
This training is designed to introduce state and federal regulators, consultants, and other stakeholders to a document created by ITRC's UXO Team titled *Munitions Response Historical Records Review*. This training focuses on providing guidance to reviewers of munitions response historical record review (MR HRR) documents.

**Presentation Overview:** The proper collection, analysis, and documentation of a historical records review for a munitions response (MR) provide the basis for the MR site investigation and remediation process. Because the historical review is the first step in evaluating hazards resulting from military activities at project sites, national, state, and local interest has increasingly focused on this review. Since historical evaluations can vary greatly from site to site, regulators must understand the various processes involved in preparing a historical review to evaluate the adequacy of one performed on a project site.

This training introduces state regulators, environmental consultants, site owners, and community stakeholders to the ITRC Technical and Regulatory Guidance Document *Munitions Response Historical Record Review (MRHRR)* (UXO-2), created by ITRC's UXO Team. It assists reviewers in assessing the adequacy of an MRHRR review of property potentially impacted by the use of military munitions. The course teaches the purpose, content, and terminology of munitions historical research; provides a uniform technical approach and useful tools for reviewing an MRHRR document independent of regulatory framework or authorities; and communicates state regulator expectations to those initiating, planning, and executing an MRHRR document.

ITRC – Interstate Technology and Regulatory Council (www.itrcweb.org)

EPA-OSRTI – Environmental Protection Agency – Office of Superfund Remediation and Technology Innovation (www.clu-in.org)

ITRC Course Moderator: Mary Yelken (myelken@earthlink.net)

# Munitions Response Historical Records Review

**Presentation Overview**

- Introduction to *Munitions Response Historical Records Reviews* (MR HRR)
- MR HRR Teams
- Questions and Answers
- Planning the Project
- Conducting the Research
- Analyzing and Interpreting the Data
- Reporting the Results
- Questions and Answers
- Links to Additional Resources
- Your Feedback

**Logistical Reminders**

- Phone Audience
  - ✓ Keep phone on mute
  - ✓ * 6 to mute your phone and again to unmute
  - ✓ Do NOT put call on hold
- Course Time = 2 ¼ hours
- 2 Question & Answer Periods

No associated notes

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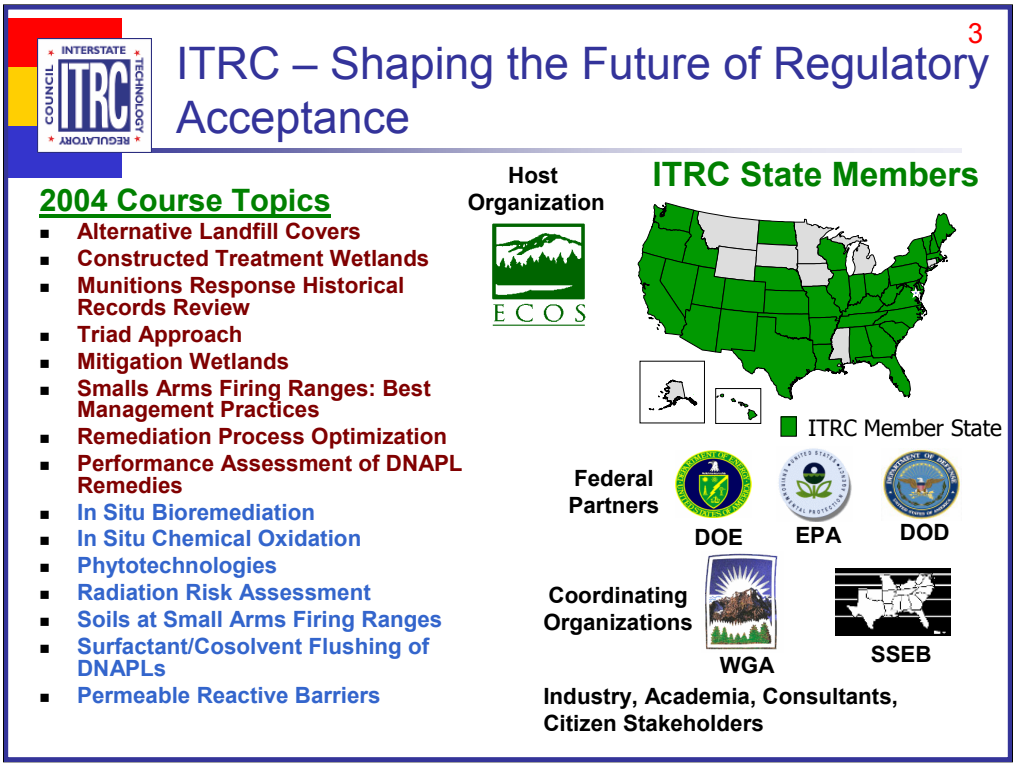



The Interstate Technology and Regulatory Council (ITRC) is a state-led coalition of regulators, industry experts, citizen stakeholders, academia and federal partners that work to achieve regulatory acceptance of environmental technologies and innovative approaches. ITRC consists of more than 40 states (and the District of Columbia) that work to break down barriers and reduce compliance costs, making it easier to use new technologies and helping states maximize resources. ITRC brings together a diverse mix of environmental experts and stakeholders from both the public and private sectors to broaden and deepen technical knowledge and advance the regulatory acceptance of environmental technologies. Together, we're building the environmental community's ability to expedite quality decision making while protecting human health and the environment. With our network approaching 7,500 people from all aspects of the environmental community, ITRC is a unique catalyst for dialogue between regulators and the regulated community.

For a state to be a member of ITRC their environmental agency must designate a State Point of Contact. To find out who your State POC is check out the "contacts" section at www.itrcweb.org. Also, click on "membership" to learn how you can become a member of an ITRC Technical Team.


**Nicole Sotak** is a senior environmental planner with the Department of Toxic Substances Control within the California Environmental Protection Agency. She supervises the Environmental Analysis and Regulations unit, which manages California Environmental Quality Act projects and provides technical support to the programs on environmental analysis and planning. Nicole has managed or assisted in the preparation of environmental analyses for a variety of unexploded ordnance remediation projects throughout California. Nicole has participated in ITRC for two years and has been the subteam leader for the development of *Munitions Response Historical Records Research*. Nicole received her bachelor of science from the University of California at Davis in genetics and completed graduate course work on environmental policy at the Ohio State University.

**David Larsen** has worked as an environmental scientist/geologist for the Utah Division of Solid and Hazardous Waste since 1988. His work is RCRA related, including permitting, inspections, and corrective action. He represented the state of Utah on the military munitions and range rule teams. He has written RCRA storage, treatment (OB/OD), postclosure, and RD&D permits. The RD&D permits were for facilities designed to demilitarize conventional and chemical munitions. He has inspected explosive and propellant manufacturing facilities, military facilities including the chemical weapons incinerator in Utah and on Johnston Atoll, military ranges, and many of the FUDS sites in Utah. He has worked with the U.S. Army Corps of Engineers and local Army EOD and Technical Escort units on projects involving surface and subsurface clearance and subsequent management of biological, chemical, and conventional munitions. His main duties currently include acting as regulatory project manager for corrective action at military bases. One of these projects involved characterization and evaluation of a very old site that was used to open burn 30,000 chemical agent (GB)–filled M55 rockets.

**Jim Pastorick** is President of Geophex UXO, Ltd., a consulting firm that specializes in providing technical support to state and foreign governments on ordnance and explosives/unexploded ordnance (OE/UXO) project planning and management. He is a former Navy Explosive Ordnance Disposal (EOD) officer who graduated from the U.S. Naval School of EOD in 1986. Since leaving the Navy, he has worked as the Senior UXO Project Manager for UXB International, Inc. and IT Corporation prior to starting Geophex UXO in 1999. Mr. Pastorick is a member of the ITRC UXO Work Team and has participated as a presenter of ITRC's "Basic UXO Training" Course. He has a BA in journalism from the University of South Carolina and worked as a photographer for the *Columbia Record* prior to reentering the Navy. Before attending college he served as a Navy enlisted man in the SEABEES.

## Why Is this Training Important?

- Historic research is the first step in the munitions response process
- Scope of the munitions response problem:
  - As much as 25 million acres of land in the United States alone is potentially contaminated with military munitions
  - Munitions response sites cross all military cleanup programs—IRP, BRAC, FUDS
  - Contaminated rangeland is a significant challenge associated with BRAC land transfer
  - BRAC 2005 likely to add significant challenge
- These sites pose potential for immediate public health risks

In 1983, two young boys were killed when abandoned UXO they found in the residential neighborhood of Tierra Santa (near San Diego, California) exploded.

# Munitions Response Historical Records Review

**A 1,000-pound chemical bomb from WW II recently found on a former testing range**

This training was prepared by the ITRC Unexploded Ordnance (UXO) Team, which was formed in 1999. The team—composed of state regulators, federal partners, private industry, and community representatives—provides a neutral forum for exchanging ideas about UXO cleanup, technology, and related issues.

The team has developed a two-day classroom introductory course entitled "UXO Basic Training," which introduces participants to key environmental issues associated with ordnance and explosives cleanup.

The MR HRR guidance document is the first in a series of documents that will focus on different aspects of the munitions response process.

The team's next document will be on geophysical prove-outs (GPO) for munitions response projects conducted in support of geophysical survey operations.

# Terminology

The MR HRR document and this training use the following terminology adopted by the Army in 2003:

- Munitions Response (MR)
- Military Munitions
- Munitions and Explosives of Concern (MEC)
- Munitions Constituents (MC)
- Munitions Response Site (MRS)
- Operational Range

**40-mm projectile found on a former live-fire range**

These definitions below are the complete list of definitions that have been finalized by the Department of Defense and included in an Office of the Secretary of Defense memo dated December 18, 2003 and titled "Definitions Related to Munitions Response Actions":

Defense Sites – Locations that are or were owned by, leased to, or otherwise possessed or used by the Department of Defense. The term does not include any operational range, operating storage or manufacturing facility, or facility that is used for or was permitted for the treatment or disposal of military munitions.

Discarded Military Munitions (DMM) – Military munitions that have been abandoned without proper disposal or removed from storage in a military magazine or other storage area for the purpose of disposal. The term does not include unexploded ordnance, military munitions that are being held for future use or planned disposal, or military munitions that have been properly disposed of consistent with applicable environmental laws and regulations.

Explosives or Munitions Emergency Response – All immediate response activities by an explosives and munitions emergency response specialist to control, mitigate, or eliminate the actual or potential threat encountered during an explosives or munitions emergency. An explosives or munitions emergency response may include in-place render-safe procedures, treatment or destruction of the explosives or munitions, and/or transporting those items to another location to be rendered safe, treated, or destroyed. Any reasonable delay in the completion of an explosives or munitions emergency response caused by a necessary, unforeseen, or uncontrollable circumstance will not terminate the explosives or munitions emergency. Explosives and munitions emergency responses can occur on either public or private lands and are not limited to responses at RCRA facilities.

Munitions Constituents (MC) – Any materials originating from unexploded ordnance, discarded military munitions, or other military munitions, including explosive and nonexplosive materials, and emission, degradation, or breakdown elements of such ordnance or munitions.

Munitions and Explosives of Concern (MEC) – This term, which distinguishes specific categories of military munitions that may pose unique explosives safety risks, means unexploded ordnance, discarded military munitions, or explosive munitions constituents (e.g., TNT, RDX) present in high enough concentrations to pose an explosive hazard.

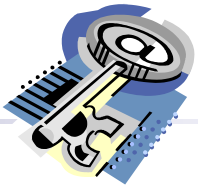
Munitions Response (MR) – Response actions, including investigation, removal, and remedial actions to address the explosives safety, human health, or environmental risks presented by unexploded ordnance or discarded military munitions or by munitions constituents.

Munitions Response Area (MRA) – Any area on a defense site that is known or suspected to contain UXO, DMM, or MC. Examples include former ranges and munitions burial areas. A munitions response area comprises one or more munitions response sites.

Munitions Response Site – A discrete location within an Munitions Response Area that is known to require a munitions response.

Military Munitions – All ammunitions products and components produced for or used by the armed forces for national defense and security, which includes confined gaseous, liquid, and solid propellants, explosives, pyrotechnics, chemical and riot control agents, smokes, and incendiaries, including bulk explosives and chemical

# Acronyms



| | |
|---|---|
| ASR | Archive Search Report |
| BRAC | Base Realignment and Closure |
| CSM | Conceptual Site Model |
| DQO | Data Quality Objective |
| EE/CA | Environmental Engineering and Cost Analysis |
| EOD | Explosive Ordnance Disposal |
| FS | Feasibility Study |
| FUDS | Formerly Used Defense Sites |
| IRP | Installation Restoration Program |
| PA | Preliminary Assessment |
| RFI | RCRA Facility Investigation |
| RI | Remedial Investigation |
| ROD | Record of Decision |
| SI | Site Investigation |

No Associated Notes

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# What Will You Learn from This Course?

## How to review and evaluate Munitions Response Historical Records Review documents

- MR HRR purpose, content, and terminology
- Technical approach and tools for reviewing an MR HRR
- Key elements of historic records review
- Expectations of the MR HRR
- Uniform technical approach and tools compatible with any regulatory framework

This training will demonstrate how the ITRC document *Munitions Response Historical Records Review* will

1) educate state regulators and other stakeholders on the purpose, content, and terminology of an MR HRR;

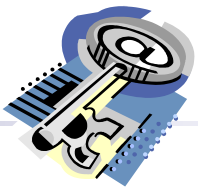
2) provide a uniform technical approach and useful tools for reviewing an MR HRR that is compatible with any regulatory framework or authorities;

3) provide the key elements of the historic records review process and resulting document; and

4) communicate state regulator expectations to those planning, executing, and initiating an MR HRR.

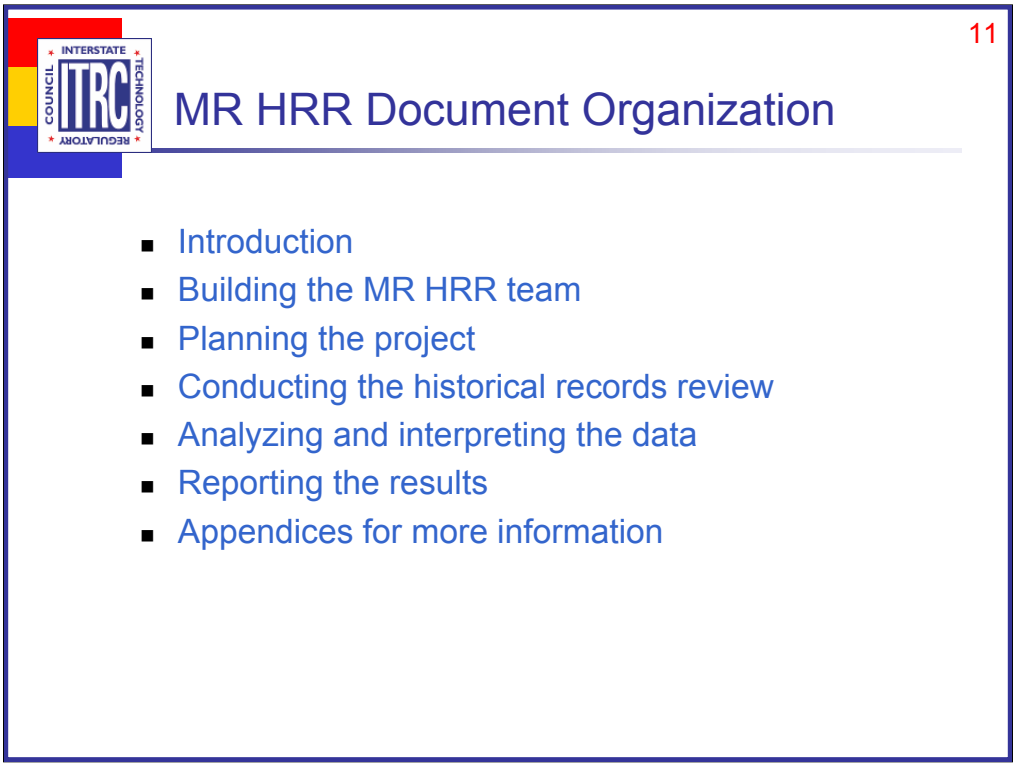
A variety of regulatory frameworks have been used for cleanup—CERCLA, RCRA, Drinking Water Act, etc. A more extensive review of regulatory frameworks was covered in the UXO Basic Training course offered by the UXO Team (see www.itrcweb.org for more information on this training).

# Key Issues



- Early stakeholder involvement in the munitions response process
- Emphasis on an open and transparent historical records research
  - Inclusion on the initial site visit
  - Establishment of a data archive
  - Establishment of a quality control program
- Development of a preliminary conceptual site model
- Establishing consistent data gathering and analysis methodology

No associated notes




The introduction discusses how the services' missions vary and how they approach historical records research from different perspectives.

The MR HRR team is composed of stakeholders. We are using the broadest possible definition of "stakeholders" in the course of this document and training: everyone who has a stake in the project, including state and federal regulators.

Knowing how the historical records research is planned and conducted will help you to evaluate its accuracy and completeness.

This document contains checklists and the information you can use to review the final report for completeness and accuracy.

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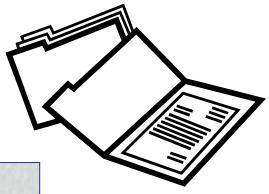
# What is a munitions response historical records review?

- The collection, analysis, and documentation of historical information related to the use of military munitions on a site
- First major step in the munitions response process

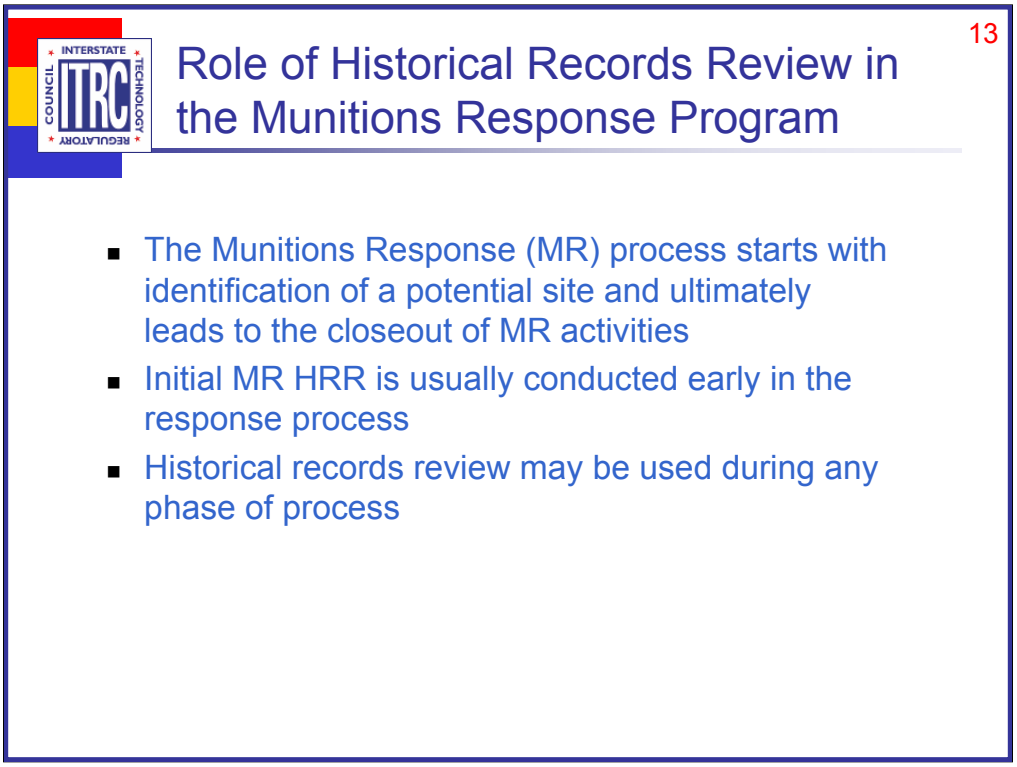


**MK-80 Series bomb**

A lot of these sites are old. Institutional knowledge has been lost, and there may not be any personnel available to talk about military activities. Records of these activities may be scattered around the country or lost, or historic activities may not have even been documented. Historic research will help to compile the information from various sources that is available to help military munitions use.

Historic research may indicate significant military munitions involvement that poses a potential munitions hazard, or it may establish that military munitions never existed on the site and therefore no further action is warranted.

High-quality, well-documented historic research will assist site managers, regulators and stakeholders in making confident, informed decisions concerning future site investigation and remediation work.




When scoping detailed investigations of potential munitions response sites, the initial historical research should first be reviewed to determine whether additional research is warranted.

There are potential limitations of many initial historical reviews.

As historical research progresses, specific questions or data gaps can arise that are best addressed with further research.


DOD has developed a munitions response site inventory and site prioritization protocol (SPP) required by the 2002 National Defense Authorization Act. The initial inventory was open for review and comments in 2003. While the official comment period closed November 20, 2003, comments can still be submitted. See the DENIX Web site (https://www.denix.osd.mil/) for more information.

U.S. Army Corps of Engineers

•The Army is the Executive Agent for DoD's Formerly Used Defense Site (FUDS) program. The U.S. Army Corps of Engineers (USACE) executes the FUDS program for the Army and investigates—and, when appropriate, performs required responses to address—contamination resulting from former DoD use of FUDS. Because many FUDS have been inactive for long periods of time, often little is known about potential hazards on many of these sites.

•At the request of an installation, the USACE may also implement munitions responses on MRSs that are located on installations realigning or closing under BRAC or on active installations on other than operational ranges.

•USACE Engineering and Support Center, Huntsville, has developed an archives search report (ASR) process; the purpose of the ASR records search is to locate and retrieve all appropriate documents regarding a site. If the ASR documents potential contamination, additional, more exhaustive historical investigation is almost always recommended.

U.S. Navy

•Responsible for all Military Munitions Response Program (MMRP) activities on on Navy and Marine Corps active and BRAC installations.

•Navy MR sites are on installations that are active or were recently active; therefore, documentation for these sites should be more readily available than for FUDS sites.

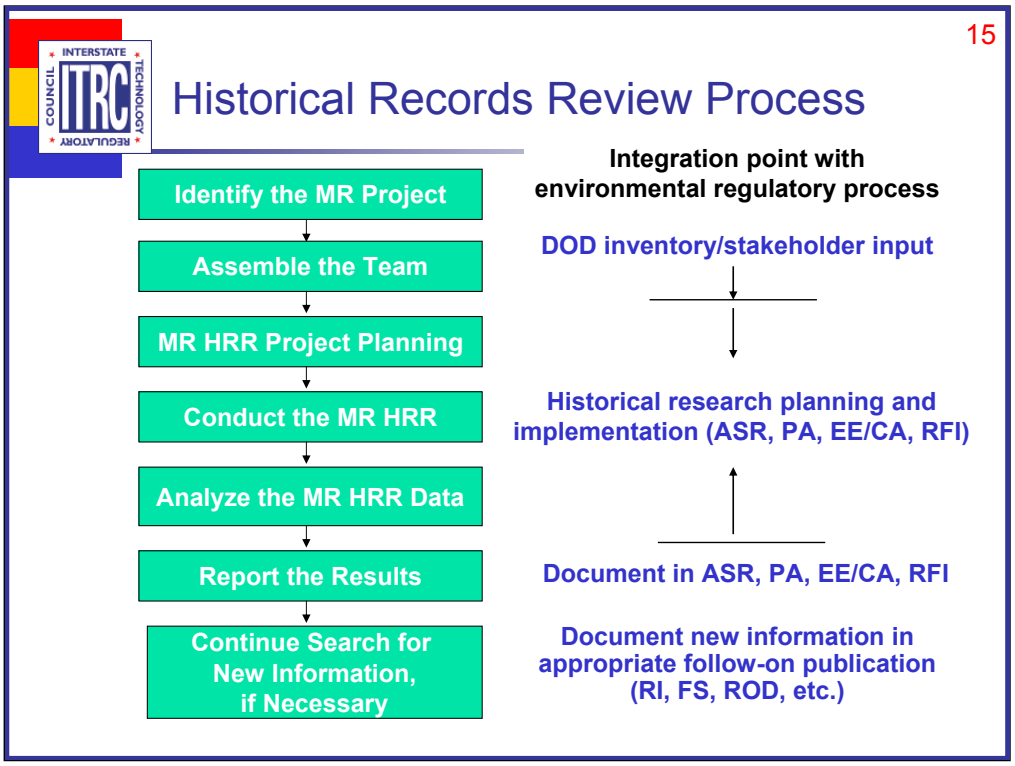
•The Navy follows the CERCLA process for MR sites. Therefore, information gathered during the MR HRR is documented in the Preliminary Assessment (PA).

•Navy and USAF do continuous MR HRR and document new findings in the appropriate document (for example, the PA, SI, RI, FS or a separate archive report document).

•The Marine Corps has completed comprehensive ASRs on 10 installations.

U.S. Air Force

•Has a similar mission and follows a process very similar to that of the Navy.




This is the general process for conducting and documenting MR HRR. Note that the Army Corps of Engineers uses ASRs and EE/CAs, whereas the Navy and USAF use PAs, RIs, and FSs. This is because the Army Corps performs work on FUDS sites and the Navy and Air Force do not.

Project planning and how the MR HRR is conducted are documented in the work plan.

Acronyms for this slide:

ASR – Archive Search Report

PA – Preliminary Assessment

EE/CA – Environmental Engineering and Cost Analysis

RFI – RCRA Facility Investigation

RI – Remedial Investigation

FS – Feasibility Study

ROD – Record of Decision

## The MR HRR Team

Composed of project managers, technical experts, and a review team, each with the right combination of expertise and interest in the project

DoD should involve regulators, and, when appropriate, non-DoD federal land managers, in the MR HRR as early as possible so that they can help guide the MR HRR project, including building the MR HRR review team. Also, the state regulator becomes a key point of contact for local residences and businesses, local and state representatives, and community and environmental groups.

State regulators and stakeholders will be important on the review team, which provides feedback to the project management and technical team during the course of the project.

A “stakeholder” should be defined in the broadest terms possible, including everyone affected by the project or having a clear interest in it. If the project's stakeholders perceive that their interests were represented and that the process was technically sound, broad acceptance is likely. This acceptance by multiple perspectives will provide the defensibility necessary during regulatory review, political inquiry, and public scrutiny.


Project management is responsible for overall scoping of the project and direction of the technical team.

Technical experts conduct the research, analyze the data, and document the results.

The review team provides feedback to the project management and technical team during the project.

# Technical Expertise and Support

| Support Category | Example Expert | Technical Expertise |
|---|---|---|
| Military Historian | U.S. Army Ordnance Center and School ordnance historian | Knowledgeable in past military activities, including research, testing, and training activities over time |
| Local Historian | Historical Society Staff, local university staff | Knowledgeable on past activities in local area, which may include past military activities and access to useful historical documentation (e.g., newspapers) |
| Archivist | Librarian, museum or university research staff | Versed in records sources and record keeping for historical activities |
| Mapping/GIS Specialist | Various contractors | Important in integrating past records with current geographical tools to pinpoint areas of potential interest |

No associated notes

# Technical Expertise and Support (continued)

| Support Category | Example Expert | Technical Expertise |
|---|---|---|
| Aerial Photo Specialist | EPA's Environmental Photographic Interpretation Center, Topographic Engineer Center | Specialize in analyzing aerial photos for evidence of ground activities that may be associated with release of hazardous materials and UXO |
| EOD/UXO Technician | U.S. Army Tech Escort Unit, USACE UXO Qualified Safety Specialist, various contractors | Trained in identification of recovered munitions, also responsible for safe dispositions of such items |
| Community Involvement | Contractors and nonprofit groups | Specialize in conducting outreach to identify veterans and other individual for subsequent interviews |

EOD – Explosive Ordnance Disposal

# Munitions Response Stakeholders

| Stakeholder | Team Examples | Roles & Interest |
|---|---|---|
| DOD Representatives | Army, Air Force, Navy, Marines, Army Corps of Engineers | Leadership, project completion |
| State Agencies | State environmental agencies, State Historical Preservation Office | State laws and regulations |
| Federal Agencies | Environmental Protection Agency, Fish & Wildlife Service, Forest Service, Bureau of Land Mgt. | Manage federal lands, protect natural resources and enforce federal standards in protecting health and environment. |
| Tribal Government | Tribal chairman, governor, chief, Tribal Council; Tribal Historic Preservation Officer; environmental project manager | Federal laws mandate contacting the local tribal nation immediately when the planning process begins |
| Local City, County Agencies | Dept. of Public Works, Dept. of Health, Land Reuse Authority, etc. | Ensure safe water supplied, local public health, etc. |

No associated notes

# Munitions Response Stakeholders (continued)

| Stakeholder | Team Examples | Roles & Interest |
|---|---|---|
| Land Owners | Industrial, commercial, residential | Concerned with property value, liability and health issues, control right of property access |
| Local Business | Transient utility workers, adjacent private schools, day care centers, etc. | Knowledgeable regarding occupational environment and activities of specific subpopulations |
| Community Advisory Boards | Restoration Advisory Boards (RABs), Citizen Advisory Boards (CABs) | Provide community perspectives |
| Nonprofits | Local environmental groups, churches, community organizations | Active in variety of health and environmental issues, often politically active |
| Individuals | Tenants and neighbors of property under investigation | May possess useful knowledge of past and/or current land use, recovered material, etc. |

No associated notes

# Partnering and Communication

Once the team members have been identified, a working partnership and a communication strategy are essential to success

Newsletter


Web site

**Table 2-3 from the document: Developing a Road Map for MR HRR Process Development**

1. Hold an initial team meeting.
    a. Discuss the scope of the project.
    b. Identify stakeholder concerns.
    c. Present the process for team function, work plan development, and research execution.
    d. Discuss other needed or interested members.
    e. Obtain feedback on above from participating stakeholders.
    f. Develop follow-up action items with names of individuals taking the leads and date and location of next meeting.
2. Circulate feedback and selected team structure, communication approaches, and next steps.
3. Develop MR HRR work plan, including clear decision matrices through identified team process and feedback loops.
4. Execute MR HRR research, data evaluation, and report development.
5. Provide a draft report for stakeholder review.
6. Address comments in collective process agreed to at the beginning of the process.
7. Provide final document in information repository.

# Questions and Answers

No Associated Notes

# The MR HRR Project Plan

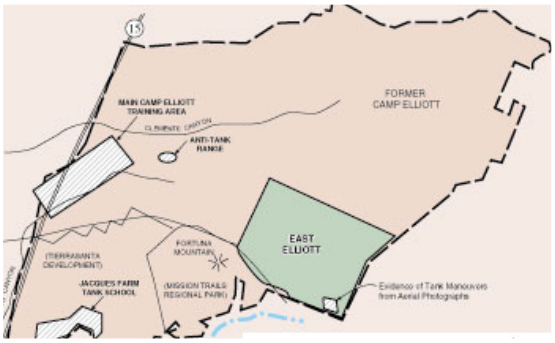
- Initial site identification
- Project objectives
- Initial site visit, if necessary
- Project work plan
- Data quality objectives (DQOs)
- Preliminary conceptual site model (CSM)

Because Army Corps of Engineers FUDS perform preliminary MR HRR and document the findings in an ASR, they may use an abbreviated and standardized research plan. Navy and USAF projects, done on BRAC sites, for example, almost always have an MR HRR plan developed for each individual project.

# Initial Site Identification

## Any organization with credible evidence that military munitions were used can identify a potential MRS

- DoD programs
- State programs




DoD programs include the formal MR Site Inventory Program currently under way. The inventory of munitions sites can be found on the Defense Environmental Network & Information Exchange (DENIX) Web site (https://www.denix.osd.mil/denix/denix.html).

This initial MRS identification can serve as the initiating input to put the MRS on the inventory list.

Some states have their own programs to identify and document previously identified MRS by conducting their own preliminary historical research and site inspections.

# MR HRR Project Objectives

- Verify site and range boundaries
- List all site owners and users
- Determine whether immediate action is needed (such as warning signs)
- Establish dates of use
- Establish type of military munitions used, if possible


**MEC warning sign**

These are some examples of some common project objectives.

## Plan for the Unknown

There is always the possibility that some types of munitions-related activity will not be identified during the MR HRR

**3.5-inch rockets**

Examples of unexpected findings:

1) At a National Guard site in Colorado, the historical site information indicated that the range was used for weekend training of local guardsmen on field artillery (155-mm and 8-inch guns). Historical records also included maps of the firing points and target areas, although no specific targets were identified.

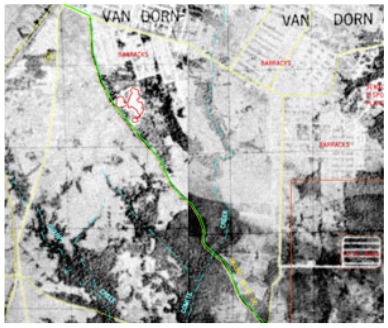
During a field inspection of the site, several 3.5-inch rocket warheads and rocket motors were found, indicating the Guard also conducted some type of rocket training at the site. The area with rockets was added to the site conceptual model and plans made to investigate the remainder of the 24,000-acre site for other undocumented munitions contaminated areas. This use of the site (direct-fire antitank rockets) was not consistent with the existing CSM (indirect-fire artillery), and the project CSM was updated based on this finding.

2) Chemical Agent Identification Sets (CAIS) were not indicated on the inventory of expected MEC but were discovered on the Presidio of San Francisco after its closure.

In the case of Navy and Air Force BRAC projects, newly discovered information will be documented at the appropriate document.

# Initial Site Visit

- An initial site visit is usually performed for FUDS
- Helps develop general understanding of the site; may also help determine whether a time-critical response is needed
- Should follow all safety precautions




Because there may be so little known about the site and/or the surrounding area, a brief initial site visit can be helpful in developing a general understanding of the site and determining whether military munitions-related activities occurred at the site. The site visit may also help determine whether a time-critical response is needed.

If the site visit is to a FUDS on private property, the property owner must be contacted to provide permission prior to entering the site. If the FUDS is on public property, the appropriate official(s) should be notified.

# Information to Be Collected on Initial Site Visit

- Obvious MEC areas of interest
- Location of buildings and old building foundations
- Current land use
- Local emergency support
- Terrain and vegetation conditions
- Photographs of areas of interest

The initial site visit not only looks for military munitions contamination, but also collects important site information, such as terrain, access and land use.

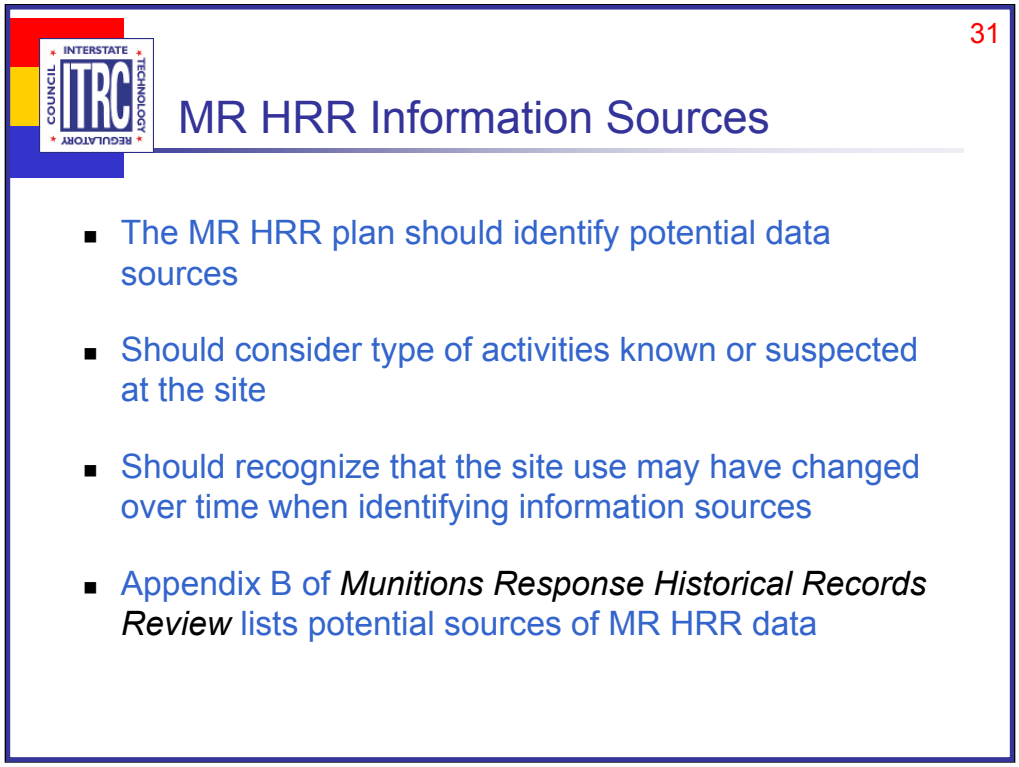
# MR HRR Project Work Plan

- DoD Services approach planning for MR HRR somewhat differently
- Army Corps of Engineers
  - Uses a standardized MR HRR plan for FUDS initial ASR investigation followed by any additional MR HRR planning necessary as part of a later PA or EE/CA
- Army, Navy and Air Force
  - Initial MR HRR planning takes place as part of the planning for the PA
  - Follow-on information is documented in the appropriate document, such as the RI or FS

After the initial site visit, the DOD services take somewhat different approaches to planning historical research projects.

•The Corps typically works on FUDS sites and uses a standardized plan for the ASR investigation.

•Navy and Air Force typically work on active or BRAC sites; thus they already have the ASR level of information available on the base.




Potential data sources should be agreed to by the MR HRR team.

In defining data sources, the team should consider types of activities conducted, both known and suspected.

Also, the team must recognize that the site use may have changed over time. For example, upon its closing, the former Fort Ord, California had a specific area designated as the Cantonment Area. No one expected to find MEC in this area that was used for administrative functions and personnel housing. However, this area was discovered to contain MEC because it had been used as a live-fire range prior to being designated as the Cantonment Area. This discovery resulted in a requirement for UXO support for all intrusive activities in the Cantonment Area (installing fence posts, environmental sampling, installing underground cables, etc.)

Team members may also identify additional sources of data. For example, the Marine Corps Museum in Quantico, Virginia has recently been identified by a stakeholder as possibly having detailed information on the training operations conducted on the Vieques Naval Training Range in Puerto Rico. This source had not been previously known to the Navy.

Appendix B of *Munitions Response Historical Records Review* lists some potential sources of historical records data.

# Sample of MR HRR Information Sources (from Appendix B)

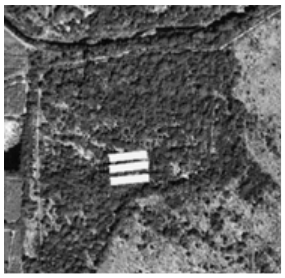
- U.S. National Archives and Records Administration
- Defense Visual Information Center
- Naval Historical Center
- U.S. Naval War College Archives
- The Library of Congress, Geography and Map, and Prints and Photographs Divisions
- Air Force Base Historical Research Agency
- U.S. Air Force Safety Center
- U.S. Army Center of Military History
- U.S. Army Corps of Engineers Topographic Engineering Center (TEC)

See complete list in Appendix B of *Munitions Response Historical Records Review*.

# Aerial Photography Interpretation

- Army Corps of Engineer's Topographic Engineering Center has access to all government historical and current aerial photography
- EPA's Environmental Photographic Interpretation Center (EPIC) is located in Reston, Virginia, and performs remote sensing, R & D, and aerial photo analysis

1951



1995

**Aerial photos of the same location. The bars superimposed on the photo on the right show the site where the old landfill is located. Analysis conducted by TEC's Terrain Analysis Branch.**

A valuable data source is the Corps' Topographic Engineering Center.

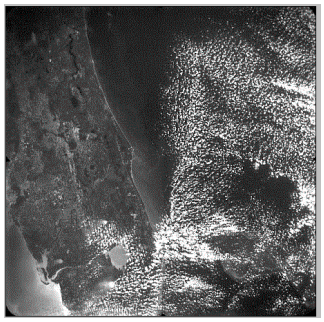
•Point of contact information is included in Appendix B of *Munitions Response Historical Records Review*.

•Currently TEC may be occupied with active duty support. However, contractors who can perform historical photo analysis can be found through an Internet search.

•EPA's Environmental Photographic Information Center is a field station of the Landscape Ecology Branch (LEB), Environmental Sciences Division - Las Vegas (ESD-LV), National Exposure Research Laboratory (NERL), Office of Research and Development (ORD).

# Declassified Satellite Imagery

- Provided by the Earth Resources Observation Systems (EROS) Data Center of the U.S. Geological Survey – edc.usgs.gov



No Associated Notes

## Developing Data Quality Objectives

EPA's process for developing data quality objectives (DQOs):

1. State the problem
2. Identify the decisions
3. Identify inputs to the decisions
4. Define the study boundary
5. Develop decision rules
6. Specify tolerance limits on error
7. Optimize sampling design

Planning a historical record search is similar to other environmental investigations.

We recommend following the EPA DQO process for developing data quality objectives. For more information on the DQO process, see EPA's *Handbook on the Management of Ordnance and Explosives at Closed, Transferring, and Transferred Ranges and Other Sites*, Interim Final, February 2002.

# Quality Control

## QC planning may include:

- Standardized data management form (see Appendix D in *Munitions Response Historical Records Review*)
- Develop rating system
  - High quality—Verifiable data source
  - Medium quality—Written records, without the original source, or personal interviews where several interviewees provide similar accounts
  - Low quality—Formerly verifiable data source, but original source no longer available; personal interviews without backup documentation or with contradictory documentation.
- Master log of all data items added to project archive
- Regular schedule of QC checks on data

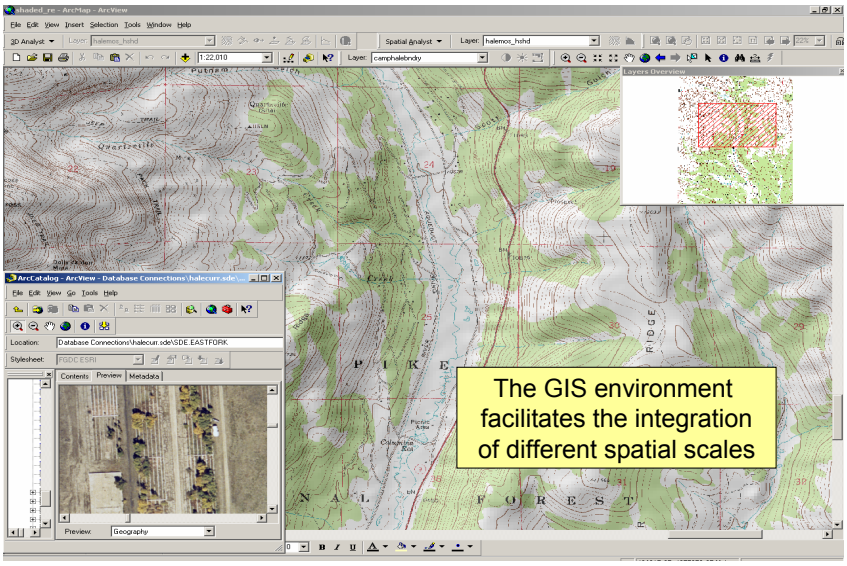
Information on QC is in Section 3.5.1. of *Munitions Response Historical Records Review*.

Historical records research must meet same standards of known quality and usability as other environmental investigations.

QC of data gathering and analysis is critical to the project. Key components to ensuring QC are

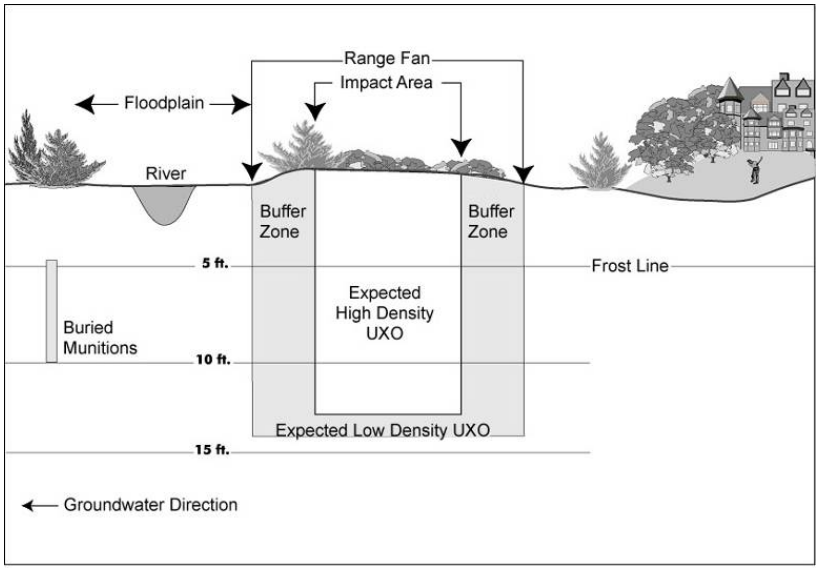
- •Standard data management form
- •Develop rating system
- •Master log of all data items
- •Regular QC checks and audits of data

# Data Archives




An example of data archiving is developing a GIS system. GIS can facilitate consolidation of information on the project. For example, at Camp Hale in Colorado, roads have been moved over time. Being able to georeference information is very important to the accurate understanding of the site.

# Preliminary Graphic Conceptual Site Model




More information on CSMs for MRs can be found in the EPA *Handbook on the Management of Ordnance and Explosives at Closed, Transferring, and Transferred Ranges and Other Sites*, Interim Final, February 2002.

The goal of historical records research is to gain an understanding of the past use and potential munitions contamination of the site.

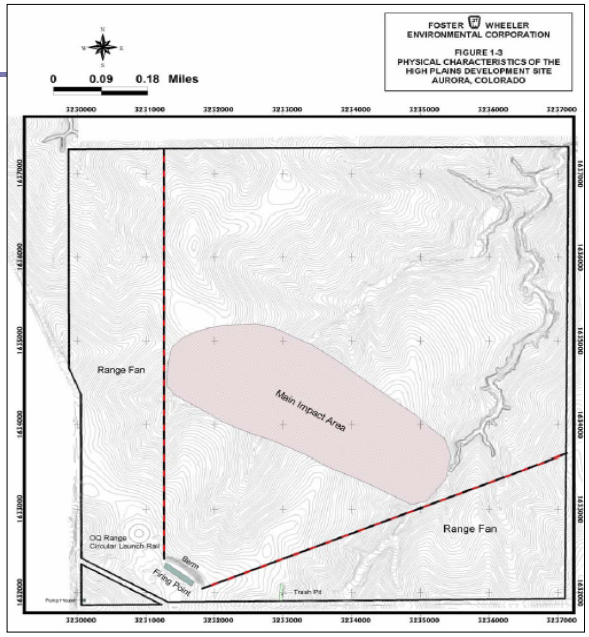
The best way to do this is with the conceptual site model (CSM). This slide is an example CSM diagram.

# Preliminary Tabular Conceptual Site Model

| MEC-Related Activity | Primary Source | Primary Release Mechanism | Expected MEC Contamination | Secondary Source |
|---|---|---|---|---|
| Artillery Range | Firing Point | Mishandling/, loss or burial;<br><br>Excess propellants burn area;<br><br>Burial | Unfired (fuzed or unfuzed) munitions;<br><br>Discarded military munitions | Munitions constituents (MC) |
| | Buffer Zone | Firing | UXO | MC |
| | | Burial | UXO | MC |
| | Impact Area | Firing | UXO | MC |

The graphic and tabular representations of the CSM provide an overview of where the contamination is, how it got there, and what receptors are subject to coming in contact with it.

# Preliminary Map-Based Conceptual Site Model




This CSM example is of the gunnery range at of Lowery Bombing and Gunnery Range discussed in an earlier slide.

On this example map, there is a high-density impact area which was the direct-fire nose and tail gun target. There is also a larger range fan going 3 miles downrange where the projectiles fired at the aerial drones landed.

This is an example of why a CSM is critical to an investigation. If you were to investigate areas inside and outside of the direct fire impact area, you would get drastically different results. Without the conceptual site model and knowledge of the two site uses, it would be difficult to accurately interpret and understand the results.

# Conduct the Research

## Considerations during the implementation of the historical records review:

- The mission of the researchers is to find all relevant data items
- Researchers should look for additional information leads
- Consider assigning an experienced researcher to oversee archive searches
- Track time spent investigating each information source
- Assign a person to perform personal interviews
- Consider conducting a second personal interview with potentially valuable interviewees
- Site maps and photos are helpful aids

Early stakeholder involvement (including state regulator involvement) can help save time and conflict in munitions response projects. As many of you have experienced, the more you know about a site up front, the better. Besides saving time, this allows you to plan a better site cleanup and allows for more confidence in making a No Further Action determination or other decisions about the site.

It is important to remember that DoD basically holds all the information about FUDs and other munitions sites, not only because DoD controls access to reports and information, some of which is classified, but also because of the safety issues related to munitions. At a typical hazardous waste site, state regulators enter the site, collect samples, and characterize the site, but most regulators do not have the training or desire to enter a munitions site without DoD experts. It is also hard for regulators to quantify risk at munitions sites because one munition can be a deadly hazard. These types of issues should be communicated to the researchers.

**First bullet** - What is relevant may depend on the person you ask. Additional information leads should include all parties, including regulators, safety experts, DoD, landowners, BLM, etc. Information needs of all parties should be identified for the researchers.

**Second Bullet** - Researchers should be directed to visit facilities that did tests or training or facilities that supplied the munitions, as well as the national archives. DoD carefully tracks movement of munitions. Local records may also be helpful.
Example: An Army site formerly used to store conventional munitions went through base closure (BRAC). The site was not reported to have been used for storage of certain types of munitions. Upon a visit to the site, regulators noted chemical symbols on some of the storage igloos. After looking over the historical storage records, regulators discovered that the igloos had been used to store smoke rounds and chemical rounds. This information was used to justify adding parameters to the sample list and provided information that was used in the investigation of the range located near the BRAC site.

**Fourth Bullet -** Use time wisely and focus on important items.

**Fifth Bullet -** Interviews with former employees and others are important. Retired employees are usually willing to share information about former disposal areas. Interviewers should be able to address concerns about liability and the classified/unclassified status of information. Preassigned topics and questions should be derived from the data quality objectives. **Example:** An Open Burn/Open Detonation area at a BRAC site was thought to have been cleared. A farmer that owned the land adjacent to the range was interviewed, and it was discovered that he personally had cleared his field of munitions many times. This information allowed the regulators to expand the investigation not only to the farmer's field, but also to an area thought to have been used as a range.

**Seventh Bullet** - Maps are very helpful and sometimes show cultural and other features that may have existed in the past. Air photos are even better. If taken at the right time, aerial photos may show firing points, targets, target or munitions scrap landfills, or other features that can be used to focus the investigation.

# Conduct the Research (continued)

- Multiple sources of information may exist
  - Researchers should be alert to identify new sources of information during their review of the previously identified data sources.
- On active facilities, researchers should visit the facility to obtain records
  - The military inspects and tracks the movement of munitions. Inspection, management, and use of ordnance was frequently recorded on ammunition reports, magazine logs, and firing orders.

Review of facility records can sometimes provide a wealth of information on the use of facilities ranges.

# Classified Information

Some of DoD's information is classified. The person conducting the research must have an appropriate security clearance.


UNCLASSIFIED

DOCUMENT CONTROL DATA - R & D

ANALYSIS OF ENVIRONMENTAL SAMPLES FROM AREA OF SHEEP DEATHS NEAR DUGWAY PROVING GROUND (U)

APR 1970

DASP 100-69

Chemical agents
Lethal agents

(C) The objective of this work was to determine whether VX was present in samples of the soil, water, or grass submitted from the area of sheep deaths near the Dugway Proving Ground. The investigation required the rapid development and/or adaptation of a variety of independent analytical methods that can be used with assurance for detecting agent at the ppm to ppb levels. The methods described in this report proved the presence of VX in the submitted environmental samples and are of sufficient sophistication to be applicable to similar studies where required.

14. KEYWORDS

Environmental samples
Pond water
Snow
Grass
Soil
Sample extraction
Sample concentration
Component isolation
Dugway Proving Ground
Sheep deaths
Chemical agents

VX
Degradation products
Residues
EA 2192
Ethyl methylphosphonic acid
Analysis
Trace analysis
Analytical methods
Gas chromatography
Thin layer chromatography
Infrared spectroscopy

Mass spectrometry
Multiple Internal Reflection (MIR)
Enzyme inhibition
Bimolecular rate measurement
Preparative chromatography
Detection

DD FORM 1473

REGRADED UNCLASSIFIED JOD, DPG

Security clearance should be considered when selecting persons to conduct the MR HRR. It is also possible that classified information will not be included in the MR HRR report.

DoD classifies information for a variety of reasons. Some of these reasons may be unrelated to the site cleanup. For example, sometimes the gun or other equipment being used is classified, not the types and amounts of munitions fired. If the researcher can communicate these types of reasons to the project team, it builds credibility that DoD is not withholding information.

How classified information is to be addressed in the MR HRR process should be discussed early on with the Corps or DoD, and this information should be communicated to the project team in advance of the research being conducted.

# Archive Searching at the U.S. National Archives and Records Administration

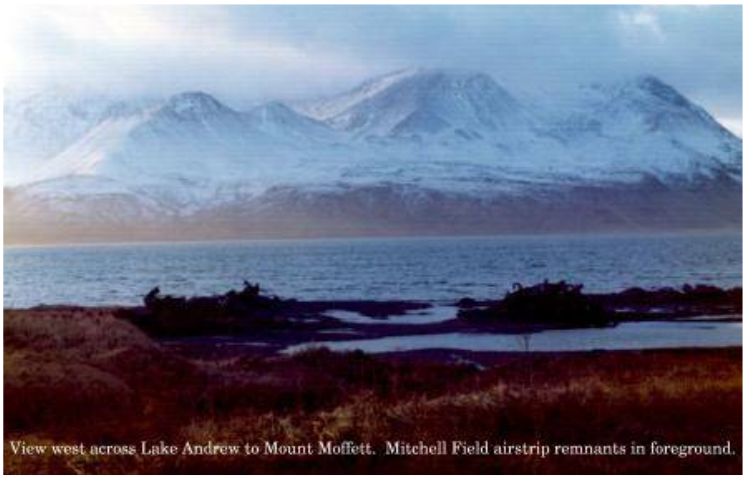
An experienced researcher can be assigned to oversee the archive searchers


**Archive Searching at the US National Archives**

If possible, ask for a person experienced in researching munitions, FUDS, BRAC, etc. A predetermined final conclusion about the site should not be communicated to the researchers.

Can also do research at nearby facilities or locations where munitions used at the site may have originated.

# New Historical Information




**A historical military photo of Adak Island, Alaska**

**Adak**

Many times, new information is found during the research or site investigation process. This information can be used to focus the investigation or possibly revise project DQOs.

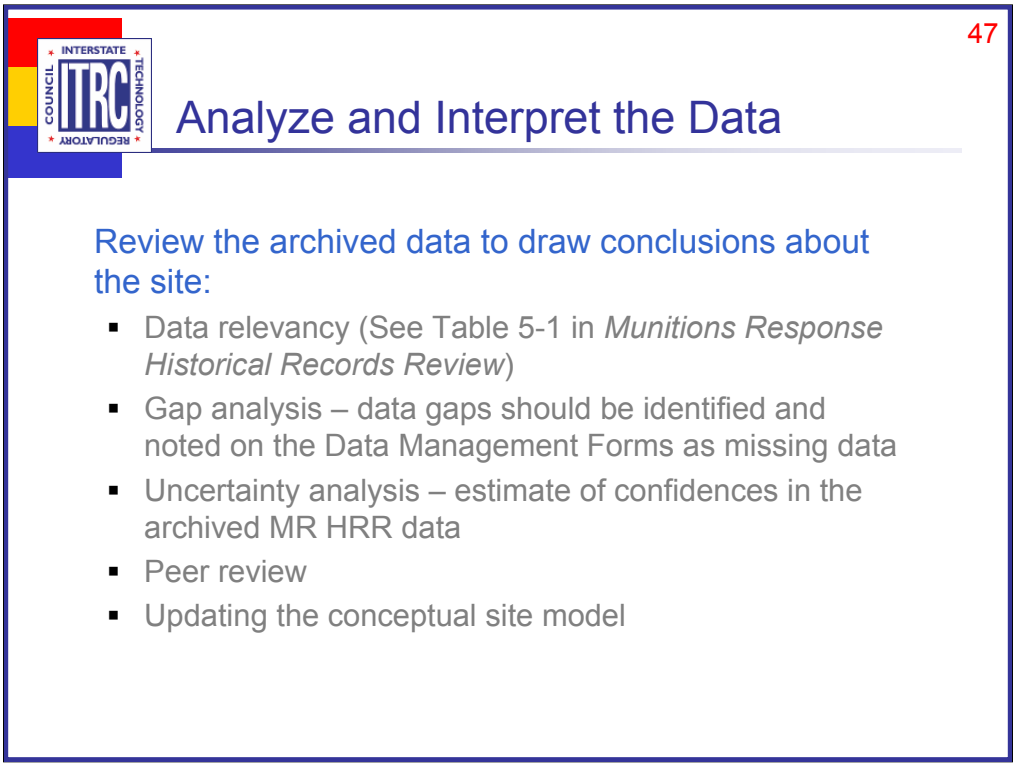
For example, the Navy conducted an Archive Search Report for the Adak, Alaska base closure project and began field investigation. Discovery of new archival information at a previously unidentified source resulted in the decision to investigate this new information source. This information allowed the project team to devise specific sampling methods to locate small and unmarked targets in what were large uncontrolled maneuver areas in remote areas of Adak. The success of these sampling methods resulted in the signing of the Adak Record of Decision for Operable Unit B (OU-B was all ordnance sites).

# New Historical Information

Finding new information may

- require modification of the conceptual site model and
- provide information about people to interview, locations of munitions use, or munition types

One of the main purposes of the MR HRR is to decide whether a site qualifies for a No Further Action determination or is a site where immediate action is needed. Analysis and evaluation of the data generated during the MR HRR process will help you make sure you have the information you need to make these kinds of decisions.




The CSM should be continuously updated as new information in discovered.

**Bullet 1** - The data gaps and uncertainties should be communicated to the researchers so they will know what is and is not relevant to the site investigation. As new information is discovered, the CSM should be updated.

**Bullet 2** – With regard to data gaps, if sufficient information is not available, the military generally will not want to spend additional money to investigate a site. However, if regulators believe there is a possibility that munitions are present at a site, the regulators may want the military to continue an investigation. Most regulators view munitions differently than hazardous waste sites due to the nature of munitions – that is, one unexploded item can be a big problem.

Data gap issues will occur at almost every site. Each project manager needs to deal with these issues on a project-by-project basis. Sometimes these types of issues can be resolved by communicating what is known about the site, doing a site visit to identify any surface munitions, and if nothing is found, getting a commitment from the military to return to the site if new information becomes available.

An example of a typical data gap in dry western states is the occurrence of buried munitions. The military is generally able to clear surface munitions because of the lack of vegetation, but the amount and type of buried munitions and the rate at which the buried munitions come to the surface almost always constitutes a major data gap and uncertainty.

Another data gap is related to technologies used to find buried munitions. Ordnance scrap, rocks containing high amounts of iron, and other features may render the use of magnetometers and other instruments that can be used to detect UXO unusable. There many be so many false positives that it will not be economically feasible to dig all the anomalies.

If researchers can provide any data on the number of rounds used at a site and the number of duds, this information could be used to put limits on uncertainties related to buried munitions. If researchers can provide information about soil and rock types in the area, this may also prove useful in deciding which technologies to use. It is possible that no technology can be used reliably at a site.

**Bullet 3** – Once you know what you don't know (what the uncertainties and data gaps are), you can use that information to decide if additional work is needed.

**Bullet 4** – As in any scientific endeavor, independent validation and peer review play a critical role in adding credibility to the conclusions of any report. Peer review can be used as a way to identify data gaps and uncertainties. Before a peer review is completed, there should be sufficient information to make some conclusions about the site. In some cases that conclusion may be that no further action is needed. In this case, the peer review will need to include DoD-hired munitions experts and contractors, military and regulatory project managers, local landowners or users, and, in some cases, the general public. If air photos are available, air photo experts may also provide valuable input.

In cases where there is an obvious need for more work, the peer review is still important because different people have different areas of expertise and view the site from different perspectives. There will generally be several iterations of peer review in the process of evaluating a site.

An example of a good use of peer review is an old mining site in Utah used for target practice. The military believed that surface clearance was sufficient. BLM experts disagreed, pointing out the die-hard nature of some mineral collectors and their willingness to go into old mines. This data gap identified by BLM led the researchers to conduct further research at a nearby facility. In the library of this facility, the researchers found reports that identified the type and amount of munitions and tests done at the site, which showed that the mines probably contained munitions.

**Bullet 5** – Once sufficient information is available, you can focus resources on filling data gaps so that uncertainties can be minimized and decisions about the site can be made. For example, if it is determined that buried munitions are present, the conceptual site model can be modified and further decisions can be made on how to collect data about the buried munitions. The final decision may be that there are buried munitions, but due to the geology of the site, not all munitions can ever be located, and therefore some type of land restriction will be needed.

# Typical MR HRR Data Items

- ✓EOD response reports
- ✓Firing orders
- ✓Munitions storage records
- ✓Facility maps
- ✓Command unit histories
- ✓Aerial photographs
- ✓Personal interviews
- ✓Newspaper articles
- ✓ Land transfer records
- ✓ Weather records
- ✓ Topography and vegetation data
- ✓ Geology data
- ✓ Surface water, wetland, endangered species and cultural resources
- ✓ Groundwater data
- ✓ Local phone book

These forms are typical of the data items collected during an MR HRR. This list is not exhaustive. The project team should communicate with the researchers on the kinds of data items they are expecting.

Form 4508

AMC-R 740-28

c. Achieve maximum use of storage space.

d. Provide rapid response to demands for location information.

e. Meet or exceed the minimum acceptable accuracy standard of 98 percent set forth for AMC installation ammunition stock location records.

1-5. Policies.

a. The provisions of this regulation are applicable to all wholesale and retail Class V stocks stored at all AMC installations.

b. AMC installation ammunition stock location records will be maintained by a single record keeping activity. Duplicate records, such as field location files, are prohibited.

c. A minimum acceptable accuracy level of 98 percent will be maintained for storage location records. This standard is applicable to the perpetual location survey performed by the inventory activity in accordance with AMC-R 740-27.

d. Receipts will be pre-located to a specific permanent or temporary location. This location will be recorded on the computer or manual location record before the receipt document is posted to the accountable record or reported to a separate accountable activity.

e. Approval must be obtained from the storage planning activity prior to accomplishing location changes. Location changes will be controlled by use of DA Form 4508 (Ammunition Transfer Record). This multipurpose form will also be used in recertification and reclassification actions and movement of stock, except as a direct result of issue to supported units or shipment. Grid locations will be deleted when quantities therein are depleted or when the location survey reveals recorded locations without corresponding stock at the storage grid location. A central control register will be maintained for tracking Ammunition Transfer Records. Instructions for preparing Ammunition Transfer Records are contained in AR 740-200-1, chapter 5.

f. The location record will include temporary locations for materiel stored in excess of 24 hours in the surveillance workshop, preservation and packaging facility, maintenance shop, or other activity.

g. Ammunition lots having multiple owners will not be separated by owner in storage unless a portion of the lot is designated as a specific unit's Unit Basic Load (UBL).

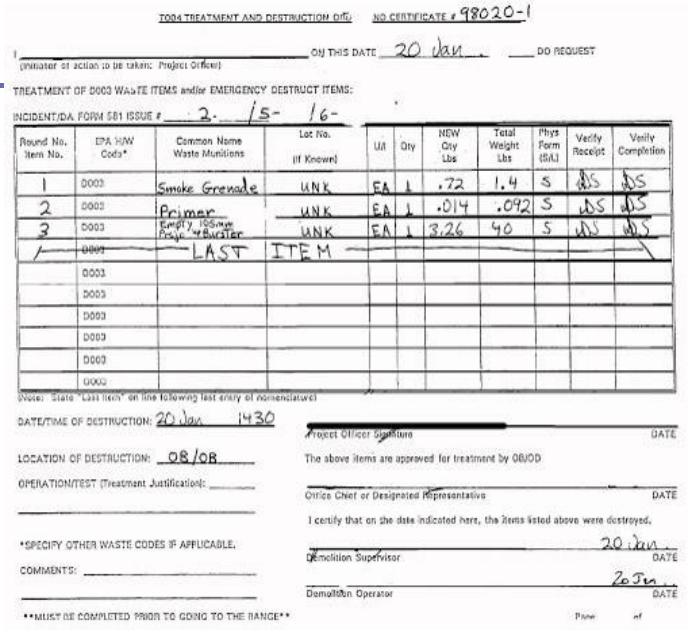
h. Ammunition will be stored in accordance with approved Army storage drawings contained in TM 743 FSN 75-5.

i. AMC Form 1387 (Magazine Data Card) or AMC Form 1385-1 (Ballistic Trailer Card), described in appendix A, will be prepared for and placed on ammunition stacks or grid locations. AMC Form 1385 alone will be used when a single ammunition lot is stored on a pallet or pallets at a grid location. When more than one lot is stored on a single pallet, AMC installations have an

1-1

This is just one of the forms DoD uses to track munitions. DOD records and tracks munitions upon leaving an igloo or, if they are not used, returning for storage. Like anything else, munitions have a shelf life that must be tracked. This form may help you determine the amount and types of munitions used at a site.

# Destruction Certificate



TODA TREATMENT AND DESTRUCTION DATA NO CERTIFICATE # 98020-1

I _____ ON THIS DATE 20 Jan DO REQUEST
(Initiator of action to be taken: Project Officer)

TREATMENT OF D003 WASTE ITEMS and/or EMERGENCY DESTRUCT ITEMS:

INCIDENT/DA FORM 581 ISSUE # 2-15-16-

| Round No. Item No. | EPA HW Code* | Common Name Waste Munitions | Lot No. (If Known) | UI | Qty | NEW Qty Lbs | Total Weight Lbs | Phys Form (S/L) | Verify Receipt | Verify Completion |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | D003 | Smoke Grenade | UNK | EA | 1 | .72 | 1.4 | S | JDS | JDS |
| 2 | D003 | Primer | UNK | EA | 1 | .014 | .092 | S | JDS | JDS |
| 3 | D003 | Empty 155mm Projectile w/Burster | UNK | EA | 1 | 3.26 | 40 | S | JDS | JDS |
| ~~4~~ | ~~D003~~ | LAST | ITEM | | | | | | | |
| | D003 | | | | | | | | | |
| | D003 | | | | | | | | | |
| | D003 | | | | | | | | | |
| | D003 | | | | | | | | | |
| | D003 | | | | | | | | | |
| | D003 | | | | | | | | | |

(Note: State "Last Item" on line following last entry of nomenclature)

DATE/TIME OF DESTRUCTION: 20 Jan 1430

LOCATION OF DESTRUCTION: OB/OB

OPERATION/TEST (Treatment Justification): _____

*SPECIFY OTHER WASTE CODES IF APPLICABLE.

COMMENTS: _____

**MUST BE COMPLETED PRIOR TO GOING TO THE RANGE**

[redacted] Project Officer Signature DATE

The above items are approved for treatment by OB/OD

Office Chief or Designated Representative DATE

I certify that on the date indicated here, the items listed above were destroyed.

Demolition Supervisor 20 Jan DATE

Demolition Operator 20 Jan DATE

Page of

Slides 51-54 show other forms used to track and record munitions use. The type of form may depend on the branch of the military, but each branch tracks use and disposition of the munitions.

# Incident Report

**EXPLOSIVE ORDNANCE INCIDENT REPORT**
FOR USE OF THIS FORM SEE FM 9-15; THE PROPONENT AGENCY

UNIT NUMBER | CATEGORY

**SECTION A: INITIAL INFORMATION**

| | | |
|---|---|---|
| 1. DATE/TIME GROUP: 03 1530 DEC | 4. ITEM(S) REPORTED: 105MM PROJECTILLE | 6. RESOURCES THREATENED |
| 2 A. REPORTING ACTIVITY | | 7. IMPACT ON MISSION |
| 6. LOCATION (GRID): YELLOW JACKET | | 8. PROTECTIVE MEASURES |
| 3. CONTACT METHOD | 5. NBC CONTAMINATION: NONE | 9. PRIORITY |

**SECTION B: EOD UNIT INFORMATION**

10. PERSONNEL DISPATCHED: Personnel later dispached

11. DATE/TIME
DPRT: 031600DEC
ARR: 031645DEC
COMP: 201500JAN

12. TOTAL HOURS: ADJ 40

13. CONFIRMED IDENTIFICATION / PUBLICATIONS:
105MM Projectile, unfuzed
Characteristics of a chemical munition. Solid base plate and burster adapter. Munition did not slosh according to the person who initially moved it.
Munition was in a deformed state.

14. DISPOSITION:
Disposed on OB/OD 20 Jan 98

15. EXPLOSIVES EXPENDED:
In conjunction with DPG 02-97 & DPG 05-97
1 EA M757 CHG Demo Kit LOP-1-113
2 EA M130 Cap Blast Elect HEP-1-23

16. SIGNIFICANT DETAILS OR PROBLEMS:
3 Dec 97 Team assessed munition visually and with MK 32 x-ray. Truck mounted generator could not handle load of the ANDREX.
4 Dec 97 Munition was assessed with ANDREX and PINS. ANDREX was inconclusive. PINS revealed chlorine content. Munition was packaged and transported to Mag. 42.
9 Dec 97 Munition was re-assessed with ANDREX and PINS. ANDREX revealed burster tube but no definite fill line. PINS revealed chlorine content. Munition was transferred to MAG 41 due to compatibility.

17. POC: SSG

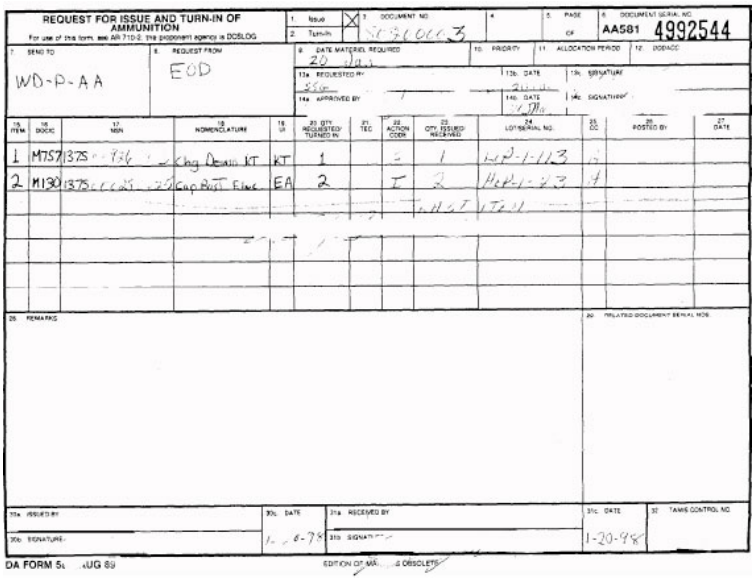
**SECTION C: EOD UNIT AUTHENTICATION**

| 18. NAME/GRADE/SIGNATURE | 19. DATE | 20. TELEPHONE NO. |
|---|---|---|
| | 20 JAN | (801)831 5211 |

DA FORM 3265-R, DEC 93
EDITION OF FEB 88 IS OBSOLETE

Used by Explosives Ordnance Disposal (EOD) teams to report responses to ordnance incidents. Can provide an indication of locations where MEC was discovered in the past.

# Issue Turn-In



REQUEST FOR ISSUE AND TURN-IN OF AMMUNITION

For use of this form, see AR 710-2; the proponent agency is DCSLOG

1. Issue [X] 2. Turn-In

3. DOCUMENT NO. SC3600-3

5. PAGE 1 OF 1

6. DOCUMENT SERIAL NO. AA581 4992544

7. SEND TO: WD-P-AA

8. REQUEST FROM: EOD

9. DATE MATERIEL REQUIRED: 20 days

10. PRIORITY

11. ALLOCATION PERIOD

12. DODAAC

13a. REQUESTED BY: SSG

13b. DATE

13c. SIGNATURE

14a. APPROVED BY: 1

14b. DATE: 1/20/98

14c. SIGNATURE

| 15. ITEM | 16. DOCIC | 17. NSN | 18. NOMENCLATURE | 19. U/I | 20. QTY REQUESTED/TURNED IN | 21. TEC | 22. ACTION CODE | 23. QTY ISSUED/RECEIVED | 24. LOT/SERIAL NO. | 25. CC | 26. POSTED BY | 27. DATE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | M757 | 1375-[illegible]-926 | Chg Demo KT | KT | 1 | | = | 1 | LWP-1-123 | | | |
| 2 | M130 | 1375-[illegible]-2[illegible] | Cap Rust Fuse | EA | 2 | | E | 2 | HEP-1-23 | | | |

26. REMARKS

29. RELATED DOCUMENT SERIAL NOS.

31a. ISSUED BY

31b. DATE: 1-6-98

31a. RECEIVED BY

31b. SIGNATURE

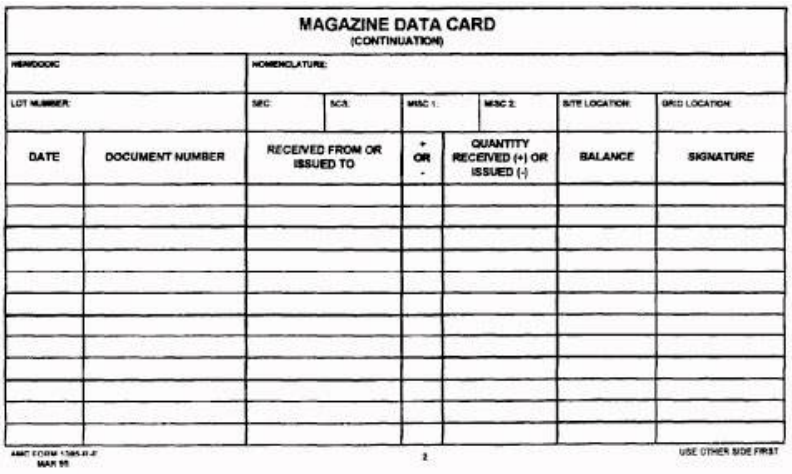
31c. DATE: 1-20-98

32. TAMIS CONTROL NO.

DA FORM 5[illegible] AUG 89 EDITION OF MA[illegible] OBSOLETE

Used to record ammunition issue and return to and from an Ammunition Storage Point (ASP). Can provide a record of ammunition that was fired (assume that what was issued and not returned was fired or disposed of).

# MAG Data Card



**MAGAZINE DATA CARD**
(CONTINUATION)

| NSN/DODIC | NOMENCLATURE: | | | | | |
|---|---|---|---|---|---|---|
| LOT NUMBER: | SEC: | SCA: | MISC 1: | MISC 2: | SITE LOCATION: | GRID LOCATION: |

| DATE | DOCUMENT NUMBER | RECEIVED FROM OR ISSUED TO | + OR - | QUANTITY RECEIVED (+) OR ISSUED (-) | BALANCE | SIGNATURE |
|---|---|---|---|---|---|---|
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AMC FORM 1365-R-E
MAR 95

2

USE OTHER SIDE FIRST

Records a running account of the contents of an ordnance magazine. Used to identify the type of ordnance stored at an ammunition storage point.

## Reporting the Results

Though the final report for the site will depend on the branch of the military and regulatory authority (i.e., PA, ASR, EE/CA, etc.), each MR HRR should contain similar elements

Reporting the results is covered in Chapter 6 of the MR HRR document. As explained in Section 1, the reporting of MR HRR results can be expected to be different for Army (FUDS) projects and Navy and Air Force projects.

In reviewing the results, you are looking for site history, lists of types and amounts of munitions used, site visit, or other information that can be used to designate the site as No Further Action or can be used to refine the conceptual site model and outline new DQOs.

The MR HRR team can also specify how the information in the report is presented. Specify whether you want copies of all certain documents, all sources listed, summaries only, table format of owners and addresses, etc.

# Typical Report Organization

- Introduction
  - Authority, subject, purpose, and scope
- Previous investigations
  - Responsible service investigations, other investigations
- Site description
  - Land use, climatic data, geology, soils, etc.
- Historic ordnance use
  - Historic site use summary, review of ordnance records, summary of interviews, aerial photo interpretation, and map analysis

No associated notes

# Typical Report Organization (continued)

- Real estate
  - Confirmed DoD ownership, potential DoD ownership, past ownership other than DoD, present ownership
- Report of site visit inspection
- Evaluation of the presence of MEC
  - Evaluation, data gap analysis, data uncertainty analysis
- Technical data on suspected MEC
- Evaluation of site information
- Conclusions and recommendations

No associated notes

## Checklist

- Use the *Munitions Response Historical Records Review* checklists (see Appendix E) and information to review the final report
- Checklist could include such questions as
  - Have the site's known operations and uses been correctly identified?
  - Based on the above, have the appropriate archived record sources been inspected? (see Appendix C)
  - Has an archive data management system been used to manage the individual archive data items?

See checklist items in the document (Appendix E). Make sure you get all the information you need to make an informed decision. This is particularly important for site where the DoD proposes No Further Action.

## Checklist (continued)

- Does the review of the data management system indicate adequate evaluation and management of individual data items?
- Has there been adequate outreach to potentially knowledgeable individuals?
- Has a site historical photo analysis been conducted?
- Does the discussion of the site conditions seem accurate and adequate?
- Does the discussion of historical ordnance use adequately use the available archive data?
- Has a preliminary conceptual site model been developed?
- Are report's conclusions valid based on historical evidence?

See checklist items in the document (Appendix E). Make sure you get all the information you need to make an informed decision. This is particularly important for site where the DoD proposes No Further Action.

## Summary

- Historic research provides the basis for further decision making
- The services' missions vary, and they will approach historical records research from different starting points
- Understanding the role of regulators and stakeholders in the historical records review will help increase the effectiveness of your participation

No associated notes

## Summary (continued)

- Knowing how the historical records research is planned and conducted will help you to evaluate its accuracy and completeness
- Use the *Munitions Response Historical Records Review* checklists and information to review the final report

No associated notes

# Questions and Answers


Thank you for participating in ITRC Internet-based training
For more information on ITRC, go to www.itrcweb.org

No associated notes


Additional resources for this ITRC internet training event are available at:

http://clu-in.org/conf/itrc/mrhrr/ click on "links to additional resources"

Your feedback is important – please fill out the form at:

**The benefits that ITRC offers to state regulators and technology developers, vendors, and consultants include:**

•helping regulators build their knowledge base and raise their confidence about new environmental technologies

•helping regulators save time and money when evaluating environmental technologies

•guiding technology developers in the collection of performance data to satisfy the requirements of multiple states

•helping technology vendors avoid the time and expense of conducting duplicative and costly demonstrations

•providing a reliable network among members of the environmental community to focus on innovative environmental technologies

**How you can get involved in ITRC:**

•Join a team – with just 10% of your time you can have a positive impact on the regulatory process

•Sponsor ITRC's technical teams and other activities

•Be an official state member by appointing a POC (Point of Contact) to the State Engagement Team

•Use our products and attend our training courses

•Submit proposals for new technical teams and projects

•Be part of our annual conference where you can learn the most up-to-date information about regulatory issues surrounding innovative technologies