

# Public / Restoration Advisory Board Meeting



NAB Little Creek  
September 3, 1998

09.04-09/03/98-00326



# Public/Restoration Advisory Board Meeting NAB Little Creek September 3, 1998

## Agenda

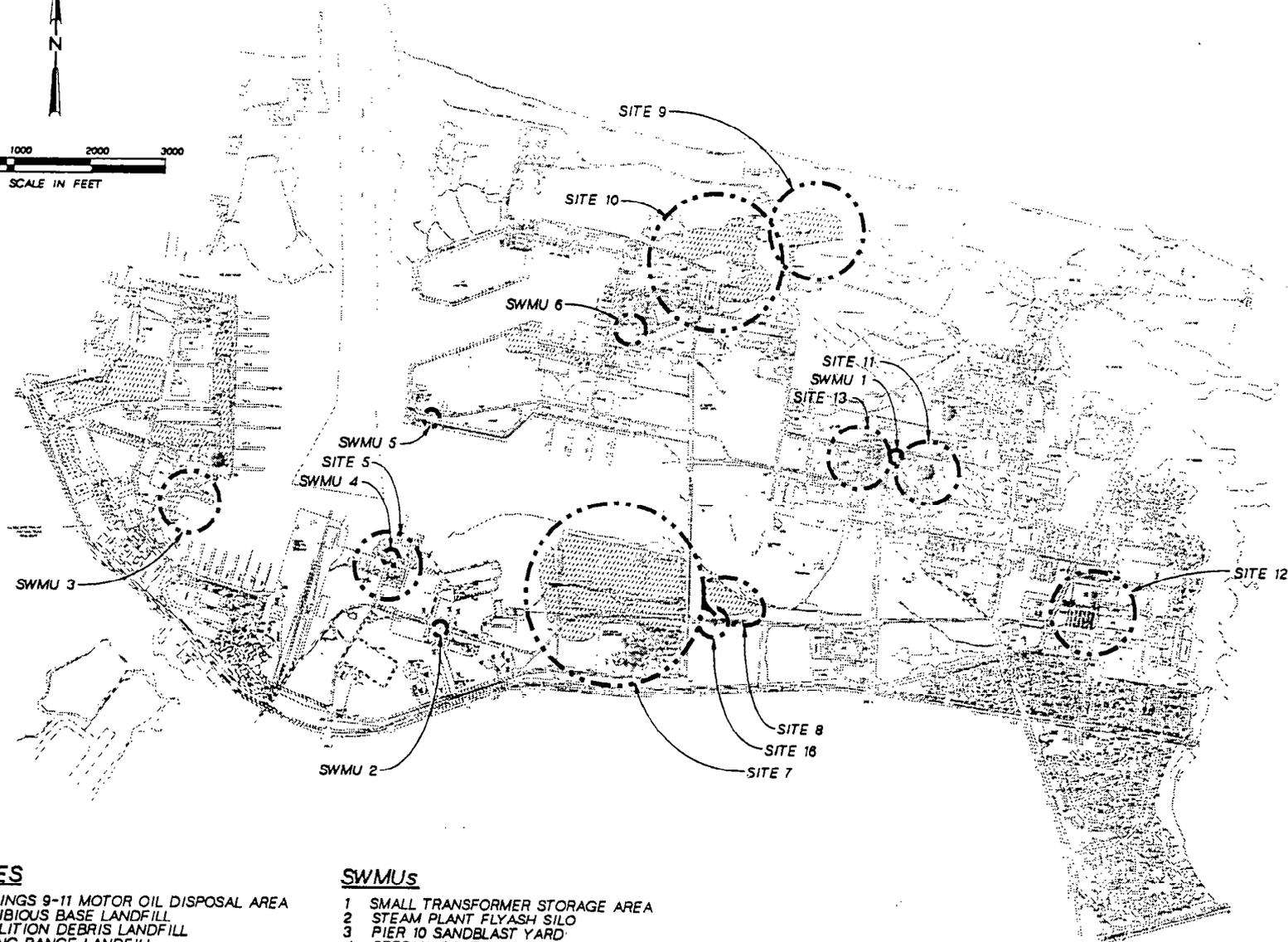
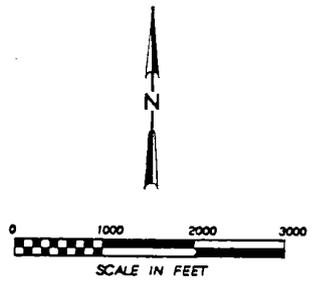
Welcome, Introductions, Agenda	1:00
Site 7 Remedial Action Review	1:15
Site 13 Engineering Evaluation/Cost Analysis (EE/CA) for RA	1:35
BREAK	2:05
Sampling of Solid Waste Management Units	2:20
Impact of National Priorities List	2:50
Sampling at Sites 11, 12 and 13 Update	3:00
Upcoming IRP Activities	3:10
Meeting Adjourn	

Optional: Site Visits after the Meeting



## Acronyms

AOC	Area of Concern
ARAR	Applicable or Relevant and Appropriate Requirement
AST	Aboveground Storage Tank
CERCLA	Comprehensive Envir <sup>l</sup> Response, Compensation, & Liability Act
CFR	Code of Federal Regulations
<i>cis</i> 1,2-DCE	<i>cis</i> 1,2-Dichloroethene
<i>trans</i> 1,2-DCE	<i>trans</i> 1,2-Dichloroethene
DD	Decision Document
DEQ	Virginia Department of Environmental Quality
DRMO	Defense Reutilization and Marketing Office
EE/CA	Engineering Evaluation/Cost Analysis
EPA	Environmental Protection Agency
FFA	Federal Facilities Agreement
FR	Federal Register
FS	Feasibility Study
FSP	Field Sampling Plan
GW	Groundwater
GWMP	Groundwater Monitoring Plan
HASP	Health And Safety Plan
HRS	Hazard Ranking System
IR	Installation Restoration
LANTDIV	Naval Facilities Engineering Command, Atlantic Division
NCP	National Oil & Hazardous Substances Pollution Contingency Plan
NFA	No Further Action
NFRAP	No Further Response/Remedial Action Palnned
NPDES	National Pollutant Discharge Elimination System
ORC	Oxygen Release Compound
OWS	Oil/Water Separator
PCB	Polychlorinated Biphenyl
PCE	Tetrachloroethene
PCP	Pentachlorophenol
Pest/PCB	Pesticides and Polychlorinated Biphenyl
ppb, ppm	part per billion, part per million
PWC	Public Works Center
QAPP	Quality Assurance Project Plan
RA	Removal Action
RAO	Remedial Action Objective
RBC	Risk Based Concentration
RCRA	Resource Conservation and Recovery Act, 1978
RFA	RCRA Facility Assessment
SAA	Satellite Accumulation Area
SED	Sediment
SI	Site Inspection/Investigation
SRI	Supplemental Remedial Investigation
SVOC	Semi-Volatile Organic Compound
SW	Surface Water
SWMU	Solid Waste Management Unit
TCE	Trichloroethene
UST	Underground Storage Tank
VOC	Volatile Organic Compound
WP	Work Plan
yd <sup>3</sup>	cubic yards



**IR SITES**

- 5 BUILDINGS 9-11 MOTOR OIL DISPOSAL AREA
- 7 AMPHIBIOUS BASE LANDFILL
- 8 DEMOLITION DEBRIS LANDFILL
- 9 DRIVING RANGE LANDFILL
- 10 SEWAGE TREATMENT PLANT LANDFILL
- 11 SCHOOL OF MUSIC PLATING SHOP
- 12 EXCHANGE LAUNDRY WASTE DISPOSAL AREA
- 13 PCP DIP TANK AND WASH RACK
- 16 PCB CAPACITOR SPILL, POLE 425

**SWMUs**

- 1 SMALL TRANSFORMER STORAGE AREA
- 2 STEAM PLANT FLYASH SILO
- 3 PIER 10 SANDBLAST YARD
- 4 SPECIAL BOAT SQUADRON 2 BATTERY STORAGE AREA
- 5 BUILDING 3898 BOAT PAINTING AREA
- 6 SEABEE AREA

SOURCE: BASE MAP PROVIDED BY LANTDIV

**Figure 1-2**  
**BASE LOCATION MAP WITH**  
**IR SITE AND SWMU LOCATIONS**  
 NAB Little Creek  
 Virginia Beach, Virginia





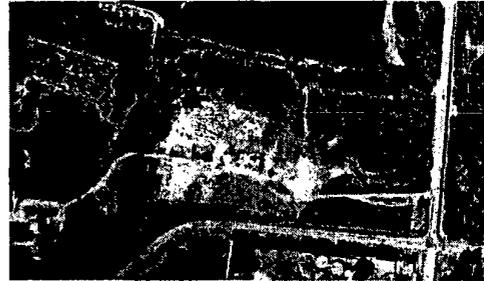
## Site 7 History

- Landfill operated from 1962 to 1979
- 38 acres, containing ~500,000 yd<sup>3</sup> waste
- 1997: completed the Feasibility Study and the Proposed Remedial Action Plan, discussed options at 6/17/97 RAB meeting
- January 16, 1998: Final Decision Document was signed

1



## Site 7, 1995



2



## Site 7 Remedial Action First Phase

- First Phase - OHM Remediation Services
  - Mobilized January 26, 1998
  - Removed 610 yd<sup>3</sup> of surface debris near the northern portion of the site at the shoreline
  - Redirected 183 yd<sup>3</sup> concrete for erosion control and safety
  - Demolished old fence and installed new fence on east and south sides of the site
  - Demobilized March 10, 1998

3



## Site 7 Remedial Action First Phase

Area	yd <sup>3</sup>	Wood	Concrete	Metal	General	Tires	Total
Wetlands	335	12	23	5	5		380
North Side Slope	18		13	0	0		53
Vegetated Area	108	0	35	0	0		210
Canal Bank	15		23	0	0		150
<b>Total</b>		12	74	5	5		793

Note: 9 yd<sup>3</sup> of soil removed for fence construction

4



## Site 7 Remedial Action First Phase

- What happened to the debris?
  - Wood, Soil, and General - Big Bethel Landfill
  - Metal - DRMO for resale
  - Tires - Recycled
  - Concrete - used for on-site erosion control
    - Slopes near Lake in G1 and slope in P3, P4, Q3
    - Filled holes near pathways for safety
- Pictures showing areas, debris collection etc
- Before and After Pictures

5



## Site 7 Remedial Action First Phase, July 1998



6



### Site 7 Remedial Action First Phase, July 1998



### Site 7 Remedial Action Second Phase

- Second Phase - Hudgins Contracting Corp
  - Mobilized March 9, 1998
  - Provided 19,900 yd<sup>3</sup> of soil
    - 11,260 yd<sup>3</sup> topsoil, 8,640 yd<sup>3</sup> fill
    - Resulted in a topsoil layer of 6-8", total cover 30"
  - Seeded the soil cover area with a mix of wildlife grasses
  - Installed warning signs at the entrances to the site, along waterways, and along the fence

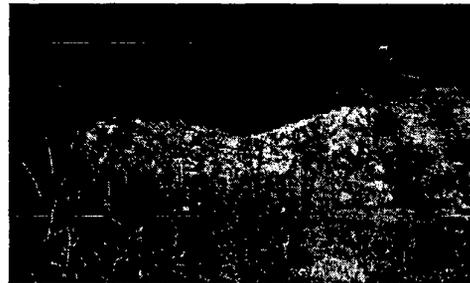


### Site 7 Remedial Action Second Phase

- Second Phase Cont'd
  - Constructed a gravel road crossing the site
  - Reinforced the road crossing the canal
  - Completed initial activities June 3, 1998
  - For one year, Hudgins will monitor the vegetative cover
  - Earthen berm on the north portion of the site will remain in place to decrease surface runoff



### Site 7 Remedial Action Second Phase, July 1998



### Site 7 Remedial Action Second Phase, July 1998



### Site 7 Long Term Monitoring

- Purpose:
  - To establish the quality of groundwater, surface water, and sediment near the site;
  - Evaluate trends in the quality of those media;
  - Confirm the presence or absence of human health or environmental risk
- Semiannual sample collection
  - 6 GW, 7 SW, and 7 SED locations
  - Analyze for VOCs, SVOCs, PCBs, and Metals

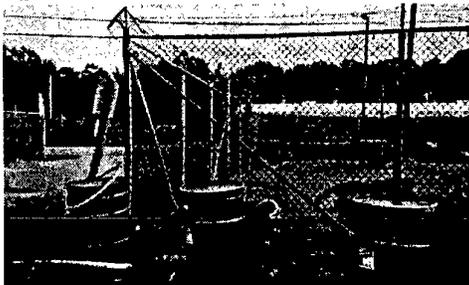


## Site 13 History

- PWC operated the PCP Dip Tank from the 1960s to 1974
- Tank was metal, ~20' long, 5' in diameter, half buried and had a metal cover
- Contained about 1500 gallons of solution
- Wood was processed in the tank and loaded directly onto trucks or left to dry on racks



## Site 13



## Site 13 History

- Detected PCP contamination in soil & GW
- Navy proposes a Removal Action to excavate the PCP contaminated soil
- Completed an Engineering Evaluation/Cost Analysis (EE/CA) to:
  - Identify available technologies
  - Form and evaluate Alternatives
  - Recommend a preferred Alternative



## EE/CA for Site 13 Removal Action Objectives

- 1 Prevent direct exposure to soil contaminants
  - No current exposure scenario, model for future
  - Identify areas above the EPA Risk Based Concentration (RBC) for industrial soil
  - EPA RBCs for Industrial Soil:
 

• Pentachlorophenol	48 mg/kg
• Benzo(a)pyrene	0.78 mg/kg
• Benzo(b)fluoranthene	7.8 mg/kg
• Benzo(a)anthracene	7.8 mg/kg



## EE/CA for Site 13 Removal Action Objectives

- 2 Minimize leaching of contaminants to GW from the overlying contaminated soil
  - The only contaminant exceeding the *drinking water* RBC is PCP
  - No current exposure scenario, model for future
    - Target, risk-based GW concentration was determined for non-consumptive receptor = 79 µg/l
  - EPA soil leaching guidance was used to back calculate the removal action level = 16 mg/kg

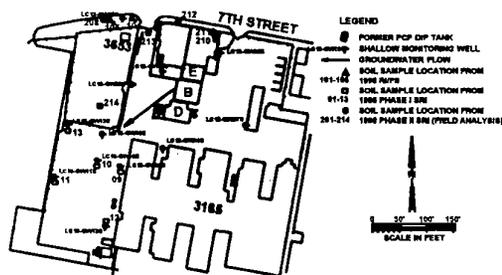


### EE/CA for Site 13 Leaching Guidance

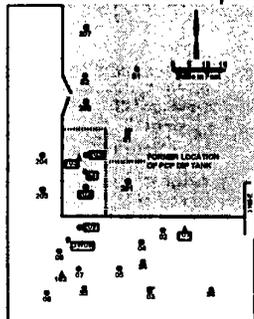
- Assume:
  - No contaminant attenuation in soil or GW
  - Receptor well on edge of source
- Based on:
  - Soil/water and air/water partitioning coefficient
  - Water and air filled soil porosity
  - Source dimensions
  - Hydraulic gradient and conductivity
  - Rainwater infiltration rate



### Site 13 Previous Soil Sampling



### Site 13 Previous Soil Sampling



### EE/CA for Site 13 RA Alternatives Identified

- 1 - No Action
- 2 - Capping with Asphalt
- 3 - Excavation of Soil Above Leaching-Based Criteria
- 4 - Excavation of Hotspot Soil and Asphalt Capping

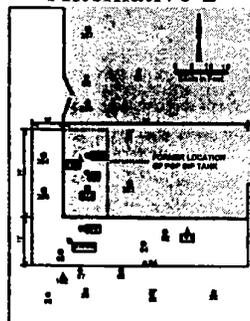
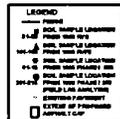


### EE/CA for Site 13 RA Alternative 2

- Excavate ~26 yd<sup>3</sup> soil to place an engineered subgrade for the asphalt
- Offsite treatment and disposal of soil
- Placement of 1200 ft<sup>2</sup> subgrade and asphalt
- Removal and reconstruction of 100 ft fence
- Retrofitting the surface casing of two monitoring wells
- Total present-value cost is \$27,700



### EE/CA for Site 13 RA Alternative 2





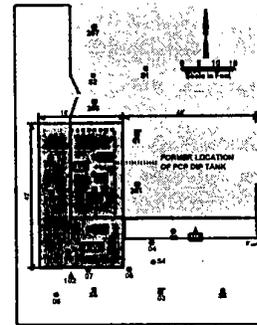
### EE/CA for Site 13 RA Alternative 3

- Excavate ~178 yd<sup>3</sup> soil
  - 6' deep over 760 ft<sup>2</sup> and 1' deep over 260 ft<sup>2</sup>
  - Before backfilling, confirm cleanup level reached with 10-15 random field test samples
- Offsite treatment and disposal of soil
- Replace 450 ft<sup>2</sup> asphalt, revegetate 1000 ft<sup>2</sup>
- Removal and reconstruction of 100 ft fence
- Abandon/replace two monitoring wells
- Total present-value cost is \$129,500



### EE/CA for Site 13 RA Alternative 3

LEGEND	
—	FENCE
11-1	SOIL SAMPLE LOCATION FROM PHASE 1
11-2	SOIL SAMPLE LOCATION FROM PHASE 2
11-3	SOIL SAMPLE LOCATION FROM PHASE 3
11-4	SOIL SAMPLE LOCATION FROM PHASE 4
11-5	SOIL SAMPLE LOCATION FROM PHASE 5
11-6	SOIL SAMPLE LOCATION FROM PHASE 6
11-7	SOIL SAMPLE LOCATION FROM PHASE 7
11-8	SOIL SAMPLE LOCATION FROM PHASE 8
11-9	SOIL SAMPLE LOCATION FROM PHASE 9
11-10	SOIL SAMPLE LOCATION FROM PHASE 10
11-11	SOIL SAMPLE LOCATION FROM PHASE 11
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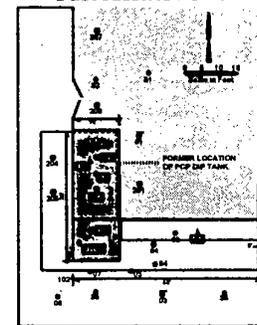
### EE/CA for Site 13 RA Alternative 4

- Excavate ~128 yd<sup>3</sup> soil
  - 6' deep over 530 ft<sup>2</sup> and 1' deep over 280 ft<sup>2</sup>
  - Before backfilling, confirm cleanup level reached with 8-12 random field test samples
- Offsite treatment and disposal of soil
- Place 1200 ft<sup>2</sup> subgrade and asphalt
- Removal and reconstruction of 100 ft fence
- Abandon/replace two monitoring wells
- Total present-value cost is \$98,600



### EE/CA for Site 13 RA Alternative 4

LEGEND	
—	FENCE
11-1	SOIL SAMPLE LOCATION FROM PHASE 1
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11-100	SOIL SAMPLE LOCATION FROM PHASE 100



### EE/CA for Site 13 RA Alternatives Evaluation

- Effectiveness:
  - Protection of human health, the environment, and workers during implementation
  - Compliance with ARARs
  - Level of treatment and containment expected
  - Residual effect concerns
- Alternative 3 most effective



### EE/CA for Site 13 RA Alternatives Evaluation

- Implementability
  - Construction and operational considerations
  - Demonstrated performance/useful life
  - Adaptable to environmental conditions
  - Contributes to remedial performance
  - Ability to impose institutional controls
- Implementation benefits of Alternatives 2 and 4 can be overcome by proper management of Alternative 3



## EE/CA for Site 13 RA Alternatives Evaluation

- Cost
  - Alternative 1 - No Cost
  - Alternative 2 - \$27,700
  - Alternative 3 - \$129,500
  - Alternative 4 - \$98,600



## EE/CA for Site 13 RA Recommended Alternative

- Alternative 3 - Excavation of Soil Above Leaching-Based Criteria
  - Most effective, meets Removal Action Objectives
  - Does not require implementation of institutional controls on land-use
  - Most expensive Alternative, but still relatively inexpensive for the removal of risk and source for groundwater contamination



## Bioremediation Option



- Bioremediation - Use of living organisms to degrade contaminants in the environment
  - Occurs only in the right conditions
  - Additives can be introduced into the environment to enhance bioremediation
    - Aerobic - in the presence of oxygen
    - Anaerobic - lack of oxygen



## Bioremediation Option

- Several complications with introduction of additives
  - Difficult to add or disperse over entire site
  - Causes fouling of wells - localized bio growth
- Excavation during removal action may solve both of these problems



## Bioremediation Option

- Research shows PCP degrades faster aerobically than anaerobically
- In the subsurface, oxygen is generally not abundant enough to promote aerobic degrad.
- Addition of oxygen source may increase aerobic degradation of PCP
- Oxygen Release Compound (ORC) is a slow release, high concentration of oxygen



## Bioremediation Option

- ORC avoids well fouling due to slow release mechanism
- Addition after excavation will allow wide dispersion of ORC, to treat more volume
- Addition of more ORC may be required in the future, however, it may completely treat the plume
  - Very cheap, unintrusive
  - Will be compatible with any future actions



## *Solid Waste Management Unit (SWMU):*

Any discernable unit in which wastes have been placed at any time, regardless of whether the unit was designed to accept solid or hazardous waste, and from which contaminants may migrate. Units may include but not be limited to old landfills, wastewater treatment tanks, container storage areas, surface impoundments, waste piles, land treatment units, incinerators, injection wells, recycling operations, leaking process or waste collection sewers, and transfer stations. SWMUs include any area at a facility at which solid wastes were routinely and/or systematically released.



## History of SWMUs

- 1989, the EPA contractor, A.T. Kearney, completed the Revised Phase II RCRA Facility Assessment (RFA)
  - Identified 147 SWMUs and 8 Areas of Concern (AOCs)
  - Included USTs, ASTs, NPDES outfalls, OWS, SPCC areas, SAAs, IR Sites, NFA, etc.
  - 40 sites may require further investigation



## History of SWMUs

- 1995, sampled 17 sites, ranked for relative risk: 3 high, 6 medium, and 8 low \*High
  - Small Transformer Storage Area
  - Steam Plant Flyash Silo \*
  - Pier 10 Sandblast Yard \*
  - Spec Boat Squad 2 Battery Storage Area
  - Bldg 3896 Boat Painting Area
  - SeaBee Area (3 SWMUs combined to 1)
  - IR Site 8 Demolition Debris Landfill \*



## SWMU 3 & IR Site 8 Sampling

- Purpose:
  - Identify and evaluate existing information
  - Sample to determine whether further investigation or remediation may be necessary
  - Conduct a qualitative risk assessment
  - Prepare a Site Investigation Report
- Project Plans consist of the WP, FSP, QAPP, HASP, IDWMP



## SWMU 3 History

- SWMU 3 Pier 10 Sandblast Yard
  - Sandblasted boats from 1962 to 1984, anchors and chains from 1984 to 1995
  - Sandblast material and paint chips fell on mostly unpaved ground around the site
  - “Black Beauty” was periodically removed and disposed off site. Disposed as non-hazardous based on results from an EP Toxicity test



## SWMU 3 History

- SWMU 3 Pier 10 Sandblast Yard
  - 1982, constructed a fence to limit windblown travel of material offsite
  - 1993, paved the area inside of the fence
  - 1995, a new facility was built
  - 1996, all sandblasting activity ceased



## SWMU 3 Previous Sampling

- Collected 6 soil samples from 12-18"
  - Analyzed for Metals
  - Detected lead, manganese, copper, beryllium, nickel, chromium and others at elevated conc.
- Collected 4 groundwater samples from temporary wells
  - Analyzed for unfiltered Metals
  - Detected lead, arsenic, manganese, beryllium, chromium, vanadium, and others at elevated conc.

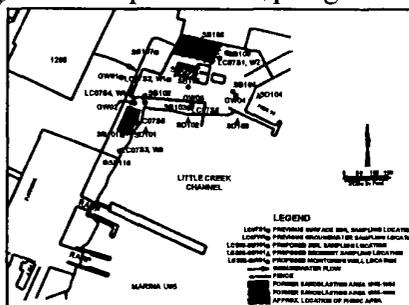


## SWMU 3 Proposed Sampling

- Collect 4 Groundwater samples
  - Wells screened from 5 - 20'
- Collect 20 Soil samples from 10 locations
  - Sample from 0-6" and 3-5'
  - Identify the depth of black beauty
- Collect 4 Sediment samples from 0-4"
- Analyze all samples for VOCs, SVOCs, Metals and Cyanide



## SWMU 3 Proposed Sampling



## IR Site 8 History

- IR Site 8 Demolition Debris Landfill
  - Before 1971, PWC excavated the area to surface parking lots
  - Landfilling occurred from 1971 to 1979
  - 2 acres, 3' deep, contains ~4,840 yd<sup>3</sup>
  - Debris from bldgs destroyed by fire; concrete piping; debris from the sewage station; potentially mercury contaminated carpet
  - Operated while Site 7 was in use, no record of Hazardous Waste disposal



## IR Site 8, 1980





### IR Site 8 Previous Sampling

- Collected 5 surface soil samples from 0-6"
  - Analyzed for VOCs, SVOCs, Pest/PCBs, Metals
  - Detected manganese, PCBs, lead, and others at low concentrations
- Collected 4 subsurface soil samples from just above the water table
  - Analyzed for VOCs, SVOCs, Pest/PCBs, Metals
  - Detected lead, manganese, PCBs, and others at low concentrations



### IR Site 8 Previous Sampling

- Collected 3 groundwater samples from temporary wells
  - Analyzed for VOCs, SVOCs, Pest/PCBs, and unfiltered Metals
  - Detected lead, arsenic, manganese, beryllium, and others at elevated concentrations

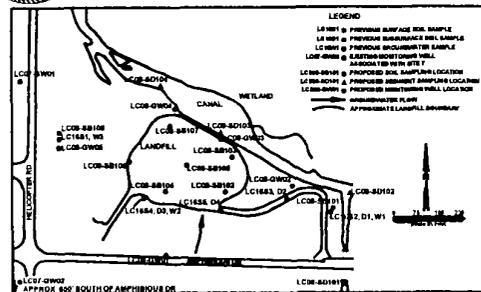


### IR Site 8 Proposed Sampling

- Collect 5 Groundwater samples
  - Wells screened from 5-20'
- Collect 16 Soil samples from 8 locations
  - Sample from 0-6" and 3-5'
- Collect 4 Sediment samples from 0-4"
- Analyze all samples for VOCs, SVOCs, Pest/PCBs, Metals and Cyanide



### IR Site 8 Proposed Sampling



### SWMU Sampling Field Activities

- Well installation in September
  - Sampling in October
  - Site Investigation Report anticipated by March 1999
- \* Schedules subject to funding availability



### SWMU Sampling, Site Investigation Report

- Review history, background, and previous sampling
- Describe sampling activities
- Present and evaluate analytical results
- Complete qualitative risk assessment
- Present conclusions and recommendations for further actions



## National Priorities List (NPL)

- Intended primarily to guide EPA in determining which sites warrant further investigation to assess the nature and extent of public health and environmental risks associated with a release of hazardous substances
- Does not mean a remedial or removal action will necessarily be taken



## NPL

- The Navy will remain the lead agency
  - Continue to initiate studies, investigations and actions, subject to EPA and DEQ approval
- Funding is not available from the “Superfund”
- Navy funding per site will not increase
  - Funding based on realtive risk ranking
  - Overall funding may increase due to the inclusion of more sites



## NPL

- EPA proposed NAB Little Creek for inclusion on the NPL July 28 in the FR
- EPA will accept comments on the HRS Docket (scoring information) until Sept 28
- EPA will respond to all comments
- NPL inclusion may become final with another FR publication
  - Includes response to all comments received



## NPL

- To submit comments to the EPA:
  - All comments must be postmarked by Sept 28
  - Submit original and three copies (no facsimiles or tapes) of comments to:
    - Docket Coordinator, Headquarters; U.S. EPA; CERCLA Docket Office; (Mail Code 5201G); 401 M St, SW; Washington, DC 20460; 703-603-9232
    - Express Mail: Docket Coordinator, Headquarters; U.S. EPA; CERCLA Docket Office; 1235 Jefferson Davis Hgwy; Crystal Gateway #1, First Floor; Arlington, VA 22202



## NPL

- Submitting comments Cont'd
  - E-Mail: ASCII format only to [superfund.docket@epa.gov](mailto:superfund.docket@epa.gov). Must also send original and three copies by mail or FedEx
  - For further information contact: Terry Keidan (703-603-8852); State, Tribal and Site Identification Center; Office of Emergency and Remedial Response (Mail Code 5204G); U.S. EPA; 401 M St, SW; Washington, DC, 20460
  - Superfund Hotline at 800-424-9346 or 703-412-9810 in the DC area



## NPL

- Resolution of IR Sites and SWMUs through negotiation of Federal Facilities Agreement
  - Review and list all sites previously identified
  - Determine which sites:
    - do not need any investigation
    - where investigation/actions are complete
    - need further investigation/action
  - Documenting which sites do not require investigation prevents rework in the future



## NPL

- FFA Establishes:
  - Roles and responsibilities of Navy, EPA and DEQ
  - Time lines and schedules for document review etc
  - Integration between CERCLA and RCRA
  - Funding restrictions



Site 11 - School of Music Plating Shop

Site 12 - Exchange Laundry Disposal Area

Site 13 - PCP Dip Tank and Wash Rack



## Upcoming IRP Activities

- Site 5 - Draft Final NFRAP by Oct
- Site 11 - Draft Final SRI April 99
- Site 12 - Draft Final SRI Dec 98
- Site 13 - Draft Final SRI Mar 99
  - Removal Action Feb/Mar 99
- Site 7 - Continue Semiannual monitoring
- Sites 9 and 10 - Draft Final 3-year Monitoring Report Mar 99



## Upcoming IRP Activities

- SWMU 1, 4, & 5 sampling Nov/Dec 99
- SWMU 2 & 6 sampling Aug/Sept 99
- SWMU 3 & Site 8 Draft Final SI Report Mar 99
- Draft Final Site Management Plan by Oct
  - Summary of IRP activities for FY99
- RAB Meeting - Mar/Apr 99