

## **Appendix A**

### **Response to Comments**

This page intentionally left blank

## 1. INTRODUCTION

This appendix contains the Interstate Technology & Regulatory Council's (ITRC) Unexploded Ordnance (UXO) Team's responses to comments received from the public, state representatives, and Points-of-Contact on *Quality Considerations for Munitions Response Projects* (UXO-5). These responses are provided as a courtesy to reviewers.

The review draft of *Quality Considerations for Munitions Response Projects* was released on January 19, 2008 for a review period of 60 days, ending April 16, 2008. A secondary, courtesy review period was provided at the request of several reviewers from August 19, 2008 to September 2, 2008.

The UXO Team acknowledges the following individuals and organizations that provided valuable comments, input, and suggestions for the document's improvement.

- U.S. Army
- U.S. Army Corps of Engineers
- U.S. Army Environmental Command
- Ann Charles, New Jersey Department of Environmental Protection
- David Larsen, Utah Division of Solid and Hazardous Waste
- Nebraska Department of Environmental Quality
- Mohammed Ghazi, Georgia Environmental Protection Division
- Bonnie Buthker, Ohio Environmental Protection Agency
- Kevin Oates, U.S. Environmental Protection Agency
- John McCabe, Michigan Department of Environmental Quality
- SERDP/ESTCP
- U.S. Navy

Due to the volume of comments received and the length of the UXO Team's responses, the team elected to house this appendix on the Web.

## 2. REQUEST SNAPSHOT

Below is the correspondence provided to reviewers at the start of the review period.

### **REQUEST SNAPSHOT:**

**DRAFT TECHNICAL AND REGULATORY GUIDANCE DOCUMENT FOR REVIEW:** Quality Considerations for Munitions Response Projects

*NOTE: This is a technical and regulatory guidance document and will be sent back to the POCs after finalization for formal state concurrence.*

**STATE REVIEW/COMMENT PERIOD:** 1/19/2008 TO 4/16/2008

**REVIEW/COMMENT REQUEST:** The Unexploded Ordnance (UXO) Team is offering their draft document titled: "Quality Considerations for Munitions Response Projects" for your review and comment. We have responded to all comments received during the POC review and are providing for this additional review to ensure all comments have been addressed. Please use this review opportunity to make sure this ITRC document meets your needs and requirements.

**DOCUMENT INTENT/GOAL:** The goal of this document is to emphasize to state regulators the critical need for process control to achieve quality outcomes in munitions response (MR) projects and to introduce important quality control elements associated with specialized MR project processes.

### **KEY ISSUES FOR CONSIDERATION DURING REVIEW:**

- (1) This document emphasizes a process approach to quality management. Process control incorporated into the planning stages and carried on throughout all aspects of work is critical to achieving and demonstrating the highest levels of quality at munitions response projects.
- (2) This document does not conform to any specific regulatory framework such as CERCLA or RCRA (e.g. site inspections, remedial investigations, decision documents, remedial actions). The primary focus of this document is on MR processes that will be employed on all MR projects regardless of the regulatory framework in operation.
- (3) MR processes (e.g. vegetation clearance, geophysical prove-outs, digital geophysical mapping, analog geophysics, anomaly resolution, and verification sampling), have specific actions that should be monitored to ensure conformance to requirements (quality).
- (4) The document addresses technical processes related to identification and remediation of discarded military munitions, munitions debris, and unexploded ordnance.
- (5) The process approach emphasized by this document to quality management is consistent with the EPA's Uniform Federal Policy for Quality Assurance Project Plans (UFP QAPPs) 2007.

**PROGRAMS/STAFF TO TARGET FOR REVIEW:** This document is primarily intended for state regulators that provide oversight for MR projects. It's focus is on the more important aspects of Quality Assurance (QA) and Quality Control (QC) for MR projects, and assumes a limited experience or knowledge of how QA/QC programs and practices are applied to MR.

### **STATE TEAM MEMBERS:**

- Michigan Department of Environmental Quality– William Harmon, Team Co-Leader
- Alaska Department of Environmental Conservation – Guy Warren, Team Co-Leader
- Colorado Department of Public Health and the Environment – Ken Vogler, Team Co-Leader
- Alabama Department of Environmental Management – Philip Stroud
- Alaska Department of Environmental Conservation – Jennifer Roberts
- Colorado Department of Public Health and Environment– Jeffrey Swanson
- District Department of the Environment (District of Columbia) – Richard Albright

- Massachusetts Department of Environmental Protection – Jay Naparstek
- Missouri Department of Natural Resources – Kurwadkar Sudarshan
- Nevada Department of Environmental Protection – Raquel Kutsch
- New Jersey Department of Environmental Protection – Greg Zalaskus
- Oklahoma Department of Environmental Quality – David Lawson
- Pennsylvania Department of Environmental Protection– John Mellow
- South Carolina Department of Health and Environmental Control – Keisha D. Long
- Texas Commission on Environmental Quality – Kera Bell
- Virginia Department of Environmental Quality – Eric Salopek

**SEND COMMENTS TO:**

William Harmon (Team Co-Leader)  
harmonw@michigan.gov  
517-335-6237

Guy Warren (Team Co-Leader)  
Guy\_Warren@dec.state.ak.us  
907-269-7528

Daniel R. Ruedy (Program Advisor)  
druedy@endyna.com  
703-848-3529

### **3. RESPONSE TO COMMENTS**

Table A-1 provides the UXO Team's responses to comments. The commenter/POC is identified either as an organization or individual based on its submittal.

**Table A-1. Quality Considerations for Munitions Response Projects: Response to Comments**

Commenter/ POC	Ch	Page	Line	Comment	Response to Comment	MSTR ID
Kevin Oates EPA	1	3	4	There are other goals for the MMRP program besides finding and removing UXO and DMM. Recommend rewriting along the lines of..."The goals of munition response (MR) projects include the identification and removal or destruction of munitions and explosives of concern (MEC) from a specified area to a specified depth. MR projects also include site characterization and remediation for munitions constituents (MC). However, the focus of this document is on the MEC portion of MR projects."	Comment noted. We have revised the statement to read, "The goals of munition response (MR) projects include the identification and removal or destruction of munitions and explosives of concern (MEC) from a specified area to a specified depth. MR projects also include site characterization and remediation for munitions constituents (MC) that poses an environmental risk. However, the focus of this document is on the MEC portion of MR projects. For purposes of this document, MEC includes only UXO and DMM." We will also include a callout box for emphasis	1
Navy	1	3	16	Suggested change "The beneficiaries of an MR project must be confident that cleared land is safe for their use." to "The beneficiaries of an MR project must be confident that the cleanup actions performed are safe for the reasonably anticipated future land use."	Comment noted. We have revised the text to read: "The beneficiaries of an MR project must be confident that the actions taken are appropriate to support anticipated land use."	2
Kevin Oates EPA	1	3	18	Recommend rewriting the line as..."...confident that the land is suitable for its intended use." "Safe" is a tough term to define for MEC.	Comment noted. We have revised the text to read: "The beneficiaries of an MR project must be confident that the actions taken are appropriate to support anticipated land use."	3
Kevin Oates EPA	1	3	24	I am not sure how we define..."the very highest levels of quality"	Comment noted. We revised changed the text to read: "The beneficiaries of an MR project must be confident that the actions taken are appropriate to support anticipated land use."	4
Ann Charles NJDEP	1	3	40	The document's intent is more clearly stated in your "Request Snapshot", which states that "The goal of this document is to emphasize to state regulators the critical need for process control to achieve quality outcomes in munitions response projects and to introduce important quality control elements associated with specialized MR project processes ". I would suggest you consider using this wording rather than the text on lines 40 -46	We concur. We have rewritten the introduction for clarity.	5
ESTCP	1	3	44	Figure is never referenced in the text.	This comment is editorial in nature.	6

ESTCP	1	3	40-44	The objective stated here is to "help the regulator understand how MR projects are planned and implemented and provide guidance for the effective management of an MR project." This is not the focus of the document.	ESCTP has acknowledged that this comment has been satisfactorily addressed by our response to other specific comments	7
Kevin Oates EPA	1	3	66,67	Recommend rewriting the line as..."This document follows requirements of CERCLA and the NCP, including the CERCLA response process." Rationale..."consistent with CERCLA" has meanings defined by case law.	We concur. We have revised text as suggested.	8
Army	1	3		The beneficiaries of an MR to MEC must be confident that land is safe for its intended use. This requires management systems and operational procedures that provide for a high level of confidence that the land may be safely used for its intended purpose.	We concur. We have revised the text to read: "The beneficiaries of an MR project must be confident that the actions taken are appropriate to support anticipated land use."	9
Army	1	3		The Army does not support this language and would non-concur with the document if it is retained. A recommended revisions follows: The goal of a munitions response (MR) to munitions and explosives of concern (MEC) is to provide for the safe use of a property given the current, a determined or the reasonably anticipated end use. For property known or suspected to contain MEC, a munitions response may consist of a variety of response actions ranging from administrative controls to complete removal of explosive hazards (i.e., unexploded ordnance (UXO) and discarded military munitions (DMM)). This document, however, focuses on quality control and quality assurance procedures applicable to the investigation and removal of MEC.	Comment noted. This section has been rewritten.	10
Kevin Oates EPA	1	4	3	FYI. DOE has not yet signed the UFP QAPP.	Comment noted.	11
Kevin Oates EPA	1	4	9	Recommend re-writing the line as..."It is a tool that can be used to promote cost-effectiveness..."Rationale. The tool is not cost-effective, but its application can lead to cost effectiveness.	We concur. We have revised the text to read: "It is a tool that can be used for many different projects and its use can promote cost-effectiveness."	12

Navy	1	4	16	The Navy is developing a MEC UFP-QAPP example for Adak OU-2B, it is estimated to be final in the May. The UFP -QAPP worksheets could be an appendix in this document. Additionally, the Navy will be posting this to the MR Portal.	Comment noted.	13
ESTCP	1	4	44	The sentence is awkward. A "process...required for a process..."	Comment noted. Text has been revised to clarify.	14
Navy	1	4	46	A sentence could be added at the end stating that QA is normally performed by the government	Comment noted.	15
Kevin Oates EPA	1	4	18,20	See previous comment on the first lines of the chapter. May be worthwhile to move these lines to the very beginning of the chapter.	Comment noted. Text has been revised to clarify.	16
USAEC	1	4	33-46	Suggest listing examples of quality concept and reference a timeline as to when these concepts should be implemented.	Comment noted.	17
USAEC	1	4	All	Recommend bolding or italicizing the concepts. Also recommend incorporating this section into Chapter 2.0 Quality.	Comment noted. Later sections explore these concepts more. This chapter is meant to serve as an introduction.	18
Navy	1	5	6	A sentence could be added at the end stating that QC is normally performed by the contractor	Comment noted.	19
Navy	1	5	8	Modify the first sentence to read, "... of all Munitions and Explosives of Concern (MEC) from a ..." MEC includes unexploded ordnance (UXO), discarded military munitions (DMM), and munitions constituents in high enough concentrations to pose an explosive hazard. Clarifies that UXO and DMM removal are not necessarily the only goals of a MR. If this document is only intended to address UXO and DMM state so after explaining what MEC is.	The subject of this comment is obsolete based on revisions.	20
Navy	1	5	18	The correct link is <a href="http://www.ert2.org/t2mrportal/">http://www.ert2.org/t2mrportal/</a>	This comment is editorial in nature.	21
David Larsen	1	5	27	Recommend adding text regarding the environmental benefits of the work, including site access and land use, removal of potential sources of soil and groundwater contamination/protection of natural resources. If decisions about these goals are needed, these items should also be included in the "QA process."	Comment noted. We feel that environmental benefits are beyond the scope of this document.	22

David Larsen	1	5	27	Recommend changing the title of this chapter to Regulatory Oversight. If the intended audience is regulators: they already know their role	Comment noted. We do not wish to get into the realm of regulatory oversight within this document. We feel that this is beyond the document's scope, and that the chapter is appropriately titled as is.	23
David Larsen	1	5	27	Recommend addressing all parts of regulatory oversight: document reviews and approvals, field oversight including the possibility of bringing in state contractors to watch or collect data using their own equipment, final approvals of documents and long-term site management oversight. State regulatory people have to live with the site and its neighbors etc, while most of the people who develop and implement the plans leave the state when the work is "done." This is all part of the "QA Process."	Comment noted. We believe that this is beyond the scope of this document.	24
David Larsen	1	5	27	Recommend adding text indicating it is important to discuss regulatory site access before any site work begins. Safety is very important, but should not be used as excuse to exclude regulatory oversight.	Comment noted. We believe that this is beyond the scope of this document.	25
David Larsen	1	5	27	It has been my experience that there is a need for regulators to cultivate a relationship and trust with the Corp and UXO experts. The Corp and UXO experts generally do not appreciate or understand the need for regulatory oversight. At worst they view regulators as unqualified to be on site or be making decisions. This is partly due to the nature of the work and their backgrounds, which are almost always former military with no oversight except the military (regulators need to be added to the "chain of command"). While these are military related projects, the projects are not being completed as part of a typical "mission". These are environmental actions, which usually have much different goals than military missions. If this document is to benefit regulators, this type of information should be included in the document.	Comment noted.	26
Kevin Oates, EPA	1	5	15,16	Reconcile the text. It states that documents are listed below. However, websites are listed below.	This comment is editorial in nature.	27

Nebraska DEQ	1	5	15-21	The sentence before the bulleted list indicates "A list of these documents is provided below with access to their respective websites." However, there are four DoD organizations listed (not documents) and only two of the four have a website included.	This comment is editorial in nature.	28
Kevin Oates EPA	1	5	18-21	The Navy website did not have a QA/QC document. USAF. AFCEE website has links to HTRW QAPP guidance. USACE has ER 1110-1-12 Dated July 21, 2006. Line 21, remove "DoD" from in front of "EPA". Also, please add the following link for EPA QA/QC policy & guidances.. <a href="http://www.epa.gov/quality/qa_docs.html">http://www.epa.gov/quality/qa_docs.html</a>	This comment is editorial in nature.	29
John McCabe	1	5	19, 20	The text states that links to the DoD Component QMPs are provided here but there are no links to Air Force or Army QMPs. Is this merely an oversight or should the text be changed to reflect the fact that these two QMPs are unavailable on the internet?	At time of writing, these documents were not available online.	30
Mo Ghazi	1	5	19,20	missing website for Air Force and Army	This comment is editorial in nature.	31
ESTCP	1	5	19-20	No references for the AF and Army	This comment is editorial in nature.	32
USAEC	1	5	19-21	Can we provide links to the web sites or at least list a citation for the references?	This comment is editorial in nature.	33
Nebraska DEQ	1	5	23-25	The text of concern indicates "... the regulator should be familiar with the appropriate QMP to understand the specific requirements and guidelines of the DoD Component responsible for the MR project. Please add text to briefly indicate where best to find the various/applicable QMPs for each DoD agency.	We concur. We have revised the text as suggested.	34
Army	1	5		This section appears incomplete - only the Navy and DoD sites have a link for documents. The Army (Army Corps) has many documents and links in the reference section but none here and Air force has no documents or links. Section needs to be completed or corrected.	We concur. We have included other appropriate links.	35
Army	1	5		A properly developed and executed QMP will provide the regulator with confidence in the activities conducted during a MR to MEC.	Comment noted. We have revised the text to read: "The vehicle for the implementation of the QMP on the project is the QAPP. The QAPP should include the following components:"	36

Army	1	5		It is suggested that Paragraphs 2 & 3 of this section be deleted. A discussion of the potential elements of a QMP is not necessary. The remaining text better maintains site or project-specific flexibility and still puts forward the overall message related to the desired role of the regulator in insuring quality on MR projects and on involving regulators early in the decision making process.	We concur. We have changed the focus to overriding department-level quality information.	37
Navy	1	6	3	The last sentence should mention DQOs in addition to project objectives	Comment noted. We've added discussion of SPP and TPP. As these are objectives, we feel that they adequately cover DQOs	38
Nebraska DEQ	1	6	1-3	The last sentence of the subsection indicates "... the importance of up-front regulator involvement in defining project objectives and establishing the quantity and quality of data needed to support a decision should not be underestimated." As an example and to further emphasize the point, it may be appropriate to mention that DoD, US Army Corps of Engineers, and their contractor's use the Technical Project Planning (TPP) process to facilitate involvement and concurrence by regulators and other stakeholders within the up-front planning and throughout the life of a project, including technical review of project documents by regulators. There is a guidance document, EM 200-1-2. It may be appropriate to include an official definition of the TPP term and/or a brief description of the process.	We concur. We feel that we've addressed this and have also defined TPP and SPP in a call out box	39
Kevin Oates EPA	1	5,6		The discussion on regulator involvement should also include a statement that the quality aspects should be documented in a site-specific QAPP.	We concur. We feel that we've sufficiently addressed this.	40
Mo Ghazi	1	Not Specified	Not Specified	Figure 1-1 has never been referenced in the text. Some where in the relevant section (i.e., preferably before the first use of the Figure) of the text readers should be directed to use figures as a source for additional clarification/information...etc . This issue applies to many of the figures throughout the document. Several of the figures are placed improperly and have wrong numbers.	This comment is editorial in nature.	41
USAEC	2	6	13	The table is a good tool. I would suggest making it stand out a little better.	Comment noted. We have reformatted this table.	42

ESTCP	2	6	23	Repeats the first sentence of the same para.	Comment noted. The authors feel that this is an important point. It is restated for emphasis	43
John McCabe	2	6	25	A simple but clarifying point might be made by stating, after the last sentence in this paragraph, that "quality is only as good as the previously established requirements".	Comment noted. We have revised the text to read "Therefore, identifying appropriate performance requirements is essential in multi-process systems such as UXO response."	44
Kevin Oates EPA	2	6	20-25	The text here should be deleted. The information is already stated in lines 13 to 19 that precede it.	Comment noted. We feel that this is an important point. It is restated for emphasis	45
ESTCP	2	6	Inset	The overall requirement "singular documented need of what a particular product or service should be or do." is awkward and should be clearer. The definitions of "necessary" and "consistent" are hard to follow. The structure of each element in the inset box should be made parallel.	We concur. We have revised the text to read: "A requirement is a documented specification for a product or service. In theory, good requirements should be:" We have also removed secondary definitions for clarity.	46
Army	2	6		The success and confidence of a MR to MEC depends on the quality of the work performed. Therefore, identifying performance requirements is essential in multi-process systems such as MEC removals.	We concur. We have changed "clearance" to "response" action, and have clarified "MEC" to "UXO/DMM"	47
John McCabe	2	7	28	Clarify that the "inspection and sampling" referred to here is not environmental inspection and sampling but, rather, related to the quality control process (say "sampling" to most environmental regulators and they envision soil borings and monitoring wells).	Comment noted. We have changed to "Quality inspections" and removed "sampling points"	48
Kevin Oates EPA	2	7	33	Add the word "to" after "stakeholders"	This comment is editorial in nature.	49
ESTCP	2	8	11	The text states "the flow chart demonstrates the interrelationship of individual processes for a simple task.." but the flow chart in fact shows process, task, metrics and acceptable results for a single process.	We concur. We have revised the text to clarify this point. "Interrelationship of individual elements of a single process"	50
ESTCP	2	8	20	The example about navigation accuracy comes out of nowhere with no context. I doubt the target audience will understand this.	We concur. This section has been rewritten.	52
USAEC	2	8	20	Very long section. Strongly recommend adding a summary paragraph or subsection briefly explaining common terms and equipment used in MR, such as anomaly location, MEC, geophysical systems, blind seeding, analog, etc.	We concur. This section has been rewritten.	51

Nebraska DEQ	2	8	13-16	Figure 2-1: Consider the following changes to enhance the reader's understanding of the figure. Add the term "Project Process" at the top of the figure and replace the term "Process" that is located at the top right corner of the chart with the word "Planning."	We concur. This section has been rewritten.	53
USAEC	2	8	Figure 2-1	In the Acceptable Results process, "Work area is adequately prepared" seems superfluous. Should this mention something about QC measures being met or something similar?	We concur. This section has been rewritten.	54
Mo Ghazi	2	8		Figure 2-1 has not been referenced in the text. See above general comments about the placement of Figures.	Comment noted. We have clarified the figure reference.	55
John McCabe	2	9	5	The term "data performance criteria" is undefined. I assume it's synonymous with "performance requirement", used previously, but that is unclear.	We concur. This section has been rewritten	56
ESTCP	2	9	9	Similarly, "when navigating back to an anomaly" comes with no context of what this means.	Comment noted. This section has been rewritten.	57
Kevin Oates EPA	2	9	17	Recommend using the term "Project Team" instead of Project Delivery Team, since the latter is a USACE specific term.	Comment noted. This section has been rewritten.	60
Nebraska DEQ	2	9	17	The term "Project Delivery Team (PDT)" is introduced along with the acronym, however, this term appears to be a DoD or other federal/military agency or guidance document term with specific meaning. Recommend replacing the term with something more generic like "project team."	Comment noted. This section has been rewritten.	59
USAEC	2	9	17	Throughout the document teams and terms are mentioned that are never clearly explained/defined such as the "Project Delivery Team" and "DQO". See above comment.	Comment noted. This section has been rewritten.	58
ESTCP	2	9	18	What does "data performance criterion" mean?	Comment noted. This section has been rewritten.	61
Navy	2	9	31	Replace "clearance" with "removal" here and throughout the document ."	We concur. We have revised the text as suggested.	62
Kevin Oates EPA	2	9	38,39	Is there a weblink for AQAPS?	This comment is editorial in nature.	63

Navy	2	10	26	Replace "Specialists" with "qualified personnel" here and throughout the document. The personnel performing these duties must be UXO qualified per DDESB TP 18.	Comment noted.	64
Nebraska DEQ	2	10	1-3	Table 2-1 should be rotated 180 degrees for ease of reading. The acronym GPO is presented, for the first time, in two different spots, without ever being spelled out.	This comment is editorial in nature.	65
ESTCP	2	10	table	who is the intended audience for this and what are they supposed to get out of it? The objective/basic process are not described anywhere to make it meaningful.	Comment noted. We have revised the table for clarity.	66
ESTCP	2	10	table	Line 5: What does "calculate statistics of background measurements mean"?	Comment noted. We have revised the table for clarity.	67
ESTCP	2	10	table	This is not a very good example. The performer did not do some of the tests in the table.	Comment noted. We have revised the table for clarity.	68
ESTCP	2	10	table	poor text quality and pasted in backwards.	Comment noted. We have revised the table for clarity.	69
Bonnie Buthker Ohio EPA	2	10	Table 2-1	Example DGM Quality Control Procedures Metric. This table is confusing in that it lists all the features of work and QC testing that should be performed at a site. On first review of this table, I thought that all QC tests listed in the table had been performed at this site. I was confused why the QC results/actions of the two tests using blind nails stated that "no nails placed." The example would be clearer if you indicate which tests the team decided to do versus ones that the team decided were not necessary at this site.	Comment noted. We have revised the table for clarity.	71
John McCabe	2	10	Table 2-1	The example used for table 2.1 is not self-explanatory. I found it confusing and didn't really know what it was I was looking at. I don't know if addressing the second of the "overall" comments above would improve this or if a little more explanation/description in the text specific to this table would be more helpful. Another option is to use a more self-explanatory example.	Comment noted. We have revised the table for clarity.	70
ESTCP	2	11	22	This example doesn't really make sense. If the problem were calibration, it is more likely to produce a systematic offset than a slow degradation	Comment noted. This section has been rewritten.	72

ESTCP	2	11	29	The sentence beginning "In such cases,..." is awkward and should be re-written.	Comment noted. This section has been rewritten.	73
ESTCP	2	11	31	The sentence beginning "A departure from ..." seems out of place in this para	Comment noted. This section has been rewritten.	74
USAEC	2	11	32	Examples? How?	Comment noted. This section has been rewritten.	75
John McCabe	2	11	29-31	I do not understand what the sentence that begins "In such cases, the person responsible...etc." means. I would offer a suggestion for clarifying it but I don't have any idea what it's trying to say.	Comment noted. This section has been rewritten.	76
Nebraska DEQ	2	12	6	The sentence indicates "... the following activities are the basic elements of quality control for an MR project:" However, several of the listed activities should be considered Quality Assurance (QA) elements (not quality control elements). Also, use of the term "basic elements" appears to be too general, so the sentence as written, does not appear to make a focused statement.	Comment noted. This section has been rewritten.	77
Kevin Oates EPA	2	12	15	Recommend adding QC before QA	We concur. We have revised the text as suggested.	78
ESTCP	2	12	21	The concept of "probability of detection" is not introduced.	Comment noted. This document assumes an audience with an understanding of munitions response. We have added "probability of detection" to the glossary.	79
ESTCP	2	12	22	"capability" and "performance criteria" are not the same thing.	Comment noted.	80
Kevin Oates EPA	2	12	23	Citation should be ITRC 2004	This comment is editorial in nature.	81
ESTCP	2	12	25	This para contains several unrelated ideas.	Comment noted. This section has been rewritten.	82
Kevin Oates EPA	2	12	26	The text here includes the first use of "seeded items" Need to consider whether to explain what this approach entails.	We concur. This section has been rewritten.	83
Kevin Oates EPA	2	12	31	Recommend substituting "detection systems(s)" for "detection system". More than one system may be selected for use.	We concur. We have revised the text as suggested.	84
USAEC	2	12	8-15	Recommend using these bullets as headings throughout this section.	Comment noted.	85
Kevin Oates EPA	2	12	37-43	Recommend adding subsurface removal to the list of specialized processes.	Comment noted.	86

USAEC	2	6-7	Overall	This section seems to be a bit overly detailed. Section 1.1 states that the document assumes a level of familiarity with basic concepts, this section seems unnecessary and maybe even confusing.	Comment noted. We disagree.	87
ESTCP	2	General		This whole section is jargony, random and repeats. Some examples are below.	Commenter has acknowledged that this comment has been satisfactorily addressed by our response to specific comments	88
Navy	3	6	18	Replace "their use" with "the specified land use". The MR may not make the land acceptable for all uses.	Comment noted.	89
Navy	3	11	14	Replace "be MPPEH" with "present an explosive hazard".	Comment noted.	90
Navy	3	12	14	Replace "MPPEH" with "The item".	Comment noted. We disagree.	91
Army	3	12	17	Change to: CONSIDERATIONS FOR A MUNITIONS RESPONSE TO MUNITIONS AND EXPLOSIVES OF CONCERN The QA/QC requirements for investigation for MEC during a MR differ from other types of investigations regulated by environmental agencies because of the unique characteristics of an investigation for MEC and the tools available for characterizing a munitions response site (MRS) where MEC is known or suspected to be present.	Comment noted. We disagree.	92
Mo Ghazi	3	12	23	UXO 2004 missing in list of ref.	This comment is editorial in nature.	94
USAEC	3	12	23	Is the reference an ITRC document?	This comment is editorial in nature.	93
Mo Ghazi	3	12	39	Spell out GPO	This comment is editorial in nature.	95
Army	3	12	34-35	Specialized processes that are common to many projects are discussed in the following sections. These specialized processes are:	Comment noted.	96
Ann Charles NJDEP	3	12	N/A	This is a general comment applicable to Chapter 3. Adding example results and visuals to Chapter 3 would be helpful and useful to the reader.	Comment noted. We have included a sample geophysical map as an example result.	97
USAEC	3	12	Overall	Recommend adding a work plan section to this chapter or in each individual subsection.	Comment noted. We disagree.	98

ESTCP	3	13	4	After reading the section, it is not clear what "decisions" you are referring to here. In different sections, this addresses planning, quality, and final decisions for the project based on the product. In section 3.1 and 3.2, the decisions are focused on the needed outcome of the task and practical aspects of doing the work. Although they need some work on individual elements, there is a logic to how they would be addressed in designing the quality program. In section 3.3, they are not really decisions at all, but a check list of whether things have been done. Section 3.4 contains an odd combination of checklist (has the area been bounded), things that must be decided in the quality program (how to do blind seeding) and generic statements that do not add value (what QC process will be used). Section 3.6 again contains a check list of outcomes, not decisions to be made at all. Section 3.7 identifies the types of decisions that would be appropriate throughout. Similar concerns with the other subsections throughout. Some examples below.	We concur. This section has been rewritten.	99
Kevin Oates EPA	3	13	22	straightforward is one word.	This comment is editorial in nature.	100
Navy	3	13	24	Remove the reference to the Army engineering manual or state that it is for use at Army sites. In this case, the Army document is not consistent with Navy requirements. OP 5 13-15 should be referenced for DON munitions responses.	We concur. We have revised the text as suggested.	101
ESTCP	3	13	41	Figure is never referenced in the text.	This comment is editorial in nature.	102
Kevin Oates EPA	3	13	47	Recommend adding the following phrase after "surface removal"...of MEC, munitions debris, and other metallic scrap.	We concur. We have revised the text to read "Examples of some follow-on MR processes to vegetation clearance are surface removal of MEC, munitions debris, and other metallic scrap, and digital geophysical mapping"	103
USAEC	3	13	61	Suggest adding additional decision considerations such as wetlands and archeology.	We concur. We have added the additional decision considerations as suggested.	104

Nebraska DEQ	3	13	10-42	Please add text to briefly explain how site access/clearance is obtained to allow equipment onsite to conduct the Vegetation Clearance activities to begin before doing the Surface Removal activities that is programmed to occur after the Vegetation Clearance. Are there preliminary site inspections and some MEC examination/removal activities required?	Comment noted. This is beyond the scope of the document.	105
ESTCP	3	13	24-41	Is it the intention to prescribe QC processes for specific outcomes?	Comment noted. We have revised the text to read "Therefore it is recommended that the concepts described in this section be considered in designing the QC processes for vegetation clearance to ensure adequate preparation of the MR site to support the follow-on work."	106
Mo Ghazi	3	13	Figure 3-1	Reference Figure 3-1 in the text	This comment is editorial in nature.	107
USAEC	3	13	Overall	There is no mention of actions taken to ensure personnel safety in this section.	Comment noted. This is beyond the scope of the document.	108
Ann Charles NJDEP	3	14	8	Initial eco assessment should occur prior to vegetation clearance and should include activities beyond identifying the presence of habitat for sensitive, threatened and endangered species. In NJ for example, we have specific baseline ecological evaluation regulatory requirements that include not only identifying environmentally sensitive natural resources, but also assessing potential contaminant migration pathways and observations of potential eco impact such as stressed vegetation, absence of biota, presence of seeps, etc.	Comment noted. We have clarified the text.	109
USAEC	3	14	11	Suggest elaborating to include projected ordnance located above and below the ground surface (may have to introduce historical records review, etc.)	We concur. We have revised the text to read "Type and depth of UXO/DMM that is expected based on historical information"	110
ESTCP	3	14	16	In this section "resources" are never addressed.	We concur. We have integrated "Resources" into the bulleted list	111

Ann CharlesNJDEP	3	14	19	Is the total removal of all vegetation by controlled burning really a "typical activity" ? This seems extreme, and I don't know if the regulators would typically approve such measures	Comment noted. Yes, this is a typical activity.	112
ESTCP	3	14	23	What is a hydro ax?	Comment noted. "Hydro Ax" is a trade name. We have replaced it with the term "hydraulic ax"	113
Navy	3	14	44	Remove the reference to the Army engineering manual or state that it is for use at Army sites. In this case, the Army document is not consistent with Navy requirements. OP 5 13-15 should be referenced for DON munitions responses.	Comment noted. This is a repeat of a previous comment.	114
ESTCP	3	14	34-42	This is very general - not specific to the MR process. Also true where it appears below. It seems to me that the definition of "adequate," "correct" and "appropriate" are the crux of the issue. How do you translate them to the specific?	We concur. We have removed descriptive terms as they are identified by the comment. "Preparation for the work in accordance with the work plan, including:"	115
USAEC	3	15	26	This is the first time the term "UXO Specialist" is used. I would suggest using either "UXO Technician" or "EOD Technician" since everybody already knows what they are. Plus it conforms with the rest of the document and the case studies.	We concur. We have revised the text to read "...would simply consist of sending qualified personnel as identified in TP 18" (TP 18) to walk over the site to visually identify and remove or dispose of MEC on the surface."	116
Navy	3	15	46	Delete "by contractor personnel". These checks are not necessarily done by contractor personnel.	Comment noted. We have revised the text as suggested.	117
Nebraska DEQ	3	15	22-32	Should Surface Removal be performed before vegetation clearance activities are accomplished for some sites. If so, please discuss the circumstances whereby the vegetation clearance activities may have to wait for a surface removal activities (all or in part) to be accomplished first.	Comment noted. We have clarified this point in the introduction.	118
Navy	3	15	46, 50	The word "inspection" should be replaced with the word "investigation" so that there is no confusion with the type of work performed in an SI versus an RI	We concur. We have revised the text as suggested.	119
USAEC	3	15	Figure 3-2	The figure looks as though soil was excavated, is that true of this process?	We concur. We have replaced this figure with a clearer photograph.	120

Mo Ghazi	3	15		Reference Figure 3-2 in the text	This comment is editorial in nature.	121
USAEC	3	16	2	"Clean" from a safety standpoint? From a debris standpoint? Please clarify.	We concur. We have revised the text to clarify this point.	122
David Larsen	3	16	20	Add a bullet: The UXO supervisor generally checks the lanes or a certain percentage of the lanes after a surface removal. If he finds something that should not be there the entire grid or lane as appropriate should be re-walked etc.	Comment noted. We feel that the subject of this comment is covered in item 3 of section 3.2.3 below and the second bullet of section 3.2.2.	123
ESTCP	3	16	20	In this section "resources" are never addressed.	We concur. We have integrated "Resources" into the bulleted list	124
Navy	3	16	26	Remove the reference to the Army engineering manual or state that it is for use at Army sites. In this case, the Army document is not consistent with Navy requirements. OP 5 13-15 should be referenced for DON munitions responses.	Comment noted. We feel that the subject of this comment is sufficiently addressed.	125
David Larsen	3	16	33	Add a bullet: Ensure waste is inspected and monitored and that any demilitarization or render safe activities are conducted according to regulatory requirements. Ensure no MEC is treated (burned, detonated) on-site or goes off site unless authorized.	Comment noted. We feel that handling of MEC/UXO and all related scrap is sufficiently covered in section 3.6. We have added the bullet as suggested.	126
David Larsen	3	16	33	Add a bullet: Ensure a procedure or post-closure type plan is in place or personnel are available to manage anything unexpected during the final site inspection.	Comment noted. We feel it is sufficient to reference the DoD standard.	127
David Larsen	3	16	58	Add a bullet: How will MEC and scrap be managed once it is picked up? If the waste is to go offsite or out of the control of the military, who will do the certification (QASAS)? Waste management should not be an after thought or assumed to be according to military rules. Regulators will expect RCRA compliance for MEC management. In addition, generation of waste, storage of waste, treatment of waste on-site and final certification that MEC is no longer present can all be considered as " QA process."	Comment noted. We feel that the reference to section 3.6 and DoD reference addresses this.	128

ESTCP	3	16	1-6	Many of these questions repeat	We concur. This section has been rewritten.	129
ESTCP	3	16	9-18	These "factors" are of a very different type from those in the prior section. More parallel would be items such as qualifications, type of munitions, process to follow	We concur. This section has been rewritten.	130
ESTCP	3	16	25-31	An important activity would include the removal of munitions	We concur. This section has been rewritten.	131
Army	3	16		The definition of "On-the-Surface" ( [A situation in which UXO, DMM or CA, regardless of configuration, are: (a) entirely or partially exposed above the ground surface (i.e., the top of the soil layer); or (b) entirely or partially exposed above the surface of a water body (e.g., because of tidal activity).] should be added for clarity.	We concur. We have added a bullet to "Typical Decisions" and refer the reader to the Case Studies section	132
John McCabe	3	17	12	This is the first time that the term "blind seed" is used. It should be defined.	Comment noted. We believe that this is background information which we can safely assume the audience understands. We have also added this term to the glossary.	133
Kevin Oates EPA	3	17	29	Recommend adding QA before QC.	We concur. We have revised the text as suggested.	134
Navy	3	17	31	End this sentence after the word "recycler". The referenced DoDI does not state that QC personnel have to monitor and document the process.	Comment noted. Bullet is restructured to read: "Scrap and MPPEH from the MR site must be managed and documented in accordance with DoD Instruction 4160.21-M-1 Defense Demilitarization Manual (DoD 1991), and DoD Instruction 4140.62, Management and Disposition of Material Potentially Presenting an Explosive Hazard (MPPEH), (DoD 2004) The latter reference is the DoD instruction to prevent accidents involving explosives in scrap metal. It requires a 100% inspection and a 100% reinspection of all MPPEH prior to release to a scrap recycler. Additional guidance includes EM 1110-1-4009 (USACE 2007) for Corps projects, or OP-5 (Navy XXXX) for Navy projects"	135
ESTCP	3	17	33	remove the first "field" from this sentence	We concur. We have removed first "field" from the sentence.	136
David Larsen	3	17	1-15	If acceptance sampling is completed and the tech has been hired for work at the site, UXO worker documentation seems unnecessary	Comment noted. We would like to clarify that this section does not refer to UXO worker documentation. The intention is to document <i>where</i> the worker performs the work. We have revised the text to reflect this clarification.	137

John McCabe	3	17	26-29	It would be helpful to include one or more examples of what level of Quality Control is appropriate for what level of surface clearance objective.	Comment noted. We provide a range, based on project-specific requirements.	138
ESTCP	3	18	18	The sentence beginning "Project-specific objectives..." is hard to understand and should be reworked.	We concur. This section has been rewritten.	139
USAEC	3	18	22	consider mentioning the depth modeling as in the MT case study	Comment noted. We disagree. The MT Case study refers to ballistic modeling (i.e., depth of penetration), not depth of detection.	140
ESTCP	3	18	25	The bullet "what percentage of seeded objects are required to be detected above the noise threshold and selected above the target threshold." assumes a lot of knowledge.	Comment noted. We believe that this is background information that we can safely assume the audience understands	141
Navy	3	18	43	Add a discussion of the Visual Sample Plan in this section. This is a tool that can be used for verification at MR sites.	We concur. This section has been rewritten.	142
ESTCP	3	18	18-26	This section is structured differently from either of the two prior.	We concur. This section has been rewritten.	143
John McCabe	3	18	25-26	This assumes that the reader understands the terms "noise threshold" and "target threshold" as they relate to surface geophysics. Both should be discussed/defined in a bit more detail, either here or as a response to the second overall comment above.	Comment noted. We believe that this is background information that can safely be assumed that the audience understands. We have also added these terms to the glossary.	144

ESTCP	3	18	33-45	This list is quite repetitive, particularly bullets 1, 3 and 4.	We concur. We have recast the bulleted list to read: "• Test or evaluate the performance of different geophysical systems under the site specific conditions at an MR site for the purposes of technology selection. • Demonstrate or evaluate the contractor's competence in using their geophysical system(s) under the various site-specific conditions. (terrain, vegetation, cultural obstacles and interferences, geology). • Demonstrate the capability to detect MEC of interest at the required depths. • Explore detection capabilities beyond what is specifically required. • Establish initial anomaly selection criteria. • Establish QC criteria that are specific to the geophysical systems and how they are used to ensure the MEC of interest is detected. • Establish data transfer protocol (file formats, transfer interval, etc.). • Test how the contractor implements their QC plan. • Test or evaluate anomaly reacquisition procedures as appropriate."	145
Kevin Oates EPA	3	19	1	BSI - see previous comment on the consideration of a discussion/call out box on BSI.	Comment noted. We believe that this is background information we can safely assume the audience understands. We have also added this term to the glossary.	146
John McCabe	3	19	9	The sentence is a non-sequitur.	We concur. This section has been rewritten.	147
Mo Ghazi	3	19	9	Text reads as "Is the contractor IS approved..." delete the second "IS"	We concur. This section has been rewritten.	148
Navy	3	19	14	Remove the second "are" in the sentence	We concur. This section has been rewritten.	149
ESTCP	3	19	35	"specialty" and "specialized" not both needed	We concur. Instance of "specialty" removed.	150
Kevin Oates EPA	3	19	39	Delete "same". It is redundant with later part of the sentence.	This comment is editorial in nature.	151
ESTCP	3	19	40	"the same team.." repeats	This comment is editorial in nature.	152
ESTCP	3	19	5-29	This section is structured differently from any of the three prior.	We concur. This section has been rewritten.	153

Kevin Oates EPA	3	19	9-10	Bullet 1, the second "is" should be deleted. Bullet 2, the second "are" should be deleted. Bullet 3, the second "are" should be deleted. Bullet 4 should end with a "?". Last bullet, period at end should be deleted.	This comment is editorial in nature.	154
Nebraska DEQ	3	20	10	It is not intuitively obvious as to what could constitute a "construction" phase for a GPO project. Is the name of this phase adopted from DoD / US ACE language? It may be necessary to either replace the term or add a brief explanation somewhere before or immediately after the term to explain it's source and/or appropriateness.	Comment noted. The GPO Document is referenced in first paragraph. We have taken care to be consistent and not contradict our own document.	155
USAEC	3	20	Figure 3-3	Recommend moving this figure into the beginning of section 3.3 as it is an excellent overview of the process.	Comment noted. We feel that the structure and sequence convey the information appropriately.	156
Kevin Oates EPA	3	21	17	straightforward is one word.	This comment is editorial in nature.	157
Nebraska DEQ	3	21	13-50	After reading the two paragraphs of concern (i.e., the discussion of the construction and implementation phases), it is not clear as to what activities are accomplished in each phase and/or how these two phases are either different or distinct. Please consider revising both paragraphs.	Comment noted. We feel that readers desiring more detail on GPOs can refer to our GPO Document.	158
Nebraska DEQ	3	21	52-58	The text within the paragraph of concern identifies and discusses the last phase of quality monitoring as an <u>assessment process</u> . However, on line 12 of the previous page (page 20), the phase is introduced as "The <u>reporting</u> phase." This is confusing; it may be appropriate to change the name of the phase or to revise the text to achieve clarification.	Comment noted. The GPO Document is referenced in first paragraph. We have taken care to be consistent and not contradict our own document.	159
ESTCP	3	21	figure	Not referenced in text. Why choose a schonstedt for the example. It is far from state of the art technology.	This comment is editorial in nature.	160
USAEC	3	21	Figure 3-4	This photo was not taken from a GPO. This was taken from the Standardized UXO Technology Demonstration Sites in YPG. May give the reader the wrong impression.	We concur. We have replaced this figure with a clearer photograph.	161
Mo Ghazi	3	21		Reference Figure 3-4 in the text	This comment is editorial in nature.	162
ESTCP	3	22	40	What is meant by "background survey"?	Comment noted. We have revised the text to read: "Was a geophysical background survey required prior to seeding? If so, was it performed?"	163

ESTCP	3	23	9	The list that follows are not "specifications."	We concur. We have revised the introduction to read "A checklist may include:"	164
ESTCP	3	23	21	This section should begin by defining DGM and its elements.	We concur. We have included a very brief description of what DGM is in comparison with "mag and dig".	166
Kevin Oates EPA	3	23	21	Recommend rewriting the sentence as..."Geophysical systems are used to detect subsurface metallic items, including MEC."	We concur. We have revised the text to read "Geophysical systems are used to detect subsurface metallic items, including UXO/DMM."	165
USAEC	3	23	21-27	Recommend having this summary paragraph of how geophysical systems are used in MEC detection earlier in the document.	We concur. We have added a description of geophysical systems to this section.	167
ESTCP	3	23	29-36	Actually, many elements can and should be monitored automatically - GPS precision, battery levels, etc.	We concur. We have revised the text to read: "The quality of the DGM process can be established based on a comprehensive understanding of the components used in the system, combined with clearly-defined objectives for the DGM data. The quality can be assessed by demonstrating that all systems are functioning properly and collecting adequate data at specific times. In cases where the capability exists, components should be continuously monitored for conformance to specifications. In this manner, unknowns concerning the adequacy of data collection can be reduced to an acceptable level. However, DGM systems do not always have self-monitoring systems that inform the operator of a system failure and to stop collecting data when something goes wrong. "	168
Kevin Oates EPA	3	24	1	Recommend deleting the words "decided on"	The subject of this comment is obsolete based on our revisions.	169
ESTCP	3	24	6	Not sure what is meant by "has the area of MEC been bounded?"	The subject of this comment is obsolete based on our revisions.	170
Michael Habeck	3	24	15	Other key factors: When are personnel/equipment available? When to start? How long will testing take?	Comment noted. We feel that these are not quality issues and are therefore beyond the scope of this document.	171
ESTCP	3	24	18	How does the question "does the DGM data verify the conceptual site model?" fit into the factors in decision making on DGM?	We concur. We have revised the text to read "Does the DGM data verify the CSM? If not, do the data collection requirements need to be reevaluated?"	172
ESTCP	3	24	40	Where you say factors do you mean elements?	Comment noted. Yes, we mean elements. We have replaced "factors" with "elements" in the paragraph	173

Nebraska DEQ	3	24	45	The bulleted item of concern is presented as "detection equipment," however, on the following page, page 25 - line 21, the sub-heading preceding the discussion of this QC factor is listed as "Detection Equipment Functionality." Recommend revising the bulleted item on line 45 of page 24 to include the term "functionality."	Comment noted. We disagree.	174
Kevin Oates EPA	3	24	31,32	Recommend adding a new bullet between 3 and 4 as follows. "feedback loop between dig teams and geophysical analysts"	Comment noted. We disagree.	175
USAEC	3	24	40-42	This summary information would be well served in the section's introductory paragraph.	Comment noted. We feel that the description up front in section 3.4 sufficiently addresses this comment.	176
USAEC	3	24	45-5 (next page)	List examples	Comment noted. The purpose of this comment is unclear. We have inserted a reference to our Survey of Munitions Response Technologies Document.	177
ESTCP	3	25	27	The sentence "Note that when function tests are performed on analog systems..." belongs in the following section on mag and flag.	We concur. We have deleted this sentence.	178
USAEC	3	25	39	Spell out BSI. I don't believe this is a commonly used acronym.	This comment is editorial in nature.	179
ESTCP	3	26	1	DGPS gives a constant indication of the precision achieved. The first quality check should be monitoring that. The spirit of the document is monitoring process and detecting failure early, but what is listed are all end product tests.	We concur. We have changed the bullet to read "In cases where the capability exists, components should be continuously monitored for conformance to specifications."	180
ESTCP	3	26	18	this can certainly be done, but it is not a very sensitive test for the objective. You could get a reasonable speed estimate, but still be off in absolute accuracy and never know it.	We concur. We have revised the text to read: "Point to point survey speed. Fiducial methods assume a constant speed and direction along a straight line. Consistency in point to point spacing or speed can be used to verify that predetermined accuracy requirements are met."	181
ESTCP	3	26	45	The line spacing will depend on the objectives and the sensor. Recommend a specific value not be quoted.	We concur. We have revised the text to read: "However, when the targets are very small, are difficult to detect, or to support advanced processing, line spacing as small as 1 ft. may be required to produce adequate data density to achieve the project goals."	182

Bonnie ButhkerOhio EPA	3	26	9-11	The text discusses using blind seed items (BSIs) and blind position seed items. Blind seed items are not defined in the text, so the reader may be confused as to whether BSIs or blind position seed items are the same or different things. From my understanding, BSIs are items that are supposed to produce the same geophysical signature as the MEC being investigated. They can either be inert munitions or other objects that would produce the same signal as the MEC. The blind seed position items described in the text are limited to small nails or rebar pieces that would produce a signal, but would not be confused with MEC. However, the text doesn't clearly state this distinction (if this is correct).	We concur. This section has been rewritten.	184
USAEC	3	26	9-11	with respect to blind seeding items, would like to see mention of the MT case study here as it used real /non HE items for blind seeding, so that the reader is pointed to the case study. Again, as in the above comment would like to see mention of decision unit based blind seeding so that the removal is risk based.	Comment noted. We disagree. This is beyond the scope of the document.	183
ESTCP	3	26	9-17	these two bullets repeat.	We concur. We have removed the first bullet and revised the second bullet to read: "Detection of known control points and BSIs. The interpreted location of known control points and BSIs are a measure of positioning system functionality. Note that line spacing will impact positioning accuracy and tolerances should account for this factor."	185
ESTCP	3	27	4	Why only a "mortar" impact area?	Comment noted. "Mortar" impact area is provided as an example.	186
ESTCP	3	27	4	Why only a "mortar" impact area?	This comment is a duplicate.	187
ESTCP	3	27	23	No sensors record data at this slow rate. Survey speeds would be impossible.	We concur. We have removed parenthetical stating "once every second".	188
ESTCP	3	28	1	bullet "single pick for single anomaly" belongs in the anomaly selection section	We concur. We have created an additional bullet to read: "Assessing specific features of the processed product such as point to point distances between readings and average noise levels can be used to verify that the final data product is acceptable."	190

ESTCP	3	28	8	bullets "logs that track..." and "ensuring the data has been .." belong in the processing section	We concur. We feel that this comment has been satisfactorily addressed by shifting bullets to previous bulleted list as suggested.	192
ESTCP	3	28	8	Recommend adding to this section things like detecting blind seeds and sensible SNR	Comment noted.	193
ESTCP	3	28	8	bullets "logs that track..." and "ensuring the data has been .." belong in the processing section	This comment is a duplicate.	194
ESTCP	3	28	8	Recommend adding to this section things like detecting blind seeds and sensible SNR	This comment is a duplicate.	195
ESTCP	3	28	11	It is not clear what you are after with the statement "attention to detection of abnormally shaped anomalies."	We concur. We have revised the text to clarify this point.	196
ESTCP	3	28	18	This section doesn't address "efficiency." would "effectiveness" be a better choice?	Comment noted. We have changed the text to read "operator effectiveness".	199
Nebraska DEQ	3	28	18	Change the sub-heading "Operator Efficiency" to "Operator Proficiency."	Comment noted. We have changed the text to read "operator effectiveness".	198
ESTCP	3	28	36	recommend adding "detected, generally by an audio signal interpreted by the operator" after "these anomalies are"	We concur. We have revised the text to read "detected, generally by an audio signal interpreted by the operator".	201
ESTCP	3	28	44	Add a comment that the lack of record makes QA/QC difficult for M&F. This is a key point for a quality document and it does not appear until very late in the section.	We concur. We have revised the text as suggested.	203
ESTCP	3	28	13-16	While this may be true, it seems out of place here.	Comment noted. We have elected to place this paragraph into a callout box.	205
Mo Ghazi	3	29	40	Minimum Qualification for Unexploded Ordnance ...missing in list of reference	We concur. We have included this reference.	207
ESTCP	3	29	14-18	Many of the questions apply to DGM as well but were not raised there. Why?	We concur. This section has been rewritten.	208
Michael Habeck	3	31	18	Meaning of term "hot rocks" not clear.	Comment noted. This document is intended for an audience familiar with jargon used in the industry.	209
Michael Habeck	3	31	18	"Geology" a very broad concept. Can you be more specific?	Comment noted. This document is intended for an audience familiar with jargon used in the industry.	210
ESTCP	3	31	29	"Expected anomaly" should be "excavated item."	We concur. We have revised the text as suggested.	211

USAEC	3	31	20-29	Recommend moving this information into the beginning of the section (3.6.1)	We concur. We have revised the text as suggested.	212
ESTCP	3	31	32-37	These are not decisions. More appropriate would be how to navigate, how to confirm the target, which instrument to use, what methods, how will you decide a hole is cleared, etc.	We concur. We have revised the text as suggested.	213
ESTCP	3	32	6	Why is the navigation accuracy "inadequate?" Shouldn't be.	We concur. We have revised the text as suggested.	214
Michael Habeck	3	32	30	Meaning of term "hot rocks" not clear.	Comment noted. This document is intended for an audience familiar with jargon used in the industry.	215
Michael Habeck	3	32	30	"Geology" a very broad concept. Can you be more specific?	Comment noted. This document is intended for an audience familiar with jargon used in the industry.	216
ESTCP	3	32	44	Repeats.	Comment noted.	217
Mo Ghazi	3	32	24,29	Recommend referencing EM 1110 -1-4009 (USACE 2004) in the list of references in the "U" section. The way it is currently referenced is somewhat confusing and difficult to find.	We concur. We have revised the reference.	218
Navy	3	32	24,44	EM 1110-1-4009 was updated in June 2007. The Navy and Marine Corps use OP-5 for MPPEH management. The sentence should be revised to direct personnel to their service specific document.	We concur. We have revised the text as suggested.	219
Mo Ghazi	3	33	25	Recommend referencing EM 1110 -1-4009 (USACE 2007) in the list of references in the "U" section. The way it is currently referenced is somewhat confusing and difficult to find.	We concur. We have revised the reference.	221
Navy	3	33	25	The sentence should be changed to state that "scrap should be managed according to the service specific requirements", which are outlined in OP-5 for the Navy and Marine Corps.	We concur. We have revised the text as suggested.	220
ESTCP	3	33	2-8	Repeats.	We concur. This section has been rewritten.	222
USAEC	3	33		would like to see ref to Montana case study where blind seeding was used to quantify errors, both in navigation and in search radius.	Comment noted.	223

ESTCP	3	34	12	The statement that "a nonconforming condition... may be considered to be cause to question..." should be much stronger.	We concur. We have revised the text to read "The objective of verification sampling is to demonstrate that the overall MR project objective has been achieved. This has historically been done by performing an independent geophysical survey on a portion of the completed project. Finding a "nonconforming condition" (e.g., remaining MEC or other object that should have been detected and removed) should be cause to question the adequacy of the work in the area being inspected and possibly cause for requiring rework of the area."	224
ESTCP	3	34	16	Does everyone believe that verification sampling is not important? May be only true for DGM.	We concur. We have revised the text to read "Make traditional verification sampling less important for DGM (see callout box)".	225
Nebraska DEQ	3	34	1,3	The term "contracting authority" is used in two different sentences, however, this does not appear to be appropriate. The term appears to be from contracting or legal DoD language or perhaps a military/federal agency guidance document. It may be appropriate to replace the term and/or restate the point being presented.	We concur. We have revised the text as suggested.	226
Navy	3	34	1,3	Remove the words "by the contracting authority (or their representative)" Verification sampling can be performed by the government or by the contractor for QC purposes as well.	We concur. We have revised the text as suggested.	227
USAEC	3	35	8	Define the context of the term "non-conforming"	Comment noted. We have included "non-conforming" in the glossary.	228
USAEC	3	35	1-43	call out box with regard to use of the mil standard: this did not explain why we don't do verification sampling. If its too expensive, we should just say so. Who and when was it decided not to use this standard?	Comment noted.	229
Navy	3	35	Call out box	The call out box should mention that Visual Sample Plan can be used as well for verification sampling	Comment noted.	230
USAEC	3	35	Table	Too many words. Is there a way to simplify for the reader? Or reformat?	Comment noted.	231
ESTCP	3	36	6	Syntax problem changes meaning: The random number generator cannot select an appropriate number of transects; given a number, it can randomly select specific transects to sample.	We concur. We have revised the text to read "For example, if the "lot" is comprised of geophysical survey lanes may be relocated, then a random number generator can select lanes to be resurveyed."	232

ESTCP	3	36	16	Do people really do mag and dig without defining lanes or grids or something to guide the operator?	We concur. We have revised the text to read "The procedure outlined above is not possible on some projects. For example, a surface removal project may be performed without permanent or reproducible delineation of specific search lanes. In this case, verification can be performed by randomly walking over the area of the "inspection lot" while checking for MEC. Alternatively, verification sampling may be conducted using a pre-determined pattern (an example inspection pattern may include the perimeter of the "lot" and two diagonal traverses forming an "X" pattern across the "lot")."	233
ESTCP	3	36	21	Seems that DGM following M&F would be a good quality check.	Comment is obsolete as Team has changed subject of paragraph from "DGM" to "surface removal".	234
USAEC	3	36	25	Why would a project team decide not to perform little or no verification sampling? Please elaborate for the reader.	Comment noted.	235
USAEC	3	19-20		In terms of "prove out", I would like to see more mention of the use of Blind Seeding Items as used per "decision unit" so that the degree of statistical certainty necessary can be varied from one decision unit to another. This would take into consideration risk, as mentioned earlier in the document.	Comment noted. We concur with this comment, however it is not the intent of this document to attempt to support risk decisions. This topic is a project team responsibility and beyond the scope of this document.	236
Nebraska DEQ	3	21-22	21-60, (next page) 1-33	The discussion presented in the text of concern is about common QC elements that might be defined or identified as required tests. However, it is not clear how this information relates to the preceding paragraph of information about the GPO report. It may be necessary to provide appropriate lead-in text and perhaps a sub-heading and/or move the discussion on these common QC elements into Section 3.3.4, Common Quality Control Measures.	We concur. This section has been rewritten.	237
ESTCP	3	21-22	60-64	It is not clear what this list adds. The items may be important but are not monitoring points during the GPO. Seems out of place and the intended audience is not likely to know what these tests mean without some explanation.	We concur. This section has been rewritten.	238

John McCabeMichigan DEQ	3	25-26	many	The whole "Positioning Instrument Functionality" section assumes a pretty detailed understanding of positioning systems. Once again, consider your audience. I, for one, have no idea what "line and fiducial positioning" is. Either some very basic discussion of what we're talking about here or a "basic concepts" discussion immediately prior to the introduction of the document (see the second overall comment, above) is needed.	Comment noted. We have included "line" and "fiducial" in the glossary, and feel that the comment is addressed.	239
USAEC	3	28-29	44-2	Recommend incorporating the same information in the DGM section.	We concur. We have revised the text as suggested.	240
ESTCP	3	all		Throughout this section, objectives, requirements, decisions and factors are mixed and repetitive (and not employed consistently.)	We concur. This section has been rewritten.	241
USAEC	3	N/A	Overall	There is no mention of actions taken to ensure personnel safety in this section.	Comment noted. We feel that this is not a quality issue and is therefore beyond the scope of this document.	242
USAEC	3	N/A	Overall	The title of this section implies the surface of the site is removed when only metal scraps are removed. Recommend renaming the section.	Comment noted. We disagree.	243
USAEC	3	N/A	Overall	Each subsection of this chapter could be better organized for ease of comprehension. Recommend incorporating the quality monitoring and control measures information into each of the "Objectives and Requirements", "Activities and Resources" sections and preparing actual checklists/tables for the "Common Quality Control Measures" sections.	Comment noted. Previous iterations of this document included checklists. These were removed based on work team comments and comments from the Services. There have been revisions to this section to improve ease of comprehension.	244
USAEC	3	N/A	Overall	Whether or not MEC is actually physically removed during this process is unclear. Scrap is mentioned as removed but actual MEC is vague.	Comment noted.	245
USAEC	3	N/A	Overall	Recommend adding a more descriptive summary of the order of each specialized process with regard to the MR project as a whole. Recommend giving a conservative example. I.e. first the vegetation is removed, then visual inspection/removal, etc.	Comment noted. Sections on MEC disposal have revised and clarified. We feel that the order is made as clear as possible in this section's introduction. However, "this order is intended to be approximate. Depending on project requirements. Steps may occur out of sequence, simultaneously with one another, or not at all".	246
USAEC	3	N/A	Overall	In each QC section recommend adding a statement that state regulators are usually the QC personnel.	Comment noted.	247

USAEC	3	N/A	Title	The title of this section implies these are not typical processes when, in fact, they are. Unsure of why they are termed "specialized".	Comment noted.	248
Kevin Oates EPA	3	Not Specified	Not Specified	The way that section 3.1. 3.2 etc are presented is very good.	Comment noted. Thank you.	249
Navy	4	7	18	Clearly state that munitions constituents in high enough concentrations to pose an explosive hazard are considered MEC but that they are outside the scope of this document or clearly include them.	We concur. We have revised text as suggested.	250
Kevin Oates EPA	4	37	4	Period after MR project is missing.	This comment is editorial in nature.	253
Mo Ghazi	4	37	4	Missing period at the end of first sentence. (i.e., ...affect of the results of an MR project.)	This comment is editorial in nature.	252
Mo Ghazi	4	37	6	...both and adequate and inadequate - can impact them. Delete first and or should be "an"	This comment is editorial in nature.	254
ESTCP	4	37	15	This is a cute story, but not a case study in quality.	Comment noted.	256
Navy	4	37	15	A reasonable argument could be made in many cases that items that cannot be seen or removed without excavation do not pose an explosive safety hazard regardless of whether or not they are below the mineral layer of the soil. If the munitions of concern are sensitive (i.e. 40 mm grenades, mines, etc.) this probably isn't valid; conversely if the munitions of concern are unfused, unfired DMM it may be perfectly acceptable to define the surface as something other than the mineral layer of the soil. In either case, the project team will have to arrive at a decision, and its likely that different project teams will make different decisions given comparable sets of site conditions. Feel the discussion in this section is leading and should be reduced to making it clear that project teams need to clearly define important attributes of the project or process AND be aware of the implications of those decisions. Also do not agree with the last bulleted statement in the section concerning the difficulty of scoping the project had the definition of surface been something other than the mineral level of soil.	Comment noted. We have revised the text as suggested.	255

Ann CharlesNJDEP	4	37	N/A	This is a general comment applicable to Chapter 4. Sub-sections 4.6 and 4.7 are stronger case studies. Sub-sections 4.1 through 4.5 seem to be lighter anecdotes rather than case studies and more along the lines of lessons learned. Consider having a separate lessons learned section or subsection.	Comment noted. We feel that the title is appropriate for the section's contents.	257
ESTCP	4	38	20	This is not a case study. The points about document quality could be brought to the body of the document.	Comment noted. We disagree. These are lessons learned and are introduced as such.	258
ESTCP	4	39	18	This is not a case study. The points about failure criteria should be brought to the body of the document.	Comment noted. We disagree. These are lessons learned and are introduced as such.	259
John McCabe	4	39	20	In the previous section, the document states that verification sampling is being used with diminishing frequency as a quality control mechanism. Yet verification sampling was chosen as an example for defining quality control failure. Perhaps an example of another quality control tool that is not as likely to fall completely out of use might be more appropriate.	Comment noted. We disagree	260
Navy	4	39	13 to 16	The RG-01 project already had the requirement for contractor QC. Obviously there was a breakdown of QC on this particular issue. This project followed the NAVFAC P445 document on QC - three phases of control. All NAVFAC NW-managed project plans are signed by the contractor QC manager.	Comment noted. We have elected to remove the Adak case study.	261
Mo Ghazi	4	39	13-16	A mandatory "document Review Check Sheet" including the signature of the final reviewer is a GREAT idea.	Comment noted. Thank you.	262
USAEC	4	39	32-46	Discrimination references almost contradict. Consider refining text to reduce confusion.	Comment noted.	263
ESTCP	4	40	25	planned should be planned	This comment is editorial in nature.	264
John McCabe	4	40	21-41	It is unclear in this example of project failure if the cause of the failure was that the operation (vegetation removal) was not performed to specifications, if the specifications were improperly developed, or if the quality control was inadequate and did not catch deviations from specifications. What, specifically, is this example supposed to tell the reader?	We concur. This section has been rewritten.	265

Mo Ghazi	4	41	40	Figure 4-12??? What happened to Figure 4-1 through 4-11. I recommend rearranging the order of all the figures in this section. E.g., 4-12, 13, 14 and 15 should be 4-1,2,3, and 4. As a reader of a specific case, first thing that I want to see is where the site is located, both regionally and locally.	Comment noted. We have elected to remove the Adak case study.	266
Navy	4	41	all	The Adak case study should be removed from the document. The summary does not represent a consensus opinion about the site. Based upon the history of negotiations/dealings on the site, the time and effort to develop a consensus version of the case study would most likely delay the production of the ITRC document at best.	Comment noted. We have elected to remove the Adak case study.	267
Mo Ghazi	4	42	38	re number Figure 4-1, (e.g., 4-5)	Comment noted. We have elected to remove the Adak case study.	268
John McCabe Michigan DEQ	4	42	29-32	Why is the information about the X-band radar system pertinent to the document? It may be of general interest but it's unimportant to the discussion of munitions response.	Comment noted. We have elected to remove the Adak case study.	269
Navy	4	42		Although the narrative on the history of Adak is generally accurate, don't think its really pertinent to the topic of QA for MEC projects. This isn't a document that requires the reader to understand past military use of Adak nor the regulatory and cleanup history of the site. Recommend this section could be reduced to something like "A former rifle grenade range remaining from the past military use of Adak Island was the subject of a MEC Clearance/Removal action in 2006". From there, go on to explain the technical aspects of the site and project without all the blah, blah about the history of Adak.	Comment noted. We have elected to remove the Adak case study.	270
Navy	4	43	1	Contractor found vegetation no taller than 6 inches and most of the site was much less, especially on the upper reaches. Generally, the case study section appears to have too much background information and not much QC discussion of value	Comment noted. We have elected to remove the Adak case study.	271

Mo Ghazi	4	43	9	"...projected grenade (Figures 4-2 through 4-6)." This should be 4-2 through 4-5. However, if a new numbering system is applied, it will be 4-6 through 4-9.	Comment noted. We have elected to remove the Adak case study.	272
John McCabe Michigan DEQ	4	43	12	This may be my own ignorance but is "fuze" a common military spelling of what is typically termed a "fuse"? It's used several places from this point forward in the document and it seems visually wrong. You might consider explaining or replacing.	Comment noted. We have elected to remove the Adak case study.	273
Navy	4	45	11	Why is all of this detail needed? Why do we care about the exact month this took place?	Comment noted. We have elected to remove the Adak case study.	274
Navy	4	45	12	The agreement was via an action memorandum, signed in September 2006.	Comment noted. We have elected to remove the Adak case study.	275
Navy	4	45	13	Need to specify 2006 on this line	Comment noted. We have elected to remove the Adak case study.	276
Navy	4	45	24	It seems important to state here the site was 16 acres and there were more than "several" grids.	Comment noted. We have elected to remove the Adak case study.	277
John McCabe Michigan DEQ	4	45	37	"ITS" is not in the acronyms list at the end of the document.	Comment noted. We have elected to remove the Adak case study.	278
John McCabeMichigan DEQ	4	45	14-16	The document states that "It is critical for the work plan and QC plan to clearly specify the requirement for the work activities and the policies and procedures for documenting QC." The document should also state whether or not the example work plan under discussion did or did not do so and the consequences of doing or not doing so.	Comment noted. We have elected to remove the Adak case study.	279
Navy	4	45		Have some reservations about using case studies that may lead the reader or others to insist on similar approaches for their projects. For example, the rationale for requiring clearance to a depth of 2 feet below ground surface at a rifle grenade range could be questioned as not being an example all projects should follow.	Comment noted. We have elected to remove the Adak case study.	280

Navy	4	45		15% Inspection Criteria - 10% resampling rates are commonly the starting point for such inspections, MIL 1916 or VSP compliance sampling may result in some other value for re-inspections. The decision to require 20% resampling of a failed grid that has been 100% resurveyed and cleared could also be questioned. Again, concerned that this cases study is leading readers to assume the Adak site and project is being held up as what should be done on all projects.	Comment noted. We have elected to remove the Adak case study.	281
Navy	4	46	7	This is incorrect. The contractor used the ITS and the established on-island GPO plot. A large area covering over a mile of transect. No one decided to forgo a larger GPO just because we would be performing DGM at the end the project. This statement is inaccurate.	Comment noted. We have elected to remove the Adak case study.	282
Navy	4	46	17	BSIs are discussed here before the general BSI discussion below. Should talk generally about BSIs before Line 17.	Comment noted. We have elected to remove the Adak case study.	283
Mo Ghazi	4	46	20	ITS should be added to the list of acronyms	Comment noted. We have elected to remove the Adak case study.	284
USAEC	4	46	26	What is the difference between ITS and GPO?	Comment noted. We have elected to remove the Adak case study.	251
USAEC	4	46	25-36	Strongly recommend defining BSI far earlier in the document. Please see comments above.	Comment noted. We have elected to remove the Adak case study.	285
USAEC	4	46	25-36	Why must BSI be simulated MEC? I really liked the description of the MEC items used in the MT case study, where they used non fuzed items with appropriate site similar magnetic properties. Again, I think more mention of use of BSI as a means to assess QA on a decision unit by decision unit basis, would lend itself to assessing a level of confidence associated with future land use.	Comment noted. We have elected to remove the Adak case study.	286
Navy	4	47	33	There was contractor quality control on this project.	Comment noted. We have elected to remove the Adak case study.	287
John McCabe Michigan DEQ	4	47	45-46	What are the "four areas where the requirements of the work plan were not being implemented", how important were they and what was their impact on the project? Mentioning these areas without any additional detail makes this a poor example.	Comment noted. We have elected to remove the Adak case study.	288

Navy	4	47		This section reads as a self serving account of the regulators involvement in the QA process. Agree with the last statement about the need for clearly specified work requirements and QA policies and procedures.	Comment noted. We have elected to remove the Adak case study.	289
Navy	4	48	2	The issues were minor in nature.	Comment noted. We have elected to remove the Adak case study.	290
Mo Ghazi	4	48	13	"...from the site (Figure 4-15)." According to the current numbering system, the caption for Figure 4-15 is "Area planned for digital geophysical mapping" I believe 4-14 is the correct figure. However, what happened to Figures 4-6 through 4-14? There are no references to latter figures in the text. I recommend referencing each figure in the appropriate place in the text, so that the reader is guided to a visual example of what has been discussed in the text. Again, if we take on a new numbering system all the figures will assume different numbers.	Comment noted. We have elected to remove the Adak case study.	291
Navy	4	48	18	Navy agreed to the process via the 2006 Action Memorandum where we said we would maintain the 15-meter safety buffer. Additional work still includes step-outs and the post-intrusive DGM clearance.	Comment noted. We have elected to remove the Adak case study.	292
Mo Ghazi	4	48	20	Figure 4-16 has nothing to do with expansion of boundaries at RG-10	Comment noted. We have elected to remove the Adak case study.	294
Navy	4	48	20	Change 2007 to 2008	Comment noted. We have elected to remove the Adak case study.	293
John McCabe Michigan DEQ	4	49	1	Figure 4-6. The caption refers to an "outline" that's not visible in the picture.	Comment noted. We have elected to remove the Adak case study.	295
Bonnie Buthker Ohio EPA	4	49	Figure 4-6	The caption states that there is an outline on the picture indicating the approximate extent of RG-01. I can't see that outline on this figure.	Comment noted. We have elected to remove the Adak case study.	297
USAEC	4	49	Figure 4-6	The outline is difficult to see in the figure.	Comment noted. We have elected to remove the Adak case study.	296
USAEC	4	49	Figure 4-7	This picture is a bit skewed.	Comment noted. We have elected to remove the Adak case study.	298
John McCabe Michigan DEQ	4	51	1	Figure 4-10. The caption refers to "tape delineating search lanes" that is not visible in the picture.	Comment noted. We have elected to remove the Adak case study.	299

Mo Ghazi	4	51	2	"Notice tape delineating search lanes." The location of the lanes is very unclear, may want to consider to apply Photoshop or some kind of software to shoe the lanes more clearly.	Comment noted. We have elected to remove the Adak case study.	300
Bonnie Buthker Ohio EPA	4	51	Figure 4-10	The caption states that there are two UXO crews working on this steep slope, and that the figure also shows tape delineating the search lanes. I can't see the crews or the tape.	Comment noted. We have elected to remove the Adak case study.	301
Mo Ghazi	4	52	4	AOC is missing in the list of acronym	Comment noted. We have elected to remove the Adak case study.	302
John McCabe Michigan DEQ	4	54	9	"OEW" is not in the acronyms list at the end of the document.	This comment is editorial in nature.	303
USAEC	4	54	9	Spell out OEW	This comment is editorial in nature.	304
USAEC	4	54	10	This figure needs to either be reduced in size or have a higher quality image replace it. Very blurry.	Comment noted. We have improved the graphic quality	305
ESTCP	4	54	11	Graphic quality is poor	Comment noted. We have improved the graphic quality	306
Mo Ghazi	4	54	Figure	As a general comment, I recommend a few more photographs in this section. Missing a section on historical background, i.e., similar to Adak Island	Comment noted. We have improved the graphic quality	308
Navy	4	54	Figure	The picture is unclear when printed	Comment noted. We have improved the graphic quality	307
USAEC	4	54	Not Specified	would like to see mention in the main body of the report the idea of integration across all stages of UXO site work as is mentioned in this case study: by using one integration contractor, lessons learned can be transferred to the next stage of work. this is critical to QA/QC and rarely implemented.	Comment noted. We feel that the subject of this comment deals with contracting over which the state regulator has no control. If the quality program is appropriately designed, it should not matter who implements it.	309
Mo Ghazi	4	55	33	DoD STD 6055.9 is missing in reference list	This comment is editorial in nature.	310
Mo Ghazi	4	55	46	NAD is missing in list of acronym	This comment is editorial in nature.	311
John McCabe Michigan DEQ	4	55	1-2	What was the "Advanced Technology Demonstration Program at Jefferson Proving Ground" and why is it germane here? This appears dropped into the text without any context.	Comment noted. We believe that these terms are germane and are appropriately used in this document.	312

USAEC	4	55	42-46	back to page 33, where navigation errors are discussed, the portion of the MT case study that discussed use of grids and stakes could be mentioned earlier in the document as means to reduce navigational errors adding a reference to the MT case study on page 33 would help. also, on page 57 it mentions the use of use of blind seeded emplaced items as a means to identify systematic positional errors should also be mentioned on page 33 in body of report and referenced back to the case study.	We concur. We revised the text to include a generic reference at the beginning of Section 3: "Case studies provide examples for many of these specific processes".	313
Navy	4	55		Hasn't the table been removed from 6055.9 that shows the 10ft depth?	Comment noted.	314
USAEC	4	57	43	The term "dual-sensor cesium vapor magnetometer" is referring to two cesium vapor magnetometers and not a mag/EM sensor, correct? If so this needs to be clarified.	Comment noted. We disagree. The description is correct. A picture is also included that clearly shows two cesium-vapor magnetometers	315
USAEC	4	59	8	The acronym "EDM" is first used and then spelled out. This is not consistent with the rest of the document. In addition, this acronym needs to be added to the appendix.	This comment is editorial in nature.	316
USAEC	4	59		the degree of confidence required for the two residential areas studies was high for removal, so in this case they investigated ordnance and non ordnance items and accounted for each one. How the MT case dealt with large dipole indicated on the map but small item found should be mentioned in body of the report as well as how they dealt with the nothing found items.	Comment noted.	317
USAEC	4	60	26	Consider explaining what the findings are. Not all readers will understand the results.	Comment noted	318
USAEC	4	37-40	All	Recommend moving this useful information into the previous sections to better explain the process.	Comment noted. We have added language to the beginning of section 3 to refer the reader to these case studies and lessons learned.	319
ESTCP	4	General	Not Specified	Only the Adak and Montana sections are serious case studies. These are quite instructive. The document would be improved if the others were removed.	Comment noted. We disagree. These are lessons learned and are introduced as such.	320

Mo Ghazi	4		37-41	I believe sub-sections 4.1 through 4.5 are placed inappropriately. These sub-sections are still discussing general topics about QA/QC process (i.e., Performance Matrices (4.1), Work Plan and Other Documents (4.2)...etc). They have very little to do with the two specific examples which have been later discussed in the document. For example, the content of section 4.2 can apply to any case and/or with any written document. I suggest the section on Case Studies, after a short introduction should "dive" into discussing the case, starting with historical background...	Comment noted. We disagree. These are lessons learned and are introduced as such.	321
Navy	5	62		OP-5 should be included in the references	This comment is editorial in nature.	322
Kevin Oates EPA	A	N/A	N/A	I believe that Femi Ayorinde and Robert Jolley have retired. Andrea Hopkins recently joined and should be listed. New phone number for Kevin Oates is 703-347-8898.	This comment is editorial in nature.	323
Kevin Oates EPA	A	N/A	N/A	I believe that Femi Ayorinde and Robert Jolley have retired. Andrea Hopkins recently joined and should be listed. New phone number for Kevin Oates is 703-347-8898.	This comment is editorial in nature.	324
Kevin Oates EPA	Ack		5	Text should refer to Appendix A, not Appendix B.	This comment is editorial in nature.	325
Kevin Oates EPA	Ack		5	Text should refer to Appendix A, not Appendix B.	This comment is editorial in nature.	326
Mo Ghazi	Ack		6	Appendix B should be A	This comment is editorial in nature.	327
Mo Ghazi	Ack		6	Appendix B should be A	This comment is editorial in nature.	328
Mo Ghazi	B	4	37	QMP missing in list of acronym	This comment is editorial in nature.	329
Mo Ghazi	B	4	37	QMP missing in list of acronym	This comment is editorial in nature.	330
Navy	ES	2	30	Replace "MEC" with "Munitions or Explosives of Concern (MEC)."	This comment is editorial in nature.	331
Navy	ES	2	30	Replace "MEC" with "Munitions or Explosives of Concern (MEC)."	This comment is editorial in nature.	332
Navy	ES	3	32	Replace "DMM" with "Discarded Military Munitions (DMM)."	This comment is editorial in nature.	333
Navy	ES	3	32	Replace "DMM" with "Discarded Military Munitions (DMM)."	This comment is editorial in nature.	334

Navy	ES	4	36	Replace "clearance" with "removal." Surface clearance is a term associated with operational ranges.	This comment is editorial in nature.	335
Navy	ES	4	36	Replace "clearance" with "removal." Surface clearance is a term associated with operational ranges.	Comment noted.	336
USAEC	ES	N/A	3	Recommend describing the type of "State Regulator" being tasked for oversight. I.e. environmental, safety, etc.	Comment noted. We have revised that text to read: "State regulatory agencies are increasingly being asked to provide oversight."	338
USAEC	ES	N/A	3	Recommend describing the type of "State Regulator" being tasked for oversight. I.e. environmental, safety, etc.	This comment is a duplicate.	337
USAEC	ES	N/A	3-6	Recommend adding an explanation as to why state regulators are becoming more and more involved.	Comment noted.	339
USAEC	ES	N/A	3-6	Recommend adding an explanation as to why state regulators are becoming more and more involved.	Comment noted.	340
Nebraska DEQ	ES	N/A	30-32	Three acronyms, MEC, UXO, and DMM are presented for the first time and not spelled out / properly introduced.	This comment is editorial in nature.	341
Nebraska DEQ	ES	N/A	30-32	Three acronyms, MEC, UXO, and DMM are presented for the first time and not spelled out / properly introduced.	This comment is editorial in nature.	342
Kevin Oates EPA	ES	N/A	N/A	General comment. There is a definition of sorts for QA, it would be beneficial to have a similar definition of QC.	We concur. This section has been rewritten.	343
Kevin Oates EPA	ES	N/A	N/A	General comment. There is a definition of sorts for QA, it would be beneficial to have a similar definition of QC.	This comment is a duplicate.	344
Mo Ghazi	ES		32	DMM missing in list of Acronyms	Editorial in Nature.	345
Mo Ghazi	ES		32	DMM missing in list of Acronyms	This comment is a duplicate.	346
Kevin Oates EPA	ES		30,32	First use of MEC, UXO, DMM. Should be spelled out	This comment is editorial in nature.	347
Kevin Oates EPA	ES		30,32	First use of MEC, UXO, DMM. Should be spelled out	This comment is editorial in nature.	348
ESTCP	ES			31-32: This is not the definition of MEC. (also appears on page 4)	Comment noted.	349
ESTCP	ES			This is more a description of the document than a traditional executive summary.	We concur. We have made an effort to shorten this introductory summary and move it into the ES.	350

Navy	Overall	1	N/A	Although MR projects must address explosives safety as well as environmental requirements this requirement is not addressed. This could be added in the Executive Summary and Introduction as a general discussion. Note that explosives safety considerations can change decisions and process steps at MR sites. The document does not currently address explosives safety requirements. Although it is not necessary to discuss explosives safety criteria in detail, it is important to know that explosives safety must be considered and addressed throughout a MR. Explosives safety considerations can limit project options and impact decision making.	Comment noted. We have revised the text to read "This document does not address MC sampling, nor does it address safety considerations involved with UXO/DMM cleanup."	351
Navy	Overall	1	N/A	Although MR projects must address explosives safety as well as environmental requirements this requirement is not addressed. This could be added in the Executive Summary and Introduction as a general discussion. Note that explosives safety considerations can change decisions and process steps at MR sites. The document does not currently address explosives safety requirements. Although it is not necessary to discuss explosives safety criteria in detail, it is important to know that explosives safety must be considered and addressed throughout a MR. Explosives safety considerations can limit project options and impact decision making.	Comment noted. We have revised the text to read: "This document does not address MC sampling, nor does it address safety considerations involved with UXO/DMM cleanup."	352
Mo Ghazi	Overall	6	25	Insert a reference to the box describing "A requirement..." This way the readers will be directed to read an excellent definition for requirement, otherwise there is a good chance they might overlook this definition	Comment noted.	353
Nebraska DEQ	Overall	61	N/A	Consider adding a "Summary and Conclusions" section that will leave the reader with a focused perspective and provide a summary of the important issues covered. Also, it would be helpful to present the major issues in somewhat of a prioritized order of importance or order of use/applicability.	We concur. We have revised the text and added another subsection at the end of section 3.	354

Nebraska DEQ	Overall	61	N/A	Consider adding a "Summary and Conclusions" section that will leave the reader with a focused perspective and provide a summary of the important issues covered. Also, it would be helpful to present the major issues in somewhat of a prioritized order of importance or order of use/applicability.	This comment is a duplicate.	355
Army	Overall	General	Not Specified	There are instances where the term MR site, site, or project site is used. These should be revised to MRS, with the first use establishing the acronym.	Comment noted. We will defer to our technical editor to make this determination.	356
Army	Overall	General	Not Specified	This document addresses Munitions Responses to Munitions and Explosives of Concern. Throughout the document, this need to be clarified. The procedures of this document are not applicable to munitions response to munitions constituents, including munitions constituents in concentrations high enough to pose an explosive hazard. The title and other portions should be changed to reflect the focus for both clarity and correctness.	Comment noted. We have revised our Executive Summary as well as use of terminology to clarify that this document only addresses UXO/DMM.	357
Army	Overall	General	Not Specified	There are instances where the term MR site, site, or project site is used. These should be revised to MRS, with the first use establishing the acronym.	Comment noted. We will defer to our technical editor to make this determination.	359
Army	Overall	General	Not Specified	This document addresses Munitions Responses to Munitions and Explosives of Concern. Throughout the document, this need to be clarified. The procedures of this document are not applicable to munitions response to munitions constituents, including munitions constituents in concentrations high enough to pose an explosive hazard. The title and other portions should be changed to reflect the focus for both clarity and correctness.	Comment noted. We have revised our Executive Summary as well as use of terminology to clarify that this document only addresses UXO/DMM.	358

Army	Overall	General	Not Specified	A munitions response is defined as "Munitions Response. Response actions, including investigation, removal actions and remedial actions to address the explosives safety, human health, or environmental risks presented by UXO, DMM, or MC, or to support a determination that no removal or remedial action is required." Rather than address Munitions Response (MR) Project, this should address Munitions Response (MR) to MEC. If MR Project is used, it should be qualified to MR Project that addresses MEC.	Comment noted. We have revised our Executive Summary as well as use of terminology to clarify that this document only addresses UXO/DMM.	360
Army	Overall	General	Not Specified	A munitions response is defined as "Munitions Response. Response actions, including investigation, removal actions and remedial actions to address the explosives safety, human health, or environmental risks presented by UXO, DMM, or MC, or to support a determination that no removal or remedial action is required." Rather than address Munitions Response (MR) Project, this should address Munitions Response (MR) to MEC. If MR Project is used, it should be qualified to MR Project that addresses MEC.	This comment is a duplicate.	361
John McCabe Michigan DEQ	Overall	N/A	N/A	A basic description of the primary elements of munitions response would be extremely helpful to regulators (like me) who have minimal familiarity with munitions response. A brief synopsis of the companion ITRC documents listed in section 1.1 would serve this purpose and could be skipped over by individuals more experienced with munitions response.	Comment noted. We have included a brief synopsis of each previously released document.	369
John McCabe Michigan DEQ	Overall	N/A	N/A	A basic description of the primary elements of munitions response would be extremely helpful to regulators (like me) who have minimal familiarity with munitions response. A brief synopsis of the companion ITRC documents listed in section 1.1 would serve this purpose and could be skipped over by individuals more experienced with munitions response.	This comment is a duplicate.	375

John McCabe Michigan DEQ	Overall	N/A	N/A	Many of the acronyms used are not spelled out with first use and some are not in the list of acronyms at the back of the document. This would be a more useful resource for regulators who may have minimal familiarity with munitions response if each acronym was spelled out at first use.	This comment is editorial in nature.	364
John McCabe Michigan DEQ	Overall	N/A	N/A	I appreciate the work put into this document and hope my comments can make it a better resource for it's intended audience (folks like me). Thanks for all the hard work. John McCabe, Waste and Hazardous Materials Division, Michigan Department of Environmental Quality.	Comment noted. Thank you.	366
John McCabe Michigan DEQ	Overall	N/A	N/A	Many of the acronyms used are not spelled out with first use and some are not in the list of acronyms at the back of the document. This would be a more useful resource for regulators who may have minimal familiarity with munitions response if each acronym was spelled out at first use.	This comment is editorial in nature.	374
John McCabe Michigan DEQ	Overall	N/A	N/A	I appreciate the work put into this document and hope my comments can make it a better resource for it's intended audience (folks like me). Thanks for all the hard work. John McCabe, Waste and Hazardous Materials Division, Michigan Department of Environmental Quality.	Comment noted. Thank you.	376
Kevin Oates EPA	Overall	N/A	N/A	I thought that the document laid out the approach scenario in a way that was well organized and easy to understand. One of the tests in reading through this is whether I could see a planner cut and paste from the document in formulating their project specific plans, and this passes muster.	Comment noted. Thank you.	363
Kevin Oates EPA	Overall	N/A	N/A	I thought that the document laid out the approach scenario in a way that was well organized and easy to understand. One of the tests in reading through this is whether I could see a planner cut and paste from the document in formulating their project specific plans, and this passes muster.	This comment is a duplicate.	377

USAEC	Overall	N/A	N/A	Terminology: MEC is used too much in this document to describe what we are actually referring to as "UXO" or "Munitions". I would suggest using UXO when referring to specifically looking for ordnance in the proximity of the ground surface. For example- Page 23, Line 21. Geophysics does not locate the "explosives" component of MEC.	Comment noted.	368
USAEC	Overall	N/A	N/A	We need to double check and make sure all of the acronyms are spelled out the first time they are used (e.g., in the Executive Summary) and then listed in the appendix	This comment is editorial in nature.	362
USAEC	Overall	N/A	N/A	Make sure acronyms are fully defined in photo captions	This comment is editorial in nature.	365
USAEC	Overall	N/A	N/A	The document needs an organizational overhaul. There is a great deal of excellent information given but the current format makes it difficult to follow.	ESCTP has acknowledged that this comment has been satisfactorily addressed in by our response to other specific comments	367
USAEC	Overall	N/A	N/A	The document needs an organizational overhaul. There is a great deal of excellent information given but the current format makes it difficult to follow.	ESCTP has acknowledged that this comment has been satisfactorily addressed in by our response to other specific comments	370
USAEC	Overall	N/A	N/A	We need to double check and make sure all of the acronyms are spelled out the first time they are used (e.g., in the Executive Summary) and then listed in the appendix	This comment is editorial in nature.	371
USAEC	Overall	N/A	N/A	Terminology: MEC is used too much in this document to describe what we are actually referring to as "UXO" or "Munitions". I would suggest using UXO when referring to specifically looking for ordnance in the proximity of the ground surface. For example- Page 23, Line 21. Geophysics does not locate the "explosives" component of MEC.	Comment noted.	372
USAEC	Overall	N/A	N/A	Make sure acronyms are fully defined in photo captions	This comment is editorial in nature.	373
Ann Charles NJDEP	Overall	N/A		Overall, I think the document will be useful to state regulators working on munitions response projects	Comment noted. Thank you.	378
Ann Charles NJDEP	Overall	N/A		Overall, I think the document will be useful to state regulators working on munitions response projects	Comment noted. Thank you.	379

Army	Overall	Not Specified	Not Specified	In a few instances, surface clearance is used, rather than surface removal. These should be corrected. Under the Military Munitions Rule "clearance" has meaning. In terms of munitions responses, it most correct to use "surface removal" and "subsurface removal." Most of the document uses the correct term.	Comment noted. We have revised text as suggested.	380
Army	Overall	Not Specified	Not Specified	In a few instances, surface clearance is used, rather than surface removal. These should be corrected. Under the Military Munitions Rule "clearance" has meaning. In terms of munitions responses, it most correct to use "surface removal" and "subsurface removal." Most of the document uses the correct term.	Comment noted. We have revised text as suggested.	381
ESTCP	Overall			This is not the type of document that the UXO team should be producing. It is very process oriented and does not address the core mission of fostering acceptance of innovative technology. The team's time could be better spent on concrete technology issues.	Comment noted	384
ESTCP	Overall			It is hard to see how this document will be useful. It is not written in an authoritative voice and contains many minor errors and inconsistencies which detract from its credibility. Long, random bits of advice are interspersed in what are otherwise descriptive, factual sections. Some are listed below.	ESCTP has acknowledged that this comment has been satisfactorily addressed in by our response to other specific comments	385
ESTCP	Overall			This document is hard to read in its current state. It has short, choppy paragraphs, awkward syntax and is in many places repetitive. Although they asked for no editorial comments (and few are provided), some of the document is difficult to review.	ESCTP has acknowledged that this comment has been satisfactorily addressed in by our response to other specific comments	386
ESTCP	Overall			Comments are substantial. We recommend another round of DoD review.	Comment noted. We will confer with ITRC Board on possibility of another round of DoD review.	387
ESTCP	Overall			Throughout, the document focuses on current practice, which is accepted uncritically. Perceived limitations that are the result of current field methods and not technology limitations are presented as inevitable. Examples derive from currently achieved and accepted values when in many cases we can and should do better. De facto acceptance should not be set so low in a document on quality.	ESCTP has acknowledged that this comment has been satisfactorily addressed in by our response to other specific comments	388

ESTCP	Overall			Throughout, the document assumes a lot of knowledge about the MR process and technologies that the intended consumer likely does not possess. Examples are presented with little explanation or context. Some are called out below, but no attempt was made to produce an exhaustive list.	Revisions have been made to broaden some statements, not limit current applications	389
ESTCP	Overall			Throughout, MEC is used when munitions are meant. Although this is a commonly used acronym, it includes soils with sufficient explosives content to present a hazard, which is not addressed. In a couple places, they attempt to redefine MEC as including only UXO and DMM. Revising definitions is probably not wise.	ESCTP has acknowledged that this comment has been satisfactorily addressed in by our response to other specific comments	390
ESTCP	Overall			Much of the material is covered in multiple sections with slight inconsistencies. For example, the discussion of how quality is accomplished on page 7 (lines 13-22) differs from the flow chart on Page 8, which differs from the structure of the examples in section 3.	ESCTP has acknowledged that this comment has been satisfactorily addressed in by our response to other specific comments	391
Michael Habeck	Overall			Nice job. Good illustrations. (Fortunately) this guidance has limited applicability in our state.	Comment noted. Thank you.	382
Michael Habeck	Overall			Nice job. Good illustrations. (Fortunately) this guidance has limited applicability in our state.	Comment noted. Thank you.	383
Mo Ghazi	TOC	N/A	N/A	Recommend adding lists of Figures and Tables	We concur. We have added a list of Figures and Tables	393
Mo Ghazi	TOC	N/A	N/A	Recommend adding lists of Figures and Tables	We concur. We have added a list of Figures and Tables	394