

MW-401B Area Soil Remediation Report

**Maine Yankee Decommissioning Project
Corrective Measures Study**

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Introduction

Groundwater sampling results for MW-401B have consistently demonstrated elevated concentrations of petroleum hydrocarbons in groundwater above the Maximum Exposure Guidelines established for diesel range organics (DRO) (50 µg/l). The monitoring well has been sampled twice and DRO results ranged from 2,300 µg/l to 2,410 µg/l (**Table 1**). The DRO concentrations observed in MW-401B were significantly elevated relative to MW-401A (67.4 µg/l and non-detect), a paired bedrock well, and nearby monitoring wells (Reference 1).

Monitoring well 401B was screened in the shallow overburden (6-16 feet below ground surface) and is located approximately 100 feet west of the former Containment Building in the western portion of the radiological restricted area (RA) (**Figure 1**). The subsurface soils in the area of MW-401B are comprised of glaciomarine, clayey silts. The groundwater level in MW-401B is relatively shallow and has varied from 3.89 to 4.94 feet below ground surface. The groundwater flow direction in this portion of Bailey Point is to the south or southwest (**Figure 1**) (Reference 1).

To further assess and remove potentially petroleum-impacted soils from the MW-401B area, a remediation plan was submitted to Maine Department of Environmental Protection (MDEP) in September 2004 (Reference 2), and approved by MDEP.

Test Pit and Soil Removal Activities

Soil removal activities in the MW-401B Area were conducted from October 18, 2004 to November 2, 2004. Prior to the initiation of soil removal efforts in the MW-401B area focused on potential petroleum soil contamination, Maine Yankee had removed the top three to five feet of soil as part of the remediation of radiologically contaminated soil. During this soil removal activity there was no indication of potential petroleum contamination in the subsurface soils.

Following the radiological soil removal activities, the initial petroleum soil activities in the MW-401B area included the excavation of six test pits (MY05TP 401 through MY05TP406) on October 18, 2004. The six test pits were located both upgradient and downgradient of MW-401B and were excavated to depths up to eight below ground surface (approximately eleven feet below the former, pre-radiologic soil remediation ground surface) (**Figure 1**). Soil samples were screened from each test pit using a MDEP-approved photoionization detector (PID), and head space screening values were all below seven parts per million (ppm) (**Table 1**). In addition to the low and background PID screening values, there were no visual or olfactory indications of petroleum hydrocarbons within any of the six test pits.

Additionally, approximately 350 cubic yards of soil was removed from a 40-foot by 60-foot area on the upgradient and northern side of MW-401B (**Figure 1**). The 2,400 square foot area adjacent to MW-401B was excavated using a Volvo EC290 track mounted excavator to a depth of four feet below the post-radiological excavation ground surface on November 1, 2004. In total, up to nine feet of soil was removed from the MW-401B area. The subsurface soils in the MW-401B area were dark olive clayey silts consistent with native glaciomarine soils observed

across Bailey Point. The excavation was inspected and no indications of petroleum contamination were observed. No soil staining was evident, and all PID values were low or non-detect.

Confirmatory Sample Results

Following soil excavation, four confirmatory soil samples were taken from the walls of the excavation (MY05TP407 through MY05TP410) and two confirmatory samples from the base of the excavation (MY05TP411 and MY05TP412) on November 2, 2004. Each of the six soil samples was screened with a PID using MDEP-approved headspace techniques. The PID soil screening results ranged from 3.0 ppm to 11 ppm. The six soil samples were analyzed for diesel range organics (DRO) using Maine DEP Method 4.1.25. One duplicate sample (MY05TP413) and matrix spike and matrix spike duplicate samples were taken to support data validation. The laboratory analysis and data validation activities were conducted consistent with the Maine Yankee Quality Assurance Project Plan (Reference 3).

The validated results of the laboratory analysis are presented in **Table 2**. All of the six confirmatory samples were non-detect for DRO, except for MY05TP410 located on the east wall of the excavation with a concentration of 10J mg/kg. These non-detect and low DRO concentrations are consistent with the lack of visible soil contamination in the MW-401B excavation area and the low and non-detect PID headspace values.

Conclusions

A total of six test pits were excavated both upgradient and downgradient of MW-401B and approximately 350 cubic yards of soil was excavated from the upgradient area adjacent to MW-401B. The soil in the upgradient area was excavated from the ground surface to a depth of four feet below ground surface. Based on the previous soil excavation focused on radiological soil removal, the total depth of soil removed in the MW-401B area was up to nine feet below the pre-remediation ground surface.

A total of six confirmatory soil samples were taken from the excavation. The soil samples were analyzed for DRO using MDEP Method 4.1.25. Five of the six confirmatory soil samples were non-detect for DRO and the one sample with detected DRO (MY05TP410, located on the east wall of the excavation) had only 10 mg/kg reported, slightly above the DRO detection limit of 6.4 mg/kg. The lack of significant DRO concentrations in the confirmatory soil samples is consistent with the low and non-detect PID values in the soils and the lack of visible or olfactory indications of petroleum hydrocarbons within the test pits or excavated area. Based on these results the 350 cubic yards of excavated soil was placed back in the excavation and the excavation was closed.

References

1. Bailey Point RCRA RFI Report (August, 2004)
2. Remediation Plan for MW-401B Area (September 2004)
3. Maine Yankee Quality Assurance Project Plan – Revision 1 (June 2001)

Figures

1. Soil Removal Area MW-401B

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1. Test Pit Headspace PID Readings MW-401B Area
2. DRO Confirmatory Sample Results

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Appendix A
Soil Remediation Plan MW-401B Area

