



Open Environmental Restoration Resource (OER2) Webinar

Historical Radiological Assessments- The What, Why and How for Navy Remedial Project Managers

Presented by:

NAVFAC Environmental Restoration Program



POCs

- **janice.nielsen@navy.mil** Presenter
- **timothy.reisch@navy.mil** Champion
- **tara.meyers@navy.mil** Moderator

- **Submit all questions via chat box throughout the presentation**
- **Presentation is being recorded**
- **Complete the webinar survey (main feedback mechanism)**

Disclaimer:

This seminar is intended to be informational and does not indicate endorsement of a particular product(s) or technology by the Department of Defense or NAVFAC EXWC, nor should the presentation be construed as reflecting the official policy or position of any of those Agencies. Mention of specific product names, vendors or source of information, trademarks, or manufacturers is for informational purposes only and does not constitute an endorsement or recommendation by the Department of Defense or NAVFAC EXWC. Although every attempt is made to provide reliable and accurate information, there is no warranty or representation as to the accuracy, adequacy, efficiency, or applicability of any product or technology discussed or mentioned during the seminar, including the suitability of any product or technology for a particular purpose. Participation is voluntary and cannot be misconstrued as a new scope or growth of an existing scope under any contracts or task orders under NAVFAC

OER2 Webinar Series



•Why Attend?

- Obtain and hear about the latest DOD and DON's policies/guidance, tools, technologies and practices to improve the ERP's efficiency
- Promote innovation and share lessons learned
- FEEDBACK** to the ERP Leadership

•Who Should Attend?

- ERP Community Members: RPMs, RTMs, Contractors, and other remediation practitioners who support and execute the ERP
- Voluntary participation

•Schedule and Registration:

- Every other month, 4th Wed (can be rescheduled due to holidays)
- Registration link for each topic (announced via ER T2 email)

•Topics and Presenters:

- ERP community members** to submit topics (non-marketing and DON ERP-relevant) to POCs (Gunarti Coghlan – gunarti.coghlan@navy.mil or Tara Meyers - tara.meyers@navy.mil)
- Selected topic will be assigned Champion to work with presenter

Speaker Introduction



- **Environmental Engineer at NAVFAC Atlantic**
- **27yrs of experience with the Navy.**
- **Has worked with NAVSEA DET RASO for the last year on Historical Radiological Assessments**
- **Active team member on the HRA teams.**



Historical Radiological Assessments

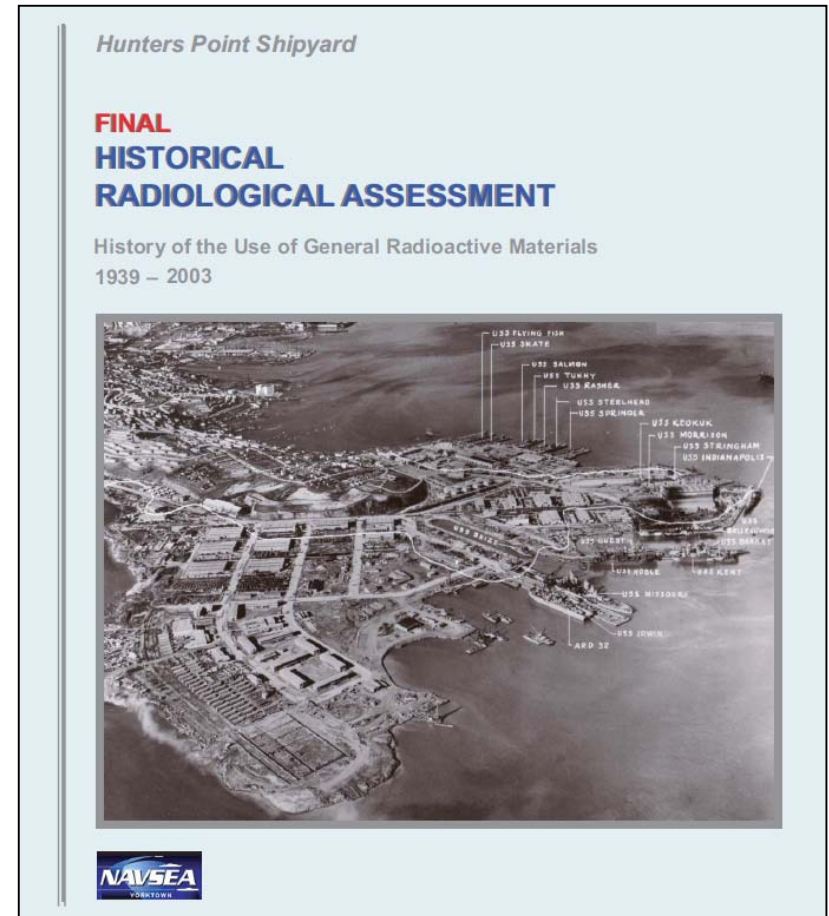
The What, Why and How for Navy Remedial Project Managers

Jan Nielsen
NAVFAC Atlantic
October 2015

PURPOSE OF THE PRESENTATION



- This webinar will provide information on the HRA purpose, implementation process, roles of the project team and follow on actions.
 - Introduce Historical Radiological Assessments
 - How is an HRA conducted?
 - Why is an HRA being conducted?
 - What happens to the information?



HISTORICAL RADIOLOGICAL ASSESSMENT



- **First step: identify sites as “areas of interest” or “impacted” by general radiological materials (G-RAM)**
- **HRA is similar to a CERCLA Preliminary Assessment or RCRA Facility Assessment**
- **Desktop and field review of current and historical records**
- **Interviews of staff, former employees and public**
- **May involve radiological surveys (scoping surveys) of identified areas**
- **Typically NO environmental sampling**
- **Results in identifying sites that need further evaluation due to potential G-RAM presence or contamination**

WHAT IS GENERAL RADIOLOGICAL MATERIAL (G-RAM)?



- **G-RAM**

- Department of the Navy (DON) radioactive materials excluding Naval Nuclear Propulsion Program or Naval Nuclear Weapons Program radioactive materials

- Includes byproduct, source, and special nuclear materials; naturally occurring radioactive material (NORM), technologically enhanced naturally occurring radioactive material (TENORM), and naturally occurring or accelerator produced radioactive material (NARM)

- **Typically found at bases**

- Radioluminescent Dials and Gauges
 - Personnel markers
 - Ship markers
 - Switches
 - Depleted uranium from aircraft
 - Welding rods
 - Condition is often rough and degraded



Radioluminescent Gauge (ca. 1950s, 1960s)

RADIOLUMINESCENT OBJECTS FOUND IN LANDFILLS



Deck Markers and Personnel Markers

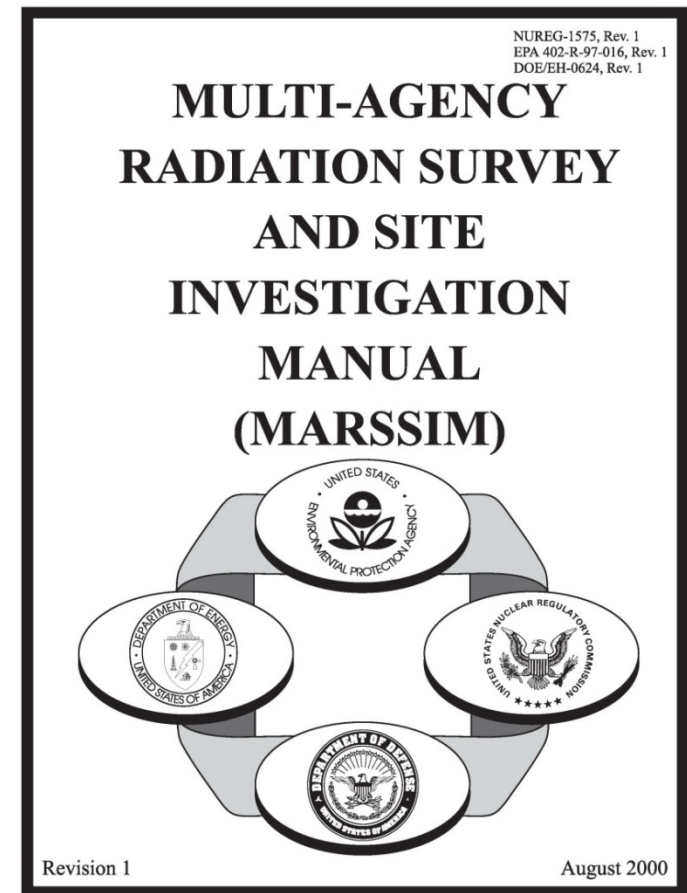


Aircraft Parts and Scrap Metal



After years in a landfill these can look like typical scrap metal or other debris

- **Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)**
 - Developed with collaboration between:
 - Environmental Protection Agency (EPA)
 - Nuclear Regulatory Commission (NRC)
 - Department of Defense (DOD)
 - Department of Energy (DOE)
 - Workgroup is currently working on a revision
 - Available to the public at <http://www.epa.gov/radiation/marssim/obtain.html>
- **MARSSIM guidance with additional interpretation by RASO**
- **Navy Environmental Restoration Program (NERP) Manual**
- **Oversight & interpretation provided by NAVSEADET Radiological Affairs Support Office (RASO)**



CLASSIFICATION OF SITES - DEFINITIONS



Area	Definition
Impacted	Known to contain residual radioactive material based on radiological surveys or other documented evidence or suspected of containing residual radioactive material based on historical information
Impacted Area with Land Use Controls (LUCs)	Either known to contain or suspected of containing residual radioactive that is being adequately managed with LUCs
Previously Impacted	Area that was impacted, remediated, surveyed, and adequate documentation exists supporting the area's release for unrestricted use. The area could also be categorized as a non-impacted, but is given this specific designation so the area's historical past is not overlooked
Areas of Interest (AOI)	Cannot be categorized as impacted or non-impacted based on existing information. Following further evaluation(s), e.g., discovering new or additional information, performing scoping or characterization surveys, conducting interviews, an area of interest would be designated as impacted or non-impacted
Non-impacted	No reasonable possibility for residual radioactive material based on site history, process knowledge, or survey information

WHY MY INSTALLATION?



- **NAVSEADET RASO - Developed schedule, provided funding and identified bases with potential “areas of interest”**
- **BRAC sites first identified to complete property transactions**
- **Naval Air Stations**
- **Installations that maintained and repaired aircraft**
- **Naval Shipyards**
- **Navy bases that historical information indicates potential radiological activities (radium paint shops, repair/maintenance, etc.)**
- **Sites or contamination identified**



WHY NOT MY BASE?



- **No immediate need identified**
- **No historic information to indicate G-RAM**
- **Funding from NAVSEA not yet available**
- **Installation can fund an HRA**



INITIAL CONTACT WITH INSTALLATION



- RASO Announcement Letter
- General HRA Factsheet
- List of potential POCs

NAVSEA
NAVAL SEA SYSTEMS COMMAND

**Historical Radiological Assessments (HRA)
for General Radioactive Material (G-RAM)**

September 2015

Introduction

HRAs are prepared to document the historical use of G-RAM operations or applications at Department of the Navy (DON) installations. G-RAM is managed by the Naval Sea Systems Command, Radiological Affairs Support Program (RASP).

Increasingly, over the past 30 years, G-RAM releases have been identified at many DON active and Base Realignment and Closure (BRAC) installations. The most common type of G-RAM contamination resulted from the use, handling, refurbishment, and disposal of radioluminescent devices (time pieces, compasses dials, gauges, and personnel and deck markers) from the early 1940s through the 1970s. The radioluminescent devices were used on DON personnel, support equipment, aircraft, ships, vehicles, and at both Navy and Marine Corps installations. Most of the radioluminescent devices used in the 1940s, 1950s and 1960s contained radium (Ra-226) paint. However, starting in the early 1950s, other radioactive elements were used in radioluminescent devices. Most radioluminescent devices were phased out starting in the early 1970s.

Information gathered during preparation of the HRA is used to provide an initial categorization of areas at the installation as impacted, non-impacted, or area of interest. **Impacted areas** are either known to contain residual radioactive material based on radiological surveillance or are suspected of containing this material based on historical information. **Non-impacted areas** are those areas where there is no reasonable possibility for residual

G-RAM - The term used to describe Department of the Navy (DON) radioactive materials, excluding Naval Nuclear Propulsion Program or Naval Nuclear Weapons Program radioactive materials. G-RAM includes byproduct, source, and special nuclear materials; naturally occurring radioactive material (NORM), technologically enhanced naturally occurring radioactive material (TENORM), and naturally occurring or accelerator produced radioactive material (NARM).

Installation - A DON base or station consisting of the host command, activities or facilities, supported, and tenant commands.

radioactive material based on site history or previous survey information. When there is not enough information available to categorize an area as impacted or non-impacted, data gaps exist, the area is categorized as an **area of interest**.

Previous investigations have found a correlation between historic activities known to generate G-RAM and certain types of DON installations such as Naval Shipyards and Naval Air Stations; particularly installations that had radium dial painting facilities. The DON is conducting HRAs at these installations and other as a proactive measure because we recognize the location of all G-RAM contamination may not be known.

The presence of G-RAM contamination at a site on an installation does not mean there are risks to human health or the environment.

Radioluminescent Gauge (ca. 1950s, 1960s)



Radioluminescent Items Recovered from a Landfill



Enclosure (2)

Sheet 1 of 2



DEPARTMENT OF THE NAVY
NAVAL SEA SYSTEMS COMMAND DETACHMENT
RADIOLOGICAL AFFAIRS SUPPORT OFFICE
160 MAIN ROAD
YORKTOWN VA 23091-5105

5104
Ser E4/0606
30 Sep 15

From: Officer in Charge, Naval Sea Systems Command Detachment, Radiological Affairs Support Office
To: Commanding Officer, Naval Support Activity Crane

Subj: HISTORICAL RADIOLOGICAL ASSESSMENT FOR NAVAL SURFACE WARFARE CENTER CRANE DIVISION

Ref: (a) OPNAV M-5090.1, Environmental Readiness Program Manual
(b) Department of the Navy Environmental Restoration Program Manual, August 2006

Encl: (1) Known or Potential Naval Support Activity (NSA) Crane Historical Radiological Assessment (HRA) Oversight & Management Team Members
(2) General Information on Historical Radiological Assessments

1. Per references (a) and (b), Commander, Naval Sea Systems Command (NAVSEA) is responsible for conducting Historical Radiological Assessments (HRAs), which describe the radiological history of an installation. HRAs are necessary because over the past 30 years, general radioactive material contamination has been identified at many active Department of the Navy and Base Realignment and Closure installations. Hundreds of contaminated sites have been identified, most resulting from legacy operations conducted prior to 1970. NAVSEA has determined that an HRA is necessary for Naval Support Activity (NSA) Crane and tenant or supported commands at this location including Naval Surface Warfare Center (NSWC), Crane Division and Crane Army Ammunition Activity (CAAA).

2. NAVSEA has already funded and contracted your HRA through Naval Facilities Engineering Command, Atlantic (NAVFAC LANT). The contract was awarded to Resolution Consultants who is now retrieving and reviewing NSA Crane historical records from the Naval Sea Systems Command Detachment, Radiological Affairs Support Office (NAVSEA DET RASO). Additionally, Resolution Consultants has started to review records from Naval Installation Restoration Information System (NIRIS), Defense Environmental Network Information Exchange (DENIX), and internet resources for information on radiological materials associated with NSA Crane.

3. Enclosure (1) provides a list of known or potential NSA Crane points of contact (POCs) and tenant commands/divisions that could assist with the development of the HRA. NAVSEADET RASO requests that you provide a main POC for the NSA Crane HRA and any additional key personnel updates to enclosure (1). The NAVSEA DET RASO Environmental Program Manager (EPM) will arrange a conference call mid-October with these POCs. The purpose of the initial call is to discuss the purpose and to develop an overall schedule for the HRA and identify any

HRA MANAGEMENT TEAM



- **HRA Management Team** - working-level management and oversight for preparation of HRAs for DON installations
- **Team members may include, but are not limited to:**
 - NAVSEADDET RASO - Environmental Protection Manager
 - NAVFAC LANT - Project Manager/Contracting Officer Representative
 - NAVFAC FEC Remedial Project Manager/BRAC Environmental Coordinator
 - Installation and supported/tenant command representatives:
 - Commanding Officer Point of Contact
 - Head of Safety Branch
 - Radiation Safety Officers
 - Environmental Manager
 - Public Works Officer
 - Public Affairs Officer
 - Base Historian
 - Other Identified Technical Experts from the Base
 - Stakeholders (federal, state, or local regulators/agencies)
 - Contractor, Project Lead and Lead Researcher

HEADQUARTERS OVERSIGHT TEAM



- **HRA Oversight Team** - This group provides upper level management and oversight for the preparation of HRAs for DON installations

- **Team members include, but are not limited to:**
 - OPNAV N455
 - NAVSEA 04N
 - NAVSEADET RASO (Lead)
 - NAVFAC HQ
 - NAVFAC LANT
 - The Marine Corps Safety Division will also participate for HRAs being prepared for Marine Corps installations or installations with Marine Corps supported/tenant commands

HRA REPORT OUTLINE



- 1.0 EXECUTIVE SUMMARY**
- 2.0 INTRODUCTION**
- 3.0 SITE IDENTIFICATION AND DESCRIPTION**
- 4.0 HRA METHODOLOGY**
- 5.0 REGULATORY INVOLVEMENT**
- 6.0 HISTORY**
- 7.0 ASSESSMENT OF IMPACTED SITES**
- 8.0 FINDINGS AND RECOMMENDATIONS**
- 9.0 CONCLUSIONS**
- 10.0 REFERENCES**

- **G-RAM “areas of interest” or “impacted” sites**

- Buildings, outdoor areas, or underground systems that potentially are or have been affected by use of G-RAM or has been determined to be contaminated by G-RAM.
- Impacted does not imply that the site is contaminated, only that the potential exists

- **Impacted Area/Site Assessment**


- Description
- Current / Former Radiological Use(s)
- Radionuclide(s) of Concern
- Previous Radiological Investigations
- Contamination Potential
- Contaminated Media
- Potential Migration Pathways
- Recommended Action(s)

8.3 POTENTIALLY IMPACTED SITES

8.3.1 Building 103

Classification: Potentially Impacted

Site Location: Building 103, referred to as a “Public Works Maintenance Shop”, occupies approximately 53,572 ft² [J402] in the northeast area of NAS Jacksonville. Building 103 is located southwest of the intersection of Albemarle Avenue and Wasp Street. The building is currently present [J402].



Site Description and History: Building 103 has been used as a “Public Works Shop/Public Works Maintenance Shop” from approximately 1940 [J441] to present [J402]. Building drawings and facility indices referenced below were used to identify activities that likely occurred within the building.

According to the 1940 *Station Maintenance Building, Foundation & First Floor Plans* drawing [J441], Building 103 had the following types of rooms/shops:

- Machine Shop
- Stock Room
- Blacksmith
- Pipe Shop
- Tool Room
- Toilets and Lockers
- Carpentry
- Electrical
- Sheet Metal
- Paint and Varnish
- Administrative Offices

Figure 8.3.1-1, Building 103 (SOURCE)

LESSONS LEARNED AND CHALLENGES



- **Communication with the installations is very important**
 - NAVFAC RPM and BEC need to be active member of the team
 - Share via letters, presentations, site visits and updates
 - Having a main point of contact to ensure appropriate people are included
- **Appropriate Points of Contact**
 - Need assistance from the installation personnel
- **Transfer of electronic data**
 - Bases have different processes
 - Photographs may need to be reviewed prior to release
 - Hard drives may be useful or access to shared drives
 - Files on individual computers difficult to obtain
 - Large files
- **Sensitive or classified missions**
 - Need to ensure the team understands concerns
 - Published data needs to be reviewed by appropriate parties


- **Additional work for sites that have been identified as “areas of interest” or “impacted”**
 - *** Non-impacted, impacted with LUCs and previously impacted areas are not carried forward*
- **With guidance from RASO, perform appropriate level of scoping survey per MARSSIM Guidance (scanning surveys, direct radiological measurements)**
- **With guidance from RASO, sample collection and analysis of identified environmental media.**
- **IR Program – funding for sample collection, analysis, cleanup?**

WHO DO YOU CONTACT?



- **NAVSEADET RASO** – Navy technical expertise for radiological materials and clean up work based in Yorktown, VA
 - Steve Doremus, PhD, Director
 - Zachary Edwards, Env Protection Manager
 - Patrick Owens, Env Protection Manager
 - Joseph Sevcik, Env Protection Manager
 - Matthew Slack, Env Protection Manager
 - Allen Stambaugh, Env Protection Manager
 - Dave Weyant, Env Protection Manager
- **DoN Policy on Environmental Restoration Sites Potentially Containing General Radioactive Material (G-RAM)**



 DEPARTMENT OF THE NAVY
OFFICE OF THE CHIEF OF NAVAL OPERATIONS
2000 NAVY PENTAGON
WASHINGTON, DC 20350-2000

IN REPLY REFER TO:

5090
Ser N453/10U158072
18 Feb 2010


From: Director, Environmental Readiness Division (N45)
To: Commander, Naval Facilities Engineering Command
Commander, Naval Sea Systems Command

Subj: DON POLICY ON ACTIVITIES INVOLVING GENERAL RADIOACTIVE MATERIAL (G-RAM) AT ENVIRONMENTAL RESTORATION PROGRAM SITES

Encl: (1) Department of Navy Policy on Environmental Restoration Sites Potentially Containing General Radioactive Material (G-RAM)

1. Enclosure (1) is provided to clarify Navy policy and roles and responsibilities for general radioactive material (G-RAM) matters within the Environmental Restoration Program.

2. My point of contact is Wanda L. Holmes who can be reached at (703) 602-2571, DSN 664-5467 or email: wanda.holmes@navy.mil.



HERMAN A. SHELANSKI
Rear Admiral, U.S. Navy

DoN Policy on Environmental Restoration Sites Potentially Containing G-RAM



“CONCLUSION

Issues involving G-RAM can be very complex and require close coordination between multiple parties. Chief of Naval Operations (CNO N45) is responsible for establishing policies and directives regarding the planning, execution, and remediation processes of the ER Program. CNO N45 is also Chairman of the Naval Radiation Safety Committee (NRSC) and therefore has overall radiological responsibility for clean-up activities involving GRAM. BRAC PMO and NAVFAC are responsible for the overall management of radiological and non-radiological sites within the ER Program. RASO is delegated technical authority and cognizance for administering and enforcing NRSC G-RAM policies and requirements.”

 DEPARTMENT OF THE NAVY
OFFICE OF THE CHIEF OF NAVAL OPERATIONS
2000 NAVY PENTAGON
WASHINGTON, DC 20350-2000

IN REPLY REFER TO:

5090
Ser N453/10U158072
18 Feb 2010


From: Director, Environmental Readiness Division (N45)
To: Commander, Naval Facilities Engineering Command
Commander, Naval Sea Systems Command

Subj: DON POLICY ON ACTIVITIES INVOLVING GENERAL RADIOACTIVE
MATERIAL (G-RAM) AT ENVIRONMENTAL RESTORATION PROGRAM
SITES

Encl: (1) Department of Navy Policy on Environmental Restoration
Sites Potentially Containing General Radioactive
Material (G-RAM)

1. Enclosure (1) is provided to clarify Navy policy and roles
and responsibilities for general radioactive material (G-RAM)
matters within the Environmental Restoration Program.

2. My point of contact is Wanda L. Holmes who can be reached at
(703) 602-2571, DSN 664-5467 or email: wanda.holmes@navy.mil.


HERMAN A. SHELANSKI
Rear Admiral, U.S. Navy

WHO SHOULD NAVY RPMS CONTACT?



- **NAVFAC LANT – HRA Team, Norfolk, VA and Workgroup Members**

- Jan Nielsen, Project Manager
- Amy Vandercook, Project Manager

- **RAD Workgroup Members**

- Steve Hurff, NAVFAC EV HQ
- Gunarti Coghlan, NAVFAC EV HQ
- Steve Doremus, NAVSEADET RASO
- Marshall Knight, NAVFAC SE ER Manager Link
- Dan Goodman, NAVFAC EXWC
- Joe Rail, NAVFAC Washington
- Todd Bober, NAVFAC MIDLANT BRAC
- Marc Smits, NAVFAC BRAC
- Linda Cole, NAVFAC MIDLANT
- Chris Generous, NAVFAC NW
- Richard Hosokawa, NAVFAC PAC
- Melanie Kito, NAVFAC SW
- Ralph Pearce, NAVFAC SW
- Bob Fisher, NAVFAC SE

- **NAVSEADET RASO**

- Steve Doremus and all RASO EPMs

POLICIES/INITIATIVES UNDER DEVELOPMENT



- **When and how to identify ER,N Sites versus those sites addressed by other programs**
- **When and how to add new sites in NORM**
- **Funding – who pays and how is it programmed**
- **Risk based calculations – Navy sites**
- **Data Validation and Quality of data needed to make environmental decisions**
- **Warehousing of all HRAs and references in NIRIS**
- **Identification of all RAD Impacted Sites and Areas of Interest in NIRIS/GRX**



Wrap Up



- **Please complete the feedback questionnaire at the end of this webinar. We are counting on your feedback to make this webinar series relevant!**
- **Check the T2 email for upcoming OER2 Webinar Announcements!**
- **Thank you for participating!**