

**CONFIRMATION SAMPLING PLAN
FORMER OLIVER PLOW WORKS
533 SOUTH CHAPIN STREET
SOUTH BEND, INDIANA
VRP #6001202**

PREPARED FOR:

**CITY OF SOUTH BEND
DEPARTMENT OF COMMUNITY AND ECONOMIC DEVELOPMENT
South Bend, Indiana**

Envirocorp Project No. 80D2468

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FIGURES

ATTACHMENT A

DATA QUALITY OBJECTIVES

ATTACHMENT B

CONCEPTUAL SITE PLAN

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RANDOM NUMBER TABLES

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FIGURES

FIGURE: Sampling Grid; West Side

FIGURE: Sampling Grid; East Side

ATTACHMENTS

ATTACHMENT A: Data Quality Objectives

ATTACHMENT B: Conceptual Site Plan

ATTACHMENT C: Random Number Tables

1.0 INTRODUCTION

The purpose of this document is to provide the framework for the confirmation sampling event required under the Voluntary Remediation Program (VRP) for the Former Oliver Plow Works Facility, 533 South Chapin Street, South Bend, Indiana. This plan has been developed in accordance with the VRP Guidance Manual, revised July, 1996 and the "Soil Screening Guidance: Technical Background Document," May, 1996, and the "Soil Screening Guidance Users Guide," July 1996.

2.0 DESCRIPTION OF CONFIRMATION SAMPLING PLAN

This sampling event will be based upon the random sampling technique outlined in the VRP Resource Guide for soils (Appendix D), the use of the Ranked Set Sampling (RSS) technique to determine which samples to submit for analysis, and the use of the Chen test to determine if the area of concern meets cleanup criteria outlined in the Data Quality Objectives (Attachment A). There are 12 separate areas to be assessed, as described in the Conceptual Site Plan (Attachment B). Each area has been assessed to determine its potential to contain each class of chemicals of concern (COCs). Based upon this assessment, each area will be screened only for the potential COCs in this area. A sample from each area will be analyzed for all COCs to confirm the assessment in the conceptual site model.

2.1 General Approach

Each of the 12 major areas will be split into equally sized sections. Each section will not exceed 40,000 square feet. Each section will be split into 4 equal quadrants, and each quadrant will be split into 10 by 10 foot squares. Each quadrant will be numbered consecutively, starting in the northwestern corner and numbering each line from west to east and north to south. The major areas and the grids are illustrated in Figures 1 and 2.

Four borings will be advanced in each quadrant. The four sample locations for each quadrant will be based upon the random numbers generated using the Microsoft Excel random number generator analysis tool. This table, located in Attachment C, includes 15 numbers for each section to allow for the potential that some of the sample locations may fall outside of the section, for the potential for obstructions, and the potential for duplicate numbers. If this occurs, the sample will be obtained from the next location indicated on the list.

The four samples obtained from each quadrant will be sorted using an indicator parameter(s). Each sample group will be ranked from lowest to highest based upon field screening techniques. Four samples, one from each quadrant, will be submitted from each section based upon field screening results. The sample selected from the field screening will be the highest from section 1, the second highest from section 2, the third highest from section 3, and the lowest from section 4. The field test to be performed on the sample obtained from each major area is indicated in Table 1.

Table 1 - Field Screening

Area	TPH (Method 4030)	Metals (XRF)	PCB (Method 4020)
1	Yes	Yes	Yes
2	No	Yes	No
3	No	Yes	No
4	No	Yes	No
5	No	Yes	Yes
6	Yes	Yes	No
7	Yes	Yes	No
8	Yes	Yes	No
9	No	Yes	Yes
10	No	Yes	No
11	Yes	Yes	No
12	Yes	Yes	No

The field screening will be conducted using x-ray fluorescence (XRF) for lead and/or arsenic (RCRA metals), SW-846 Method 4030 for total petroleum hydrocarbons (VOCs or SVOCS), and/or SW-846 Method 4020 for PCB test kits as appropriate.

The subsurface samples will be obtained at a depth not to exceed 12 feet.

2.3 Quality Assurance/Quality Control Samples

The data quality objective for this investigation is Level 4. To meet this objective, a trip blank will be prepared for every sampling day. A duplicate soil sample will be obtained for every 10 samples, and 1 matrix spike/matrix spike duplicate sample for every 20 samples. The laboratory will assess its precision using surrogates in all samples for all analyses and by performing laboratory duplicates. The analytical data validation protocols used by the laboratory will be in accordance with the United States Environmental Protection Agency (USEPA) recognized validation protocol. The analytical data will be reviewed by a degreed chemist at Envirocorp to assure that all data is acceptable for this project.

3.0 ANALYSIS PARAMETERS

The soil samples selected using the above screening procedure will be assessed for the COCs that are listed below. One sample from each major section will be assessed for all COCs. The individual COCs and cleanup goals are listed in the Remediation Work Plan.

Table 2 - Analysis Parameters

Area	VOCs	SVOCs	Metals	PCB
1	Yes	Yes	Yes	Yes
2	No	No	Yes	No
3	No	No	Yes	No
4	No	No	Yes	No
5	No	No	Yes	Yes
6	Yes	No	Yes	No
7	Yes	Yes	Yes	No
8	Yes	Yes	Yes	No
9	No	No	Yes	Yes
10	No	No	Yes	No
11	No	Yes	Yes	No
12	No	Yes	Yes	No

4.0 ASSESSMENT OF ANALYSIS RESULTS

The results of the fixed analysis will be assessed using the Chen Test. If the data fails the test, further samples will be obtained in the areas in question. Please refer to the Data Quality Objectives document in Attachment 1 for further discussion of this process.