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Military Munitions Policy and Guidance – A Regulator's Perspective

FEDERAL FACILITIES ACADEMY WEBINAR
APRIL 13, 2022
US EPA FEDERAL FACILITIES RESTORATION AND REUSE OFFICE

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Group Poll

How many years of experience do you have with munitions cleanup?


- A. 0-2 years
- B. 2-5 years
- C. 5-10 years
- D. More than 10 years

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Course Overview

- ☐ Munitions Response Authorities under CERCLA
- ☐ DoD Military Munitions Response Program (MMRP)
- ☐ Fort Ord Case Study
- ☐ EPA Regulations and Guidance
- ☐ Detection Technologies
- ☐ UFP-QAPP
- ☐ EPA and DoD Partnerships
- ☐ MMRP Unique Challenges

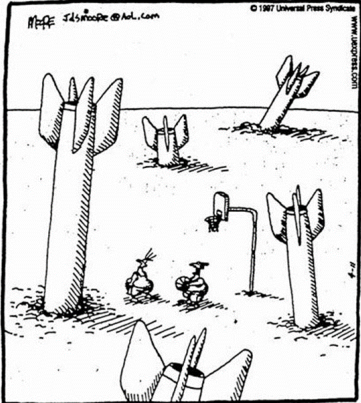


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IN THE BLEACHERS



"Maybe we shouldn't play here."

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The Problem

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Munitions Response Authorities under CERCLA

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CERCLA Response Authorities

- ❑ Removal actions – §104
- ❑ Remedial actions – §104 and 121
- ❑ Federal Facilities – §120
- ❑ On-site actions are exempt from administrative and permitting requirements.
- ❑ *Key Point* – same regulatory process for munitions as other contaminants

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CERCLA Removal Actions (§104)

Removal process is generally implemented more quickly than remedial approach

Three types of removal actions:

- Emergency, time-critical = “hours”
- Time-critical = less than six months to plan
- Non-time-critical = greater than six months to plan

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CERCLA Remedial Response (§104 and 121)

- ☐ Used to achieve permanent remedies (investigation and response).
- ☐ Typically will address:
 - Land use issues
 - Type of remedy
 - Use of institutional controls
 - Soil and groundwater remediation
- ☐ Remedial actions must meet CERCLA and NCP criteria and NCP expectations.

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Executive Order (E.O.) 12580

- ☐ Delegates President's CERCLA Authority to Federal Land Holding Agencies
- ☐ Most statutory functions are delegated to EPA Administrator
- ☐ Lead agency is responsible for cleanup of the site
- ☐ Agencies must address responsibility when transferring property

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E.O. 12580 (cont.)

- ❑ Delegation of authority is subject to CERCLA Section 120
- ❑ Federal agency conducts CERCLA response action
- ❑ EPA concurs/approves on remedial actions at NPL sites per FFA and may select remedies if parties don't agree
- ❑ State and Tribal governments
 - Are consulted
 - Have independent authorities

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CERCLA Section 120 applies to Federal Facilities. EPA cannot legally delegate the approval of remedial actions at NPL sites to another agency.

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NCP
Expectations

- ☐ Treat principal threats
- ☐ Use combination of treatment and land use controls/institutional controls (LUCs/ICs) where appropriate
- ☐ LUCs/ICs where appropriate
- ☐ Innovative technologies

Source: 40 CFR 300.430(a)(1)(iii)

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DoD Military Munitions
Response Program
(MMRP)

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MMRP

- ❑ Definitions
- ❑ Key Regulatory Drivers
 - CERCLA (Superfund)
 - RCRA (Solid/Hazardous Waste)
 - Executive Order (EO) 12580
 - Superfund Amendments and Reauthorization Act (SARA)
 - Extended CERCLA to Federal Facilities and established the Defense Environmental Restoration Program (DERP)
 - National Oil and Hazardous Substances Pollution Contingency Plan (NCP)
- ❑ EPA Policy and Guidance
- ❑ DoD Policy and Guidance
- ❑ State Laws and Requirements

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What is the MMRP?

- ❑ Defense Environmental Restoration Program (DERP)*
 - Installation Restoration Program (IRP)
 - Military Munitions Response Program (MMRP)
- ❑ In 2001 10 U.S.C. Section 2710 directed DoD to establish the MMRP to address Munitions Response Sites (MRSs) known or suspected to contain UXO, DMM, or MC.
- ❑ MMRP addresses Munitions Response Areas (MRA) and Munitions Response Sites (MRS) on:
 - Active Installations
 - Formerly Used Defense Sites (FUDS) Properties
 - Base Realignment and Closure (BRAC) Locations

*10 U.S.C. Section 2701

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“The Secretary of Defense shall develop and maintain an inventory of defense sites that are known or suspected to contain unexploded ordnance, discarded military munitions, or munitions constituents.”(10 U.S.C. 2710)

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DoDM 4715.20 Definitions:

- **Installation:** A base, camp, post, station, yard, center, homeport facility for any ship, or other activity under the jurisdiction of the DoD, including any leased facility, that is located within the U.S. Does NOT include FUDS or any facility used primarily for civil works, rivers and harbors projects, or flood control projects.
- **FUDS Property:** A facility or site (property) that was under the jurisdiction of the Secretary of Defense and owned by, leased to, or otherwise possessed by the U.S. at the time of actions leading to contamination by hazardous substances. The FUDS program is limited to those real properties that were transferred from DoD control prior to October 17, 1986. Properties must be located within the U.S.
- **BRAC Locations:** Installations that are being or have been closed or are being realigned by BRAC but are still under the jurisdiction of the DoD and those properties that have been transferred out of the DoD by the BRAC process but where the DoD retained restoration responsibilities.

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Agencies Involved with Munitions Response

- ☐ Environmental Protection Agency (EPA)
- ☐ DoD
- ☐ States
- ☐ Tribes
- ☐ Federal Land Managers (e.g., Department of Interior, Department of Agriculture)
- ☐ Other Stakeholders

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EPA Oversight and Regulatory Offices

- ❑ Federal Facilities Restoration and Reuse Office (FFRRO), OLEM
- ❑ Office of Resource Conservation and Recovery (ORCR), OLEM
- ❑ Office of Superfund Remediation and Technology Innovation (OSRTI), OLEM
- ❑ Federal Facilities Enforcement Office (FFEO), OECA
- ❑ Regional Offices

EPA Military Munitions Website:
<https://www.epa.gov/fedfac/military-munitionsunexploded-ordnance>

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EPA Military Munitions Website: <https://www.epa.gov/fedfac/military-munitionsunexploded-ordnance>

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DoD Organization

- ❑ Office of the Secretary of Defense
 - DoD Explosives Safety Board
- ❑ DoD Components
 - Secretariat and Staff
 - Field Operating Agency/Installation Remedial Project Managers
 - DoD Component Explosives Safety Offices
 - U.S. Army Technical Center for Explosives Safety
 - Naval Explosive Ordnance and Safety and Security (NOSSA)
 - Air Force Safety Center

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DOD Component remedial project managers work with regulators in the field at the local to address issues. Any issues that are not resolved will be elevated as necessary. The DoD Components work within their chains of command and DDESB to ensure explosives safety

The Office of the Secretary of Defense establishes DoD policy and guidance as it relates to munitions (e.g., DoD Instruction (DoDI) 4715.07, DoD Manual ((DoDM) 4715.20).

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DoD Policy for Explosives Safety: In executing munitions responses, the DoD Components will comply with applicable explosives safety management policy, guidance, and standards included in DoDM 6055.09, DoD Ammunition and Explosives Safety Standards: General Explosives Safety Information and Requirements (DoDM 4715.20).

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Definitions

- The term “**military munitions**” includes all types of conventional and chemical ammunition products and their components, produced or used by the armed forces for national defense and security
[Full definition at 10 U.S.C. 101(e)(4)]
- The term “**munitions constituents**” means any materials originating from unexploded ordnance, discarded military munitions, or other military munitions
[Full definition at 10 U.S.C. 2710(e)(3)]

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Definitions (cont.)

- The term “**munitions and explosives of concern**” or **MEC** refers to specific categories of military munitions that may pose unique explosives safety risks:
 - Unexploded Ordnance (UXO);
 - Discarded Military Munitions (DMM); or
 - Munitions constituents (MC) present in high enough concentrations to pose an explosive hazard.[Full definition at 32 CFR 179.3]

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Definitions (cont.)

❑ The term “**unexploded ordnance**” or **UXO** refers to military munitions that have been:

- primed, fuzed, armed, or otherwise prepared for action, and
- have been fired, dropped, launched, projected, or placed in such a manner as to constitute a hazard to operations, installation, personnel, or material and
- remain unexploded either by malfunction, design, or any other cause

[Full definition at 10 U.S.C. 101(e)(5)]

❑ The term “**discarded military munitions**” or **DMM** means military munitions that have been abandoned without proper disposal.

[Full definition at 10 U.S.C. 2710(e)(2)]

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Quiz

What is the difference between UXO and DMM?

- A) There is none.
- B) UXO has been fired/emplaced and DMM has not.
- C) DMM has been fired/emplaced and UXO as not.
- D) UXO is MEC and DMM is not.

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MMRP Site Inventory

- ❑ The FY Defense Environmental Programs Annual Report to Congress identifies the
 - Number of munitions response sites (MRSS)
 - Funding obligated to cleanup MRSS

<https://www.denix.osd.mil/arc/index.html>
<https://www.denix.osd.mil/mmrp/mrsi/home/>

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Munitions Response Site Prioritization Protocol (MRSP)

- ❑ 32 CFR Section 179 established the Protocol to evaluate the primary hazards at munitions response sites.
- ❑ Three modules evaluate the unique characteristics of each hazard type:
 - Explosive Hazard Evaluation (EHE) Module
 - Chemical Warfare Material Hazard Evaluation (CHE) Module
 - Health Hazard Evaluation (HHE) Module
- ❑ National level ranking tool
- ❑ Review and update each munitions response site (MRS) priority at least annually to reflect any new information that affects the MRS priority.

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The MRSP includes three modules to evaluate the unique characteristics of each hazard type:

1. The Explosive Hazard Evaluation (EHE) Module provides the approach for assigning a relative priority to an MRS where MEC (i.e., UXO, DMM, and MC in high enough concentrations to pose an explosive hazard) are known or suspected to be present. The EHE Module assesses the explosive hazards through the evaluation of three factors: Explosive Hazard Factor, Accessibility Factor, and Receptor Factor;

2. The CWM Hazard Evaluation (CHE) Module is used to evaluate the hazards associated with the physiological effects of Chemical Warfare Material (CWM). The CHE Module is only applied where CWM are known or suspected to be present at an MRS; and
3. The Health Hazard Evaluation (HHE) Module is used to evaluate the potential human health (both acute and chronic) and environmental hazards posed by MC and incidental nonmunitions-related contaminants.

Each module is comprised of three categories of information to derive the outcome:

- Source of Hazard
- Pathway of Exposure
- Receptor

The Office of the Secretary of Defense convened a DoD workgroup with DoD Component representatives knowledgeable about environmental restoration and explosives safety to help develop the Protocol. The workgroup proactively engaged with stakeholders who were interested in, concerned about, and affected by munitions cleanup. These stakeholders included State regulators, tribes, EPA, and the federal land managing agencies.

Once the Protocol was final, DoD worked with EPA, state regulators, and other stakeholders to develop the MRSPF Primer, instructional guidance for munitions response project managers and other environmental personnel responsible for applying the Protocol.

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MMRP
Unique
Challenges

- ❑ No promulgated regulatory standards or “safe” levels
- ❑ Unique risks
 - Acute hazard
 - Direct interaction may cause serious injury or death
 - Discrete hazardous items, not plumes
 - Attractive nuisance

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MMRP Unique Challenges (cont.)

- Variety of site conditions –MRS may vary greatly in size and topography
- Many types of munitions

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MMRP Unique Challenges (cont.)



Technology limitations



Costs – may be orders of magnitude greater than traditional contaminants

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Quiz

DERP is an acronym for what?

- A) Deterring Explosives Restoration Program
- B) Defense Environmental Restoration Program
- C) Dangerous Environment Response Program
- D) Defensive Engagement Response Program

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Fort Ord Case Study

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EPA Regulations and Guidance

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Munitions and RCRA

- ❑ RCRA is the source of Military Munitions Rule.
- ❑ Authorized States may exercise their RCRA authorities through orders and permits.
- ❑ Examples of RCRA Authority
 - Characteristics tests
 - Management standards for hazardous waste
 - Standards for excluding processed scrap metal that can be recycled
 - Management standards for open burning/open detonation (OB/OD)

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EPA Military Munitions Rule (February 12, 1997)

- ❑ Avoids imposing RCRA Subtitle C on operational military ranges
 - Exempts munitions used for intended purpose and remaining on operational ranges from regulatory definition of solid waste under RCRA.
- ❑ Identifies when a military munitions becomes a waste
- ❑ Maintains RCRA Federal-State-Tribal Relationship

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EPA Military Munitions Rule (cont.)

- ❑ Exempts the following from being subject to RCRA:
 - “Unsanitized” nuclear weapon components
 - Unserviceable munitions
 - Munitions used in training, research, development, test, and evaluation and range clearance of active/inactive ranges
 - Munitions being repaired, recycled, disassembled, reclaimed or reconfigured
- ❑ Includes the following as being subject to RCRA:
 - Overpacked leaking munitions
 - Abandoned munitions
 - On-range disposal (landfill) of munitions

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EPA Military Munitions Rule (cont.)

- ❑ Emergency Response
 - Military Munitions Rule states that an explosives or munitions emergency response may be taken if there is an imminent and substantial threat to human health and the environment.
 - RCRA Munitions Rule exempts explosives or munitions involved emergency responses from RCRA Subtitle C hazardous waste regulatory requirements.

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EPA Munitions Response Guidelines (OSWER Directive 9200.1-101, July 27, 2010)

- ❑ Provides a framework to EPA Regional Offices overseeing responses involving munitions and explosives of concern (MEC) at locations other than operational ranges.
- ❑ Guides responding to sites where explosive hazards may be an additional or principal threat.
- ❑ Addresses situations where DoD Components conduct munitions response as the Lead Agency, and the EPA is responsible for oversight.

[Munitions Response Guidelines \(OSWER Directive 9200.1-101\)](#)

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EPA Munitions Response Guidelines

- ❑ General regulatory authorities
- ❑ Use of the CERCLA, RCRA, and other authorities
- ❑ Involvement of State and Tribal environmental regulator and the public
- ❑ Explosives safety principles
- ❑ Site characterization principles
- ❑ Geophysical Detection Techniques for MEC
- ❑ Transfer of ranges
- ❑ Land use and institutional controls
- ❑ Enforcement principles

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EPA Munitions Policy Issues

- ❑ Munitions as a hazardous waste/hazardous substance
- ❑ Principal threat waste determination
- ❑ Unlimited use/unrestricted exposure (UU/UE)
- ❑ Risk/Hazard Assessment

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EPA PTW Guidance: Principal threat wastes are those source materials considered to be highly toxic or highly mobile that generally cannot be reliably contained ***or would present a significant risk to human health or the environment should exposure occur.***


Advances in technology have allowed for consideration of achieving UU/UE, but greatly depends on site and munitions types. QA/QC plays a very important role. If you think your site can achieve UU/UE, this should be communicated early in the process with your entire site team (OFA, EPA, other parties) so appropriate cleanup investigation and approaches can be selected. This should not be a conversation held at the end of the cleanup process.

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Detection Technology

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MEC Detection Technologies

Magnetic methods: A **passive** detection method that measures naturally occurring and man-made magnetic fields

Electromagnetic methods: An **active** detection method that generates a signal, which in turn, induces buried metal to generate a magnetic field

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MEC Geophysical Systems Types

Digital Systems: digital geophysical mapping (DGM) systems.

- Records all the data
- Comprehensive analysis → identifies anomalies

Analog Systems: analog geophysical mapping (AGM), also commonly called 'mag and flag' (M&F) or 'mag and dig'

- No record of data or interpretation
- "Real-time" analysis identifies anomalies

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For both of these technologies, there are different system types – digital versus analog. Analog is recommended less and less, although there are some specific instances where it would be preferred. For example, steep terrain, checking holes where MEC has been identified, etc. Will likely be combined with another technology. There are substantial limitations to analog systems.

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Advanced Geophysical Classification

New **MEC** EM technologies have been developed and tested under the Strategic Environmental Research and Development Program & Environmental Security Technology Certification Program

DAGCAP- DoD Advanced Geophysical Classification Accreditation Program



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An accreditation program is intended to ensure these technologies are being used in a standardized manner to ensure consistency in implementation. This is similar to a lab accreditation program.

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UFP QAPP

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QUIZ

What does UFP-QAPP stand for?

- A. Uniform Font Program for Quality Assurance in Proposed Plans
- B. Understated Facts Project for Quality Assumption Project Plans
- C. Uninformed Federal Policy for Quality Aggregated Pilot Programs
- D. Uniform Federal Policy for Quality Assurance Project Plans

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UFP-QAPP Policy and Applicability

- The Uniform Federal Policy for Quality Assurance Project Plans (UFP-QAPP) is a tool to guide project teams through the systematic planning process.
- UFP QAPP Munitions Response Toolkit
 - Module 1 - Remedial Investigation (RI)/Feasibility Study (FS)
 - Module 2 - Remedial Action (RA)
 - Updating the AGCMR-QAPP as MR-QAPP Module 2
 - Will expand AGCMR-QAPP beyond just the use of AGC

UFP QAPP info and other information at:
<https://www.epa.gov/fedfac/assuring-quality-federal-cleanups>

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UFP QAPP info and other information at: <https://www.epa.gov/fedfac/assuring-quality-federal-cleanups>

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EPA and DoD Partnerships

- ❑ Partnering between DoD and EPA maximizes transparency, public participation, and collaboration that is vital to ensure cost effective and efficient decisions about the MMRP.
- ❑ [UXO Management Principles](#), March 7, 2000
- ❑ Munitions Response Dialogue
- ❑ [Intergovernmental Data Quality Task Force](#)

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DoD established the MRD in 2013 to foster communication and collaboration between representatives from the Office of the Secretary of Defense, DoD Components, EPA, State environmental regulators, and Federal Land Managers. These various entities use their experiences and expertise to exchange views, information, and advice relating to managing or implementing the MMRP.

IDQTF includes representatives from EPA and DoD; work together to develop the QAPP to quality systems (i.e., QAPP) that support data quality and risk based decision making.

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Other Munitions Sites

- ❑ OB/OD operating sites
- ❑ Operational Ranges
 - Addressed under various regulations, as appropriate
 - NOT DERP eligible

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While EPA typically defers to DoD for Operational Range Management, EPA retains independent authority to evaluate situations where there is threat to human health or environment. Coordination with headquarters is necessary for any potential actions at operational ranges.

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Summary

- ❑ EPA oversees DoD's cleanup of **munitions** response sites using the CERCLA process or as hazardous waste under RCRA Subtitle C.
- ❑ CERCLA is the preferred response mechanism for munitions response actions.
- ❑ DoD Components may conduct CERCLA response actions per the NCP. Response activities may include removal actions, remedial actions, or a combination of the two.
- ❑ Same process as other hazardous substances.

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Questions?

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