MALCOLM PIRNIE

DRAFT FINAL

ADDENDUM TO THE FINAL WORK PLAN FOR THE HYDROGEOLOGIC INVESTIGATION OF THE WATERVLIET ARSENAL

Manhole 43

Baltimore Corps of Engineers
Baltimore, Maryland

Prepared by:

Malcolm Pirnie, Inc.
Four Corporate Plaza
Washington Avenue Extension
Albany, New York 12203

October 1995
0285624

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, U.S. ARMY CORPS OF ENGINEERS
P.O. BOX 1715
BALTIMORE, MD 21203-1715

REPLY TO
ATTENTION OF

October 20, 1995

Engineering Division

SUBJECT: RCRA Correction Program, EPA I.D. No. NY7213820940, RCRA Order No. II RCRA-3008(h)-93-0210

United States Environmental Protection
Agency (EPA) Region II
ATTN: Mr. Andrew Bellina, P.E.
Chief, Hazardous Waste Facilities Branch
U.S. EPA, 2AWM-HWF
290 Broadway
New York, New York 10278

Dear Mr. Bellina:

On behalf of the Watervliet Arsenal (WVA) and as referenced in pages 62 and 63 of the referenced order above, Baltimore District U.S. Army Corps of Engineers (BCOE) is pleased to submit herewith two (2) copies of the Draft Final Work Plan for Manhole 43 and the Solid Waste Management Units (SWMU) Nos 7 through 14 and response to comments (RTC) for both documents. The Draft Final Work Plans and RTC for Manhole 43 and the SWMU were prepared by Malcolm Pirnie Inc. (MPI), under the guidance of BCOE. The Draft Work Plans address the comments made by EPA and New York State Department of Environmental Conservation (NYSDEC) on the previous work plans prepared by Empire Soils Investigations Inc.

We have advised MPI to start field work on the above mentioned two sites during the week of 6 November 1995. We would appreciate your comments prior to that anticipated start date.

Point of contact for this office is Mr. Sanjib Chaki, P.E., he can be reached at 410-962-3345.

Sincerely,

Christina E. Correale

Christina E. Correale
Chief, Hazardous, Toxic, and
Radioactive Waste Branch

Enclosure

Enclosure
Copies Furnished (w/enclosure):
Mr. J. Sherman, SMCWV-PWQ
Mr. E. Dassatti, P.E., NYSDEC
Mr. T. Howard, AMSMC-EQ
Information Systems Section. U.S. EPA
Mr. Rich Fedigan, NYSDOH
Regional Hazardous Substances Engineer, NYSDEC, Region 4

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1.0 INTRODUCTION

As requested by the United States Corp of Engineers (USACE), this Addendum to the Final Work Plan for the RCRA Facility Assessment, Hydrogeologic Investigation, Watervliet Arsenal, dated June 1995, (Hydrogeologic Investigation Work Plan) was prepared for work to be performed in the area adjacent to Manhole 43. This addendum includes a new Field Sampling Plan and modifications to the existing Quality Assurance Project Plan (QAPP) and Site Specific Safety and Health Plan contained in the Hydrogeologic Investigation Work Plan. This document addresses the written comments submitted October 3 and 23, 1994 by the Environmental Protection Agency (EPA) and the New York State Department of Environmental Conservation (NYSDEC) on the Empire Soils Investigation, Inc. Work Plan.

Manhole 43 is located within the area of the former Erie Canal which once traversed the Main Process Area, but has since been backfilled. The necessity for the hydrogeologic investigation is due to the discovery of machining coolant oil, which was found seeping into an excavation to the east of the former Erie Canal wall in the area of the waste oil line at Manhole 43. After the oil was observed by Watervliet Arsenal personnel on May 7, 1993, approximately 15 to 30 yards of soil were excavated, under subcontract to the Watervliet Arsenal, and a soil sample was collected and analyzed for TCLP volatiles, semi-volatiles, and metals, PCBs, and ignitability. All parameters were found to be non-detect except for barium (0.42 mg/l), and ignitability was >200°F. A sample of the oil was also collected and analyzed for Petroleum ID and PCBs and was found to be non-detect for both analytical methods.

The objectives of this investigation are:

- To assess if a contaminant plume exists in the area of Manhole 43 as a result of the release of machining coolant from the waste oil line by installing two downgradient groundwater monitoring wells.

- Assess the physical characteristics of the aquifer, i.e., groundwater flow direction, hydraulic gradient, hydraulic conductivity and groundwater flow velocity.

2.0 FIELD SAMPLING PLAN

The investigation of the area around the waste oil line at Manhole 43 will involve the installation of two overburden monitoring wells. Based on the eastward flow of the groundwater towards the Hudson River, the monitoring wells will be located hydraulically downgradient of Manhole 43, i.e., east of the retaining wall, as shown on Figure 1. The locations of Manhole 43 and the proposed monitoring wells are shown on Figure 1.

The boreholes will be advanced and the monitoring wells will be installed and sampled as described in the Field Sampling Plan (Section 2.0) of the Hydrogeologic Investigation Work Plan, with the following exceptions:

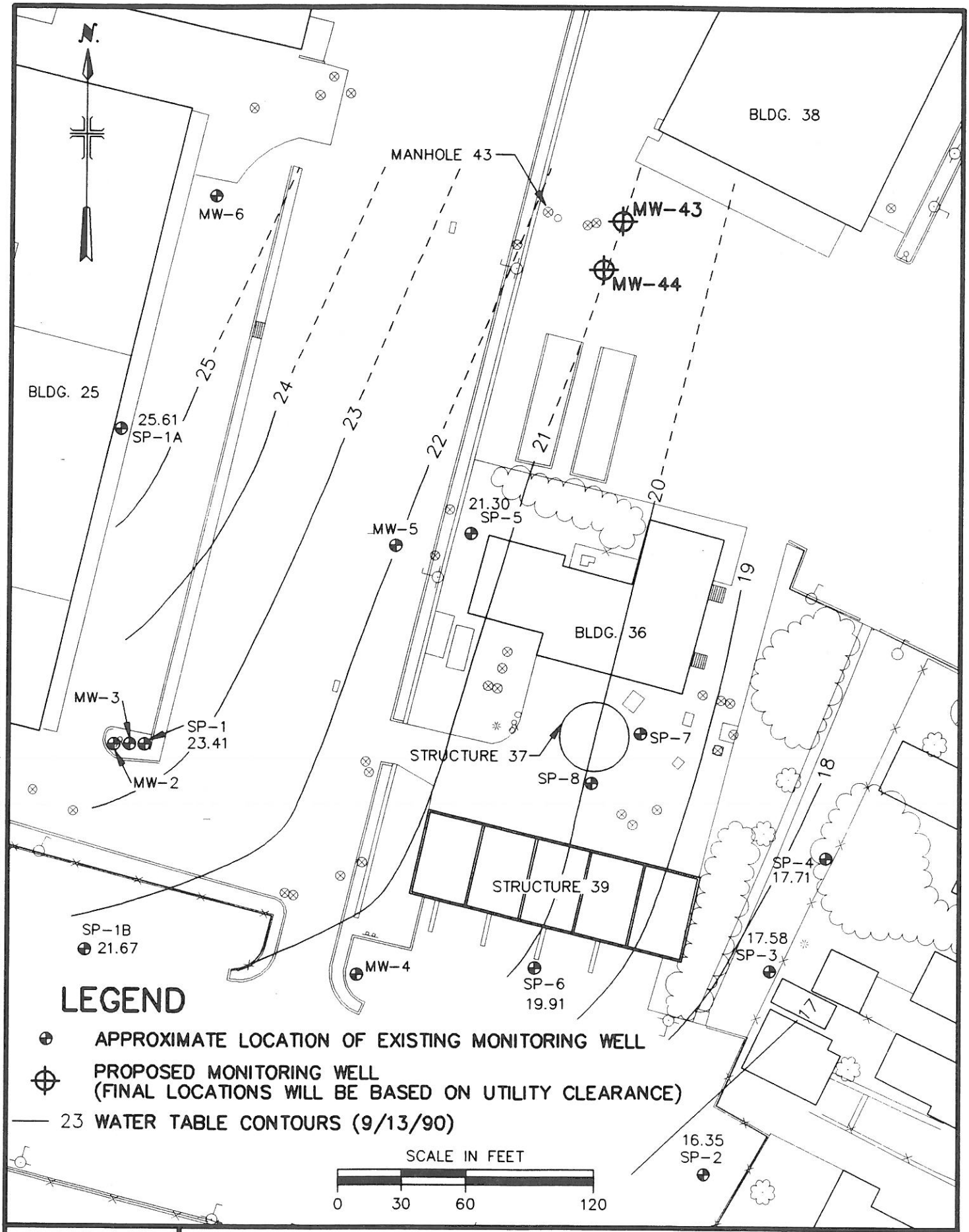
- The boreholes will be advanced to a depth of approximately seven feet below the water table, to an approximate total depth of 14 feet below the ground surface.

- One analytical soil sample will be collected from each monitoring well borehole based upon the guidelines provided in the Hydrogeologic Investigation Work Plan. Soil samples will be analyzed for the parameters listed in the Hydrogeologic Investigation Work Plan with the exception of pesticides and PCBs. The parameters to be analyzed for are volatile organic compounds, semi-volatile organic compounds and RCRA metals, with the addition of total organic halides and total organic carbon.

- The proposed monitoring well screen lengths shall be ten feet. In order to straddle the water table.

- The wells will be developed by mechanical surging and bailing or pumping. A minimum of five well volumes will be withdrawn during development. If 50 NTU clarity and stable pH, conductivity and temperature readings are not obtained after ten well volumes have been removed, then development will continue until pH, conductivity, temperature and turbidity have stabilized with 10 percent variance over three successive well volumes and/or the hydro-geologist determines that development is adequate for the scope of the sampling effort.

- At least two weeks after the wells have been developed, groundwater samples will be collected from the two newly-installed wells and one existing well which is hydraulically upgradient of Manhole 43 (95MPI-MW-6). Prior to sampling, the wells will be checked for the presence of petroleum, oil, and lubricants (POLs) and if present in sufficient quantity, a POL sample will be collected. The POL samples will be analyzed for the parameters listed in the Hydrogeologic Investigation Work Plan, with the exception of PCBs. The



US Army Corps of Engineers

MANHOLE 43 INVESTIGATION
PROPOSED MONITORING WELL LOCATIONS

WATERVLIET ARSENAL
USACE CONTRACT NO. DACA31-94-D-0017

FIGURE 1

groundwater samples will be analyzed for the parameters listed in the Hydrogeologic Investigation Work Plan with the exception of pesticides and PCBs and the addition of total organic halides and total organic carbon.

- The coordinates and elevations of the newly-installed monitoring wells will be established by a Malcolm Pirnie surveyor. Survey monuments and markers will not be installed. However, existing monuments will be used for surveying.

Procedures for hydraulic conductivity testing of shallow wells and the disposal of investigation derived wastes will be in accordance with those procedures used during the sitewide Hydrogeologic Investigation.

3.0 QUALITY ASSURANCE PROJECT PLAN

Work in the area adjacent to Manhole 43 will be performed in accordance with the Quality Assurance Project Plan (QAPP) contained in the Hydrogeologic Investigation Work Plan (Section 3.0), with minor revisions. The revisions are as follows:

- Analytical requirements and sample collection information for the analysis of samples for pesticides and PCBs will not be relevant for the Manhole 43 study.

- Table 3-1, Methods Used for Sample Analysis, should also include:

ANALYTE(S)	TECHNIQUE	MATRIX	METHOD
Total Organic Halides	Titrimetric	soil/water	9020*
Total Organic Carbon	Combustion	soil/water	9060 / 415.14*

*USEPA Method Numbers

- Table 3-4, Summary of Contract Required Quantitation Limits, should also include:

ANALYTE	CRQL WATER	CRQL SOIL
Total Organic Halides	10 mg/l	10 mg/kg
Total Organic Carbon	0.5 mg/l	100 mg/kg

- Table 3-5, Containers, Preservation Techniques, and Holding Times, should also include:

MEASUREMENT	NUMBER OF CONTAINERS AND SAMPLE VOLUME	PRESERVATION TECHNIQUE	MAXIMUM HOLDING TIME
<u>Water Samples</u> Total Organic Halides	One(1), 1-L amber glass, no headspace	Cool, 4°C H_2SO_4 to pH<2	28 days
Total Organic Carbon	One(1), 1-L amber glass, no headspace	Cool, 4°C H_2SO_4 to pH<2	28 days
<u>Soil Samples</u> Total Organic Halides	One(1), 8 oz. glass jar with Teflon-lined cap	Cool, 4°C	28 days
Total Organic Carbon	One(1), 8 oz. glass jar with Teflon-lined cap	Cool, 4°C	28 days

- Aqueous samples to be analyzed for Total Organic Halides and Total Organic Carbon will be sampled, following the collection of RCRA Metal samples.

- Packer testing of bedrock wells will not be relevant for the Manhole 43 investigation.

4.0 SITE-SPECIFIC SAFETY AND HEALTH PLAN

The work performed during the Manhole 43 investigation will be in accordance with the Site-Specific Safety and Health Plan contained as Section 4.0 in the Hydrogeologic Investigation Work Plan, with the following minor revisions:

- Section 2, (4), Malcolm Pirnie Tasks; the movement of on-site obstructions will not be performed.

- Section 2, (4), Tasks Performed by Others; Malcolm Pirnie will perform the surveying, not O.M. Popli.

- Section 2, (5), Subcontractors; O.M. Popli will no longer conduct the survey.

- Section 4, (1), Chemical Hazards Information; Pesticides and PCBs are not known or suspected substances involved.

- Section 4, (2), Describe Potential Contact; the task entitled "Movement of On-site Obstructions" will not be performed, and sulfuric acid will be added to the list of chemicals introduced on-site. Sulfuric acid is a preservative, and the Material Safety Data Sheets are attached.

- Section 14, Protective Equipment List; the task identified as "Obstructions" will not be performed during this investigation.

ATTACHMENT 1

Response to EPA and NYSDEC Comments

RESPONSE TO EPA AND NYSDEC COMMENTS
MANHOLE 43, OIL WASTE LINE

Following are the responses to comments submitted by the EPA and NYSDEC on the "Proposed Work Plan, Hydrogeologic Investigation, Area Adjacent to Manhole 43, Oil Waste Line", submitted by Empire Soils Investigations, Inc. in April, 1994. The EPA and NYSDEC comments, dated October 3 and December 23, 1994, are attached.

RESPONSE TO EPA AND NYSDEC COMMENTS, OCTOBER 3, 1994

Response 1. Because machining coolant and cutting oils may vary from machine shop to machine shop at WVA, the constituents of the "machining coolant" cannot be specifically described. The soil and groundwater samples collected as part of this investigation will be analyzed for volatile organics, semi-volatile organics, cyanide, total organic carbon, total organic halides, RCRA metals (total and dissolved for aqueous samples), and total and dissolved hexavalent chromium (aqueous samples only). These analytical parameters are believed to be sufficient to characterize any contamination which may be present from the soluble waste oil line adjacent to Manhole 43.

Response 2. If available, additional information regarding the excavation will be included in the Arsenalwide Hydrogeologic Report.

Response 3. Information about the sump and its influence on groundwater flow will be included in the Arsenalwide Hydrogeologic Report.

Response 4. Soil samples will be collected from the monitoring well boreholes to be installed downgradient of Manhole 43 and the former excavation.

Response 5. Groundwater quality will be characterized by analyses listed in the response to comment one. Hydraulic conductivity testing will be performed on each of the newly-installed monitoring wells to determine the hydraulic conductivity of the soils in the vicinity of each well. Existing monitoring wells in the vicinity of Manhole 43, such as 86EM-SP-5 and 95MPI-MW-6, will be used to determine the direction and gradient of groundwater flow in the vicinity of Manhole 43..

Response 6. Page 2-7 of the Hydrogeologic Investigation Work Plan contains this information.

Response 7. Information concerning the identification and sampling of an immiscible layer is contained in the Hydrogeologic Investigation Work Plan, Sections 2.2 and 3.4.

Response 8. Available information from the 1992 video survey will be included in the Arsenalwide Hydrogeologic Report.

Response 9. The analysis for cyanide will be EPA Method 9010/9012 (SW-846).

Response 10. See Figure 2-3 of the Hydrogeologic Investigation Work Plan.

Response 11. The groundwater and soil samples will be analyzed for volatile organic compounds which will detect the solvent chemicals if present.

RESPONSE TO EPA AND NYSDEC COMMENTS, DECEMBER 23, 1994

Response 1. Comment noted in Section 3.0 of the Addendum to the Final Work Plan for the Hydrogeologic Investigation.

Response 2. This comment is no longer relevant.

Response 3. These criteria have been met in Section 3.0 of the Hydrogeologic Investigation Work Plan.

Response 4. Samples will be analyzed for volatile and semi-volatile organic compounds with detection limits which will allow for comparison of the data to groundwater standards and New York State soil cleanup criteria, where available.

Response 5. See Section 3.7 of the Hydrogeologic Investigation Work Plan for further information on the HNu. At the request of the USACE, immunoassay testing will not be conducted at this time.

Response 6. All sampling equipment will be decontaminated prior to being used for sampling and will be wrapped in aluminum foil prior to sampling.

Response 7. Comment noted in Section 3.0 of the Addendum.

Response 8. Calibrations of field instruments will be performed according to the procedures described in Section 3.0 of the Hydrogeologic Investigation Work Plan.

Response 9. See Section 3.0 of the Hydrogeologic Investigation Work Plan.