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**PROJECT SPECIFIC PLAN FOR THE FORESTED WETLAND SURFACE
WATER QUALITY STUDY - (ALSO CONTAINS HEALTH AND SAFETY
PLAN FOR SAME SUBJECT)**

07/27/95

DOE-1210-95
DOE-FN EPAS
25
PSP, HS PLAN



Department of Energy
Fernald Environmental Management Project
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JUL 27 1995

DOE-1210-95

Mr. James A. Saric, Remedial Project Director
U.S. Environmental Protection Agency
Region V - 5HRE-8J
77 W. Jackson Boulevard
Chicago, Illinois 60604-3590

Mr. Tom Schneider, Project Manager
Ohio Environmental Protection Agency
401 East 5th Street
Dayton, Ohio 45402-2911

Dear Mr. Saric and Mr. Schneider:

PROJECT SPECIFIC PLAN FOR THE FORESTED WETLAND SURFACE WATER QUALITY STUDY

Enclosed for your review and approval is a copy of the Project Specific Plan (PSP) for the Forested Wetland Surface Water Quality Study for the Fernald Environmental Management Project (FEMP). Also enclosed is a copy of the Health and Safety Plan. This study will be performed in the summer of 1995, to assist in the evaluation of potential wetland mitigatory options at the FEMP. This PSP was discussed during our Wetland Mitigation meeting held in June of 1995.

If you have any questions, please contact Pete Yerace at (513) 648-3161.

Sincerely,

Johnny Rensing

for Jack R. Craig
Fernald Remedial Action
Project Manager

FN:Yerace

Enclosure: As Stated

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PROJECT SPECIFIC PLAN
for the
ON-PROPERTY WETLAND MITIGATION STUDY

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

JULY 1995

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1.0 INTRODUCTION

Mitigation is a process of compensating for unavoidable wetland losses arising from human activities. The Council on Environmental Quality (CEQ) has defined mitigation to include avoidance, minimization, rectification, reduction, and compensation (40 CFR 1508.20). The U.S. Army Corps of Engineers (ACOE) and the United States Environmental Protection Agency (USEPA) adopted the CEQ definition of mitigation, and for practicality, formulated three types: avoidance, minimization, and compensatory mitigation.

The issuance of a permit (nationwide or individual) by the ACOE for dredge and fill activities in waters of the United States, including wetlands, may include mitigation as a condition of permit issuance. Mitigation required to offset unavoidable adverse impacts to wetlands is determined through a process of negotiation with ACOE and EPA.

Wetland mitigation may also be required under Section 107 of CERCLA for natural resource injuries (harm) and damages (monetary compensation) resulting from hazardous substance releases or oil spills. If DOE is subject to natural resource liabilities such as past releases into wetlands, mitigation may be required to rectify injury and damages to these wetlands.

As a result of a 1993 wetland delineation, approximately 36 acres of jurisdictional wetlands were identified within the 1050-acre FEMP property, all of which are potentially subject to compensatory wetland mitigation requirements under Sections 404 and 401 of the Clean Water Act (CWA). Although DOE plans to ensure wetland impacts are avoided and minimized to the maximum extent practicable during remediation of the site, some unavoidable impacts requiring mitigation are anticipated to arise. Given this fact, DOE recognizes that a comprehensive site-wide approach must be developed to address wetland mitigatory requirements as the site moves into the Remedial Design/Remedial Action (RD/RA) phase of cleanup.

This Project Specific Plan (PSP) has been developed to assess general surface water quality and the hydrologic regime of the Northern Forested Wetland Area and the potential for wetland mitigation in other areas of the site. This forested wetland is not anticipated to be impacted from remedial activities. The data acquired from this study will assist in the evaluation of potential wetland mitigatory options at the FEMP, which will be implemented to off-set wetland impacts sustained under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), along with those associated with non-CERCLA activities. This PSP has been developed under the specifications of the Fernald Environmental Management Project (FEMP) Sitewide CERCLA Quality Assurance Project Plan (SCQ), all field operations and data handling procedures will be consistent with the specifications in the FEMP SCQ.

2.0 SUMMARY OF PREVIOUS STUDIES

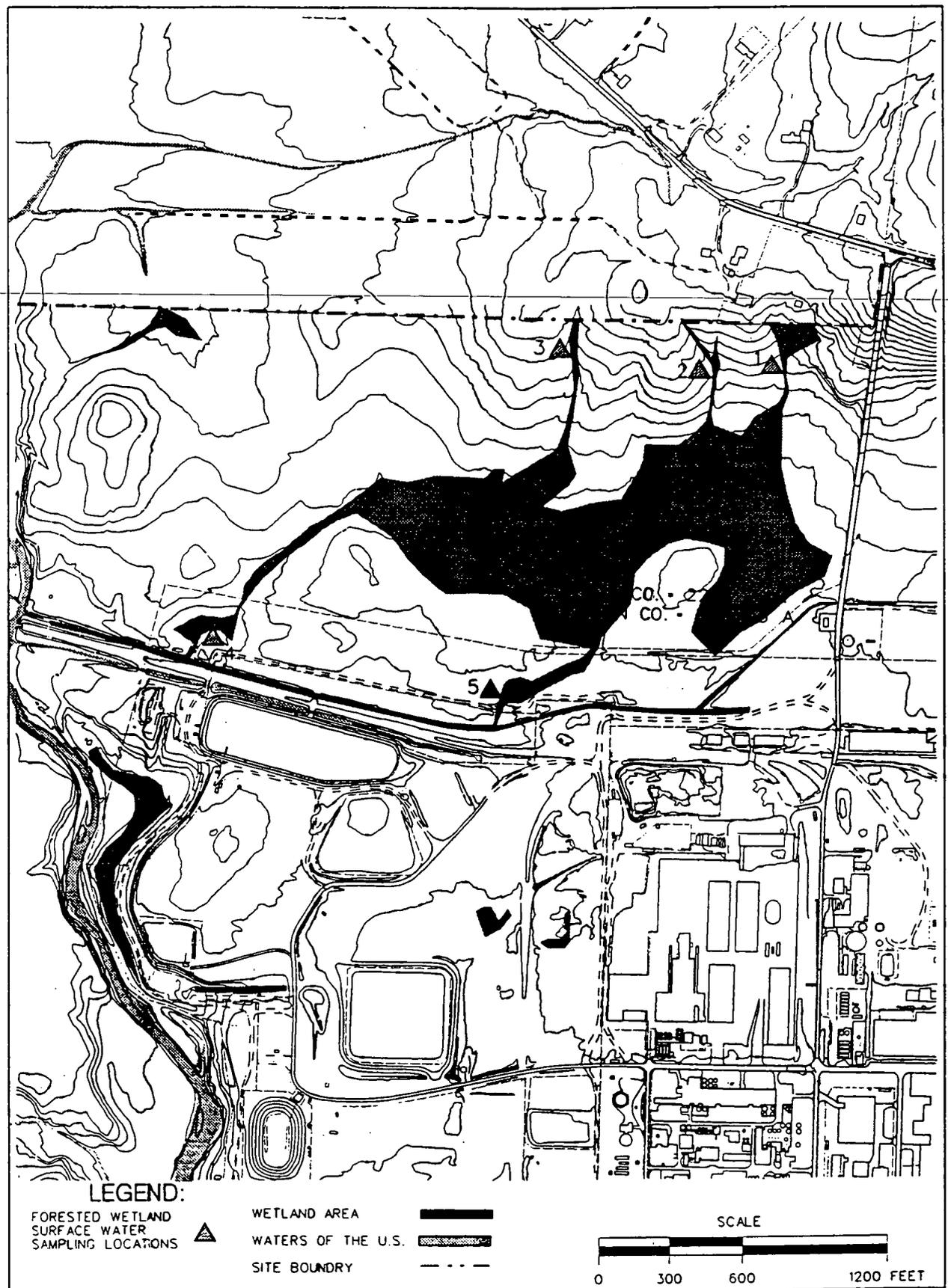
Surface water quality studies have not been performed in the Northern Forested Wetland Area. The Operable Unit 5 Remedial Investigation contains extensive information on the soil and hydrology of this area. The primary objective of the remedial investigation was to define the nature and extent of contamination in Operable Unit 5 in a manner sufficient to perform baseline and ecological risk assessments and develop and evaluate viable remedial alternatives. Some of the investigative pathways addressed to support the primary objective included chemical and physical properties of surface and

subsurface soils; water quality, water levels, and flow characteristics of the perched groundwater system and the Great Miami Aquifer, and surface water quality of Paddys Run. In addition, surface water and groundwater modeling were performed. This data and associated expertise will be used to assist in the current study. Similar investigative methodologies have been performed for the Pilot Plant Drainage Ditch Seepage and Surface Water Background Investigation.

3.0 OBJECTIVES OF THE STUDY

This PSP addresses surface water sampling, wetland water quality, and the wetland surface water budget. Samples will be collected from five discrete sampling locations (Figure 1) during five independent storm events within the 26 acre forested wetland to determine the quality of water entering and leaving the wetland. A valid storm event will require greater than 0.1 inch of water. A 24 hour lag time between storm events will also be required to obtain representative mass loading within the watershed. The samples will be analyzed to determine nutrient concentrations and mass loadings within the watershed boundary. An analysis of sample data will be used to assess the feasibility of enhancing the water quality functions of the wetland. Collected sample analyses would be compared to water quality standards of Paddys Run to provide an indication of general wetland water quality for a particular storm event. These analyses were selected based on overall surface water quality representation. Flumes will be used as primary measuring devices to quantify the amount of flow passing through each monitoring point during a storm event. Data derived from the flume will be used to develop flow-weighted composite samples representative of nutrient/mass loadings associated with the storm event.

Another component of this study is to provide an overall assessment of possibilities for expansion of the Forested Wetland along with evaluating other potential on-property locations for conducting wetland mitigation. In addition to the detailed Forested Wetland study, additional information will be analyzed to be sure the hydrologic regime of the Forested Wetland Area is not impacted from remedial activities. The following parameters will be qualitatively evaluated to determine the potential for wetland mitigation in other on-property areas : topography, soil, existing habitat, and hydrologic regime (drainage basin area). Other issues to be addressed in the study include general quantification of potential acreage for wetland construction in the forested area, and general techniques for wetland construction and improvement of the forested area.



wetsomp.dgn

LEGEND:

- FORESTED WETLAND
- SURFACE WATER
- SAMPLING LOCATIONS
- WETLAND AREA
- WATERS OF THE U.S.
- SITE BOUNDARY

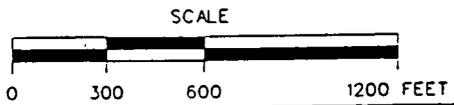


FIGURE 1. FORESTED WETLAND SURFACE WATER SAMPLING LOCATIONS

3.1.1 Surface Water Sampling Procedure

To minimize the impact of turbidity in the channels, surface water samples will be collected at the outfall of each flume. Surface water samples will be analyzed for general water quality parameters at Analytical Support Level B (Table 1). These parameters were selected to obtain an adequate representation of overall surface water quality. Concurrent sampling will occur at 1 hour intervals, obtaining the first sample within the first 30 minutes of the storm event. Interval sampling will cease upon establishment of a storm event specific hydrograph. Samples will be delivered to the Fernald analytical and wastewater treatment laboratories for analysis.

TABLE 1
SURFACE WATER QUALITY PARAMETERS FOR ANALYSIS

<u>Pollutant</u>	<u>Container</u>	<u>Preservation</u>	<u>Max. Holding Time</u>
BOD ₅	plastic or glass	4°C	48 hrs.
TSS	plastic or glass	4°C	7 days
Total Phosphorus	glass	4°C	28 days
pH	plastic or glass	none	immediate
Nitrate-Nitrogen	plastic or glass	4°C	48 hrs.
Total Uranium	plastic or glass	HNO ₃	30 days
Fecal coliform	sterile bag	Na ₂ S ₂ O ₃	6 hrs.

3.1.2 Surface Water Flow Measurement

Flow rates at each sampling station will be measured at one hour intervals in conjunction with surface water sampling activities. The purpose for measuring the flow rate is to quantify total surface run-off volume from each storm event and develop flow-weighted composite samples representative of storm event mass loading.

The following steps will be followed in accordance with U.S. Department of Agriculture Manual 224 to measure the flow rate of the channel water:

- ~~Mount pre-manufactured fiberglass H-flume to plywood backing.~~
- Install the flumes at each of the five sampling points.
- Each flume to be installed level and perpendicular to the surface water flow direction within the channel.
- Use sand bags and bentonite clay to secure the flume. Bentonite clay to be placed within the trench to form a seal to prevent seepage and sand bags to be applied to the surface.
- Measure the head (H, in feet) of the surface water above the spillway at one hour intervals.
- Calculate the surface water flow (Q) by using the following equation:

$$Q = \text{CFS} \times 7.481$$

where

Q is the discharge (gallons per second)

CFS is cubic feet per second based on flume rating table

This equation will give an approximate measurement of flow at the time the flume was measured and a better understanding of wetland hydrology.

3.2 DATA QUALITY OBJECTIVES SUMMARY

Data collected from this PSP are intended to satisfy the following objectives:

- Determine the surface water quality of the forested wetland area.
- Determine the feasibility of enhancing water quality functions of the forested wetland.
- Determine the potential for wetland hydrology by establishing the surface water budget of the forested wetland using flume measurements and hydrologic calculations.

- Determine the techniques available to expand the Forested Wetland.
- Analysis of potential impacts to the forested wetland hydrologic regime from remedial activities.
- Qualitative evaluation of potential wetland mitigation in other on-property areas.

4.0 ORGANIZATION AND RESPONSIBILITIES

This PSP has been developed by FERMCO's Environmental Compliance Division/Natural Resource Management (NRM) Department in cooperation with Operable Unit 5 staff to assist in the development and implementation of compensatory wetland mitigation, required under Sections 404 and 401 of the Clean Water Act. The NRM Manager has full responsibility and authority for the content and specifications in this PSP. Any changes to activities specified in this PSP must have the approval of the NRM Manager prior to implementation.

4.1 FIELD ACTIVITIES

Field activities are to be conducted by the NRM Department with support from the Environmental Field Operations Staff. The Field Operations group will assign unique sample numbers for all samples collected and be responsible for sample compositing, handling, preservation, shipment, and notification to the FEMP analytical and wastewater laboratories. At the completion of field activities associated with this PSP, a task completion report will be prepared and submitted to the NRM Manager. The report will include a written synopsis of field activities supplemented with copies of all field forms, data sheets, and activity logs. The NRM Department will qualitatively evaluate the topography, soil, existing habitat, and hydrologic regime (drainage basin area) to determine the potential for wetland mitigation in other on-property areas. This evaluation will also consist of a written report summarizing field activities.

4.2 HEALTH AND SAFETY

The FERMCO Health and Safety Department will be responsible for the development, implementation, and monitoring of a project specific health and safety requirements matrix. This plan is presented in Appendix A.

5.0 QUALITY ASSURANCE AND QUALITY CONTROL

The primary objectives of the quality assurance and quality control is to collect field information and data which are sufficient to assess the surface water quality and hydrologic regime of the forested wetland. The objectives of field sampling will be designed, organized, and implemented to optimize collection of information which supports the objectives of the study.

5.1 FIELD AND LABORATORY QUALITY CONTROL SAMPLES

Field quality control samples will be taken from periodic storm events to eliminate the possibility of a bias that may result during sampling or analysis. The type of Quality Control sample to be collected is one duplicate at each sampling location from the third storm event. In the case of uranium, if a sample exhibits uranium levels above the final remediation level (FRL) as established in the OU5 FS, an aliquot from the composite sample will be reanalyzed. If reanalysis still indicates uranium above the FRL, additional sampling plans will be developed and implemented outside the scope of this PSP.

5.2 TRAINING, RECORDS ADMINISTRATION, AND DOCUMENT CONTROL

All FEMP employees and sub-contractors assigned to this study will be required to obtain appropriate training as specified in the Health and Safety Plan (Appendix A). Safety meetings will be conducted prior to each field work event to augment health and safety training.

6.0 FIELD SAMPLING

Sampling for this PSP will be conducted by the NRM and Environmental Field Operation staff of FERMCO.

6.1 SAMPLE TEAM ORGANIZATION

Selection of sampling locations and surface water quality parameters are designated by FERMCO's NRM Department.

6.1.1 Organizational Structure

Field sampling crews will be directly supervised by the Environmental Field Operations Manager. Each field crew will consist of two sampling technicians. Additional custodial staff will interact with the sampling crews and the FEMP laboratory performing the sampling analysis.

6.1.2 Responsibilities of Team Members

The Environmental Field Operations Manager is responsible for the coordination and effective use of all personnel for field activities. In addition, the Environmental Field Operation Manager is responsible for field quality control including issuance and tracking of measurement and test equipment.

Field sampling personnel are responsible for the collection of the samples in accordance with the approved PSP. All activities associated with the execution of sampling are to be documented on the appropriate Field Activity Daily Logs which are to be completed by the sampling technicians for each location. The field sampling personnel are also responsible for sample labeling, handling, storage, and the completion of Chain of Custody/Request for Analysis Form, which must be completed before the

samples are submitted to the laboratory. These technicians are also responsible for ensuring proper sampling equipment such as sampling containers, coolers, and preservatives, are available and in serviceable condition and for delivering the samples to the FEMP laboratories.

7.0 Final Report and Schedule

Surface water sampling of the forested wetland is anticipated to begin in July to assure encounterment of five storm events during the summer and fall months and adequate representation of the wetland hydrologic regime. A qualitative analysis to determine potential wetland mitigation in other on-property areas is also anticipated to begin in July. Data will be evaluated and included in a final report anticipated for submittal to U.S. EPA, Ohio Environmental Protection Agency, U.S. Fish and Wildlife Service, and Ohio Department of Natural Resources in late September, 1995. The final report submittal will be contingent upon adequate data collection from five storm events.

This final report will determine the potential for wetland mitigation in upland areas adjacent to the forested wetland and associated methodologies available to expand and improve the quality of the forested wetland. In addition, this report will analyze potential impacts to the forested wetland hydrologic regime from remedial activities and qualitatively evaluate the potential of wetland mitigation in other on-property areas. The results of this study as presented in the Final Report will support the development of a detailed wetland mitigation plan that will be part of the Operable Unit 5 Remedial Design Work Plan which is scheduled for submittal to the EPA on January 2, 1996.

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APPENDIX A

PROJECT SPECIFIC HEALTH AND SAFETY REQUIREMENTS MATRIX



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FERNALD ENVIRONMENTAL
RESTORATION MANAGEMENT CORPORATION

PROJECT SPECIFIC HEALTH & SAFETY
REQUIREMENTS MATRIX
FOR THE FORESTED WETLAND SURFACE
WATER QUALITY STUDY

JUNE 1995

REV 0

EMERGENCY PHONE NUMBER 648-6511
RADIO: "CONTROL"

APPROVALS:

William E. Woods 6/14/95
William E. Woods, Manager Natural Resource Management Date

Daryl Mills 6/13/95
Daryl Mills, Construction Safety & Health Manager Date

Laurie M. Hagen 06/13/95
Laurie Hagen, FERMCO Health & Safety Officer Date

The following is the list of personnel with the controlled copies of this PSHSRM:

- Manager, Natural Resource Management
 - Manager, Construction Safety and Health Support
 - Medical Services
 - Supervisor, IH Technician
 - Manager, IH
 - Radiological Permitting
 - Radiological Engineering
 - Field Copy
- William Woods
Laurie Hagen
Dr. Doran Christensen
Jack Patrick
David Jackson
Judy Hitt
Dan Stempilev
Craig Straub
-

HEALTH AND SAFETY REQUIREMENTS MATRIX

PROJECT: THE FORESTED WETLAND SURFACE WATER QUALITY STUDY

This matrix is for the water sampling activities only. Installation of the flumes is not covered. The requirements listed in Section 1.0 of this matrix apply to all activities addressed on this matrix.

ACTIVITY (TASKS)	HAZARD IDENTIFICATION	FREQUENCY & TYPE OF AIR AND PERSONNEL MONITORING REQUIRED	PERSONAL PROTECTIVE EQUIPMENT	TRAINING REQUIREMENTS	MEDICAL MONITORING & SURVEILLANCE REQUIREMENTS	ADMINISTRATIVE & ENGINEERING CONTROL MEASURES	PERMITS	DECONTAMINATION & DISPOSAL PROCEDURES
1 General project minimum requirements	Work on CERCLA/RCA site		<ul style="list-style-type: none"> Safety glasses with liquid side shields (ANSI Z87.1) Steeplehead leather safety shoes (ASTM 2411) 	<ul style="list-style-type: none"> Site GET Site Worker Training Risk Worker 1 8 Hr supervised field experience Orientation on project specific M&DS Orientation on Matrix 	<ul style="list-style-type: none"> Medical surveillance exam: baseline, annual and termination Report all injuries to Medical Department Biosafety, annual and end urine sample 	<ul style="list-style-type: none"> Personnel to attend a pre work kick-off safety meeting Daily specific task review of matrix 		
	Access to radiological controlled areas (Soil Contamination and Underground Radon from Material Areas) Sample locations 4 and 5 Analytical Lab Building	<ul style="list-style-type: none"> Thermoluminescent Dosimeter (TLD) 	<ul style="list-style-type: none"> Tape pant legs to boots when entering tall grass Tape pant legs to boots when entering tall grass User insect repellent 	<ul style="list-style-type: none"> Safety meeting on identification of poison ivy and oak Safety meeting on biological hazards in area (ticks, bees) 		<ul style="list-style-type: none"> Wash hands and face at beginning of breaks and end of shift Mow or cut tall grass prior to work 		
	Biological Hazards							

The requirements of this document are based upon current conditions and/or operators in areas near the planned work zone. This document is to be used to assist personnel in understanding the requirements of the project. This document does not relieve management of planning for or providing a safe work site. This document does not relieve personnel from recognizing and complying with other appropriate state, federal, and FEMF regulations.

HEALTH AND SAFETY REQUIREMENTS MATRIX
PROJECT: THE FORESTED WETLAND SURFACE WATER QUALITY STUDY
 This matrix is for the water sampling activities only. Installation of the flumes is not covered.
 The requirements listed in Section 1.0 of this matrix apply to all activities addressed on this matrix.

ACTIVITY (TASKS)	HAZARD IDENTIFICATION	FREQUENCY & TYPE OF AIR AND PERSONNEL MONITORING REQUIRED	PERSONAL PROTECTIVE EQUIPMENT	TRAINING REQUIREMENTS	MEDICAL MONITORING & SURVEILLANCE REQUIREMENTS	ADMINISTRATIVE & ENGINEERING CONTROL MEASURES	PERMITS	DECONTAMINATION & DISPOSAL PROCEDURES
1 General project minimum requirements (continued)	Working in a remote location Handling sulfonic acid Working at night		<ul style="list-style-type: none"> Hardhat, nitrile glove or PVC gloves 	<ul style="list-style-type: none"> Orientation on MSDS for sulfuric acid 		<ul style="list-style-type: none"> Field personnel must have access to method of communication (mobile phone, radio) Inform FERIACO security when on site before or after normal business hours (weekdays 8:00 a.m. to 5:00 p.m.) Access to and work locations are to be lighted to make work safe 		

The requirements of this document are based upon current conditions and/or operations in areas near the planned work zone. This document is to be used to assist personnel in understanding the requirements of the project. This document does not relieve personnel from recognizing and complying with other appropriate state, federal, and EHP regulations.

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**ATTACHMENT
ACKNOWLEDGEMENT FORM**

