inspection Log and Weekly/Situational QA Checklist.

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## Section 6. Audit Process and Methods / Quality Assessment

### 6.1. Audit Process Design

PIKA/PIRNIE JV will use will use a three phase quality assurance program, as described in Table 6-1, to verify project implementation, data, personnel training/qualifications, site preparation, vegetation control, target reacquisition, intrusive investigations, MEC/MPPEH/scrap management, explosive demolition operations, site restoration and community relation involvement. The NTCRA Contractor has specific inspection timelines, references, forms used, inspection procedures and corrective action criteria established for each definable feature of work (DFW) and will conduct quality control audits as required to meet the established surveillance criteria in the SAP (Battelle, 2012) and SAP Addendum (Weston, 2012) by Worksheet #35. The PIKA/PIRNIE JV will conduct independent 3<sup>rd</sup> party QA audits for all project identified DFW identified in Worksheet #35 from the NTCRA Contractors' SAP and SAP Addendum to verify that project DQOs are being successfully achieved.

In the event of a Non-Concurrence finding the procedures in Section 3 of this document will be followed.

**Table 6-1. Three Phase QC Surveillance Summary Table**

Three Phase QA Surveillance	Description of QA Audit Program	Conduct Audit
Phase 1 Preparatory Phase	A Preparatory QA Audit is a compliance Audit performed prior to beginning each DFW. The purpose of this audit is to review applicable job specifications and verify the necessary equipment, personnel and controls are in place before work activities start. It is attended by all personnel involved in implementation of the specific DFW. The NTCRA UXOQCS and MEC QA Specialist will facilitate the briefing. The SUXOS will identify equipment available, verify plans are in place, equipment is available and describe in detail the work specifics outlined in the NTCRA Work Plan/SOPs. The UXOSO will brief all activity hazard analyses pertinent to the job. The UXOQCS and MEC QA Specialist will discuss pass/fail criteria and provide a copy of the specific QC and QA checklist used to observe/grade the task to the SUXOS, Team Leader and RPM. The team leader and all team members will attend. This is where any questions concerning the task, safety equipment, clearance parameters, SOP, etc are discussed and agreed upon. The QC Inspection is documented on a QC surveillance form for the NTCRA Contractor and on a QA Audit and Inspection Log form for the independent 3 <sup>rd</sup> party QA.	MEC QA Specialist

Three Phase QA Surveillance	Description of QA Audit Program	Conduct Audit
Phase 2: Initial QA Inspection	<p>An Initial QA Audit is performed the first time a parcel of work is started under a DFW. The purpose of the Audit is to check the preliminary work for compliance with procedures and contract specifications, to establish an acceptable level of workmanship, check safety compliance, review the preparatory phase inspection/briefing findings, check for any omissions, and resolve differences of interpretation before the task progresses too far.</p> <p>Additionally the following are checked:</p> <ul style="list-style-type: none"> <li>· Verify deficiencies identified during the preparatory phase were corrected and implemented.</li> <li>· Verify all equipment is used properly</li> <li>· Verify quality workmanship is performed and acceptable.</li> </ul> <p>A QA Audit and Inspection Log and Quality Assurance Checklist is generated for each initial audit conducted.</p>	MEC QA Specialist
Phase 3: Follow Up QA Audit	<p>Follow Up QA Audit will start immediately after the initial phase QA Audit. The audit will address the routine day-to-day activities of the project. During this phase, the items of concern observed are:</p> <ul style="list-style-type: none"> <li>• Daily inspection of active DFW when on site to ensure the work remains in compliance with contract requirements, the NTCRA SAP, ESS, APP/SSHP, and SOPs,</li> <li>• Evaluate that quality of workmanship is maintained at or above the levels established during the preparatory/initial phases.</li> <li>• Verify required equipment testing/checks/procedures are performed correctly and in accordance with procedures established at the preparatory phase and confirmed during the initial phase inspections.</li> <li>• Verify NTCRA Contractor Non-Concurrence findings wer/are being corrected/implemented in accordance with a developed corrective action plan.</li> </ul> <p>All teams are observed daily, when on site, with information recorded in the MEC QA Specialist QA Audit and Inspection Log and Quality Assurance Checklist.</p>	MEC QA Specialist

## 6.2. Audit Methods Requirements

Audit methods will include inspection of the contractors' records for completeness, review of standard operating procedures for adequacy, visual surveillance of field data collection for

compliance, and review and analysis of ordnance identification data for completeness and accuracy.

Audit of MEC removal actions will be performed by observations of the MEC dig teams conducting intrusive operations and/or a random inspection. Through this process 10% of all anomalies that have been investigated by the contractors' dig teams will be audited using a hand held all metals detector to verify that the detected anomaly has been successfully investigated and cleared.

Audit of No-Finds, as defined in the Battelle and Weston SAP and SAP Addendum, will be performed at a rate of 5% of anomalies identified as No-Finds using a random selection process of all recorded No-Finds by the dig teams.

A Trimble global positioning systems (GPS) Pro-XR will be used to reacquire the anomaly for investigation and a VALLON VMH3CS or similar metal detector will be used to verify the anomaly location is free of metal.

### **6.3. Quality Control Requirements**

Contractor quality control will be assessed for completeness, accuracy, and compliance with contract requirements, the SAP (Battelle, 2012) and SAP Addendum (Weston, 2012, the ESS, published contractors' quality control plan and project approved SOPs. Assessment will include review of quality control reports, and visual surveillance of the field work and quality control operations to ensure that all approved project plans are being followed. Additionally, the QC deficiency reporting and corrective action processes will be examined to assess the extent to which they are improving the affected processes. All QA work and field observations will be documented and summarized in the QA Summary Report IAW Section 8 of this document.

### **6.4. Instrument / Equipment Testing, Inspection and Maintenance Requirements**

The GPS and detection equipment instruments used by the QA team will be maintained to the equipment manufacturer's prescribed preventive maintenance standards and calibration will be performed, documented and monitored. Any measurement instrument, requiring repair will be appropriately calibrated before being returned to service. Inoperable or inaccurate instruments will be tagged for repair and segregated to prevent inadvertent use.

### **6.5. Instrument Calibration and Frequency**

Any device, instrument, or equipment used for the MEC QA Specialist's measurement or QA data generation that can adversely affect data will be calibrated, certified through testing, or otherwise proven to exhibit the capabilities for which it was intended. Records of the results or outcomes of these verification activities will be retained in the QA files. Calibration of measurement instrumentation will be performed using the methods and frequency recommended by the manufacturer.

## **Section 7. Corrective Action System**

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The QA Daily Audit/Inspection Log is the formal means to be used to document contractor problems, issues, conditions or findings that can adversely affect attainment of MEC clearance objectives. This form will be the input criteria for the Government Corrective Action Process. The MEC QA Specialist will use this form to document any noteworthy findings that may result from an audit or inspection, and will monitor the process to ensure that open items are corrected and verified. The MEC QA Specialist shall periodically assess the effectiveness of the process and annotate findings on the MEC QA Daily Audit/Inspection Log and Weekly/Situational QA Checklist.

Deficiencies noted during a MEC QA Audit or Inspection will be documented on the QA Daily Audit/Inspection Log and presented to the Navy RPM within 24 hours for resolution. At a minimum, the following information will be reported:

- Name of MEC QA Specialist
- Date of issue
- A complete description of the finding or deficiency, including reference to associated documents, procedures and/or equipment
- Person or organization responsible for the corrective action
- Signature of MEC QA Specialist

The organization or person(s) responsible for resolving a corrective action will define any immediate corrective action(s) needed to eliminate a problem, concern or issue, and will then be expected to identify the measure(s) to prevent recurrence. The MEC QA Specialist will review and make recommendations to the Navy RPM about the intended immediate corrective action(s) about their appropriateness and whether the root cause analysis has been properly conducted.

The MEC QA Specialist will verify and document that corrective action(s) have been properly and completely accomplished prior to closing the corrective action in the QA Daily Audit/Inspection Log.

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## **Section 8. Reports to Management**

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During field QA audits the MEC QA Specialist will provide daily verbal reports to the MEC QA Manager and the Navy RPM summarizing the day's events. At the end of each workweek the summarized results of all MEC QA Audits for the week will be compiled in an email report, with generated audit materials attached e.g. QA Compliance Checklist, MEC QA Daily Audit/Inspection Log and the Weekly/Situational QA Checklist as appropriate, and submit to the MEC QA Manager and Navy RPM within 3 business days.

At the completion of the project a QA Summary Report will be developed to address all activities performed under the QAPP and consist of summary information generated during the QA field effort to include copies of generated field reports, site data collected, and documentation of any corrections required through the QA process. The QA Summary Report will include the Quality Assurance Compliance Checklist, all MEC QA Daily Audit/Inspection Logs and Weekly/Situational QA Checklists, and shall be signed by a California Professional Geophysicist.

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- QA Compliance Checklist
- QA Daily Audit / Inspection Log
- Weekly / Situational QA Checklist

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Project: QAPP for Munitions Response Program  
 Contract: N62473-09-D2618-DO-003  
 Location: Former Mare Island Naval Shipyard, Vallejo, CA  
 Prepared by: \_\_\_\_\_

## QA COMPLIANCE CHECKLIST

Date: \_\_\_\_\_

<b>1. Project Documents: WP, SAP/QAP, ESS, APP/SSHP</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>COMMENTS</b>
a. On site and signature page signed				
b. Check for modifications/changes & up to date				
c. Proper depth of clearance identified				
d. Corrective action standards established				
e. Proper target ordnance identified/test sources/ test plot established				
f. Most Probable Munitions (MPM) identified				
g. MSD/MFGD established				
h. Standards for turn-in of recovered MPPEH and range-related debris				
i. Exclusion Zone (EZ) identified				
<b>2. Documentation Requirements/Publications Available On Site</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>COMMENTS</b>
a MRS Self-Assessment Checklist, evaluation completed by the Contractor's PM and SUXOS the first week of field activities. NOSSAINST 8020.15C				
b Notice to Proceed from client				
c Contractor personnel qualifications and supporting certifications for all UXO personnel verified e.g. EOD certification, equipment certifications, etc.				
d Certificate of grounding, lightning protection for magazines (if required)				
e Approval letter, MSD 1/600 (if required)				
f Explosive Safety Submission (ESS) (if required)				
g Delivery order & all modifications & Change Orders				
h Explosives permits/license (if required)				
i Dig permits for utilities (if required)				
j Rites of Entry (ROE) (if required)				

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<b>2. Documentation Requirements/Publications Available On Site (cont.)</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>COMMENTS</b>
k. Current MEC SOPs, readily available				
l. Other applicable reference publications/materials, readily available				
<b>3. QC Files Established IAW, WP, SAP/QAP</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>COMMENTS</b>
a. Daily/weekly QC reports/audits				
b. Weekly/monthly reports (if provided)				
<b>4. Accident Prevention Plan (APP) Site-Specific Safety &amp; Health Plan (SSHP)</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>COMMENTS</b>
a. On site and signature page signed				
b. Hazard Analysis & Risk Assessment for all tasks & equipment				
c. OSHA physical on site and current				
d. Training: General site workers, HAZWOPER qualified, 40-hour HAZWOPER & current 8-hour refresher (if required)				
e. Personnel Protective Equipment (PPE)				
f. First Aid equipment shall be immediately available				
g. Emergency eye-washes/showers comply with ANSI standards				
h. Fire extinguishers (specify type, size, and location)				
i. Visitor safety briefing				
j. Emergency Notification List posted & available				
k. Emergency routes/maps available & issued to each team				
l. Work task identified in Activity Hazard Analysis (AHA)				
m. Current MSDS(s) on site				
n. Minimum of two personnel on site, First Aid/CPR trained, EM 385-1-1				
o. 16-unit First Aid kits approved by a licensed physician in the ratio of 1 for every 25				

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<b>4. Accident Prevention Plan (APP) Site-Specific Safety &amp; Health Plan (SSHP) (cont.)</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>COMMENTS</b>
personnel or less. EM 385-1-1				
p. Adequate means of reporting accidents/near misses to client				
<b>5. Facilities – Reference EM 385-1-1</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>COMMENTS</b>
a. Adequate work space & facilities (restrooms, etc.)				
b. Good housekeeping (no fire hazards, tripping hazards, etc.)				
c. Approved and suitable containers for flammable, toxic, or explosive materials				
d. Approved/adequate explosive storage facilities				
e. Fire/emergency exits clear & unbarred. Fire extinguisher location(s), and route of escape posted as appropriate in facility				
f. Site security adequate				
g. Toilets IAW EM 385-1-1				
h. Washing facilities IAW EM 385-1-1				
<b>6. Equipment – Reference Approved WP/Manufacturers Operators Manual</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>COMMENTS</b>
a. Tools appropriate and serviceable				
b. Personnel Protective Equipment (PPE) present, serviceable & utilized				
c. Equipment calibrated (Last Cal. Date-----, Next Cal. Date-----)				
d. Survey equipment inspected & serviceable				
e. Heavy equipment inspected & serviceable IAW EM 385-1-1, Section 16, to include back up alarm and equipped with 1 fire extinguisher of 5-BC				
f. Competent person identified to inspect and accept Heavy Equipment IAW EM 385-1-1				
g. Identified site vehicles are equipped with First Aid kits and a 5-BC fire extinguisher IAW EM 385-1-1				
h. Geophysical equipment on hand & serviceable				
i. Two separate means of communication: radio(s)/cell phone, land line(s)				

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7. Explosive Storage/Receipt/Transportation Requirements – Reference NAVSEA OP 5, Volume 1	Yes	No	N/A	COMMENTS
a. Proper storage containers Type 2 magazine(s) conforming to standards set forth in Section 55.206 of ATFP 5400.7				
b. Placards will be displayed on the magazine(s) IAW w/DOD 6055.9-STD, Chapters 2 & 3 for Hazard Division stored in the magazine(s)				
c. Explosive compatibility groups segregated into appropriate Hazards Divisions listed in Chapter 3, DOD 6055.9-STD				
d. Security locks for the magazine(s) shall meet the requirements listed in Section 55.208 (a) (4), ATFP 5400.7				
e. Key control will be documented in the WP				
f. Lightning Protection System serviceable & tested (Test Date _____)				
g. Fire fighting placarding will be posted on the fence (IAW DOD 6055.9-STD, Chapter 8 and NAVSEA OP 5, Volume 1 for Hazard Division stored in the magazine(s)				
h. Fire protection consisting of extinguishers, 10-BC or larger located at magazine area & vegetation and trash cleared in and around magazine area				
i. Quantity distance from magazine IAW WP & Explosive Safety Submission (ESS)				
j. Accountability records maintained IAW 55.125, ATFP 5400.7				
k. Explosive NEW limits do not exceed limits stated in the WP & ESS				
l. Licenses/permits (if required)				
m. Initial receipt procedures & documentation on site				
n. Procedures for transportation of explosives IAW EM 385-1-1, and NAVSEA OP 5 Volume 1				
o. Pre-operational checks of vehicle transporting explosives using checklist				
p. Cargo properly segregated, blocked, and in approved containers, NAVSEA OP 5, Vol 1				
q. Receipt procedures accounting for each item of explosives/documentation on site				
r. Individuals authorized to receive, issue, and transport identified in writing				

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7. Explosive Storage/Receipt/Transportation Requirements – Reference NAVSEA OP 5, Volume 1 (cont.)	Yes	No	N/A	COMMENTS
s. Final disposition procedures documented				
t. Reconciliation, lost/stolen receipt documents/procedures on site				
u. Inventory conducted weekly @ minimum				
8. MEC Operational Plans –Approved WP, SAP/QAP, ESS and APP/SSHP	Yes	No	N/A	COMMENTS
a. Contractor following methodology defined				
(1) Daily safety meeting conducted by UXOSO				
b. Detection equipment used				
(1) Pre-operational checks performed prior to sweep operations				
(2) Operational condition annotated in log book				
(3) Team composition				
(4) Quality control				
(5) Quality control documentation				
c. Operational teams using approved procedures				
(1) UXO supervisor conducted physical check prior to operation				
(2) Pre-operational/safety brief conducted				
(3) Individual sweep lanes marked IAW WP				
(4) Contacts marked & investigated properly				
(5) Results of sweep operation recorded				
(6) All MEC, munitions debris and MPPEH is examined and positively identified by at least two UXO qualified personnel				
(6.1) Actions taken when MEC items identified are consistent with WP/MPM				

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<b>8. MEC Operational Plans –Approved WP, SAP/QAP, ESS and APP/SSHP (cont.)</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>COMMENTS</b>
(7) All MEC/UXO clearly marked				
d. QC operations IAW WP, and SAP/QAP				
e. MPPEH inspected/vented/segregated				
f. Geophysical test grids appropriate				
g. Project database and PDAs entries are consistent with intrusive results				
<b>9. Disposal Operations IAW WP, SAP/QAP, ESS and 60-1-1-31</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>COMMENTS</b>
a. Disposal method				
b. Adequate security for disposal operation				
c. Disposal Notification List available				
d. All necessary notifications made				
e. Movement of MEC items if determined safe to move to explosive storage or consolidate for disposal operations IAW project plans				
f. Are protective mitigation measures being used appropriate for MEC being destroyed?				
g. Disposal Procedures IAW project plans				
h. Conducted adequate Demolition Brief				
(1) Misfire procedures properly performed				
<b>10. Location Survey &amp; Mapping Plan</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>COMMENTS</b>
a. Registered land surveyor				
b. Surveyors received site-specific training				
c. UXO escort provided				
d. Grid stake, locations swept with geophysical equipment prior to driving stakes				

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<b>10. Location Survey &amp; Mapping Plan (cont.)</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>COMMENTS</b>
e. Survey notes being recorded				
<b>11. Quality Control Plan IAW WP and SAP/QAP</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>COMMENTS</b>
a. QC operational checks being conducted				
b. QC grid sweep pattern adequate				
c. Results of QC checks being recorded				
d. Nonconformance reports issued if QC checks show discrepancies, or for QA failures				
e. Intrusive results/database/PDAs entries are checked by UXOQC				
<b>12. Vegetation Removal IAW, WP</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>COMMENTS</b>
a. Equipment operated to prevent impact with possible surface MEC				
b. Cutting does not present implement hazard				
c. UXO personnel monitoring cutting operation				
d. MEC discovered marked/handled appropriately				
e. Equipment being operated safely & IAW Operators Manual				

**Signature:** \_\_\_\_\_

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 Prepared by: \_\_\_\_\_

PIKA/PIRNIE JV, LLC  
 Munitions & Explosives of Concern (MEC)  
 QA Daily Audit/Inspection Log

PROJECT #:	LOCATION: Mare Island Naval Shipyard
DATE:	TIME:
Contractor Personnel Contacted:	

<b>I: Area Inspected:</b> <i>(Grid number, anomaly identification, coordinates and description of activity being audited)</i>
<b>II: Inspection Results:</b> <i>(Grids randomly selected by the QA Specialist will be audited after passing contractor QC and will receive a Pass/Fail evaluation for the activity being audited)</i>
<b>III: Corrective Actions Recommended:</b> <i>(are required for all grids that fail QA audit)</i>

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**IV: Re-inspection Results:** *(Required for all re-audits. A separate QA Daily Audit/Inspection Log will be used to conduct the re-audit, this log will be attached to the new log)*


**V: Signatures:**

\_\_\_\_\_  
Greg Peterson, QA Specialist

\_\_\_\_\_  
Brooks Pauly, RPM

\_\_\_\_\_  
Contractor Project Manager

I acknowledge that I have been briefed on the results of this audit/inspection and will take corrective action (if required).

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## WEEKLY / SITUATIONAL QA CHECKLIST

Date: \_\_\_\_\_

<b>QC Files Established IAW, WP, SAP/QAP</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Frequency</b>	<b>COMMENTS</b>
· Daily/weekly QC reports/audits				<b>W</b>	
<b>Accident Prevention Plan (APP) Site-Specific Safety &amp; Health Plan (SSHP)</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Frequency</b>	<b>COMMENTS</b>
· First Aid equipment shall be immediately available and up to date				<b>W</b>	
<b>Facilities – Reference EM 385-1-1</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Frequency</b>	<b>COMMENTS</b>
· Good housekeeping (no fire hazards, tripping hazards, etc.)				<b>W</b>	
<b>Equipment – Reference Approved WP/Manufacturers Operators Manual</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Frequency</b>	<b>COMMENTS</b>
· Personnel Protective Equipment (PPE) present, serviceable & utilized				<b>W</b>	
· Identified site vehicles are equipped with First Aid kits and a 5-BC fire extinguisher IAW EM 385-1-1				<b>W</b>	
· Geophysical equipment on hand & serviceable				<b>W</b>	
<b>Explosive Storage/Receipt/Transportation Requirements – Reference NAVSEA OP 5, Volume 1</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Frequency</b>	<b>COMMENTS</b>
· Pre-operational checks of vehicle transporting explosives using checklist				<b>S</b>	
· Cargo properly segregated, blocked, and in approved containers, NAVSEA OP 5, Vol 1				<b>S</b>	
<b>MEC Operational Plans –Approved WP, SAP/QAP, ESS and APP/SSHP</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Frequency</b>	<b>COMMENTS</b>
· Contractor following methodology defined				<b>W</b>	
· Daily safety meeting conducted by UXOSO				<b>W</b>	
· Detection equipment used				<b>W</b>	
· Pre-operational checks performed prior to sweep operations				<b>W</b>	

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· Operational condition annotated in log book				<b>W</b>	
· Operational teams using approved procedures				<b>W</b>	
· Pre-operational/safety brief conducted				<b>W</b>	
· Individual sweep lanes marked IAW WP				<b>W</b>	
· Contacts marked & investigated properly				<b>W</b>	
· Results of sweep operation recorded				<b>W</b>	
· All MEC, munitions debris and MPPEH is examined and positively identified by at least two UXO qualified personnel				<b>W</b>	
· All MEC/UXO clearly marked				<b>W</b>	
· QC operations IAW WP, and SAP/QAP				<b>W</b>	
· MPPEH inspected/vented/segregated				<b>W</b>	
<b>Disposal Operations IAW WP, SAP/QAP, ESS and 60-1-1-31</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Frequency</b>	<b>COMMENTS</b>
· Disposal method				<b>S</b>	
· Adequate security for disposal operation				<b>S</b>	
· All necessary notifications made				<b>S</b>	
· Movement of MEC items if determined safe to move to explosive storage or consolidate for disposal operations IAW project plans				<b>S</b>	
· Are protective mitigation measures being used appropriate for MEC being destroyed?				<b>S</b>	
· Disposal Procedures IAW project plans				<b>S</b>	
· Conducted adequate Demolition Brief				<b>S</b>	
· Misfire procedures properly performed				<b>S</b>	

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<b>Location Survey &amp; Mapping Plan</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Frequency</b>	<b>COMMENTS</b>
· UXO escort provided				<b>S</b>	
· Grid stake, locations swept with geophysical equipment prior to driving stakes				<b>S</b>	
· Survey notes being recorded				<b>S</b>	
<b>Quality Control Plan IAW WP and SAP/QAP</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Frequency</b>	<b>COMMENTS</b>
· QC operational checks being conducted				<b>W</b>	
· QC grid sweep pattern adequate				<b>W</b>	
· Results of QC checks being recorded				<b>W</b>	
· Intrusive results/database/PDAs entries are checked by UXOQC				<b>W</b>	

Note: Weekly (W), Situational (S)

**Signature:** \_\_\_\_\_

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## Appendix B. Response to Comments

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NAVFAC Southwest UFP-SAP Review

<b>Reviewer:</b>	Stacin Martin (S) / Joseph Michalowski (J)				
<b>Document:</b>	DRAFT Quality Assurance Project Plan Munitions Response Program for Munitions and Explosives of Concern at Munitions Response Sites at the Former Mare Island Naval Shipyard Vallejo, California				
<b>Date Reviewed:</b>	April 13, 2012				
<b>NAVFAC SW RPM:</b>	Brooks Pauly				
<b>Contractor:</b>	PIKA/Pirnie JV				
<b>Contract Number:</b>	N62473-09-D-2618				
<b>General Comments:</b>	General Comments 1 - 4 have been included below to allow for a Response to Comments.				
Comment Number	WS/page	H/L	Score	Comment	Response to Comments
1	General Comment (J)	For Navy Use Only	For Navy Use Only	Add a Signature Page the the QAPP.	Signature page has been added.
1	General Comment (M)	For Navy Use Only	For Navy Use Only	I am not familiar with the contractual obligations, so consider that when reviewing these comments. I may invalidate some of the comments.	All comments have been reviewed to ensure they do not effect the contractual scope.
2	General Comment Global (M)	For Navy Use Only	For Navy Use Only	When using "JV" in the document make sure it is clear whether you are referring to Pika/Pirnie JV or the removal action contractor JV.	The term JV has been removed throughout the document and replaced with PIKA/Pirnie JV.
3	General Comment Section 2 (M)	For Navy Use Only	For Navy Use Only	Recommend including a communications and reporting flow chart.	A flow chart has been developed and added to Section 2, page 2-1 of the QAPP.
4	General Comment Section 3.1. Task Objectives (M)	For Navy Use Only	For Navy Use Only	QA procedures should be included as SOPs or other operating documents. This will ensure that procedures are comparable between contractor and QA so the findings are valid. It is recommended that if the contractors procedures (e.g. geophysical, intrusive investigation, positioning system operation) are acceptable that the QA adopt those considering their own corporate requirements.	The intent is to audit the contractor using the requirements of all approved site plans and procedures which does include the NTCRA contractors approved SOPs. Section 3 paragraph 3.1. Task Objectives have been expanded to include the approved documents that will guide the QA audits to ensure we are using the same criteria the NTCRA contractor is using to conduct QC audits.
1	Section 1.1, 4th bullet (M)	For Navy Use Only	For Navy Use Only	This is a NTCRA, but is it the "final response action"? Final action carries a specific meaning. If this is not the final action as agreed to under the regulatory program (e.g., defined by a ROD) then recommend describing it simply as the NTCRA.	The 4th bullet has been changed to reflect that the response action discussed is completion of the NTCRA. Now reads: <i>"Support final verification that the NTCRA conducted on the sites were completed IAW the approved ESS. Verify that grids are cleared with specific documentation and field verification checks."</i>
2	Section 3.7 (M)	For Navy Use Only	For Navy Use Only	Recommend adding a time frame for notification to the Navy regarding non-compliance issues. Section 8 gives the time for daily/weekly report submittal, but that may be too long of a duration.	Section 3.7 the second sentence has been changed to include a required notification time period for A failures. The sentence now reads: <i>"These findings will be forwarded to the RPM within 24 hours of discovery, if the failure requires the NTCRA contractor to stop work the RPM will be contacted by phone as soon as possible."</i>
3	Section 2.1.4 and Section 4.2 (M)	For Navy Use Only	For Navy Use Only	Is the QA Specialist and MEC QA Specialist the same person? If so, recommend making the position description consistent in document.	A global change has been made to the QAPP changing all references to QA Specialist to MEC QA Specialist.
4	Section 4 (M)	For Navy Use Only	For Navy Use Only	Recommend adding training/educational requirements for all QA Personnel to ensure minimum technical knowledge.	Section 4 has been reorganized to reflect the training/certification/experience of all QA personnel supporting this project.

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Comment Number	WS/page	H/L	Score	Comment	Response to Comments
5	Section 6.1 (M)	For Navy Use Only	For Navy Use Only	The mention or use of Mil-Std 1916 purpose is unclear here. This is a statistical approach that is difficult to implement for environmental and munitions site work. If there is an intent to use the sampling process the definitions of lots and the chosen verification levels and switching protocol should be identified prior to initiating work.	MIL-STD-1916 has been removed from the document. It is geared towards determining a level of acceptance sampling. The level of acceptance for this project has been set at 10% as a minimum amount of acceptance sampling throughout the document.
6	Section 6.2, 2nd Paragraph (M)	For Navy Use Only	For Navy Use Only	An inspection level of 5-10% is given, which is a relatively broad range for the scale of this project regarding numbers of anomalies to be investigated. Recommend choosing a specific level of inspection for each phase of work prior to initiating work with an understanding that those are minimum inspection levels that can be increased if there are non-conformance/compliance issues.	The level of acceptance for this project has been set at 10% as a minimum amount of acceptance sampling throughout the document, and can be increased as necessary to deal with non-conformance/compliance issues if they arise.
7	Section 6.1 and 6.2 (M)	For Navy Use Only	For Navy Use Only	It is unclear how the levels of inspection in Section 6.2 and the potential use of Mil-Std 1916 will be used.	MIL-STD-1916 has been removed from the document. It is geared towards determining a level of acceptance sampling. The level of acceptance for this project has been set at 10% as a minimum amount of acceptance sampling throughout the document.
8	Section 6 (M)	For Navy Use Only	For Navy Use Only	Recommend integrating the removal action contractor QC process and 3-phase process control into the QA process.	QA audits will be conducted IAW the 3 phase QA process control in support of, and using the NTCRA Contractors QC process as documented in the project SAP/QAP (Battelle, 2012) and SAP/QAP Addendum (Weston, 2012). Section 6 has been updated to reflect this approach.
9	Section 8 (M)	For Navy Use Only	For Navy Use Only	Section states that each day/week's observations will be reported to the RPM within 3 days of completion. Are these the Daily Audits and Weekly Situational reports?	The first paragraph has been changed to clarify. The first paragraph in Section 8 now reads: <i>"During field QA audits the MEC QA Specialist will provide daily verbal reports to the MEC QA Manager and the Navy RPM summarizing the days events. At the end of each workweek the summarized results of all MEC QA Audits will be compiled in an email report, generated audit materials attached e.g. QA Compliance Checklist, MEC QA Daily Audit/Inspection Log and the Weekly/Situational QA Checklist as appropriate, and submit to the MEC QA Manager and Navy RPM within 3 business days."</i>