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NSY PORTSMOUTH
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PRESENTATION AND AGENDA FOR RESTORATION ADVISORY BOARD MEETING HELD
21 AUGUST 1997 NSY PORTSMOUTH ME
8/21/1997
PORTSMOUTH NAVAL SHIPYARD

RESTORATION ADVISORY BOARD AGENDA

Date August 21, 1997
Place Howard Johnson Hotel, Portsmouth, NH
Time 7 p.m.- 9 p.m.

Introduction

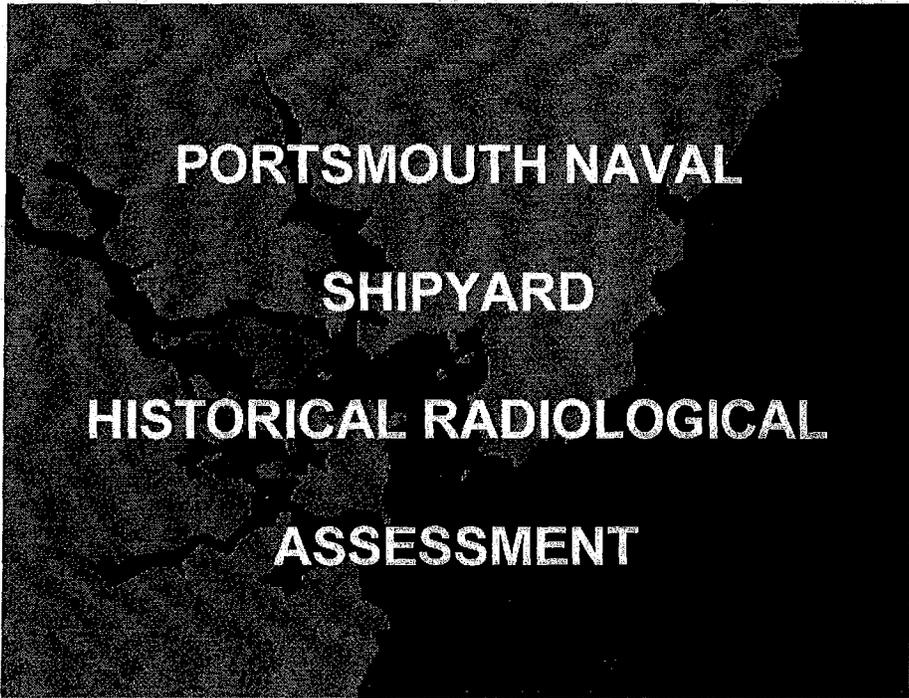
Northeast Federal Facilities Cleanup Workshop

Status of work

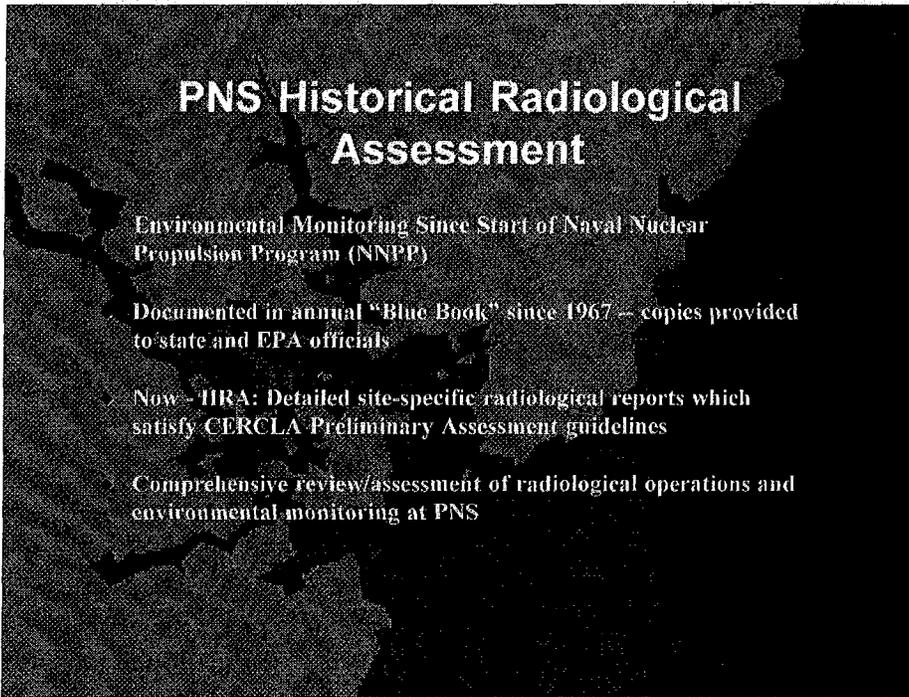
Public Participation in the RAB process

Historical Radiological Assessment

Other issues as required



**PORTSMOUTH NAVAL
SHIPYARD
HISTORICAL RADIOLOGICAL
ASSESSMENT**



**PNS Historical Radiological
Assessment**

Environmental Monitoring Since Start of Naval Nuclear
Propulsion Program (NNPP)

Documented in annual "Blue Book" since 1967 -- copies provided
to state and EPA officials

Now - HRA: Detailed site-specific radiological reports which
satisfy CERCLA Preliminary Assessment guidelines

Comprehensive review/assessment of radiological operations and
environmental monitoring at PNS

HRA Process

Reviewed existing environmental documents

Installation restoration documents

Past Environmental Assessments

Reviewed all PNS radiological environmental monitoring records and reports of inadvertent releases

Reviewed results of state and EPA surveys

Conducted interviews

Assessed potential exposure pathways

PNS Radiological Background

Naval Nuclear Propulsion Program (NNPP)

Nuclear-powered submarines built/overhauled since 1958

Work performed to same strict requirements used at all nuclear shipyards

No radioactive waste ever buried on the Shipyard

Planned liquid discharges below federal limits occurred, primarily before 1973

Most significant unplanned release was by a contractor beside Building 233 at Berth 7 in 1966

PNS Radiological Background

General Radioactive Material (G - RAM)

- Limited radium dial painting in 1940s and 1950s
- NRC regulated sources (e.g., sealed radiographic sources)
- Various small unregulated sources (e.g., NRC-exempt quantities)
- No records, interviews, or surveys indicate radioactive waste buried on the Shipyard

Terminology

- Curie (Ci)**
 - Unit used to define amount of radioactivity
 - Corresponds to 3.7×10^{10} transformations per second
 - A typical radiographic source contains 1 to 100 curies of ^{192}Ir
- Microcurie (μCi)**
 - One millionth of a curie
 - A household smoke detector contains up to 5 μCi of ^{241}Am
- Pico curie (pCi)**
 - One millionth of a microcurie
 - Soil typically contains 1 to 2 pCi/g of naturally occurring ^{226}Ra
 - Maine wood stove ash contains an average of 78 pCi/g of ^{40}K and 6 pCi/g of ^{137}Cs
- Millirem (mrem)**
 - Unit of radiation dose
 - A person receives ~300 mrem/yr from natural background radiation

Findings

Only natural radioactivity ever detected during environmental sampling of harbor water

Very low levels of ^{60}Co in some harbor sediment and seaweed samples prior to 1970

Highest level was 10.7 pCi/cm² in one sediment sample in 1966 (would be <0.2 pCi/cm² today)

Last seen in 1969 by PNS in seaweed

Surveys by EPA laboratory in 1977 and 1989 found no trace of ^{60}Co in any sediment, core, biota, or water sample

Low levels of ^{60}Co (< 1 μCi total) in capped drain pipe and walls of lower service trench in Berth 7 area. This corresponds to exposure level far below NRC cleanup standard of 25 mrem/yr

No other indications of any residual radioactivity in the environment from Shipyard operations

Conclusions

Radiological operations at PNS have had no adverse effect on human health or the environment

No measurable exposure level to the public

Trace levels of ^{60}Co in lower service trench/capped drain pipe are radioactively decaying in place and are inaccessible to public/employees

Additional characterization or remedial actions unnecessary