

STATEMENT OF BASIS/ PROPOSED FINAL REMEDY DECISION		REGION 2 ID# PR2170027203																	
<b>NAVAL ACTIVITY PUERTO RICO (former Naval Station Roosevelt Roads)</b> Ceiba, Puerto Rico (July 14, 2010)																			
<b>Facility/unit Type:</b> SWMU 13 – Former Pest Control Shop and associated Drainage Ditch <b>Contaminants:</b> PAHs, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, alpha-chlordane, gamma-chlordane, dieldrin <b>Media:</b> sediment <b>Proposed Final Remedy:</b> Excavation and off-site disposal of 61.47 tons of contaminated sediment from a drainage ditch.																			
<p><b><u>FACILITY DESCRIPTION</u></b></p> <p>On October 20, 1994, a Final Resource Conservation and Recovery Act (RCRA) Part B permit was issued by the USEPA Region 2 to Naval Station Roosevelt Roads (NSRR). This permit contained requirements for RCRA Facility Investigation (RFI) activities at specified Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs), including SWMU 13.</p> <p>SWMU 13 consists of the area that contained the Old Pest Control Shop (Building 258), including the drainage ditch along Forrestal Drive. Pesticides for use on the base were mixed and pesticide application equipment was cleaned at this location. This area was not used for pesticide storage. The Old Pest Control Shop was demolished in 1988 following excessive hurricane damage. The site currently consists of a concrete paved area surrounded by grass on the east and south and secondary growth vegetation on the north and west. SWMU 13 is bordered on the east by a grass-covered, concrete-lined drainage swale. This drainage swale parallels Forrestal Drive.</p> <p>The drainage swale leads to a culvert that directs water flow west-southwest under the site to an outlet in the wooded area.</p> <p>During a Phase I RFI 4,4'-DDD, 4,4'-DDE, and 4,4'-DDT exceeded the residential risk-based concentrations (RBCs) in at least three of the sediment samples. During the Phase II RFI all six of the pesticides detected (4,4'-DDD, 4,4'-DDE, 4,4'-DDT, alpha-chlordane, dieldrin, and gamma-chlordane) exceeded the residential RBCs in at least two of the samples and in as many as seven of the samples. The industrial RBCs were exceeded for 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, and dieldrin.</p> <p><b><u>EXPOSURE PATHWAYS</u></b></p> <p>Based on data from the Phase I and Phase II RFI investigations, screening of sediment data from SWMU 13 resulted in unacceptable risks for on-site commercial workers and future military residents. Exposure pathways considered included dermal contact, incidental ingestion and inhalation of dust.</p> <p>Pathways for human health risks were eliminated by</p>	<p>removal of sediments in the drainage ditch above approved remedial goals.</p> <p><b><u>SELECTED REMEDY</u></b></p> <p>The remedial goals for SWMU 13 were based on the current property use, the future use of Naval Activity Puerto Rico (NAPR) as an industrial facility, and the most likely future potential human and ecological receptors. Values selected to protect human receptors were based on commercial/industrial worker scenarios. They are also more conservative (therefore more protective) than values calculated for construction workers because commercial/industrial workers would likely encounter long-term exposure. Selection of more conservative military residential goals or other EPA-published health-based screening criteria such as risk-based concentrations (RBCs) would be overly conservative because there is no current housing at SWMU 13, nor is residential use of the property likely to occur in the future. The following table summarizes the remedial goals for SWMU 13.</p> <table border="1"> <thead> <tr> <th>Compound</th> <th>Remedial Goal</th> </tr> </thead> <tbody> <tr> <td>Pesticides</td> <td></td> </tr> <tr> <td>Dieldrin</td> <td>0.2 mg/kg</td> </tr> <tr> <td>4,4'-DDT</td> <td>6.3 mg/kg</td> </tr> <tr> <td>4,4'-DDD</td> <td>6.3 mg/kg</td> </tr> <tr> <td>4,4'-DDE</td> <td>9.0 mg/kg</td> </tr> <tr> <td>alpha - Chlordane</td> <td>7.0 mg/kg</td> </tr> <tr> <td>gamma – Chlordane <sup>(1)</sup></td> <td>7.0 mg/kg</td> </tr> <tr> <td>Total cPAHs</td> <td>10 mg/kg</td> </tr> </tbody> </table> <p>Note: Total cPAHs include: Benzo(a)anthracene, benzo(a)pyrene, benzo(b)floranthene, benzo(k)floranthene, chrysene, indeno(1,2,3-cd)pyrene and dibenzo(a,h) anthracene. (1) Also identified as beta-Chlordane</p> <p>Soils were excavated to achieve the remedial goals. Institutional controls will be required to prohibit future residential development.</p> <p><b><u>INNOVATIVE TECHNOLOGIES CONSIDERED</u></b></p> <p>Excavation and off-site disposal of contaminated soil was a presumptive remedy for this SWMU. Excavation and off-site disposal is proven and commonly used at remediation and general construction sites. It is reliable, effective and easily implemented. Clean-up goals could be achieved using this method and it could provide an immediate benefit to the environment. Therefore, no innovative technologies were considered.</p>	Compound	Remedial Goal	Pesticides		Dieldrin	0.2 mg/kg	4,4'-DDT	6.3 mg/kg	4,4'-DDD	6.3 mg/kg	4,4'-DDE	9.0 mg/kg	alpha - Chlordane	7.0 mg/kg	gamma – Chlordane <sup>(1)</sup>	7.0 mg/kg	Total cPAHs	10 mg/kg
Compound	Remedial Goal																		
Pesticides																			
Dieldrin	0.2 mg/kg																		
4,4'-DDT	6.3 mg/kg																		
4,4'-DDD	6.3 mg/kg																		
4,4'-DDE	9.0 mg/kg																		
alpha - Chlordane	7.0 mg/kg																		
gamma – Chlordane <sup>(1)</sup>	7.0 mg/kg																		
Total cPAHs	10 mg/kg																		

## **CORRECTIVE ACTION COMPLETED**

Heavy equipment was mobilized on April 10, 2006. It was obtained from local suppliers. Site preparation included verification of utility locations with on-site Navy personnel, installing erosion controls, clearing and grubbing, constructing lay-down and staging areas, establishing access routes for equipment and transport vehicles, and delineating work areas. The excavation was completed with appropriately sized heavy equipment, primarily a backhoe and included the removal of 61.47 tons of sediment. When confirmation samples indicated that contaminant concentrations were above remedial goals over-excitation was performed. Most of the activities were completed by June 2006. Additional removal, disposal and restoration was completed from January to April 2009. Upon completion excavation, the ditch was filled with stones, topped with 1" of gravel and compacted.

## **PUBLIC PARTICIPATION**

Public review and comment on the completed remedy for SWMU 13 will be implemented as required by the USEPA. A public notice of the public comment period will be published in both Spanish and English in select Puerto Rico newspapers.

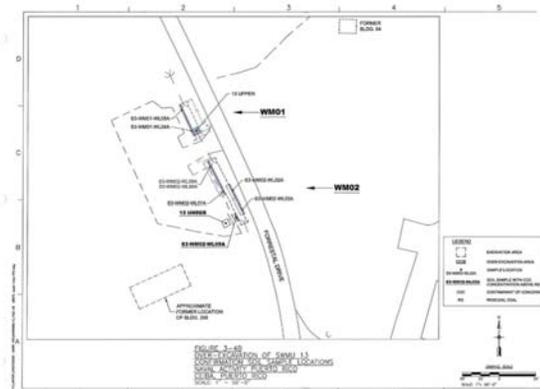
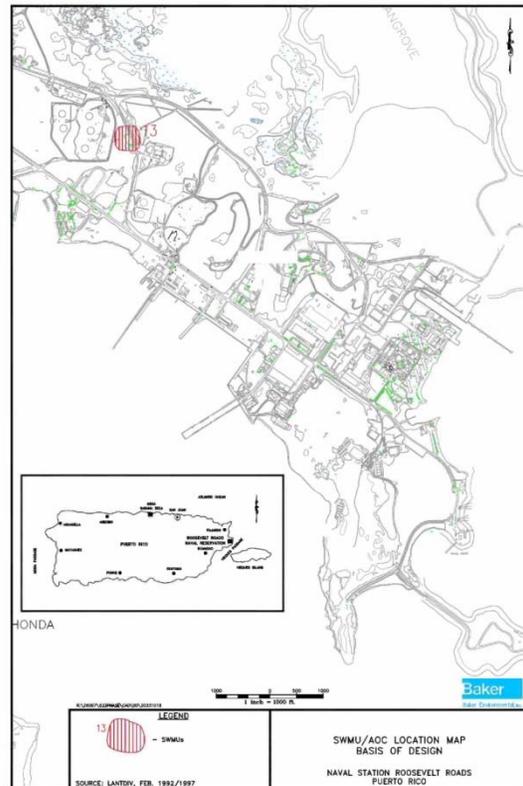
## **NEXT STEPS**

Following completion of public review and comment on the completed remedy, the USEPA will advise NAPR of any required modifications based on the public comments, or its acceptability. Following USEPA's input concerning the implemented remedy, NAPR will amend the remedy (if required).

Corrective Action Complete (CAC) with controls is recommended for this SWMU. The controls will consist of a deed restriction prohibiting residential development at this site.

## **KEY WORDS**

SWMU 13, Sediment, PAHs, benzo(a)pyrene, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, alpha-chlordane, dieldrin, and gamma-chlordane, excavation, off-site disposal, NAPR, NSRR, CAC, corrective action complete



## **CONTACT**

Timothy R. Gordon  
USEPA, Region 2  
290 Broadway  
New York, NY 10007-1866  
Phone: (212) 637-4167