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MALCOLM PIRNIE, INC.
ENVIRONMENTAL ENGINEERS, SCIENTISTS & PLANNERS

March 19, 1991

Capt. R. W. Moore, USN
Officer in Charge
NAVSWC White Oak
10901 New Hampshire Avenue
Silver Spring, MD 20903-5000

Re: Meeting Minutes
TRC Meeting No. 4
NAVSWC Remedial Investigation/
Feasibility Study

Dear Capt. Moore:

The Technical Review Committee (TRC) Meeting Number 4 was held at the Naval Surface Warfare Center (NAVSWC), White Oak, Maryland on February 27, 1991 at 1 p.m. The objective of this meeting was to discuss the following activities:

- Summary of the Results of Previous Investigations
- Summary of Field Activities for Current Phase
 - Monitoring Well Installations
 - Environmental Sampling of Surface Water, Stream Sediments, Groundwater, and Surface and Subsurface Soils
 - Ecological and Bioassay Surveys
 - Aquifer Tests
- Schedule

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The meeting was attended by the following TRC members:

<u>NAME</u>	<u>ORGANIZATION</u>
Capt. Richard W. Moore USN, Chairman	Deputy Commander, Officer in Charge, NAVSWC - White Oak Lab
Mr. Edward Hammerberg	Maryland Dept. of the Environment Hazardous Waste Program
Mr. James Caldwell	Montgomery County Dept. of Environmental Protection
Capt. Philip M. Palmer USN, Retired	Hillandale Citizens Association Representative
Mr. Dave J. Carver	NAVFAC - Chesapeake Division

The TRC representative from EPA Region III, Mr. Rob Thompson, was not in attendance.

The meeting was also attended by the following personnel:

<u>NAME</u>	<u>ORGANIZATION</u>
Mr. Felipe B. Sanchez	NAVSWC-D, Director, Safety/Environmental Department
Ms. Ann Swope	NAVSWC-D, Environmental Compliance
Mr. Dorn Carlson	NAVSWC, Environmental Compliance
Mr. Paul Berkman	NAVFAC - Chesapeake Division
Ms. Shawn Jorgensen	Naval Ordnance Station (0965C)
Ms. Sherry McCahill	Naval Ordnance Station (0965C)
Ms. Marcie Westermeyer	NAVSWC, C12
Mr. Jeffrey R. Bennett	Malcolm Pirnie, Inc.
Mr. Thomas J. Fisher	Malcolm Pirnie, Inc.
Ms. Mary K. Mullen	Malcolm Pirnie, Inc.
Dr. Bruce W. Schwenneker	Malcolm Pirnie, Inc.

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At 1 p.m., Captain Moore, TRC Chairman, called the meeting to order and welcomed all personnel to NAVSWC - White Oak and TRC Meeting Number 4. Captain Moore presented biographies for Malcolm Pirnie personnel attending the meeting. He then turned the presentation over to Mr. Thomas Fisher of Malcolm Pirnie, Inc.

Enclosed is the TRC Technical Agenda used for the presentation and the text of the discussion as made by Mr. Tom Fisher and Ms. Mary Mullen of Malcolm Pirnie, Inc. Also enclosed are copies of the viewgraphs displayed to the TRC.

Upon completion of the presentation, the meeting was adjourned by Capt. Moore at 2:15.

Very truly yours,

MALCOLM PIRNIE, INC.



Thomas J. Fisher, P.E.
Project Manager

djk

0931-031-137

Enclosures

c: All in Attendance

TRC MEETING No. 4

White Oak NAVSWC Installation Restoration Program

February 27, 1991

AGENDA

- I. Introduction by Captain Richard W. Moore (Chairman)
- II. TRC Meeting No. 3 Summary (March 12, 1990)
- III. Brief Overview of RI Study Field Activities - Site by Site
 1. Site 2 - Apple Orchard Landfill
 2. Site 3 - Pistol Range Landfill
 3. Site 4 - Chemical Burial Site
 4. Site 7 - Ordnance Burn Area
 5. Site 8 - Abandoned Chemical Disposal Pit
 6. Site 9 - Industrial Wastewater Disposal Area 300
 7. Site 11 - Industrial Wastewater Disposal Area 100
 8. Paint Branch Creek
 9. Background Wells
- IV. Quality Assurance Project Plan (QAPP) Overview
- V. Health and Safety Plan Overview
- VI. Schedule for RI/FS Activities - Completion Dates and Milestones
- VII. Tentative Date for Next TRC Meeting (No. 5)
- VIII. Adjourn

SECTION I INTRODUCTION

At our last TRC meeting held on March 12, 1990, we discussed the field program and analytical results completed during Phase I of the Remedial Investigation and Feasibility Study (RI/FS) at the Naval Surface Warfare Center - White Oak conducted under the Navy's Installation Restoration Program (IRP).

The purpose of this meeting is to present the work plan for the remainder of the RI/FS and to discuss any questions you may have regarding the project. During this presentation, we will discuss the following:

1. Phase I RI/FS findings
2. Phase II RI/FS activities
3. Project Schedule

The following is a brief review of Phase I activities. Field studies and the collection of environmental samples for analyses for Phase I activities were completed in November, 1990. Based on data from this and previous studies at the site, the general level and extent of contamination at each site was delineated. The preliminary level and extent of contamination established during Phase I coupled with information on the probable source(s) of known contamination from the IAS Study provided the basis for identification of data gaps and for a strategy to address the future remediation of individual sites through the RI/FS process.

The activities completed during Phase I were accomplished in accordance with our IRP Work Plan dated June 1989. Section 4 of this plan outlined our approach to the RI activities through the use of both direct and indirect methods of investigation. The indirect methods (i.e. soil gas surveys and ground penetrating radar) were employed as a basis for optimizing the location for monitoring wells and soil sampling locations (i.e. direct sampling). Therefore, the soil gas surveys at Sites 2, 3, 4, 9, and 11 and the ground penetrating radar surveys performed at Sites 4 and 8 were completed first and the installation of

25 new monitoring wells and 8 piezometers, the collection of over 1000 environmental samples, and analysis of over 7,000 data points followed.

Mary Mullen will now summarize the Phase I results and our approach for Phase II activities on a site by site basis, indicating the field studies to be completed, sampling to be performed, and media to be sampled. Although contamination is known to be present at each site, we found no evidence that our test results indicate an imminent threat to the environment or human health.

SECTION II
SUMMARY OF PHASE II RI/FS ACTIVITES

Site 2 - Apple Orchard Landfill

PREVIOUS INVESTIGATIONS AND RESULTS

The Apple Orchard Landfill was operated as an open disposal area and landfill from 1948 until 1982. In addition to normal domestic refuse, wastes disposed at this site consisted of oils containing polychlorinated biphenyls (PCBs), solvents, paint residue, acids and miscellaneous compounds.

During the Verification study, groundwater, sediment and surface water samples were collected. The results indicated that the landfill was contributing leachate to the shallow groundwater which supports the baseflow of the stream downgradient of the site. During the RI/FS Phase I, groundwater, sediment, surficial soils and surface water sampling was performed. The results indicated that groundwater was contaminated with trichlorethene (TCE), cadmium, and mercury. Contaminant migration was indicated by the presence of higher contaminant concentrations in downgradient groundwater monitoring wells. Stream sediments were contaminated with PCBs with the highest levels occurring in the sediments west of the landfill. Shallow soils on the landfill were also found to be contaminated with PCBs, metals and semivolatiles.

PHASE II ACTIVITIES

To provide the basis for determining the appropriate remedial action at this site, the following RI/FS Phase II activities are planned.

a. Surficial and Shallow Soils

A sampling grid of 14 points (2SL3 through 2SL16) has been developed at Site 2 and surficial soil samples will be collected at these points. Also, at three additional locations (2SB1 through 2SB3) within the grid system, soil boring samples will be collected at depths of 1 foot and 3 feet. Nine additional surficial soil samples (2SL17 through 2SL25) from

areas outside of the landfill will be collected to further delineate the extent of surficial soil contamination. Three additional boring locations (2SB4 through 2SB6) outside the landfill boundary will be sampled at depths of 1 foot, 3 feet, and 5 feet.

b. Groundwater

One monitoring well (2GW76) will be installed north of the landfill near the perimeter fence. The purpose of this well is to determine if contaminated groundwater is moving off-site towards the residential area north of the facility. A total of five groundwater monitoring wells (four existing and one new well) will be sampled. Slug tests will be performed at 2 wells at this site for estimation of hydraulic conductivity.

c. Surface Water and Sediment

All surface water (six locations) and stream sediment (ten locations) sampled during Phase I of the RI/FS will be resampled.

d. Ecological Investigations

A baseline survey of terrestrial vegetation and mammal species will be performed in a limited area between the landfill and the stream. During these surveys the major vegetative species will be identified and mammal species will be identified on a presence/absence basis.

A benthic survey will be conducted in the stream adjacent to the landfill and will consist of collection and identification of aquatic benthic organisms. A total of three benthic samples will be collected; one each from upstream, midstream and downstream locations.

Also in the stream, a survey of fish species will be performed at three locations; upstream, midstream, and downstream. Following the identification and evaluation of the fish species present, one species will be selected for bioassay. A total of up to 3 samples of the selected species will be collected at from upstream, midstream, and downstream locations.

e. Analyses

Surficial and subsurface soil samples will be analyzed for total metals, semivolatiles, PCBs, and VOAs. Groundwater samples will be analyzed for total and dissolved metals, total and dissolved mercury, PCBs, semivolatiles, and VOAs. Surface water will be analyzed for PCBs and VOAs. All stream sediments will be analyzed for total metals, PCBs, and VOAs. Fish and benthic samples will be analyzed for metals, PCBs, and PAHs.

Site 3 - Pistol Range Landfill

PREVIOUS INVESTIGATIONS AND RESULTS

The Pistol Range Landfill was operated as a landfill from the late 1940's until the mid-1970s. Fill materials were placed in a gully formed by a small perennial tributary stream of the Paint Branch. Wastes disposed at the site include: solid wastes, oils possibly containing polychlorinated biphenyls (PCBs), solvents, sodium nitrate, and miscellaneous metallic objects.

During the Verification study, groundwater, sediment and surface water samples were collected. The results indicated that the landfill was contributing leachate to the shallow groundwater. Shallow groundwater and surface water was found to contain low concentrations of volatiles and metals. During the RI/FS Phase I, groundwater, stream sediment, surficial soil and surface water samples were collected. The results indicated that groundwater was contaminated with trichloroethene (TCE), chlorobenzene and lead. Shallow soils on the landfill face are contaminated with metals and semivolatiles.

A soil gas survey with a grid of 21 sampling points was conducted west of the landfill and extending to the south (downgradient) of the landfill. Of the 21 points sampled, only those points south of Dahlgren Road revealed detectable quantities of volatiles (ranging from 0.60 to 15.0 ppm and a background level of 0 ppm) were observed. The extent of contaminant migration in the groundwater is unknown since contaminants have migrated beyond the most downgradient well. The soil gas survey showed the highest levels of volatile organics south of Dahlgren Road on the landfill side of the stream. Based upon groundwater flow directions, the movement of contamination is apparently towards the stream.

PHASE II ACTIVITIES

To provide the basis for determining the appropriate remedial action at this site, the following RI/FS Phase II activities are planned.

a. Surficial and Shallow Soils

Two surface soil samples (3SL3 and 3SL4) will be collected at the site to further document surficial soil contamination.

b. Groundwater

Three additional monitoring wells will be installed. One shallow well (3GW77) will be installed on the landfill side of the stream south of Dahlgren Road to aid in delineating contaminant migration south of the landfill. A well cluster of one shallow overburden well (3GW78S) and one bedrock well (3GW78D) will be installed as a cluster on the west side of the stream south of Dahlgren Road to delineate the vertical extent of contamination. A total of seven groundwater monitoring wells (four existing and three new wells) will be sampled. Slug tests will be performed at 2 wells at this site for estimation of hydraulic conductivity.

c. Surface Water and Sediment

All four sediment locations sampled during RI/FS Phase I will be resampled during RI/FS Phase II.

d. Ecological Investigations

A survey of terrestrial vegetation and mammal species from an unnamed tributary to Paint Branch Creek will be performed in a manner similar to that described for Site 2. Two fish samples and two benthic samples will be collected for laboratory analyses. These samples will be coordinated with sampling at Site 9.

e. Analyses

Surficial and subsurface soil samples will be analyzed for total metals, mercury, semivolatiles, and VOAs. Groundwater samples will be analyzed for total and dissolved metals, total and dissolved mercury, PCBs, and VOAs. All stream sediments will be analyzed for total metals and mercury. Fish and benthic samples will be analyzed for metals, PCBs, and PAHs.

Site 4 - Chemical Burial Site

PREVIOUS INVESTIGATIONS AND RESULTS

The Chemical Burial Site was reportedly used from the mid-1950s until the early 1970s for chemical disposal in four discrete locations within the site and is about 1.1 acres in size. Wastes reportedly disposed at this site included acids, explosive compounds, kerosene, chlorinated solvents and numerous unidentified laboratory compounds.

During the Phase IIA Verification study, six groundwater monitoring wells were sampled. The results indicated that the burial site is leaching organics.

During the RI/FS Phase I twelve groundwater monitoring wells and three subsurface soil borings were sampled. A soil gas and ground penetrating radar (GPR) survey were also conducted. The results indicated that groundwater was contaminated with numerous volatile organics and cadmium. Based on trichloroethene (TCE) levels in the groundwater, migration of volatile organics is occurring to the south-southwest and to the southeast.

PHASE II ACTIVITIES

To provide the basis for determining the appropriate remedial action at this site, the following RI/FS Phase II activities are planned.

a. Surficial and Shallow Soils

Two surface soil samples (4SL1 and 4SL2) will be collected at the site to further document surficial soil contamination.

b. Groundwater

Five additional monitoring wells will be installed to further delineate horizontal and vertical contamination. One well (4GW79) will be installed south of well 4GW15 to help estimate migration to the south. Two wells (4GW80S and 4GW80D) will be installed as a well cluster downgradient (southwest) of well 4GW51S. Two other wells (4GW81 and 4GW82) will be installed downgradient (south) of the site. All seventeen groundwater monitoring wells (twelve and five new wells) will be sampled.

Slug tests will be performed at seven wells at this site for estimation of hydraulic conductivity.

c. Ecological Investigations

A general survey of terrestrial vegetation and mammal species will be performed in a manner similar to that described for Site 2. No samples are scheduled for collection.

d. Analyses

Surficial and subsurface soil samples will be analyzed for total metals, semivolatiles, and VOAs. Groundwater samples will be analyzed for total and dissolved metals, total and dissolved mercury, semivolatiles, PCBs, and VOAs.

Site 7 - Ordnance Burn Area

PREVIOUS INVESTIGATIONS AND RESULTS

The Ordnance Burn Area is located about 300 yards southeast of the Chemical Burial Site. The Ordnance Burn Area was reportedly used for disposal by thermal destruction of waste ordnance compounds from 1948 until 1968. The site is contained within the boundaries of a swale about 250 feet long and 20 feet wide. Wastes disposed at this site included various types of explosives, primarily nitroaromatics and nitroaliphatics. About 33,000 pounds of explosives were reportedly destroyed by burning at this site over a period of 20 years.

During the Verification study, one groundwater well and 54 soil borings were sampled. The results indicated that both soils and groundwater were contaminated with nitroaromatic compounds.

During the RI/FS Phase I three groundwater monitoring wells and twenty-seven soil borings were sampled. The results indicate that surficial soils, subsurface soils and groundwater are contaminated with nitroaromatics; however, no evidence of migration of nitroaromatics within the groundwater is apparent at this time.

PHASE II ACTIVITIES

To provide the basis for determining the appropriate remedial action at this site, the following RI/FS Phase II activities are planned.

a. Surficial and Shallow Soils

Two soil borings (7SB28 and 7SB29) will be drilled with samples collected from depths of 5, 10 and 15 feet to help estimate the vertical extent of contamination.

b. Groundwater

All three existing groundwater monitoring wells will be sampled for laboratory analysis. Slug tests will be performed at two wells at this site for estimation of hydraulic conductivity.

c. Ecological Investigations

A survey of terrestrial vegetation and mammal species will be performed in the swale in a manner similar to that described for Site 2. No samples are planned for the site for the ecological investigation.

d. Analyses

Surficial and subsurface soil samples will be analyzed for nitroaromatics. Groundwater samples will be analyzed for total and dissolved metals, total and dissolved mercury, semivolatiles, and nitroaromatics.

Site 8 - Abandoned Chemical Disposal Pit

PREVIOUS INVESTIGATIONS AND RESULTS

The Abandoned Chemical Disposal Pit was used from 1951 until 1971 for disposal of miscellaneous waste chemicals from laboratories at the facility. The site was described as a pit about 10 feet long, 10 feet wide, and 12 feet deep. Wastes disposed at this site included acids, mercury, solvents and numerous unidentified waste chemicals. The primary wastes of concern are solvents and mercury. It was estimated during the IAS study that about 180 pounds of mercury were disposed of at this location.

During the Verification study, four groundwater monitoring wells were sampled. The results indicated that the abandoned chemical disposal pit is leaching metals and VOCs to shallow groundwater but no mercury has been detected in groundwater.

During the RI/FS Phase I, five groundwater monitoring wells and two surficial soil locations were sampled. The results indicated that groundwater from one well was contaminated with 1,1,1-trichloromethane. Surficial soil at one location was contaminated with metals. A ground penetrating radar (GPR) survey was also conducted to delineate possible locations for the pit.

PHASE II ACTIVITIES

To provide the basis for determining the appropriate remedial action at this site, the following RI/FS Phase II activities are planned.

a. Groundwater

All five existing groundwater monitoring wells will be sampled. Slug tests will be performed at two wells at this site for estimation of hydraulic conductivity.

c. Ecological Investigations

A survey of terrestrial vegetation and mammal species will be performed on the pit area identified by the GPR survey in a manner similar to that described for Site 2. No sample collections are planned for the ecological investigation at the site.

d. Analyses

The groundwater samples will be analyzed for total and dissolved metals, total and dissolved mercury, semivolatiles, PCBs, and VOAs.

Site 9 - Industrial Wastewater Disposal Area 300

PREVIOUS INVESTIGATIONS AND RESULTS

The Industrial Wastewater Disposal Area 300 was used from the early 1950s until the mid-1970s. Several leaching wells and above ground discharges to the soil were used in this area for disposal of liquid wastes containing explosive compounds. Wastes disposed at this site included TNT, RDX, and several other explosive-related compounds. It is estimated in the IAS study that at least 7,200 pounds of these wastes were disposed at this site over a period of 30 years. It is also reported in the same report that solvents were disposed in the same manner as the explosive compounds.

During the Verification study, seven groundwater monitoring wells and 15 stream sediment locations were sampled. The results indicated that concentrations of TOX, TOC, and metals were detected throughout the site. Volatile organic compounds have been detected in all wells at the site. Nitroaromatics were detected at well 9GW1 during the first sampling event only.

During the RI/FS Phase I, thirteen groundwater monitoring wells, ten stream sediment, two surficial soil, and three surface water locations were sampled. Also, numerous soil gas surveys were conducted in the vicinity of former leaching wells. The results indicated that groundwater was contaminated with numerous volatile organics and nitroaromatics. Based on trichlorethene (TCE) levels in the groundwater, migration of volatile organics is occurring to the south. Surficial soil is contaminated with metals and semivolatiles.

PHASE II ACTIVITIES

To provide the basis for determining the appropriate remedial action at this site, the following RI/FS Phase II activities are planned.

a. Surface Water and Sediment

All surface water (three locations) and stream sediment (ten locations) locations sampled during the Phase I RI/FS will be resampled.

b. Groundwater

One additional monitoring well will (9GW83) be installed downgradient of the site to further delineate horizontal and vertical contamination. All fourteen groundwater monitoring wells (thirteen existing and one new well) will be sampled. Slug tests will be performed at ten wells at this site for estimation of hydraulic conductivity.

c. Ecological Investigations

A general survey of terrestrial vegetation and mammal species will be performed in conjunction with sites 3 and 7. The collection of three fish and three benthic samples will be conducted at upstream, midstream, and downstream locations and will be coordinated with sampling for Site 3.

d. Analyses

Groundwater samples will be analyzed for total and dissolved metals, total and dissolved mercury, nitroaromatics, PCBs, and VOAs. Surface water samples will be analyzed for total and dissolved metals, nitroaromatics, and VOAs. Stream sediment samples will be analyzed for total metals, nitroaromatics, and VOAs. The fish and benthic samples will be analyzed for metals, PCBs, and PAHs.

Site 11 - Industrial Wastewater Disposal Area 100

PREVIOUS INVESTIGATIONS AND RESULTS

The Industrial Wastewater Disposal Area 100 consists of an area containing ten former leaching wells used for wastewater disposal from the laboratories. The leaching wells are scattered over an area of about 16 acres. Wastes disposed in the wells reportedly included dissolved metals, acids, chlorinated and non-chlorinated solvents, alcohols, lead, and organic explosive compounds. The primary wastes of concern are solvents and solutions containing metals such as silver, chromium, and lead. It is estimated that about 20,000 gallons of liquid wastes were disposed of in these wells.

During the Verification study, eight groundwater monitoring wells were sampled. The results indicated that TOC, TOX, metals and VOCs were detected in all wells.

During the RI/FS Phase I, sixteen groundwater monitoring wells and three stream sediment, two surficial soil, and two surface water locations were sampled. VOCs and metals were detected in three of the sixteen groundwater monitoring wells sampled. Migration of VOCs and metals is occurring; however, the extent of contamination is unknown due to the absence of wells downgradient from the contaminated locations.

PHASE II ACTIVITIES

To provide the basis for determining the appropriate remedial action at this site, the following RI/FS Phase II activities are planned.

a. Groundwater

Five additional monitoring wells (11GW84 through 11GW88) will be installed to further delineate horizontal and vertical contamination. All twenty-one groundwater monitoring wells (sixteen existing and five new wells) will be sampled. Slug tests will be performed at thirteen wells at this site for estimation of hydraulic conductivity. Also, one pump test

? quantity of silt

will be performed to estimate the hydraulic conductivity, transmissivity, and coefficient of storage.

b. Surficial Water and Stream Sediment

All surface water (two locations) and stream sediment (three locations) locations sampled during the Phase I RI/FS will be resampled.

c. Ecological Investigations

A general survey of terrestrial vegetation and mammal species will be performed. The collection of three fish and three benthic samples will be conducted at upstream, midstream, and downstream locations in an unnamed stream west of the site.

d. Analyses

Surficial and subsurface soil samples will be analyzed for total metals, semivolatiles, and VOAs. Groundwater samples will be analyzed for total and dissolved metals, total and dissolved mercury, and VOAs. Surface water samples will be analyzed for total and dissolved metals and VOAs. The fish and benthic samples will be analyzed for metals, PCBs, and PAHs.

Paint Branch Creek

a. Surface Water and Stream Sediment

All three surface water and stream sediment locations that were sampled during the Phase I RI/FS will be resampled.

b. Ecological Investigations

A survey of terrestrial vegetation and mammal species will be performed similar to that described for Site 2. The collection of three fish and three benthic samples will be conducted at upstream, midstream, and downstream locations.

c. Analyses

Surface water samples will be analyzed for total and dissolved metals and mercury, PCBs, semivolatiles, nitroaromatics and VOAs. Stream sediment samples will be analyzed for total metals and mercury, PCBs, semivolatiles, nitroaromatics and VOAs. The fish and benthic samples will be analyzed for metals, PCBs, and PAHs.

Background Groundwater Monitoring Wells

a. Groundwater

The two existing background groundwater monitoring wells (BGW16 and BGW40) will be resampled during this phase of work.

b. Analyses

The groundwater samples will be analyzed for total and dissolved metals and mercury, semivolatiles, PCBs, nitroaromatics and VOAs.