

*Received
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OCONOMOWOC ELECTROPLATING
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
STATEMENT OF WORK

REMEDIAL INVESTIGATION

Purpose

The purpose of the remedial investigation is to determine the extent of contamination at the site, in the adjacent wetlands, and in the groundwater, in order to develop remedial action alternatives for the site. This will be achieved using relevant existing data and by gathering all additional data necessary to support the feasibility study. The engineer shall furnish all personnel, materials, and services needed to perform the remedial investigation at the Oconomowoc Electroplating Site.

Scope

The remedial investigation consists of seven tasks.

- Task 1 Description of Current Situation
- Task 2 Work Plan Preparation
- Task 3 Project Plans and Management
- Task 4 Site Investigations
- Task 5 Site Investigation Analysis
- Task 6 Remedial Investigation Report
- Task 7 Risk Assessment

Background

Oconomowoc Electroplating Company (OEC), is located in the town of Ashippun, Dodge County, Wisconsin. It is adjacent to wetlands and Davy Creek, a tributary to the Rock River. The site occupies approximately five acres.

OEC began operations as an electroplating shop prior to 1960. In 1972, two wastewater settling ponds were constructed on the site, each approximately 20 by 40 feet with a depth of eight feet. Metal bearing sludges have accumulated in the ponds, although some sludge may have been removed at infrequent intervals through the early 1970's. During the same period, the firm constructed a wastewater treatment plant. Inefficient operation of the ponds and the treatment plant, resulting in discharges of untreated wastewater and surface runoff from overflow of the ponds, have caused an accumulation of metal sludge in the wetland adjacent to Davy Creek.

Plant operations may have also contaminated ground water in the area. Plating wastes containing nickel, chromium, copper, zinc, cadmium, tin and cyanide have eaten through the concrete waste troughs in the plant floor and have also seeped out of the ground near the plant walls. Drums of waste have leaked on site and sludges have been spilled. Ground water in the area is shallow and supplies water for all residents in the area.

Task 1 Description of Current Situation

Describe the background of the site and existing problems and outline the purpose of the remedial investigation at the site. This task should be conducted concurrently with Task 2, development of the work plan.

a. Site Background

Prepare a summary of the Regional location, pertinent area features and general site physiography, hydrology and geology.

b. Nature and Extent of Problem

Prepare a summary of actual and potential on-site and off-site health and environmental effects. This summary shall include: the types, physical states and amounts of hazardous substances; the existence and condition of drums and lagoons; affected media and pathways of exposure; and any human and environmental exposure. Emphasis shall be placed on describing the threat or potential threat to public health.

c. Site Visit

Conduct an initial site visit to become familiar with the topography and existing site conditions. The visit should also be used to verify information and to collect data for preparation of the health and safety plan.

d. Define Boundary Conditions

Establish site boundary conditions to define the areas of site investigations. The boundary conditions should be set so that subsequent investigations will cover the contaminated media in sufficient detail to support the feasibility study.

e. Topographic Survey and Site Map

Prepare a site map showing all wetlands, flood plains, water bodies, drainage patterns, waste disposal areas, existing buildings, lagoons, storage tanks, access roads, easements, utilities, and any other relevant features. The site map and topographic information should be of sufficient detail and accuracy for locating all data points.

A legal description of the property boundaries shall also be obtained from county records and verified in the field. This will be used for obtaining necessary site access agreements for remedial activities.

Task 2 Work Plan Preparation

Prepare a detailed work plan based on this statement of work. The work plan shall include an outline of proposed investigation activities, a time schedule, personnel and equipment requirements, and unit cost estimates. A general sampling plan indicating location, quality and frequency of sampling, sampling methods, constituents for analysis, and quality assurance procedures shall also be included. The draft work plan shall be submitted to U.S. EPA

and Wisconsin Department of Natural Resources (WDNR) for review. After revisions are complete, a final work plan shall be submitted to U.S. EPA and WDNR.

Task 3 Project Plans and Management

Project plans necessary to support the remedial investigation are indicated below.

a. Health and Safety Plan

Prepare a Health and Safety Plan to address hazards that the investigation activities may present to the investigation team and to the surrounding community. The plan should address all applicable regulatory requirements and detail personnel responsibilities, protective equipment, procedures and protocols, decontamination, training and medical surveillance.

b. Quality Assurance Project Plan

Prepare a Quality Assurance Project Plan (QAPP) for the sampling analysis, and data handling aspects of the remedial investigation. The plan shall be consistent with the requirements of the U.S. EPA's Contract Laboratory Program. The plan shall include:

1. QA objectives for Measurement Data, in terms and precision, accuracy, completeness, representativeness, and comparability.
2. Sampling Objectives and Procedures
3. Sample Custody
4. Calibration Procedures, References, and Frequency
5. Internal QC Checks and Frequency
6. QA Performance Audits, System Audits, and Frequency
7. QA Reports of Management
8. Preventive Maintenance Procedures and Schedule
9. Specific procedures to be used to assess data precision, representativeness, comparability, accuracy and completeness of specific measurement parameters involved.
10. Corrective Action
11. Any field sampling collection and analyses conducted shall be documented in accordance with chain-of-custody procedures as provided by U.S. EPA.

Prior to initiating specific sampling tasks, a sampling plan outlining the data needs for characterizing the site will be prepared and submitted to the Agency for review. These will be concise attachments to the QAPP. These must include a detailed estimate of cost, schedule and resource needs in addition to the sampling locations, quantity and frequency of sampling.

c. Community Relations Plan

Prepare a plan, based on on-site discussions, for the dissemination of information to the public regarding investigation activities and results. Prepare any documentation such as diagrams plans, charts etc., necessary to support the community relations program. Prepare and attend public

meetings, project review meetings and other meetings necessary to the normal progress of the work. Also, where required, make presentations, conduct briefings, and act as the technical expert concerning the remedial planning project.

Project management efforts play a key role in the successful completion of an RI/FS. Responsibilities of project management throughout the RI/FS include:

- Working with the U.S. EPA to plan the scoping, budgeting and scheduling for the RI/FS
- Maintaining the timely completion of all scheduled activities and assuring the cost-effectiveness of each activity
- Keeping U.S. EPA informed of project schedules
- Maintaining project quality control and quality assurance
- Monitoring subcontractors
- Evaluation of documentation and graphics for compliance with U.S. EPA standards
- Project initiation requirements including meeting with the Agency personnel to discuss project goals and preparation of project budget and schedule
- Preparation of required reports, including monthly technical progress reports and financial management reports

Project reports and documents will be distributed as follows:

<u>Number</u>	<u>Addressee</u>
1	Zone Manager (EPA Headquarters)
2	Remedial Project Manager
2	State Project Manager(s)
1	Enforcement Coordinator (EPA Headquarters)

Task 4 Site Investigations

Conduct remedial investigations necessary to characterize the site and its actual or potential hazard to public health and the environment. The investigations should produce data of adequate technical content to assess remedial alternatives and support detailed evaluation of alternatives during the feasibility study.

a. Hydrogeologic Investigation

A hydrogeologic study will be performed to further evaluate the subsurface geology, water bearing formations, and the nature and extent of groundwater contamination. The study should determine the location of water bearing formations, confining lenses and other subsurface geologic features, the hydraulic connection between surface water and ground water, and vertical and horizontal distribution of contaminants.

A technical description of all methods to be used in gathering data for this task will be included in the work plan. This should include a

diagrammatic representation of proposed monitoring well locations, design and construction, information on materials, drilling techniques, and well development methods.

All monitoring well samples should be removed, preserved, documented and shipped in accordance with the Users Guide to the U.S. EPA Contract Laboratory Program (CLP) prepared by the Sample Management Office of CLP and published in July 1984.

The deliverables for this study shall include:

- ° Geologic cross-sections and potentiometric maps of the study area.
- ° Description of subsurface characteristics, including: horizontal and vertical components of ground water flow; and thickness and extent of rock units
- ° Analytical results of monitoring well sampling
- ° Contaminant plume definition
- ° Discussion of local well use and a map locating area wells

b. ^{Residential} ~~Municipal~~ Well Sampling

Conduct a survey of private residential wells in the area of the site and, if possible, obtain a copy of each well log. Using the survey, sample a number of wells within a 1/2 mile radius of the site perimeter to determine if contamination is present in the water supply. All samples will be handled and analyzed in accordance with the Users Guide to the U.S. EPA CLP.

c. Hydrologic Analysis

Conduct a hydrologic study to determine surface drainage patterns. Data gathered in this effort will be used in evaluating the effects of contaminated discharge and runoff to the wetlands, Davy Creek and the shallow ground water beneath the site. Results of this study will aid in the evaluation of remedial action alternatives for the site.

d. Sampling and Analysis of Surface Water and Sediments

Conduct surface water and sediment sampling to determine the extent of contamination in Davy Creek and the wetlands, and in the drainage ditches on-site. Creek and wetlands samples should be obtained upstream, adjacent to, and downstream of the site, to characterize the effects of the facility's discharge throughout the area. Data obtained for this task will be used in determining proper remedial actions for the site. A sampling plan will be developed for this task, prior to sampling, to indicate exact locations, frequency of sampling, and parameters to be analyzed. Each sample location should include both surface water grab sampling and sediment cores.

e. Sampling and Analysis of Soils

Conduct soil sampling on and around the site to determine the locations and extent of soil contamination. Sampling should include soils around drainage and discharge areas, at overflow areas around the lagoons, as

well as any area with staining or other evidence of contamination. Background samples should be collected to determine ambient soil characteristics. Data obtained for this task will be used in assessing extent of contamination, and in determining the final remedy for the site. A sampling plan will be developed prior to sampling to indicate exact locations, frequency of samples, and parameters to be analyzed.

f. Wetlands Assessment

Executive Order 11990 requires Federal Agencies, in carrying out their responsibilities, to take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands. For Remedial Actions to comply with wetland evaluation requirements contained in Appendix A of 40 CFR Part 6, a wetlands assessment must be incorporated into the analysis conducted during the planning of remedial actions. The wetlands Assessment shall consist of:

- ° A description of the wetlands contamination extent
- ° A description of the proposed action
- ° A discussion of the action's effect on the wetlands
- ° Measures needed to minimize potential harm to the wetland

A description of the potential effects of the remedial action alternatives on the wetlands will be developed during the feasibility study.

Task 5 Site Investigation Analysis

Prepare a thorough analysis and summary of all site investigations and their results. The objective of this task will be to ensure that the investigation data are sufficient in quality and quantity to support the feasibility study.

The data results from all site investigations must be organized and presented logically so that the relationships between site investigations for each medium are apparent. Analyze all site investigation data and develop a summary of the type and extent of contamination at the site. The summary should describe the quantities and concentrations of specific chemicals at the site and surrounding area in comparison with ambient levels. The summary should also include an analysis of all significant pathways of contamination and an exposure assessment. the exposure assessment shall describe any threats to public health, welfare, and the environment.

Task 6 Remedial Investigation Report

After consultation with the U.S. EPA and WDNR, prepare a draft remedial investigation report to consolidate and summarize the data obtained and evaluated during the remedial investigation. Following review by U.S. EPA and WDNR, prepare the final remedial investigation report. The final report will incorporate comments from both agencies as well as relevant public comments obtained during the public comment period. The work plan should be refined for the feasibility study (if applicable), based on the results of the remedial investigation.

Task 7 Risk Assessment

Based on the results of the remedial investigation and the exposure assessment developed for the site, begin preparation of a risk assessment for the site. The risk assessment will be incorporated into the feasibility study to follow.

FEASIBILITY STUDY

Purpose

The purpose of the feasibility study is to develop and evaluate a number of remedial action alternatives and to identify the cost-effective remedial alternative which protects human health and the environment to be implemented at the Oconomowoc Electroplating Site. The engineer shall furnish the necessary personnel, materials, and services required to complete the feasibility study.

Scope

The feasibility study consists of seven tasks.

- Task 8 Development of Alternatives
- Task 9 Initial Screening of Alternatives
- Task 10 Laboratory Studies (Optional)
- Task 11 Detailed Analysis of Alternatives
- Task 12 Evaluation and Recommendation of Cost-Effective Alternative
- Task 13 Feasibility Study Report
- Task 14 Conceptual Design

Task 8 Development of Alternatives

Based on the results of the remedial investigation, identify a limited number of potential remedial action alternatives. Alternatives developed should incorporate site response objectives, applicable treatment technologies, media-specific remedial technologies, and other appropriate considerations into a comprehensive site-specific approach. The no-action option should also be included in the list of alternatives. The objectives for development of alternatives should be based on public health and environmental concerns evaluated in the risk assessment for the site.

Task 9 Initial Screening of Alternatives

The Alternatives developed in Task 8 will be screened by the U.S. EPA and WDNR to eliminate alternatives, prior to detailed analysis, that are clearly not feasible or appropriate. The following considerations will be used as a basis for the initial screening:

- 1) Cost. An alternative that far exceeds the cost of other alternatives evaluated and that does not provide substantially greater public health or environmental benefit will usually be excluded from further considerations.
- 2) Effects of the Alternative. Only those alternatives that affectively contribute to protection of public health, welfare, and the environment will be considered further. Any alternatives that inherently present significant adverse effects will be excluded from further consideration.

- 3) Acceptable Engineering Practices. Alternatives that may prove extremely difficult to implement, will not achieve the remedial objectives in a reasonable time period, or that rely on unproven technologies will be excluded from further consideration.

Task 10 Laboratory Studies (Optional)

Conduct any necessary laboratory and bench scale treatability studies required to evaluate the applicability of remedial technologies, (e.g., ground water treatment, leachate treatment, etc.) The scope of this task will depend on the results of Task 9. A separate work plan will be submitted for any proposed laboratory studies for State and U.S. EPA approval. This submittal will be made in the timeframe required to maintain steady progress of the overall feasibility study.

Task 11 Detailed Analysis of Alternatives

Prepare a detailed analysis of the alternatives that remain after the initial screening. The detailed analysis shall consist of the elements which follow:

a. Detailed Description

The detailed description of each remaining alternative shall include as a minimum:

- 1) Description of appropriate treatment technologies.
- 2) Special engineering considerations required to implement the alternative, e.g., pilot treatment facility, additional studies needed to proceed with final remedial design.
- 3) Operation, maintenance, and monitoring requirements of the completed remedy.
- 4) Off-site disposal needs and transportation plans.
- 5) Temporary storage requirements.
- 6) Safety requirements for remedial implementation, including both on-site and off-site health and safety considerations.
- 7) An analysis of how the alternative could be phased into individual operations and a discussion of how these operations could best be implemented, individually or in groups, to produce significant environmental improvement or cost savings.
- 8) A review of any off-site treatment or disposal facilities (provided by the State) to ensure compliance with applicable RCRA and State requirements, both current and proposed.

b. Environmental Assessment

An Environmental Assessment (EA) shall be performed for each alternative including, as a minimum, an evaluation of each

alternative's environmental effects, an analysis of measures to mitigate adverse effects, physical or legal constraints, and compliance with Federal and State regulatory requirements.

Each alternative will be assessed in terms of the extent to which it will mitigate damage to, or protect, public health, welfare, and the environment, in comparison to the other remedial alternatives.

c. Cost Analysis

The present worth cost of implementing each remedial alternative (and each phase of the alternative) as well as the annual operating and maintenance cost shall be presented. The cost shall be provided as a total cost and on an annual cost basis.

Task 12 Evaluation and Recommendation of Cost-Effective Alternative

The U.S. EPA and WDNR will review the results of the detailed analysis of alternatives prepared under Task 11. The lowest cost alternative that is technologically feasible and reliable and that adequately protects (or mitigates damage to) public health, welfare, and the environment will be considered the cost-effective alternative.

The following considerations shall be used as the basis for selecting the cost-effective alternative:

1. Reliability. The alternatives that minimize or eliminate the potential for release of wastes into the environment will be considered more reliable than other alternatives.
2. Implementability. The alternatives most easily implemented shall be favored.
3. Effects of the Alternative. The alternatives posing the greatest improvement to (and least negative impact on) public health, welfare, and the environment will be favored.
4. Cost. The alternatives with the lowest total present worth cost will be favored. Total cost will include the cost of implementing the alternative and the cost of operation and maintenance of the proposed alternative. Note: Preference will be given to alternatives with lower O&M requirements other factors being equal.

Task 13 Feasibility Study Report

A feasibility study report shall be prepared and submitted to U.S. EPA and WDNR, including the results of Tasks 8 through 12. Two copies of the report shall be submitted to U.S. EPA Remedial Project Manager and two copies to WDNR. After receipt of written review comments and public comments, the report will be finalized and submitted to U.S. EPA and WDNR.

Task 14 Conceptual Design

A conceptual design of the remedial alternative selected by U.S. EPA and WDNR shall be prepared. The conceptual design shall include, but is not limited to, the engineering approach including implementation schedule, special implementation requirements, institutional requirements, phasing considerations, design criteria, preliminary site and facility layouts, budget cost estimate (including operation and maintenance costs), operating and maintenance requirements and duration, and an outline of the safety plans, including cost impact on implementation. Any additional information required as the basis for completion of the final remedial design will be included.