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TECHNICAL MEMORANDUM SALVAGE YARD ACCESS ROAD CONFIRMATION SAMPLING  
NAS OCEANA VA  
09/10/2010  
CH2M HILL

# Oceana Salvage Yard Access Road Confirmation Sampling, Naval Air Station Oceana, Virginia Beach, Virginia

PREPARED FOR: NAS Oceana Tier I Partnering Team  
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DATE: September 10, 2010

## Background

The Oceana Salvage Yard Access Road is located along the eastern boundary of the Naval Air Station (NAS) Oceana property (**Figure 1**) on the east side of South Oceana Boulevard. The site is owned by the Navy but is not within the gated portion of the Base. The road provides access to Oceana Salvage Yard, which is privately owned.

The Oceana Salvage Yard Access Road was first investigated as part of an Environmental Survey of the entire salvage yard (ABB Environmental Services, 1997). During this investigation, several soil samples were collected along the Access Road and analyzed for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), and inorganics. Interviews of Oceana Salvage Yard personnel indicated that a large volume of crushed car battery casings were brought to the Oceana Salvage Yard in the 1960s and were used as fill material for the road base.

In January 2005, CH2M HILL completed a direct push investigation to determine whether the roadway was constructed on crushed car batteries (CH2M HILL, 2005). Direct push samples were collected at 25 locations along the roadway to a depth of 4 feet below ground surface (bgs). Waste containing battery casings was encountered at all but one sample location. Battery fragments were encountered between approximately 0.1 and 3 feet bgs. The average depth to the bottom of the batteries was approximately 2.5 feet bgs; however, the batteries extended to 3.0 feet bgs at two locations. The thickness of the layer of battery fragments was approximately 0.5 to 1.0 foot. All soil samples were field screened for lead using field test kits. Many of the samples exceeded the field test kit detection limit of 400 mg/kg. Four soil samples were collected for laboratory lead analysis. Concentrations of lead detected in these samples ranged from 18.1 mg/kg to 149,000 mg/kg. Lead concentrations detected were found above the residential soil screening level of 400 mg/kg from the United States Environmental Protection Agency (USEPA) Regional Screening Level Table (USEPA, 2010) and therefore were determined to potentially pose unacceptable risks to human receptors.

In 2007, the USEPA issued a Draft Consent Order for the Oceana Salvage Yard Site, including the Access Road. The Consent Order was never finalized, and contamination on the Oceana Salvage property was remediated in accordance with a previous version of the Consent Order. This previous version was finalized, but did not include the Access Road or any other contamination on the Navy portion of the property. However, consistent with the decision of the NAS Oceana Tier I Partnering Team (July 2010), it was agreed that the Navy portion of the site could be remediated in accordance with the 2007 Draft Consent Order which requires the following remedy to address lead contamination only in the Access Road and shoulders:

- Delineation of the physical extent of lead contamination along the shoulders of the Access Road, defined as strips of land extending 10 feet from the edges of either side of the Access Road to a maximum depth of 2 feet bgs. This delineation is to include the shoulders of the automobile traffic portion of the Access Road that begins at Oceana Boulevard, continues along the easement over the Navy property, and extends up to the service building on the Oceana Salvage Yard property.
- Capping of the entire right of way of the Access Road. The road will be addressed separately from the shoulder areas and the sampling in this work plan does not address this area. Soils or other materials having concentrations of lead >800 mg/kg or greater in the Access Road shoulders as defined above shall be excavated to a depth of 2 feet and the excavations capped and backfilled with clean fill. The cap should have a top layer of gravel or comparable material, an orange warning barrier, and clean fill to a minimum thickness of 6 inches. Caps installed in the shoulders of the Access Road must cover all materials having concentrations of lead of >800 mg/kg or greater at depths of 2 feet or greater. Clean fill shall consist of material consisting of less than 800 mg/kg of lead and shall not contain any other hazardous substance at levels allowable under federal and state law.

Sampling included in this Technical Memorandum Work Plan is intended to fulfill the first requirement above on the portion of the property within the Navy property boundary and aid in the cost estimation and planning for the remedy implementation in the shoulders of the Access Road. Because the roadway itself will be capped regardless of contaminant concentrations, no additional sampling will be completed in the actual roadway.

## Proposed Sampling Objectives and Data Quality Objective

The objective of this sampling effort is to adequately define areas along the shoulders of the Access Road (10 feet on either side of the road) with concentrations of lead greater than 800 mg/kg to a maximum depth of 2 feet bgs. Therefore, the data quality objective for lead is considered to be 800 mg/kg.

## Laboratory Analysis

Samples will be analyzed for lead using method SW846 6010B. Sample results will be requested with expedited 14-day turnaround time.

## Sample Design and Methods

Prior to sample collection, the shoulders of each side of the road on the Navy portion of the property will be marked in sections approximately 50 feet in length. The portion of the road on the Oceana Salvage Yard property (eastern end of the access road beyond the boundary) will not be evaluated. Given the total length of the road to the property line of approximately 850 feet, there will be 17 sections on the south side of the road and 18 on the north side of the road (35 total sections). Each will be approximately 50 feet long and 10 feet wide as shown in **Figure 2**. Three soil samples will be collected from 0 to 2 feet bgs from each of these sections using a stainless steel hand auger. Sample locations will be marked using a GPS instrument prior to sample collection. Utilities will be marked by a third party locator prior to initiation of intrusive activities. If obstructions are encountered during augering, locations will be moved slightly. The three samples from each section will be composited and homogenized in a stainless steel bowl. Remaining soil will be returned to the boreholes. Samples will be given identification numbers (IDs) using the sample station/grid number on **Figure 2** and the format shown below:

*OSAL-StationID-MMY*

For example, a composite sample collected from the three locations in grid SO01 in September 2010 would receive the following ID:

*OSAL-SO01-0910*

The 35 composite samples will be placed in laboratory-prepared sample containers and packed on ice for shipment to:

Environmental Conservation Laboratories, Inc.  
4810 Executive Park Court, Suite 211  
Jacksonville, Florida 32216  
904-296-3007(Laboratory)  
904-296-6210 (Facsimile)  
Project Manager: Chris Tompkins

Environmental Conservation Laboratories, Inc (ENCO) is accredited by the Department of Defense (DoD) Environmental Laboratory Accreditation Program (ELAP) for lead by SW846 6010B.

## Decontamination

Stainless steel sampling equipment will be decontaminated following composite sampling in each section to eliminate the potential for cross contamination. Equipment will be washed with a mixture of biodegradable Liquinox® detergent and water. Equipment will then be rinsed with distilled water, followed by a rinse with a 10 percent methanol solution and finally laboratory grade deionized (DI) water.

## Investigation-derived Waste Management

Excess soil will be returned to hand-augered holes at the site. Rinse water resulting from decontamination activities will be contained in 55-gallon drums for offsite disposal. No more than one 55-gallon drum may be stored onsite at a given time. Once a drum is nearly full, a base representative will be contacted to remove the drum and transport it to a storage site within the gated portion of NAS Oceana and a new, empty drum will be used in its place. Following the investigation, an investigation-derived waste (IDW) management vendor will be contracted to sample and dispose of the waste based on its characteristics.

## Surveying

In addition to the field analytical sampling, a land survey will be completed at the Access Road to facilitate the planning for the remedy implementation at the site. The survey will be completed in Virginia State Plane Coordinates. The survey will show all encountered structures, valve boxes, fences, driveways, roads, drainage structures, manholes, pipe inverts (stormwater and sanitary), utility poles, trees (greater than 1 ft in diameter), the property boundary between Oceana Salvage and Navy property and other such features within the roadway and the 15-foot shoulders on either side of the road. Spot elevations at a 0-foot maximum grid will be obtained and 1-foot contours and a digital terrain model (DTM) will be generated.

## Documentation and Path Forward

Based on the discussion from the NAS Oceana July 7, 2010 partnering call, the team agreed that the remediation should proceed in accordance with the Draft Consent Order. The team also agreed that because Oceana is not on the National Priorities List (NPL) and has no Federal Facilities Agreement (FFA), only VDEQ approval of the remedy would be required. Results of the sampling and surveying efforts will be documented in a technical memorandum to be distributed to the Navy and Virginia Department of Environmental Quality. The removal action design will be based on the extent of soils exceeding the 800 mg/kg threshold included in the Draft Consent Order. If the concentration of the composite sample collected from a given grid is greater than 800 mg/kg, then, consistent with the Draft Consent Order, the design will require the following:

- excavation to a depth of two feet
- placement of an orange warning barrier at 2 ft bgs
- capping of that particular portion of the shoulder

Consistent with the lead delineation approach in the Draft Consent Order, it is assumed that if lead concentrations in soils shallower than two feet bgs are less than 800 mg/kg in the shoulders, then concentrations at deeper depths are also less than 800 mg/kg and will not require excavation and cover. This assumption is based on the likely transport pathway of contaminants leaching from the road into the shallow portions of the shoulder before reaching deeper portions since the road is greater in elevation than the surrounding shoulders.

If the lead concentration for the composite sample for a particular grid is less than 800 mg/kg, consistent with the Draft Consent Order, the design will not require any excavation or capping with the exception of any grading necessary to transition from the road to the shoulder.

## References

ABB Environmental Services. 1997. Environmental Survey.

CH2M HILL. 2005. *Direct Push Investigation, Oceana Salvage Yard Access Road Sampling, Naval Air Station Oceana, Virginia Beach, Virginia*

United States Environmental Protection Agency (USEPA). 2007. Consent Order.

USEPA. 2010. *Regional Screening Level (RSL) Industrial Soil Supporting Table*. May.



**Legend**

-  NAS Oceana Boundary
-  Extent of Work

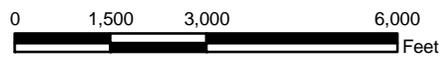
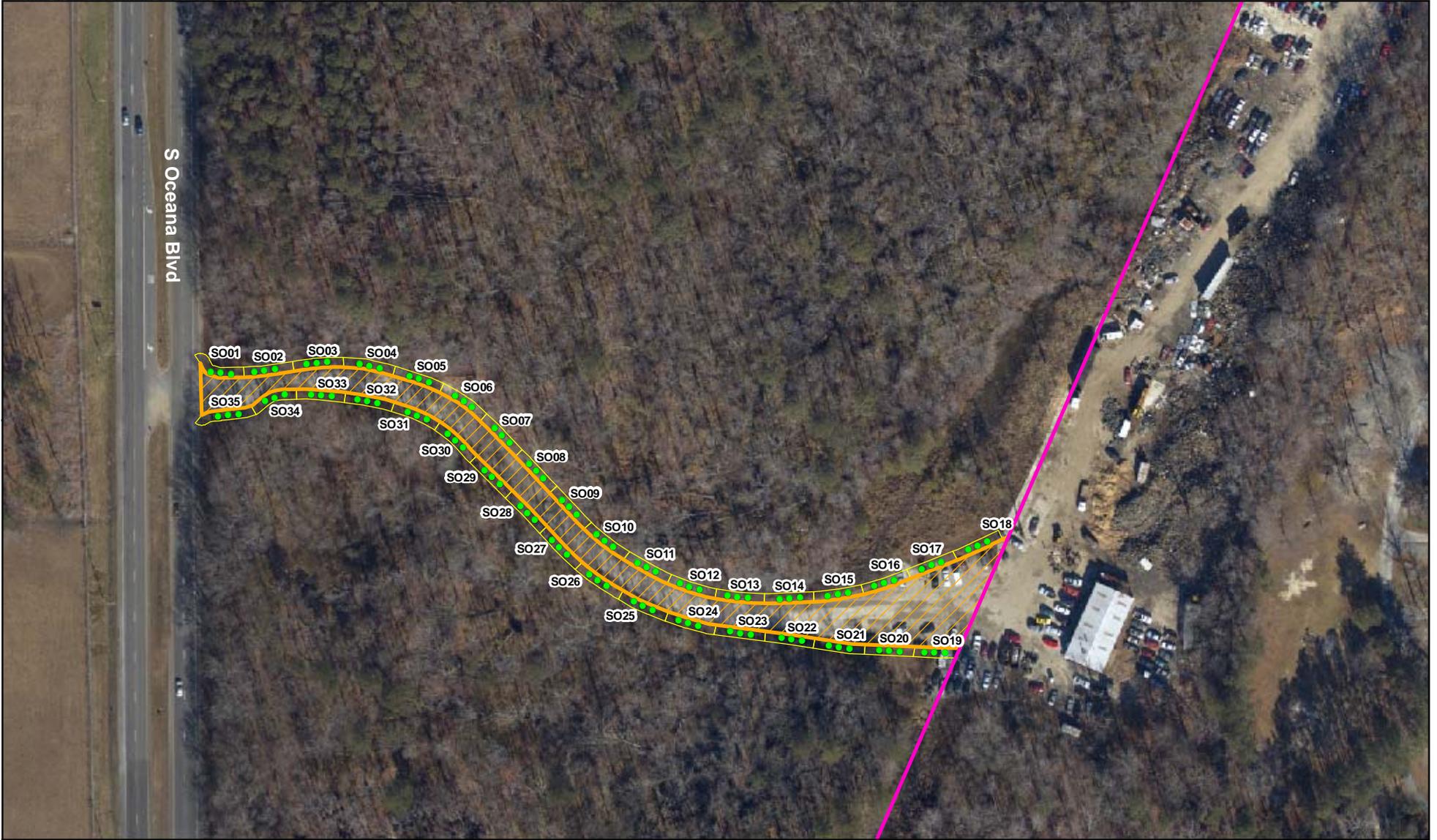


Figure 1  
Oceana Salvage Yard Access Road Location Map  
Confirmation Sampling Work Plan  
NAS Oceana  
Virginia Beach, Virginia



- Legend**
- Proposed Sediment Sample Location
  - NAS Oceana Boundary
  - ▨ Extent of Work
  - Sampling Grid (50 feet in length)

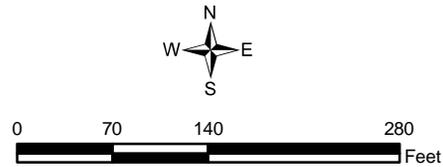


Figure 2  
Proposed Sampling Grid  
Oceana Salvage Yard Access Road  
Confirmation Sampling Work Plan  
NAS Oceana  
Virginia Beach, Virginia