
PHASE III ENVIRONMENTAL SITE ASSESSMENT

Old St. Ignatius Dump

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OLD ST. IGNATIUS DUMP
CONFEDERATED SALISH & KOOTENAI TRIBES
BROWNFIELDS PROJECT**

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TABLE OF CONTENTS

1.0	INTRODUCTION	1
2.0	FIELD ACTIVITIES	1
3.0	INVESTIGATION RESULTS	2
3.1	Surface Water Assessment	2
3.2	Sediment Assessment.....	2
3.3	Quality Assurance / Quality Control.....	2
3.3.1	Sample Condition.....	2
3.3.2	Field Quality Control Samples	2
3.3.3	Laboratory Quality Assurance/Quality Control	3
3.3.4	Deviations from SAP.....	3
4.0	CONCLUSIONS AND RECOMMENDATIONS	3
5.0	REFERENCES	4

LIST OF FIGURES

Figure 1	General Location Map
Figure 2	Site Map

LIST OF TABLES

Table 1	Summary of Surface Water Analytical Data
Table 2	Summary of Subsurface Soil Analytical Data
Table 3	Field Parameters

LIST OF APPENDICES

Appendix A	Laboratory Analytical Reports
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1.0 INTRODUCTION

Geomatrix Consultants, Inc. (Geomatrix) has completed a Phase III Environmental Site Assessment (ESA) of the Old St. Ignatius Dump site located in St. Ignatius, Montana on behalf of the Confederated Salish and Kootenai Tribes (CSKT). The investigation was completed in accordance with the site-specific Sampling and Analysis Plan (SAP) (Geomatrix 2007) approved by the Environmental Protection Agency (EPA). Surface water and sediment samples were collected and analyzed in general conformance with the Quality Assurance Project Plan (QAPP) for the CSKT Brownfield Project (Osprey Environmental Consulting and Maxim Technologies 2005). The purpose of the assessment was to evaluate whether three uncontrolled dumps resulted in surface water and sediment impacts near the site. Geomatrix has prepared this report to present the results of the Phase III assessment.

The old dumpsite is north of Sabine Road near St. Ignatius, Flathead Indian Reservation, Montana (Figures 1 and 2). Site boundaries include U.S. Highway 93 to the east; the riparian area of Mission Creek to the northeast; undeveloped and agricultural land to the west and northwest; and Sabine Road to the south. Maxim completed a Phase I ESA of the site (Maxim and Osprey 2005a) and recommended that additional investigations be performed to evaluate whether the uncontrolled dumps resulted in impacts to soil, groundwater, surface water, and stream sediment. Information regarding the site setting, history, geology, and hydrogeology is presented in the 2005 Phase II SAP (Maxim and Osprey 2005b).

In June 2006, a Phase II ESA was initiated to investigate impacts to soils and groundwater at the site. Surface and subsurface soil samples were collected and six groundwater monitoring wells were installed. The results of the assessment are provided in the Phase II ESA report prepared by Geomatrix (2006). Contaminants of concern were detected in surface and subsurface soil samples adjacent to the dumpsites. Benzo(a)pyrene, a polynuclear aromatic hydrocarbon (PAH), was detected in samples from all six of the groundwater monitoring wells at the site at concentrations above the Montana groundwater quality standard. Geomatrix recommended surface water and sediment sampling for PAHs in the Phase II SAP (Maxim and Osprey 2005b).

2.0 FIELD ACTIVITIES

Geomatrix collected sediment and surface water samples from four locations of Mission Creek on June 26, 2007 in accordance with the EPA-approved SAP (Geomatrix 2007). Field personnel collected samples from a wetland area east of Dump I (previous identified during Phase I and II assessments) and from three location along Mission Creek (Figure 2). Natural and duplicate samples were collected. Geographic coordinates of each sampling location were obtained with a mapping-grade global positioning system (GPS) unit. Water samples from the wetland area were collected near the perimeter of a small pond. Geomatrix collected water samples from Mission Creek near the stream bank. Personnel recorded surface-water field parameters at each sampling location. Geomatrix collected sediment samples from the wetland and

Mission Creek adjacent to the surface water sampling locations (Figure 2). Water and sediment samples were submitted to Northern Analytical Laboratories (NAL) of Billings, Montana for analysis of PAHs.

3.0 INVESTIGATION RESULTS

Surface water and sediment sample analytical results and field parameters are summarized in Tables 1 through 3 and are discussed below. The laboratory analytical reports for soil and groundwater are provided in Appendix A.

3.1 Surface Water Assessment

PAHs were not detected in surface waters above the reporting limit of 0.10 micrograms per liter ($\mu\text{g/L}$) (Table 1). The analytical reporting limits for several constituents were above CSKT and Montana Department of Environmental Quality (DEQ) surface water standards, but are below the DEQ required reporting limit (RRL). As described in the QAPP, the RRL is the level that should be achievable at commercial and government analytical laboratories.

3.2 Sediment Assessment

PAHs were not detected in sediments above the respective reporting limits (Table 2). The reporting limits for all constituents are an order of magnitude below National Oceanic and Atmospheric Administration (NOAA) preliminary screening levels (including Upper Effects Thresholds and Threshold Effects Levels) for PAH compounds.

3.3 Quality Assurance / Quality Control

Geomatrix collected a total of five surface water samples and five sediment samples, including blind field duplicates, during the course of this Phase III ESA. One equipment rinse blank (ERB) was also collected during sediment sampling. Sample collection procedures generally followed the SAP (Geomatrix 2007) and the QAPP (Osprey and Maxim 2005).

3.3.1 Sample Condition

The samples were submitted in the appropriate containers and received by the laboratory in good condition. The sample container temperature upon receipt at the lab was 4°C. All samples were received and analyzed within the required sample holding times.

3.3.2 Field Quality Control Samples

Two blind field duplicates were collected and analyzed during the investigation. The relative percent differences (RPDs) of the blind field duplicates as compared to the non-duplicate sample could not be determined because the results for all samples were below the respective reporting limits. Results for the sediment equipment rinsate blank samples were also below the reporting limits. An equipment rinsate blank sample was

not collected during surface water sampling because new sample bottles were used to collect each sample.

3.3.3 Laboratory Quality Assurance/Quality Control

Laboratory procedures were generally consistent with the project requirements. Sample holding times requirements were met for all samples.

Laboratory duplicate and matrix spike samples were prepared and analyzed at the required frequencies. The following issues were noted during a review of the laboratory results:

- The surrogate recovery of PAHs for all sediment samples were outside the required control limits. Although a second extraction was performed on the samples, it was conducted after the required extraction holding time had passed. Therefore, the laboratory results for PAHs in sediment are considered estimates.
- The sediment samples contained significant amounts of water upon receipt by the laboratory. In some cases, sufficient sediment sample material was not available for the analysis which in turn resulted in higher reporting limits for benzo[a]pyrene and dibenzo[a,h]anthracene.

3.3.4 Deviations from SAP

The EPA-approved Phase III SAP for the St. Ignatius Dump site included the following elements:

- Installation of six monitoring wells outside the limits of the three dumps sites for the collection of groundwater samples;
- Collection of subsurface soil samples during the installation of the monitoring wells;
- Collection of surface soil samples; and
- Collection of surface water and sediment samples from Mission Creek and the wetland area adjacent to Dump I.

In correspondence dated June 7, 2006, Geomatrix and CSKT proposed a phased approach to the investigation, which was approved by the EPA in 2006. The initial phase of the investigation (2006) included the completion of the monitoring wells and collection of surface and subsurface soil samples as described in the SAP. This subsequent phase (2007) included the collection of surface water and sediment samples from Mission Creek and the nearby wetland based on the results of the first phase of work. There were no deviations from the EPA-approved SAP.

4.0 CONCLUSIONS AND RECOMMENDATIONS

Geomatrix sampled sediment and surface waters from Mission Creek and the wetland adjacent to Dump I. PAHs were not detected in any surface water or sediment samples collected at the site. Laboratory reporting limits for some constituents were above