



PORTSMOUTH NAVAL SHIPYARD
KITTERY, MAINE

Program Management



Orientation to Mission



Technical Merit



Transferability



Stakeholder Interaction



Project Impact/Outcomes



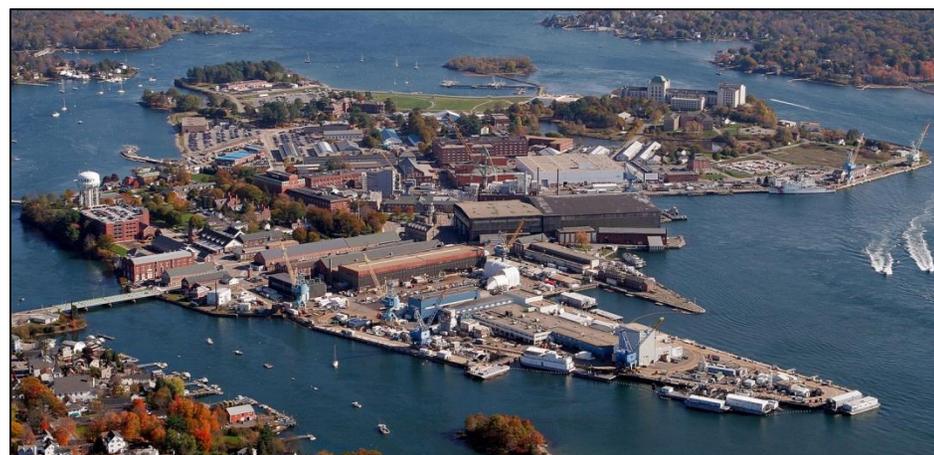
JUDGING CRITERIA
LEGEND

provides support facilities for the U.S. Navy Survival, Evasion, Resistance, & Escape (SERE) School, the Naval Branch Health Clinic Portsmouth, U.S. Army New England Recruiting Battalion, the Defense Logistics Agency, and the U.S. Coast Guard. PNSY also supports military personnel with on-base berthing, family-oriented programs, and recreational opportunities.

FACILITY LOCATION & DESCRIPTION: PNSY is located in the Town of Kittery, Maine at the southernmost tip of the state, approximately 50 miles north of Boston, Massachusetts. PNSY encompasses Seavey Island which is situated at the mouth of the Piscataqua River. The Piscataqua River is a tidal that forms a natural boundary between Maine (ME) and New Hampshire (NH). This federally owned island is located across the harbor from Portsmouth, NH, with access to the mainland via two bridges connected to Kittery, ME. The main base of PNSY is approximately 288 acres in size, over 62 acres of which is managed as the Controlled Industrial Area (CIA). Industrial activities are concentrated at the

western portion of the base within the tightly controlled CIA, which includes dry docks, vessel berths, and numerous buildings that house trade shops supporting maintenance activities. Areas outside the CIA generally include additional trade shops, administration offices, officers' residences, vehicle parking, and recreational facilities.

INSTALLATION HISTORY: PNSY was officially established as a Federal facility in 1800 with the primary mission to build and repair Navy warships. PNSY built submarines until 1969 when the mission was realigned to function exclusively as a submarine overhaul facility. Today, PNSY services some of the most technologically advanced nuclear-powered submarines in the world.



INTRODUCTION

PRIMARY MISSION: The primary mission of the Portsmouth Naval Shipyard (PNSY) is to overhaul, repair, and modernize the U.S. Navy's nuclear-powered submarine fleet and to complete the work in a safe, timely, and cost effective manner. PNSY is only one of four remaining naval shipyards in the nation. PNSY has three dry docks capable of docking all active classes of submarines, including the *Los Angeles*, *Trident*, and *Virginia*.

SHIPYARD POPULATIONS: Approximately 4,700 civilian employees currently work at PNSY, along with 1,000 active duty military personnel assigned to submarine and coast guard cutter crews and an additional 1,000 civilians tenant commands. Although PNSY functions primarily as an industrial facility for the overhauling of submarines, it also

RESTORATION BACKGROUND



REGULATORY HISTORY: Prior to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and Resource Conservation and Recovery Act (RCRA) regulations, years of shipbuilding and submarine repair work at PNSY resulted in hazardous substances being released into the soil, groundwater, surface water, and sediment on and around the installation. In 1983, an Initial Assessment Study identified 28 potentially contaminated sites at PNSY requiring further investigation. Following this investigation, 15 of the 28 original sites were eliminated from the study. The 13 remaining sites were grouped together based upon similar contaminants and/or locations into seven distinct Operable Units (OUs) and a single Site Screening Area (SSA). The Navy formally established the Environmental Restoration (ER) Program in 1986 to address these sites. PNSY was placed on the National Priorities List in May 1994. In September 1999, a Federal Facility Agreement was signed by the Navy and U.S. Environmental Protection Agency (EPA). The State of Maine Department of Environmental Protection (MEDEP) elected not to be a party to the FFA at that time, but to maintain a participatory role under CERCLA.

PNSY ENVIRONMENTAL RESTORATION OBJECTIVES: The PNSY ER Program has been successful in maintaining and promoting environmental stewardship, while never losing focus on the overall mission of PNSY – support of Navy Warfighters. Specific program objectives include: 1) Cleanup and closure of remaining active sites; 2) Optimizing existing remediation systems and long-term

monitoring plans; 3) Enhancing community relations and stakeholder partnerships; and 4) Providing more efficient program management to ensure all remediation obligations are met in a timely manner. The ER Program is committed to the protection of human health and the environment, accomplished in part through, direct partnership with regulatory counterparts and collaboration with local community stakeholders via an engaged Restoration Advisory Board (RAB).



PNSY RESTORATION STAFF: Navy personnel responsible for PNSY ER Program management include:

- » The Remedial Project Manager (RPM) with Naval Facilities Engineering Command (NAVFAC) Mid-Atlantic (MIDLANT) Northeast Integrated Project Team is the lead for the Navy with regards to regulatory collaboration, technical review, contractor management, funding and budgeting requirements, and overall program management.
- » The PNSY ER Program Coordinator with NAVFAC Public Works Department Maine (PWD-ME) Environmental Division provides installation support for the RPM and serves as the local technical representative for all ER-related issues at PNSY. The PNSY ER Program Coordinator also enforces compliance for PNSY and contractors conducting work within or near ER sites.
- » The PWD-ME EV Division Director provides installation ER support and command coordination and serves as the Navy Restoration Advisory Board (RAB) Co-chair. Support is received from various departments across NAVFAC MIDLANT and PWD-ME, including Environmental, Construction, Engineering, Planning, and Acquisition. Command support is provided by the Commanding Officer and Public Affairs Office.

STAKEHOLDER INTERACTION

RESTORATION ADVISORY BOARD: The Navy, EPA, MEDEP, and representatives of local communities from

Kittery, ME, and Portsmouth, NH, meet quarterly at the Kittery Community Center as part of the RAB. New Hampshire Department Environmental Services representatives also participate. The public is represented in the process by residents as well as the Seacoast Anti-Pollution League, a local citizen’s group supported by the EPA’s Technical Assistance Grant. Evolving from the Technical Review Committee formed in 1987, the RAB was established in 1995 and has maintained a formal charter to provide an open forum between the Navy, regulatory agencies, and local community members to discuss PNSY ER investigation and cleanup activities. The participation of local residents has proven vital to the success of the ER Program, especially given the common bond of the Piscataqua River. PNSY is situated at the center of the river, located directly between the two municipalities. The extraordinary diversity of river usage, from recreational sailing and boating to commercial fishing and lobstering, creates a unique environment for local stakeholder interest. Many residential homes, historic and recreational parks, marinas, commercial businesses,

Coordination Is Key ... ER activities require frequent coordination among numerous Navy departments to ensure mission critical activities are not adversely impacted, logistical considerations are in place during construction activities, future land uses are considered, and human health and the environment are protected.

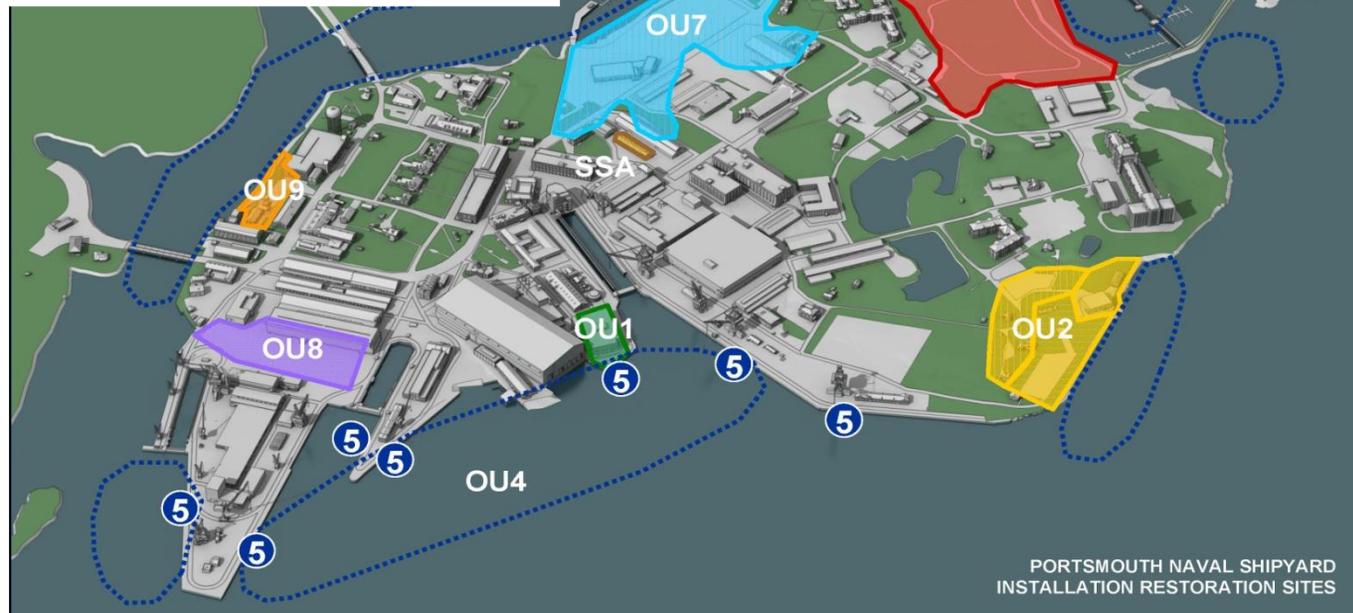
and industrial facilities are situated along both sides of the Piscataqua River. The Navy, along with its regulatory team, continues to welcome the opportunity to share proposed investigation and cleanup activities, analytical data results, program schedules, and remedial goals with the local community members who have direct personal interest in, and respect for, the health of the Piscataqua River. The Navy is fortunate to have such an engaged group of members who bring diverse backgrounds and expertise to the RAB. PNSY has continually received positive feedback from local community members during RAB events. Community outreach was evident in July and August 2013 when PNSY hosted three public meetings for the Proposed Remedial Action Plan (PRAP) associated with OU4, OU7 and OU9. The meetings were held at Kittery Town Hall and began with a public informational session, followed by a public comment period. Each event was successful with thoughtful public comments received.



COMMUNITY INVOLVEMENT PLAN: In February 2012, PNSY was successful in finalizing an update to its ER Community Involvement Plan (CIP). Interviews conducted with federal, state, and community stakeholders were beneficial in documenting and assessing the quality and quantity of community outreach with regards to the PNSY ER Program. Insight gained from public feedback has aided PNSY in its goal of achieving enhanced partnerships with stakeholders and other interested parties.



The Navy's initiative to provide public access to Navy ER documents through a facility-specific public website was quickly embraced by all stakeholders during the September 2013 RAB meeting.



PORTSMOUTH NAVAL SHIPYARD INSTALLATION RESTORATION SITES

SITE MANAGEMENT PLAN: The ER investigation and cleanup schedules are established and updated annually as part of the Site Management Plan (SMP). The SMP serves as a management tool for planning, reviewing, and setting priorities for ER activities at PNSY. The summary table below shows the aggressive schedule the Navy is

committed to in expediting final remedy at each site. In brief, the schedule lists final remedies by FY15, a plan intended to streamline the cleanup process. This ambitious goal has been sustained with the completion of three Records of Decisions (RODs) and a Final No Further Action (NFA) decision document during FY13-FY14.

Operable Unit	Site Designation	Site Discovery	Preliminary Investigation	Remedial Investigation	Feasibility Study	Record of Decision	Remedial Design	Remedial Action or Interim Removal Action	Remedy in Place
OU1	Site 10: Former Battery Acid Tank No. 24	•	•	•	•	•	•	•	•
OU2	Site 6: DRMO Storage Yard & DRMO Impact Area Site 29: Former Teepee Incinerator Site	•	•	•	•	•	•	•	FY15
OU3	Site 8: Jamaica Island Land Fill Site 9: Former Mercury Burial Sites Site 11: Former Waste Oil Tanks No. 6 & 7	•	•	•	•	•	•	•	•
OU4	Site 5: Former Industrial Waste Outfalls	•	•	•	•	•	N/A	FY15	FY15
OU7	Site 32: Topeka Pier Site	•	•	•	•	•	•	FY15	FY15
OU8	Site 31: West Timber Basin	•	•	FY15	FY15	FY16	FY16	FY16	FY16
OU9	Site 34: Former Oil Gasification Plant	•	•	•	•	•	•	N/A	•
Site Screening Area	Site 30: Galvanizing Plant, Building 184	•	•	N/A	N/A	N/A	N/A	•	•

Installation Restoration Investigation / Cleanup schedule
 • = Complete; FY__ = Anticipated Completion Date

THREE RODs in ONE YEAR!

The Navy and EPA exceeded their goal for FY13 by signing three RODs (OU4, OU7, & OU9). This was achieved through effective communication and collaboration with ER stakeholders. Through planning and commitment, the team expedited document review, accelerating the PRAP and ROD schedules by more than four months. Special attention was afforded as to how each remedy would support the PNSY mission, be sustainable, and provide the best protection of human health and the environment.



RESTORATION CHALLENGES

CHALLENGES SPECIFIC TO PNSY: Coordination and communication are critical to ensuring program success at this unique installation. Outlined below are only some of the challenges considered while implementing the ER Program at PNSY. 

» Original Island Assemblage: The shipyard was built on a combination of five islands historically connected by over 90 acres of fill material. The heterogeneous composition of the fill makes investigation, delineation, and cleanup of ER sites exceedingly challenging.

» Past Processes: PNSY is a 215 year-old facility with a long industrial history involving the manufacturing, processing, handling, and disposal of various hazardous and non-hazardous materials used in shipbuilding. Many of these materials had been managed in accordance with procedures accepted at that time, but unfortunately resulted in the contamination of soils, groundwater, and sediments at the installation.

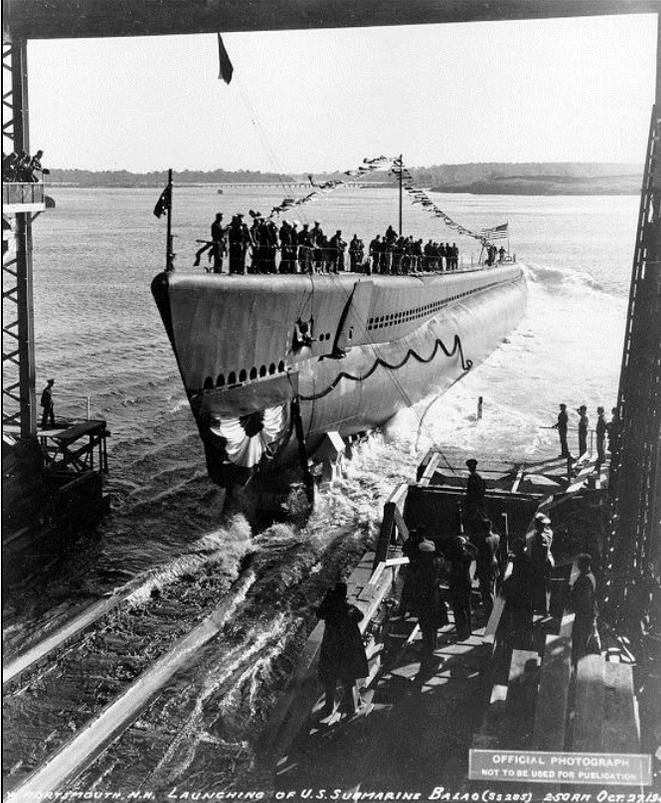
» Full of Activity, Limited on Space: PNSY encompasses 288 acres, two-thirds of which is covered by high density

industrial area, including over 376 buildings. Over 6,500 civilian and military personnel work at the Shipyard on a daily basis. Space is extremely limited at PNSY, making any additional activity outside the daily functionality of PNSY difficult to execute, including ER field investigation and cleanup activities.

» Restricted Access & Security: Since PNSY holds and maintains a nuclear license in the servicing of Navy nuclear-powered submarines, access to the facility is strictly managed and monitored. Coordination with mission and security requirements presents a significant challenge for ER Program execution, including the choice of field equipment and the implementation of innovative technology.

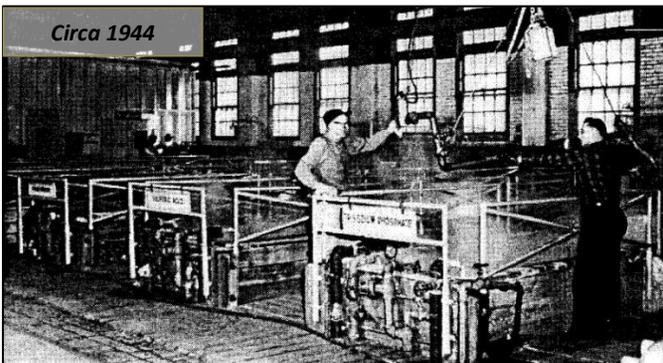
» Protection of the River: Local residents and other stakeholders have a special interest in PNSY due to the common bond of the Piscataqua River. Groundwater modeling and monitoring is a key component to the investigation and documentation of potential contaminant migration. Additionally, sediment sampling and analysis aids in the identification of offshore environmental conditions. Special consideration must be given during all field activities to avoid potential adverse impacts to the river.

» Historical/Archaeological Significance: The PNSY National Register Eligible Historic District encompasses over 200 of the 288 acres of the installation, with special consideration afforded to certain buildings, structures, monuments, and areas of archaeological sensitivity. This also proves challenging, as facility modifications and ground disturbance within certain areas often require formal consultation with the Maine State Historic Preservation Officer (MESHPO).



Two Challenges with One Solution ... The historically significant Building 178 is currently undergoing a major, energy saving renovation project. Portions of the construction site are within multiple shipway ramps which connect the building to the Piscataqua River. These tidally influenced areas are part of the OU4 Offshore Site. In coordination with EPA and MEDEP, the Navy developed a strategy to address the overlapping areas. The subject contaminated sediment area was fully addressed and met the ER program remedial goals while also meeting the construction requirements and schedule of the building renovation. 

FY13-FY14 ACCOMPLISHMENTS



SSA SITE 30 BUILDING 184 GALVANIZING PLANT:

The Site 30 SSA consisting of Building 184, which was constructed in 1943 to serve as a galvanizing plant for PNSY during World War II, has been fully addressed under the ER program and can now be reused/refitted for a new Deep Submergence Testing Facility as part of a \$1.6-million FY14 Energy and Repairs Project. During FY12, 450 tons of non-hazardous soil contained within a brick-lined tank vault, measuring approximately 52 feet long by 35 feet wide by 4 feet deep in the central portion of the building, were removed as part of a removal action outlined in the Engineering Evaluation Cost Analysis (EE/CA), Action Memorandum (AM), and Remedial Action Work Plan (RAWP). After conducting site visits in November 2011, EPA and MEDEP agreed that all unacceptable risk at the site had been addressed and that a No Further Action (NFA) decision was appropriate. The Navy then completed backfilling and concrete floor work as part of the final site restoration. A Construction Completion Report (CCR) was finalized in November 2013. Subsequently, a 30-day public comment period was held for a Draft NFA Decision Document in January 2014 with no comments received. The Final NFA was submitted in March 2014 with regulatory concurrence. The completion of this removal action prepared the way for building renovation in support of adaptive reuse of Building 184 in FY14, without any land use restrictions under the ER Program. Since Building 184 is a historically significant building, MESHPO consultation in accordance with Section 106 of the National Historic Preservation Act

was conducted prior to and during the removal action and included photograph documentation of the tank vault conditions. The vault, built to contain tanks with acid material, was lined with acid-proof bricks. The brick floor and sidewalls of the vault were observed to be in excellent condition with no evidence of staining. To promote green and sustainable remediation, the team agreed to leave the acid-proof brick structure in place. This reduced the amount of material removed while retaining a historic feature of the property. The Building 184 removal action project is an exceptional example of ER Program support to the PNSY mission while fully addressing unacceptable risks, utilizing green and sustainable field practices, and supporting preservation of historically significant features. 



OU1 SITE 10 BUILDING 238 FORMER ACID TANK:

During FY12-FY14, the Navy conducted the remedial action and completed post construction documents for the OU1 Former Battery Acid Tank Site. With the completion of these activities and implementation of Land Use Controls (LUCs) to limit residential use of the site, all unacceptable risk has been addressed for OU1. Building 238 was previously used for battery recharging operations and is located within the CIA where critical submarine maintenance activities are conducted on a daily basis. Lead was the primary contaminant of concern in both soil and groundwater which originated from pre-1984 releases of rinse water discharged from lead-acid battery operations. Specifically, these releases were the result of former decrepit rinse water drainage piping located within a crawl space under the building as well as an attached

loading dock. During Winter 2011/2012, 600 tons of lead-contaminated soil were removed by hand from these areas. The crawl space is a non-permit required confined space necessitating increased safety expertise in entry/exit and emergency response. Given the extreme workspace constraints, lead-contaminated soils were hand shoveled onto a motorized conveyor system and stockpiled outside the building pending disposal. Tenant coordination was proactively managed to minimize access conflicts for the loading dock located at the rear of the building which is utilized daily to support multiple PNSY codes/shops. Consistent coordination with the CIA tenants was also critical to the success of the project. Many logistical challenges were directly associated with the worksite being located within the CIA, immediately adjacent to Dry Dock 2 and two frequently occupied berths. Two subsequent rounds of confirmatory groundwater sampling were completed in 2012 following the cleanup activities, with results confirming no groundwater impact. The Final Groundwater Summary Report was submitted in July 2013, and the CCR was finalized in September 2013. This, in conjunction with LUCs outlined in the 2012 LUC Remedial Design (RD) revised in September 2014, documented that the Remedial Action (RA) was successful in achieving site remediation goals. As such, the Draft RA Closeout Report submitted in June 2014 will be finalized in FY15. 





OU2 SITES 6&29 FORMER DRMO STORAGE YARD:

With completion of RA Design for the OU2 Former DRMO Storage Yard Site and Former Teepee Incinerator Site in November 2012, the Navy rapidly moved from RAWP development to construction start for the removal of contaminated soil. Construction activities began in July 2013 and were completed in August 2014. Since its establishment in 1920, the DRMO Storage Yard historically stored materials that included lead and nickel-cadmium battery elements, motors, and scrap metal. The OU2 remedy outlined in the September 2011 ROD addressed the removal of 18,000 tons of lead-contaminated soil and 214 tons of PCB-contaminated soil to accommodate continued industrial-related activities with limited land use restrictions. Since some excavation activities were located within an area of potential archaeological significance, consultation and coordination with MESHPO were required for excavation in this area. Close coordination with PNSY

Presenting PNSY Sustainability Globally ... The Navy team presented "Integrating Sustainability Considerations into Remedial Design" at the 8th International Conference on Remediation of Chlorinated & Recalcitrant Compounds. The presentation focused on sustainability evaluation integrated into the remedial design for OU2. The SiteWise™ evaluation indicated that the contribution from waste handling and disposal was directly proportional to the distance to the disposal facility. These findings were considered in the remedial efforts at OU2.



base personnel was critical in minimizing impacts to Buildings 298 and 310 occupants as well as various PNSY codes/shops utilizing the area for equipment storage and laydown space. With a strong focus on sustainability, footprint reduction and remedy optimization were evaluated and implemented throughout the remediation process. Over 280 tons of asphalt and concrete materials were recycled as part of this action. In addition, the Navy collaborated with EPA and MEDEP to design and implement an innovative method using Portland cement to stabilize lead-contaminated soil rendering it non-hazardous for off-site transportation and disposal. As documented in technical memorandums, a field-scale study concluded that a 4% ratio for Portland cement additive to 50-ton piles was successful in reducing the Toxicity Characteristic Leaching Procedure lead concentration from 503 mg/L to 0.0025 mg/L. As a result, the waste was disposed of at a licensed non-hazardous disposal facility in NH, rather than at a hazardous waste disposal facility in Canada. This remediation strategy saved the Navy over \$3-million in cost associated with hazardous waste handling and transportation, while also reducing air emissions associated with longer hauling distances. These initiatives resulted in a more efficient and sustainable remedy with a strategy that may assist with future remedies. The Draft CCRs are undergoing review, and the Long Term Management Plan (LTMP) is under development, with groundwater sampling is scheduled for 2015.



OU9 SITE 34 FORMER OIL GASIFICATION PLANT:

In September 2013, the ROD for OU9 Former Oil Gasification Plant was signed to establish LUCs limiting current and future potential exposure to residual subsurface soil contamination. Building 62 was built in the 1870s and was formerly used for industrial activities, including oil gasification and blacksmith operations. Building 62 as well as an annex building constructed post-gasification operations are currently used for storage. Ash generated from past operations was previously deposited around the exterior of Building 62. Prior to the completion of a Remedial Investigation (RI), a removal action was

Partnership In Research ... In conjunction with OU4 investigations, PNSY had the unique opportunity to support the Strategic Environmental Research and Development Program (SERDP) executed in partnership with the Department of Defense, Department of Energy, and EPA. In support of two SERDP projects, the Navy provided researchers from the University of Michigan and Northwestern University with sediment samples from offshore locations at PNSY. Research objectives included enhanced understanding of physical, chemical, and biological processes interaction and control of transformation, mobility, bioavailability, and toxicity of metals in sediments. A summary of the research entitled, Sediment Re-suspension Affects Metal Bioavailability, was presented at the Society of Environmental Toxicology and Chemistry conference held in Fall 2012.



conducted in 2007 to remove the majority of ash material originally found at the site. Based on subsequent RI soil sampling data, a limited amount of ash was discovered remaining at the site, some of which is presumed to be located beneath the currently occupied Building 62 Annex. LUCs were selected in the ROD to limit exposure to the residual contamination which could pose a risk to potential future residential users. This approach was determined to be the most effective remedy when considering potential exposure, long-term land use, sustainability, and costs. A LUC RD was finalized in September 2014, and a Draft RA Closeout Report was submitted in August 2014 for this site.

