US Army Corps of Engineers ®

Scope of Work

For Remedial Investigations/Feasibility Studies
Former Lake Ontario Ordnance Works Site, Niagara County, New York

Authorized under the
Defense Environmental Restoration Program
Formerly Used Defense Sites (DERP FUDS)

19 June 2008

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ATTACHEMENTS

LIST OF ACRONYMS

ACM	Asbestos Containing Material
AEC	Atomic Energy Commission
AFP	Air Force Plant
ARAR	Applicable or Relevant and Appropriate Requirement
AWQC	Ambient Water Quality Criteria
bgs	Below Ground Surface
CADD	Computer Aided Drafting and Design
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COPC	Constituent of Potential Concern
CWM	CWM Chemical Services, Inc.
dbh	Diameter at Breast Height
DERP-FUDS	Defense Environmental Restoration Program – Formerly Used Defense Sites
DGPS	Differential Global Positioning System
DOD	Department of Defense
DOE	Department of Energy
DQO	Data Quality Objective
DrChecks	Design and Review Checking System
EE/CA	Engineering Evaluation/Cost Analysis
EM	Electromagnetic
EM	Engineering Manual
EPA	U.S. Environmental Protection Agency
ETL	Engineering Technical Letter
ft	Foot/Feet
FS	Feasibility Study
FSP	Field Sampling Plan
FUSRAP	Formerly Utilized Sites Remedial Action Program
GIS	Geographical Information System
GPR	Ground Penetrating Radar
GPS	Global Positioning System
GSA	General Services Administration
HASP	Health and Safety Plan

HHRA	Human Health and Risk Assessment
HTRW	Hazardous, Toxic, and Radiological Waste
IDW	Investigative Derived Waste
in.	inch(es)
IPPP	Interim Production Pilot Plant
ITR	Independent Technical Review
LOOW	Lake Ontario Ordnance Works
LRB	USACE – Buffalo District
MAP	Management Action Plan
mg	Milligrams
mL	Milliliters
MQO	Measurement Quality Objectives
NAB	USACE – Baltimore District
NAD	North American Datum
NCP	National Contingency Plan
NEPA	National Environmental Policy Act
NFSS	Niagara Falls Storage Site
NPDWRs	National Primary Drinking Water Regulations
NPL	National Priorities List
NYCRR	New York State Code of Rules and Regulations
NYSDEC	New York State Department of Environmental Conservation
NYSDOL	New York State Department of Labor
OE	Ordnance and Explosives
OSHA	Occupational Safety and Health Administration
OU	Operable Unit
PRG	Preliminary Remediation Goal
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
QCP	Quality Control Plan
RA	Remedial Action
RAB	Restoration Advisory Board
RBC	Risk-Based Concentration
RCRA	Resource Conservation and Recovery Act

RD	Remedial Design
RI	Remedial Investigation
ROE	Right of Entry
SAP	Sampling and Analysis Plan
SARA	Superfund Amendments and Reauthorization Act
SLERA	Screening-Level Ecological Risk Assessment
SOP	Standard Operating Procedures
SOW	Scope of Work
SSL	Soil Screening Levels
TAGM	Technical and Administrative Guidance Memorandum
TAL	Target Analyte List
TBC	To Be Considered
TCL	Target Compound List
TCLP	Toxicity Characteristic Leachate Procedure
TNT	2,4,6-Trinitrotoluene
TOC	Total Organic Carbon
TOGS	Technical and Operational Guidance Series
TPP	Technical Project Planning
TSC	Temporary Storage Container
TSCA	Toxic Substance Control Act
µg	micrograms
USACE	United States Army Corps of Engineers
USAF	United States Air Force
USCG	United States Coast Guard
UST	Underground Storage Tank
WWTP	Wastewater Treatment Plant

1.0 General

1.1 Introduction

This document outlines the scope of work (SOW) for a Remedial Investigation (RI) and Feasibility Studies (FS) associated with former Department of Defense (DOD) facilities on the former Lake Ontario Ordnance Works (LOOW) site, located in the Towns of Lewiston and Porter in Niagara County, New York. The LOOW is a Formerly Used Defense Site (FUDS) being investigated under the Defense Environmental Restoration Program (DERP). The Remedial Investigation work involves evaluating the nature and extent of contamination and assessing the associated risk to human health and the environment at the Town of Lewiston Property which contains the former LOOW Waste Water Treatment Plant (WWTP). The investigation outlined in this SOW is specific to the WWTP and represents Phase IV of an ongoing RI. Additionally, Feasibility Studies will be conducted to determine appropriate actions for mitigating and/or removing human health and/or ecological risks identified within the Waste Management LLC, Occidental Chemical Corporation, and Town of Lewiston (former WWTP) properties.

This SOW was written following the guidance from U.S. Army Corps of Engineers (USACE) Engineering Technical Letter (ETL) 1110-1-154 (dated 28 February 1994) for Engineering and Design, Standard Outlines for Scopes-of-Work for Investigations and Studies at Hazardous, Toxic, and Radiologic Waste (HTRW) Sites under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Superfund Amendments and Reauthorization Act (SARA), Resource Conservation and Recovery Act (RCRA), and the National Environmental Policy Act (NEPA). The format follows that described in ETL-1110-1-154 for preparing SOWs for Remedial Investigations and Feasibility Studies.

The Architect-Engineer A-E, hereinafter referred to as the A-E, shall provide all labor, material, equipment, tools, supplies, office space, sanitary facilities, and laboratory facilities necessary to perform the professional services to complete the investigation specified under this SOW and described herein. The A-E shall furnish the required personnel, equipment, instruments, and transportation, as necessary to commence, sustain, and accomplish the required services and furnish to the Government reports and other data together with supporting material developed. During the execution of the work, the A-E shall provide adequate professional supervision and quality control to assure the accuracy, quality, completeness, and progress of the work.

1.2 Site Background

In 1942, the War Department obtained a 7,500-acre area in northwestern Niagara County, NY, for the construction of a trinitrotoluene (TNT) production facility designated LOOW. TNT production, production support, and storage areas were constructed on 2,500 acres in the eastern portion of LOOW. The remaining 5,000 acres surrounding the production area were left undeveloped, acted as a buffer zone, and allowed for possible expansion of the plant from 6 to 12 production lines. The plant expansion never

occurred, and this acreage in the western portion of LOOW remained undeveloped. In 1943, after approximately 9 months of operation, LOOW was decommissioned due to excess production at other TNT plants. The 2,500–acre production area of LOOW was used by various DOD agencies, including the Air Force and Navy, which subsequently built manufacturing plants (Air Force Plant 68 [AFP-68] and the Navy Interim Production Pilot Plant [IPPP], respectively) for high efficiency borane fuels, and the Army for construction of a NIKE Base.

In the mid 1940s, approximately 1,500 acres in the southern portion of the former LOOW were transferred to the USACE, Manhattan Engineer District. The Manhattan Engineer District subsequently became the U.S. Atomic Energy Commission (AEC), then the Energy Research and Development Administration (ERDA), and finally the U.S. Department of Energy. Portions of the 1,500 acres were used for storage of radioactive materials during the development of the atomic bomb. However, from the 1950s to 1980s, radioactive materials that were formerly located throughout the 1,500-acre property were consolidated into the current 191-acre Niagara Falls Storage Site (NFSS) area. The NFSS is currently being addressed under the Formerly Utilized Sites Remedial Action Program (FUSRAP). Portions of the 1,500-acre area overlap with the areas previously described (e.g., AFP-68, NIKE Base).

2.0 Introduction

2.1 Location of Work

A representation of the LOOW site and property boundaries of current owners is presented in **Error! Reference source not found.**. This SOW describes a Phase IV RI and potentially an FS that will address the Town of Lewiston Property (former WWTP) property, also shown on Figure 2. An FS will also be performed for each of the Occidental and CWM properties. The A-E shall perform the work necessary to complete this SOW at its corporate location(s), on and around the project site(s) (as necessary), as well as at other locations as approved by the USACE.

2.2 Previous Studies

Several previous investigations and removal actions have been performed at the LOOW site. The Government will furnish prior USACE and available non-USACE reports and data to the A-E for use in executing this SOW. The A-E shall include the information from these reports in the development of the products described in this SOW.

2.3 Regulatory Authority

The work described in this SOW is being performed voluntarily under the authority of the USACE, as intended within the DERP-FUDS program. The NY State Department of Environmental Conservation (NYSDEC) provides regulatory oversight. The NY State Department of Health may provide additional oversight, particularly in reference to potential human health risk. The work outlined in this SOW shall follow CERCLA guidance and applicable Federal, State, and USACE regulations and guidance.

Applicable federal regulations and USACE guidance may include, but may not be limited to, the following:

- PL 96-510 CERCLA
- PL 94-580 RCRA
- PL 99-499 SARA
- PL 94-469 TSCA
- EM 385-1-1 USACE, Safety and Health Requirements Manual
- ER 385-1-40 USACE, Occupational Health Program
- ER 385-1-92 USACE, Safety and Occupational Health Requirements for Hazardous, Toxic and Radioactive Waste (HTRW) Activities
- ER 1180-1-6 USACE, Construction Quality Management
- ER 1110-1-12 USACE, Quality Management
- 29 CFR 1910 OSHA Occupational Safety and Health Standards
- 29 CFR 1926 OSHA Safety and Health Regulations for Construction
- 40 CFR Parts applicable to identification, listing, transport, disposition of hazardous waste
- UFGS-01 35 29 Jan 2008 Safety and Occupational Health Requirements

- UFGS-01 35 29.13 Jan 2008 Health, Safety, and Emergency Response Procedures for Contaminated Sites.

Applicable state regulations and guidance may include, but may not be limited to, the following:

- 6 NYCRR Parts 360, 364, 370-376, 700-705
- NYSDOL Industrial Code Rule 56 Asbestos
- NYSDEC Division of Fish, Wildlife, and Marine Resources – Technical Guidance for Screening Contaminated Sediments (1/25/99)
- NYSDEC Division of Water TOGS 1.1.1 – Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations (June 1998)
- NYSDEC TAGM 4030 – Selection of Remedial Actions at Inactive Hazardous Waste Sites (5/15/90)

3.0 Site Strategy and Project Objectives

3.1 Site Strategy

The intent of the LOOW Phase IV RI shall be to collect data for evaluating risks to human health and the environment associated with possible contaminants within the Town of Lewiston Property (former WWTP). The LOOW Feasibility Studies will utilize data collected during all phases of the RI to evaluate feasible alternatives for reducing risk and/or contaminant concentrations in a remedial action, with the eventual goal of closure of the former WWTP, CWM, and Occidental parcel groups. The ultimate final goal is closure of the entire LOOW site.

3.2 Project Objectives

The principal study questions to be resolved by the Phase IV RI are the following:

- What are the nature and extent of the contaminants within the WWTP?
- Have the contaminants leaked from the plant processes or pipelines?
- Are the contaminants from DOD sources?
- Are there risks to human health and/or the environment from the contaminants within the WWTP?

The principal study questions to be resolved by each FS are the following:

- What are the remedial action objectives?
- What are the general response actions?
- What are the most appropriate remedial technologies?
- How do the remedial alternatives based on these technologies compare to each of the 9 CERCLA criteria?
- Are the remedial alternatives cost effective?

4.0 Work Order Tasks

4.1 Task 1 – Engineering & Design Quality Control Plan and Independent Technical Review

The A-E shall be required to complete the following tasks under this scope of work:

4.1.1 Subtask 1.1 – Engineering & Design Quality Control Plan:

The A-E shall prepare and execute an Engineering & Design Quality Control Plan (E&D QCP) to cover the development of all products described in this SOW for submittal to USACE. An E&D QCP is the A-E's management plan for execution of all aspects of the contract. It describes the way the A-E will produce the deliverables and the steps that will be taken to control product quality, i.e., the design, engineering drawings, and the Independent Technical Review (ITR) required under the contract for this project. The A-E shall prepare and submit a draft and final E&D QCP in accordance with **Section 7.0, Submittal Requirements and Schedule**. The draft E&D QCP will be reviewed by the USACE. The A-E shall respond, using USACE-directed means, to all comments resulting from review of the draft work plan by the USACE. The following items are key components of an E&D QCP, but should not be interpreted as excluding others:

4.1.1.1 Management Philosophy. Discuss the organization's technical management philosophy relative to its commitment to quality. If the firm has undergone a peer review of its organization, practices and procedures, a statement should be made describing it. Give the date, the name of the person(s) who conducted the peer review, and a brief description of resulting changes.

4.1.1.2 Management Approach. Define the specific management methodology to be followed during the performance of the work, including such aspects as documentation management and control, communications, design coordination procedures, checking, and managerial continuity and flexibility. References to approved specific company policy and procedures are appropriate.

4.1.1.3 Management Structure. Delineate the organizational composition of the A-E firm to clearly show the interrelationship of management and the design team components, including all consultants. Include an organization chart to identify by name the key project delivery team, quality control team, and Independent Technical Review (ITR) team members. Show their specific responsibilities related to the project and some indication as to the extent of their knowledge (whether they are senior or junior members, professional standing, etc.). The A-E shall include the qualifications (i.e., resume) and experience of all the team members. Quality Control should be a continual process during product development with internal quality control meetings occurring on a regular basis.

4.1.1.4 Project Risks. List and describe the risks inherent to the project. Risk factors will determine the appropriate level of effort required for the E&D QCP.

4.1.1.5 Design Tools. Describe the design tools that will be used in execution of the contract, such as CADD, MCACES, SPECSINTACT, MATHCAD, DrChecks, computer application programs, Corps-approved design programs, etc. All calculations shall be generated electronically.

4.1.1.6 Schedule. Clearly show the design review meetings by the quality control team and product delivery team and correction periods scheduled prior to submittals. The schedules shall also include adequate review periods for the USACE quality assurance team as required by the scope of work. The A-E shall provide and maintain/update a critical path schedule showing the sequence of events involved in carrying out specific tasks within the specified period of service. Identify design activities/tasks, their expected duration and planned and actual accomplishment, along with any milestones to be met in order to successfully complete the design.

4.1.1.7 Cost Control. Describe how project costs will be monitored and controlled.

4.1.1.8 Communications. Discuss the methods by which clear and accurate communications are to be achieved within the organization, and outside the organization. For instance, indicate the frequency and type of meetings, both in-house and with USACE. Also describe how conflicts relating to both internal and external comments will be resolved. Indicate the names of all parties authorized to request modifications to the work, and specifically how these modifications will be coordinated and documented.

4.1.2 Subtask 1.2 – Independent Technical Review:

4.1.2.1 The A-E shall perform an Independent Technical Review (ITR) of all key deliverables (as detailed in **Section 7.2, Submittal Requirements Summary**) before they are submitted to the USACE for review. The ITR will focus primarily on conformance to the approved design and appropriate technical criteria for function, reliability, and safety. Although the ITR is not for value assessment or value engineering, such comments may be a natural outcome of the review. Such comments will be considered suggestions and will not require formal response.

4.1.2.2 The A-E's goal shall be to submit complete and technically sound, implementable documents sufficient for acceptance upon initial review by the USACE. To accomplish this, the A-E is encouraged to contact the USACE Project Manager or Project Engineer, during development of each submittal, to discuss issues such as methodology, regulation interpretation, etc. with relevant technical staff.

4.1.2.3 Performance of the ITR shall not be accomplished by the same personnel that produced the product. Personnel performing the ITR must have no prior involvement in producing the

product. This is to ensure that a truly independent technical review is accomplished. If the A-E elects to have the review done by another agency or firm, it shall identify that agency in the E&D QCP. Upon completion of the ITR, the A-E shall submit to USACE a Completion / Certification of Independent Technical Review signed by the reviewer(s), along with responses to comments received.

4.1.2.4 It is understood that performance of the ITR on the work products required by this scope of work may result in the generation of comments and/or concerns that would normally be addressed during subsequent finalization of the subject work product. These comments and/or concerns should nevertheless be noted on the Completion / Certification of Independent Technical Review for the ITR completed on the work products.

Please note that labor hours associated with the independent technical review of documents should be estimated within the task associated with the document and not within this task.

4.1.3 Subtask 1.3 – Senior Technical Review:

4.1.2.1 The A-E's primary subcontractor shall perform a Senior Technical Review of all key work tasks and deliverables to ensure adherence with prior LOOW studies and documentation for quality control purposes.

Please note that labor hours associated with the senior technical review should be estimated within the task associated with the work task or document and not within this task.

4.2 Task 2 – Available Data Review, Site Visit, Project Meetings, TPPs, and Public Meeting Support

4.2.1 Subtask 2.1 – Available Data Review

The A-E shall review information from previous USACE projects which have included site surveys, site sampling, remedial investigations, and removal actions. The A-E shall become familiar with this information prior to the preparation of the project planning documents.

4.2.2 Subtask 2.2 – Site Visit

The A-E and their primary subcontractor shall conduct a site visit to become familiar with the properties and aboveground features. USACE representatives will accompany A-E personnel during the site visit to provide access to restricted areas, and to assist in the identification of known or suspected underground utilities. The A-E shall notify the USACE Project Manager no later than 48 hours prior to conducting the site visit and refer to Section 5.0, Period of Performance, for the

proposed schedule date of this visit. The existing Heath and Safety Plan and Addendum (EA 1999, 2005) shall be utilized for this site visit.

4.2.3 Subtask 2.3 – Project Meetings

4.2.3.1 Kick-Off Meeting. The A-E, the A-E's primary subcontractor, and the USACE project team shall schedule a teleconference within 10 calendar days following the notice to proceed to kickoff the project.

4.2.3.2 Project Coordination Meetings. The A-E and their primary subcontractor shall attend, via teleconference, biweekly project coordination meetings with the USACE Project Manager and project team. For planning and cost estimating purposes the A-E may assume each meeting will be one hour in duration and will be held throughout the duration of the project. The A-E shall brief the USACE staff on progress and issues affecting execution of this SOW.

4.2.3.3 Project Issue Meetings: The A-E and their primary subcontractor shall attend, via teleconference, up to five (5) meetings to resolve specific potential issues related to execution of this SOW. For planning and cost estimating purposes the A-E may assume each meeting will be two hours in duration.

4.2.3.4 Meeting Minutes: The A-E shall prepare meeting minutes for all meetings required in this SOW. Draft meeting minutes shall be provided to the USACE Project Manager no later than one (1) week following the meeting. Any comments provided by the USACE Project Manager shall be incorporated into a final version of the notes. The final notes shall be delivered to the USACE Project Manager for distribution to the meeting attendees. The meeting notes shall be distributed electronically, in MS Word format, via e-mail attachment. Distribution of hard copy meeting notes is not required.

4.2.4 Subtask 2.4 – Technical Project Planning Sessions (TPPs)

4.2.4.1 Internal USACE Technical Project Planning Sessions (TPP): The A-E and their primary subcontractor shall prepare and execute an internal technical project planning (TPP) session with representatives from the USACE to include Buffalo and Baltimore District PDT members and key staff from the Environmental and Munitions Center of Expertise (E&M CX). The final phase of RI definition (Phase IV) and the FS Tasks will be discussed, as well as general issues and strategies pertaining to Lake Ontario Ordnance Works (LOOW) site and preparatory tasks related to the Public TPP (Sec. 4.2.4.2). The purpose of the internal TPP is to develop a comprehensive and systematic approach for investigating the Town of Lewiston Property (former WWTP property). Although the sampling plan will be developed and revised during the TPP sessions, the sampling plan described in Section 4.4.3 will be utilized by the A-E for cost estimating purposes.

Additionally, the Feasibility Studies will be discussed for the Occidental, CMW, and the Town of Lewiston (former WWTP) properties. Discussions will focus on defining current project objectives, determining data needs, and developing data collection options. A discussion of current project objectives will include an overview of constraints and dependencies, customer goals, and presumed regulator and stakeholder perspectives.

Utilizing GIS, historical chemical and radiological data will be used to determine and document necessary Data Quality Objectives (DQOs). Additionally a sampling and analysis plan will be discussed and data collection options will be developed and documented. The A-E shall adhere to the Guidance for the Data Quality Objectives Process (EPA/600/R-96/055) and Technical Project Planning Process (EM 200-1-2) when planning and executing the TPP sessions.

The USACE will provide the Buffalo District facilities for use by the A-E (to include overhead computer projection system and screen and conference room(s)). The USACE will coordinate scheduling and travel of USACE TPP participants. The A-E shall be responsible for all other TPP planning, preparations, logistics, and deliverables. The A-E shall provide a facilitator / leader to conduct the TPP session to achieve the objectives of this SOW. The A-E shall provide the appropriate technical staff from their project team who has past experience and expertise from prior USACE investigations or activities at the LOOW. A-E deliverables shall include the TPP Agenda, TPP Minutes, TPP Presentations and Graphics, project specific Data Quality Objectives (DQOs), and other documents agreed to between the USACE and the A-E for conducting the TPP. For planning and cost estimating purposes the A-E may assume a three (3) day event with each day having an eight (8)-hour agenda, the meeting will be conducted in the Buffalo District office as a face-to-face TPP with all appropriate USACE team members (LRB, NAB, E&M CX, etc).

4.2.4.3 Internal TPP Summary Report: The A-E shall prepare and submit draft and final versions of a report that summarizes the internal TPP sessions, related deliverables, and USACE decisions in accordance with **Section 7.0, Submittal Requirements and Schedule**. The draft report will be reviewed by the USACE and other reviewers. The A-E shall respond, using USACE-directed means, to all comments resulting from review of the draft documents by the USACE and other reviewers.

4.2.4.2 Public Technical Project Planning Session (TPP): The A-E and their primary subcontractor shall prepare and execute a public technical project planning (TPP) session. USACE EM 200-1-2 should be utilized for guidance in executing this TPP session. The purpose of the TPP is to present to the public historical and technical issues, USACE DQOs, and proposed USACE field work. The USACE will coordinate scheduling and travel of USACE TPP participants. The A-E shall be responsible for all other TPP planning, preparations, logistics, and deliverables. The USACE E&M CX will provide a facilitator / leader to conduct the TPP session to achieve the objectives of this SOW. The A-E shall provide the appropriate technical staff from their project team who has past experience and expertise regarding prior USACE investigations or activities at the LOOW. A-E deliverables shall include the TPP Agenda, TPP Minutes, TPP

Presentations and Graphics, Public Comments and Responses, and other documents agreed to between the USACE and the A-E for conducting the TPP.

For planning and cost estimating purposes the A-E may assume a dry run TPP meeting that will be conducted in the Buffalo District office with a eight (8) hour agenda. The public TPP will consist of a one (1) day event with a four (4)-hour agenda with USACE team members, stakeholders, and interested public. The A-E shall be responsible for logistical arrangements including meeting location site and presentation equipment (screens, public address system, microphones, etc.) Assume the A-E will record video and audio of one (1) four (4)-hour public meeting and provide 50 DVDs of the recorded session. The A-E will prepare and mail 150 color project fact sheets to all stakeholders. The A-E shall provide general support to the USACE after the public TPP meeting, which may include responses to public comments.

4.2.4.3 Public TPP Summary Report: The A-E shall prepare and submit draft and final versions of a report that summarizes the Public TPP session, related deliverables, and USACE decisions in accordance with **Section 7.0, Submittal Requirements and Schedule**. The draft report will be reviewed by the USACE and other reviewers. The A-E shall respond, using USACE-directed means, to all comments resulting from review of the draft documents by the USACE and other reviewers.

4.2.5 Subtask 2.5 – Public Meeting Support

The A-E may be asked to attend periodic meetings to present the project plans and/or present RI and FS results to stakeholders and the general public. When necessary, the public meetings shall be attended by the A-E project manager and technical task manager and the A-E's primary subcontractor project manager. Support may include preparation of PowerPoint Presentation, production of static displays, figures/plans, and/or handouts. For cost estimating purposes, assume the A-E will attend, present, and record video and audio for two (2) three (3)-hour public meeting and provide 50 DVDs of the recorded session. Each meeting will be preceded by a one (1) day dry run meeting located at the Buffalo District Office. The A-E will prepare and mail 150 color project fact sheets and invitations to all stakeholders. The A-E shall provide general support to the USACE after each of two public meetings, which may include responses to public comments.

4.3 Task 3 – Preparation of Project Planning Documents (Town of Lewiston Property – Former LOOW WWTP)

The A-E shall prepare and submit draft and final versions of the following project planning documents: Sampling and Analysis Plan Addendum, Health and Safety Plan Addendum, Ordnance and Explosives Support Services Addendum, Asbestos Containing Material Removal Plan Addendum, and Radiation Safety Plan Addendum. The draft documents will be reviewed by the USACE and other reviewers. The

A-E shall respond, using USACE-directed means, to all comments resulting from review of the draft documents by the USACE and other reviewers.

The A-E shall prepare and submit the deliverables in the format and number of copies as specified in **Section 7.0, Submittal Requirements and Schedule**. The A-E shall respond, using USACE *DrChecks* software system or other USACE-directed means, to all comments resulting from review of these documents by the USACE. Following a review of draft deliverables the A-E shall incorporate comments generated and prepare and submit the final deliverables in the format and number of copies as specified.

4.3.1 Subtask 3.1 – Sampling and Analysis Plan (SAP) Addendum

The A-E shall prepare a SAP addendum, which will be divided into two separate documents: the Field Sampling Plan (FSP) Addendum and the Quality Assurance Project Plan (QAPP) Addendum. Combined, the SAP Addendum shall specify the instructions for executing sampling, analysis, and related tasks and shall be prepared in accordance with USACE Engineering Manual 200-1-3, Requirements for the Preparation of Sampling and Analysis Plans (February 2001). The SAP addendum updates the existing SAP (EA 2006).

4.3.1.1 Field Sampling Plan (FSP) Addendum.

4.3.1.1.1 The A-E shall develop a FSP addendum that shall describe the field activities, procedures, and methods to be used to perform sampling. The general methods and sampling strategies will be defined during the proposed TPP meetings described above. The sampling plan described in Section 4.4.3 will be utilized by the A-E for cost estimating purposes.

4.3.1.1.2 As per USACE EM200-1-3, the FSP addendum shall include a section describing project organization and responsibilities listing key personnel and subcontractors with contact information. The project scope and objectives shall be summarized in the FSP addendum.

4.3.1.1.3 As per USACE EM200-1-3, the FSP addendum shall describe the location, frequency, rationale, and strategy for all field activities including multi-media sampling, location and elevation surveys, and excavations. The field methodologies to be used, including types of equipment and calibration procedures, shall be described in detail. Any decision that is to be made in the field (i.e., choosing exact location of analytical sampling, etc.) must be clearly defined in the FSP addendum, including health based risk values and ecological bench marks, if appropriate.

4.3.1.1.4 The methods by which normal field activities and non-conformance actions will be documented shall be described in the FSP addendum, with examples of proposed field forms such as boring logs, chain of custody forms, test pit logs, sampling forms, waste profile forms, photograph logs, and quality control sample batch tracking sheets.

4.3.1.1.5 As per USACE EM200-1-3, the FSP addendum shall include sample packaging, shipping, and custody requirements. Laboratory names, addresses, and contact names and phone numbers shall be included in the FSP addendum. In addition, disposition of IDW shall be described in the FSP addendum.

4.3.1.1.6 The A-E shall prepare and submit draft and final versions of the FSP addendum. The draft document will be reviewed by the USACE and other reviewers. The A-E shall respond, using USACE-directed means, to all comments resulting from review of the draft documents by the USACE and other reviewers.

4.3.1.2 Quality Assurance Project Plan (QAPP) Addendum.

4.3.1.2.1 The A-E shall develop a QAPP Addendum that defines the project data quality objectives (DQOs), analytical methods, Standard Operating Procedures (SOPs), and Quality Assurance/Quality Control (QA/QC) protocols necessary to achieve the DQOs for laboratory and field screening chemical data. The A-E shall develop the QAPP addendum based upon the technical requirements and specifications discussed below.

4.3.1.2.2 The QAPP addendum shall comply with pertinent sections of the following guidance:

- USACE, "Requirements for the Preparation of Sampling and Analysis Plan", EM 200-1-3.
- USACE, *Technical Project Planning (TPP) Process*, EM 200-1-2
- EPA, *Guidance for Quality Assurance Project Plans*, QA/G-5.
- EPA, *Requirements for Quality Management Plans*, QA/R-2.
- EPA, *Requirements for Quality Assurance Project Plans for Environmental Data Operation*s, QA/R-5.
- EPA, *Guidance for the Data Quality Objectives Process*, QA/G-4.

4.3.1.2.3 The QAPP addendum shall name the project laboratory, and will include its analytical and quality control procedures, method detection limits, reporting limits, and project data comparison criteria. The contract laboratory shall have an NELAP accreditation for the appropriate fields of testing. In addition, the contract laboratory shall be in compliance with the most recent version of the DOD Quality Systems Manual (QSM). The laboratory shall provide a self declaration form and all backup documentation requested on the form for each analytical parameter stating it is in compliance with the DOD QSM. The laboratory may be subject to an audit by USACE's center of expertise (CX) to verify this compliance. Based on the above criteria and prior to work being performed the laboratory shall be approved for use by USACE.

A comparison of reporting limits to project data comparison criteria shall also be included in the QAPP addendum. These reporting limits shall be less than the data comparison criteria in order to meet project DQOs.

4.3.1.2.4 Measurement Quality Objectives (MQOs) for data quality indicators such as precision, accuracy, representativeness, comparability, completeness, and sensitivity for individual analytical methods shall be defined in the QAPP addendum. See the DOD QSM which provides objectives for these indicators, it should be noted that the DOD QSM supersedes Appendix I of EM200-1-3.

4.3.1.2.5 The QAPP Addendum shall detail all data collected and generated under this SOW to be submitted to USACE in the following electronic data deliverable formats:

- Searchable defensible/validatable data packages in Adobe PDF format. For content see DOD QSM , Appendix DOD-A Reporting Requirements
- Laboratory analytical results with supporting batch QC results shall be presented in one of the spreadsheet formats: .XLS or .CSV.
- Staged 2b electronic data deliverable (SEDD) for use in ADR software. The data dictionary to be approved by USACE.
- A table, in .XLS format, will accompany these deliverables showing all samples and analysis conducted. A status/comment column will be utilized for stating if the status is complete or incomplete. Incomplete or partial analyzed samples will have an explanation for their current status.
- A 100% data validation for completeness of analysis of sample results and associated batch QC findings will be completed for the above deliverables, per section 4.4.5, by an independent third party contracted by the A-E.

4.3.1.2.6 The QAPP addendum shall identify the frequency and analysis of QA/QC samples. The USACE will require QA split samples to be taken for 5% of the total number of primary samples for independent laboratory analysis. The following QC samples shall be collected at the following frequencies

- Field splits/duplicates sent to the same laboratory as that of the primary samples will occur at a frequency of 10%.
- Matrix spiked and matrix spiked duplicates will occur at a frequency of 5%.
- Trip blanks for VOC analyses will be required for coolers transporting aliquots for VOC analysis.
- One equipment rinsate blank per equipment type per decontamination batch (maximum of 20 normal samples). Note that dedicated tubing for groundwater sampling and acetate sleeves for Geoprobe soil sampling will not require rinsate blanks.

The USACE chemist will coordinate with the A-E to obtain the QA split samples. As per the USACE guidance cited above, the A-E shall include in the QAPP Addendum a table listing the proposed number of primary and associated QA/QC samples.

4.3.1.2.7 The USACE may elect to split samples for both QA purposes and for separate evaluation of radiological parameters in support of the ongoing NFSS RI. The contractor will be responsible for providing additional sample volume and homogenization of the sample. The USACE will supply sample jars and analysis for split samples.

4.3.1.2.8 The A-E shall prepare and submit draft and final versions of the Quality Assurance Project Plan Addendum. The draft document will be reviewed by the USACE and other reviewers. The A-E shall respond, using USACE-directed means, to all comments resulting from review of the draft documents by the USACE and other reviewers.

4.3.2 Subtask 3.2 – Health and Safety Plan (HASP) Addendum

4.3.2.1 The A-E shall develop an addendum to the existing HASP and Addendum (EA 1999, 2005) that shall provide specific health and safety protocols to be used during HTRW activities outlined in this SOW and shall be sufficient to protect on-site personnel, the environment, and potential off-site receptors. The HASP Addendum shall be in compliance with 29 CFR 1910.120(b) and 29 CFR 1926.65(b) and must be in-place prior to the A-E working on the site.

4.3.2.2 The HASP Addendum shall comply with pertinent sections from the following guidance:

- USACE, *Safety and Health Requirement Manual*, EM 385-1-1.
- USACE, *Safety and Occupational Health Requirements for HTRW Activities*, ER 385-1-92.
- OSHA, Occupational Safety and Health Standards, 29 CFR 1910, and Safety and Health Regulations for Construction , 29 CFR 1926 (especially 29 CFR 1910.120 and 29 CFR 1926.65 *Hazardous Waste Site Operations and Emergency Response*).
- NIOSH/OSHA/USCG/EPA, *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities*, October 1985.
- UFGS-01 35 29 Jan 2008 Safety and Occupational Health Requirements
- UFGS-01 35 29.13 Jan 2008 Health, Safety, and Emergency Response Procedures for Contaminated Sites.
- CWM Chemical Services, Inc. Model City, New York, *Safety Regulations for Outside Contractors)*.

4.3.2.3 The HASP Addendum shall be a supplementary document to the existing HASP and shall be used in concert with the HASP during the field activities that are specified in this SOW. The HASP Addendum shall include information that is not contained in the existing HASP and/or revisions to existing chapters in the document. Investigative activities requiring health and safety

oversight that are included in this SOW are the following: site clearing, sampling, and IDW management.

4.3.3 Subtask 3.3 – Ordnance and Explosives (OE) Support Services Addendum

The existing ordnance construction support plan, *OE Support Services, Lake Ontario Ordnance Works TNT Pipeline Removal Project, Lewiston, New York, Work Plan*, developed by ISSI Unexploded Ordnance, Inc., shall be addended by the A-E to outline construction support services to be provided during implementation of this SOW. This addendum shall include a review of the recent changes made to the OE program, and inclusion and updates as necessary. It is expected that OE construction support will be necessary during intrusive activities associated with all former LOOW TNT plant lines only. Sections shall be updated to reflect the A-E's OE construction support personnel or the OE construction support subcontractor that shall be utilized.

4.3.4 Subtask 3.4 – Asbestos Containing Material (ACM) Removal Plan Addendum

4.3.4.1 The A-E shall develop an addendum to the existing site ACM removal plan, *Work Plan for Asbestos Containing Material Removal at the Former Lake Ontario Ordnance Works LOOW Niagara County, New York*, developed by EA Engineering, Science, and Technology in May 2000. The ACM removal work plan shall be revised to reflect asbestos removal, incidental to the investigation, to be performed in the following area: WWTP (around the foundation of the acid waste neutralization building).

4.3.4.2 All necessary variances to NYCRR ICR 56 shall be obtained prior to initiating ACM removal.

4.3.5 Subtask 3.5 – Radiation Safety Plan Addendum

4.3.5.1 The A-E shall develop an addendum to the existing site radiation safety plan, *Radiation Safety Plan, TNT Site Walkover at Lake Ontario Ordnance Works Lewiston, New York*, developed by Sevenson Environmental Services, Inc. in April 2003.

4.3.5.2 The A-E shall review pertinent data from the investigations performed at the Niagara Falls Storage Site under the FUSRAP program for additional information regarding radiological contamination.

4.4 Task 4 –Sampling and Sample Analysis (Town of Lewiston Property – Former LOOW WWTP)

4.4.1 Subtask 4.1 – Site Infrastructure Setup and Demobilization

4.4.1.1 Site Infrastructure Setup

The A-E shall install site infrastructure to support the Phase IV RI activities. The A-E shall be responsible for coordinating with the property owner and securing all necessary utilities, including electric and telephone service. The A-E shall identify an area where the infrastructure will be placed based upon the following criteria:

- Minimize impact to site owner operations.
- Takes advantage of existing site fencing, if present, to provide security.
- Provides "out of sight" security as an added benefit.
- Centrally located adjacent to the area where it is anticipated that the majority of work will be performed.
- Located over an area where it is not anticipated that extensive subsurface investigation is necessary.
- Provides access for deliveries and parking.
- Provides adequate area for material storage.
- Located in close proximity to available utilities.

Equipment/areas to be placed within the confines of this area shall include, but not be limited to: site trailers, tool storage, sanitary facilities, hand wash station(s), decontamination area, and investigative derived waste (IDW) storage area.

4.4.1.2 Site Demobilization

Once solid and liquid IDW have been shipped off site for proper disposal at the selected facilities, the site work for this remedial investigation shall be considered complete. Therefore, the A-E shall submit a demobilization plan, within two (2) weeks of removal of waste for USACE review and approval that includes, as a minimum: a punch list of items on-site, survey and decontamination procedures, a list of all equipment purchased with project funds that may be retained on-site, a list of materials that will be removed from the site, description of the post-mobilization state of the site, and a list of services that must be disconnected and/or discontinued. Until such time that demobilization activities occur, the A-E shall assume all costs associated with maintaining on-site items, including but not limited to trailers, utilities, and periodic inspections as needed.

Concurrent with or after IDW disposal activities, the A-E shall ensure that all equipment and supplies are scanned and decontaminated as necessary to meet release criteria (NRC Reg Guide 1.86) prior to leaving the site. During demobilization activities, the A-E shall appropriately dispose of any IDW that did not meet release criteria and that USACE determines need not remain on-site. The A-E shall ensure that leased equipment is thoroughly decontaminated and returned to the supplier in good condition. Also, verification surveys on the decontaminated equipment and supplies shall be performed and supplied to the USACE. These surveys will require USACE approval prior to action. The USACE may perform confirmatory surveys.

Demobilization shall also include completing all contract submittals and performance of post-work activities associated with closing out the contract, including financial invoicing and payment certifications. Demobilization will be considered complete only after the USACE COR has verified that all field activities have been completed by the A-E to the satisfaction of USACE and all required documentation is provided to the USACE.

4.4.2 Subtask 4.2 – Site Clearing

4.4.2.1 The A-E shall perform a site clearing prior to conducting sampling to provide access in the areas specified in Section 4.4.2.4 of this task, or as otherwise directed by USACE. Clearing shall include trimming, cutting trees into sections, removing foliage and trees less than six inches dbh (diameter at breast height) to ground level, and chipping of uncontaminated cuttings including downed timber, brush, and rubbish in accordance with approved work plans. The A-E shall minimize soil disturbance as much as practical during site clearing activities.

4.4.2.2 Trees less than 6 inches dbh, brush, and other vegetation in areas to be cleared shall be cut off flush with ground level, except such trees and vegetation as may be indicated to be left standing as directed by the USACE.

4.4.2.3 All land surrounding the WWTP facilities including the western drainage ditch shall be cleared as needed to perform sampling activities. The USACE estimates there are 3 acres of vegetative cover to be cleared at the site to provide sampling access. Vegetative cover at the site ranges from rough turf to heavily wooded areas with a dense understory of shrubs, vines, and smaller trees.

4.4.2.4 The A-E shall recommend an appropriate disposal option for cleared material. Based on assessment of potentially impacted areas, the A-E may select areas for on-site disposal of cleared material, with the concurrence of USACE and the property owner.

4.4.2.5 Salable material from the clearing operation may be disposed of off-site, or chipped and disposed of on-site with the concurrence of USACE and the property owner. Reuse of salable material from the clearing operation must be approved by USACE.

4.4.2.6 For site worker safety, the A-E shall purchase and install covers for several open pits and manholes located throughout the subject property. These pits are generally located independent of the main structures (i.e., imhoff tank, etc). The covers should support normal foot traffic, be secure, vandal proof, and difficult to remove with out tools or heavy equipment. The A-E should assume that 20 4-foot by 8-foot covers will be purchased and installed to cover the various open pits and manholes.

4.4.2.7 Several of the proposed sampling locations will be placed in the vicinity of the semi-demolished acid neutralization building. Uncontained, friable asbestos containing materials (ACM) has been observed in this area. For cost estimation purposes, A-E shall assume a glove and bag ACM abatement will be required in order to safely gain access to the vicinity of the acid neutralization building. All visible suspect friable ACM found hanging within structures or on the ground shall be removed. The A-E shall not seek out friable ACM under existing debris piles. If debris is moved to provide access for sampling and ACM is discovered within such a debris pile, that ACM shall be removed and disposed of. It is unknown if transite panels or floor tiles with ACM mastic are onsite. If these suspects ACM are encountered and have the potential to be crushed by equipment or sampling personnel, they shall be removed and disposed of. The A-E is not responsible for any asbestos sampling or analysis. For cost estimating purposes the A-E shall assume that approximately 5 cubic yards of ACM will be handled and disposed of.

4.4.2.8 For site worker safety, the A-E shall perform a selective removal of hanging and loose steel, wood, and concrete from the WWTP structures. This debris, including wood, steel, and concrete shall be placed in a debris pile selected by the USACE COR and property owner. The A-E shall assume that 40 yards of debris will be removed and staged for disposal by others and not performed under this SOW. The A-E is not responsible for covering the debris pile.

4.4.2.9 The A-E shall dispose of all hazardous and non-hazardous materials in compliance with all applicable USDOT regulations. All vegetation suspected of radiological contamination shall be screened by health physics personnel as required and disposed of according to all applicable regulations. The A-E and/or subcontractors transporting hazardous materials shall possess all applicable and valid certificates of registration.

4.4.3 Subtask 4.3 – Sampling

The A-E shall comply with the following guidance while planning and performing sampling activities:

- USACE, EM 1110-1-1804, Appendix F - *Engineering and Design – Soil Sampling*;
- EPA, 625/R-93/003a, *Subsurface Characterization and Monitoring Techniques: A Desk Reference Guide, Volume 1: Solids and Groundwater*;
- EPA, 542/B-98/002, *Field Sampling and Analysis Technologies Matrix and Reference Guide*.

Sampling will be performed at the frequency specified in the SAP Addendum. Samples shall be analyzed according to the chemical requirements discussed in Section 4.4.4 and the data shall be validated as discussed in Section 4.4.5. Although the sampling plan will be developed and revised during the above mentioned TPP sessions, the following sampling plan will be utilized by the A-E for cost estimating purposes:

4.4.3.1 General Systematic Surface and Subsurface Sampling Approach

The A-E shall establish a systematic sampling grid throughout the area of former WWTP structures, with a grid node spacing of 100 feet (ft), for approximately 30 grid sampling locations. One surface and one subsurface soil sample shall be collected from each grid node using either direct push or hollow stem auger drill rigs. Samples shall be submitted for the full laboratory analytical suite including volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs) (including Polynuclear Aromatic Hydrocarbons (PAHs)), pesticides, Polychlorinated biphenyls (PCB), explosives, Target Analyte List (TAL) metals (plus boron and lithium) and radiological parameters as stated in Section 4.4.4. The A-E shall assume that the borings will be installed to a depth of 20 ft below ground surface (bgs) A large enough diameter sampler (i.e., direct push macro corer or hollow stem auger with 2-inch (in) diameter split spoons) shall be required to collect enough sample aliquot for full suite laboratory analysis.

4.4.3.2 Biased Sampling Locations

4.4.3.2.1 PCB Biased Samples. The A-E shall collect surface soil samples from biased locations beneath a subset of power poles to assess potential impact to soil from leaking transformers (suggest specifying who will determine the subset of poles). Samples shall be submitted for analysis of PCB. The A-E shall assume that 5 surface soil samples will be required to assess the surface soils for PCB.

4.4.3.2.2 Former TNT Waste Line Biased Samples. There is a potential that explosive residues were released from the TNT lines during previous removal actions. To evaluate, the A-E shall establish a sampling grid around the lines beginning at the former mixing house and traversing northeast to the property boundary. The area shall be approximately 20 ft wide and 700 ft long with a 10 ft grid node spacing for approximately 240 sampling locations. The surficial soil samples shall be collected from 0 to 6 inches bgs for on-site analysis of TNT to determine absence or presence of TNT. If TNT is present, samples shall be submitted for full suite analysis. For the purpose of cost estimation, the A-E shall assume 20 surface soil samples along the length of the former TNT waste lines shall be submitted for full suite analysis. Soil borings shall be placed at 10 of these locations and one subsurface soil sample shall be collected from each boring at the area of visible contamination or, if no obvious signs of impact are present, from the capillary fringe. The A-E shall assume that the borings shall be installed to a depth of 20 ft bgs. A large enough diameter sampler (i.e.,

direct push macro corer or hollow stem auger with 2-in. diameter split spoons) shall be required to collect enough sample aliquot for full suite laboratory analysis.

4.4.3.2.3 Evaluation of Phase I VOCs. During the Phase I investigation of the WWTP, elevated VOCs were reported at the location designated 4 (southeast of the southern sludge bed as shown on Figure 2). The A-E shall collect one surface and one subsurface soil sample from a soil boring installed at this location. The sample shall be submitted for the full analytical suite. For estimation purposes, the A-E shall assume a depth of 20 ft bgs.

4.4.3.2.4 Additional Biased Sampling Locations. The A-E shall plan for up to five additional biased sampling locations in areas exhibiting surface staining, stressed vegetation, or within or adjacent to WWTP structures. At least two of these five biased locations shall be placed in the north and south sludge beds (unless a systematic grid sampling location falls within the beds). Additional locations may be distributed outside of the grid sampling area. One surface and one subsurface soil sample shall be obtained from each location.

4.4.3.3 Groundwater Sampling

The A-E shall compare results from subsurface soil sampling from this and prior investigations to site specific screening levels to evaluate the possible impact to groundwater from reported constituents in soil. Soil Screening Levels (SSL) will be derived using the average Total Organic Carbon (TOC) concentrations in soil at LOOW as described in the Phase III RI report. If reported constituent concentrations in subsurface soil exceed the impact to groundwater criteria, a groundwater evaluation will be required. The A-E shall assume that three groundwater wells will be required during a separate mobilization. The wells shall be constructed of 2-in diameter PVC with 10-ft of 10-slot PVC screen as described in USACE Engineering Manual EM 200-1-3. The A-E shall assume a depth of 20 ft for the wells and that one round of groundwater sampling shall be required. The A-E shall utilize the EPA low flow sampling methodology for purging and sampling and submit the sample for full suite laboratory analysis including dissolved metals.

4.4.3.4 Sampling Matrix

The following table has been provided to summarize the assumed sampling program:

Sample Program	Full Analytical Suite		PCB Only		TNT Field Screen	
	Locations	Samples	Locations	Samples	Locations	Samples
General Systematic Sampling Approach	30	60				
Biased-PCB			5	5		
Biased-Former TNT Waste Lines	20	30			240	240
Biased – Phase I VOCs	1	2				
Additional Biased Sampling Locations	5	10				
Groundwater	3	3				

This table does not include the required QC or IDW samples.

4.4.4 Subtask 4.4 – Sample Analysis

4.4.4.1 The A-E shall use USEPA SW-846 analytical methods to analyze samples for Target Compound List (TCL) VOCs, SVOCs, explosives, pesticides, PCBs, and TAL metals plus boron and lithium.

Analysis for radiological parameters shall be included for the purpose of health and safety monitoring only. Radiological analytical results shall not be considered for determination of nature and extent of contamination and risk assessment under DERP-FUDS. The A-E shall field screen all samples using a gamma detector. Samples exceeding two (2) times the background level shall be submitted for laboratory radiological analyses using gamma spectroscopy. For cost estimating purposes, the A-E shall assume that 10% of the total number of samples will be submitted for laboratory radiological analyses. The A-E shall utilize data from the National Nuclear Data Center for calculation of activities and concentration resulting from radiological analyses.

The USACE may elect to split samples for separate evaluation of radiological parameters in support of the ongoing NFSS RI. The contractor will be responsible for providing additional

sample volume and homogenization of the sample. The USACE will supply sample jars and analysis for split samples.

4.4.4.2 Based upon field conditions, sample matrices may include soil and groundwater. Procedures for sample handling, preservation, containerization, shipping, holding times, and sample custody shall be provided in the QAPP Addendum.

4.4.4.3 The A-E shall identify QA/QC procedures to achieve the DQOs for laboratory and field screening data. These procedures include QA/QC control sampling and laboratory internal quality control. Technical requirements for these procedures shall be addressed in the QAPP addendum.

4.4.5 Subtask 4.5 – Data Validation

The A-E shall subcontract an independent third party to perform 100% data validation on all laboratory analyses. The Level IV validation shall be equivalent to the EPA's Contract Laboratory Program (CLP) National Functional Guidelines for data review. The subcontractor shall produce and submit a data validation report which describes the entire process and gives an explanation for any data qualifiers that were changed by the validation. Data shall be included in the database described in Task 9.

4.4.6 Subtask 4.6– Investigative Derived Waste Management, Characterization, and Disposal

4.4.6.1 This section discusses the management, characterization, and disposal of IDW. IDW may include, but is not limited to, the following: soil, liquid, and sludge generated during sampling activities, decontamination liquids, and waste PPE.

4.4.6.2 The A-E shall be responsible for minimizing IDW generated during the RI and shall comply with EPA 540/G-91/009, *Management of Investigation-Derived Wastes During Site Inspections*, and applicable Federal, New York State, and local regulations.

4.4.6.3 The A-E shall provide water-tight, DOT-approved and EPA-approved temporary storage containers (TSCs) for the storage of IDW generated during investigative activities. IDW shall be stored in TSCs at a centralized location pending sampling, analysis, and disposal. The A-E shall receive approval from property owners for the placement of TSC. TSCs shall be labeled as "Waste Material" with weather resistant paint, and shall also display the matrix, site number, sampling locations, sampling depths, date, and point of contact and telephone number.

4.4.6.4 Liquid wastes containing solvents and solvents utilized in the decontamination of on-site equipment and sampling equipment shall be handled and containerized separately from non-solvent containing liquids. The A-E shall provide sufficient storage tanks to allow for efficient separation of liquids requiring different treatment/disposal options.

4.4.6.5 The A-E shall be responsible for supplying all data necessary to support disposal, including any additional characterization analysis required by the permitted disposal facility for processing the waste. IDW solids shall be sampled and analyzed using the toxicity characteristic leaching procedure (TCLP) and radiological analyses including gamma spectroscopy and alpha spectroscopy (including Uranium, Thorium, and Plutonium). The A-E shall utilize data from the National Nuclear Data Center for calculation of activities and concentration resulting from radiological analyses.

4.4.6.6 The A-E shall select an appropriate disposal facility and submit a disposal application. The A-E shall arrange transportation of and assume the transportation costs for the disposal of solid and liquid IDW. The A-E shall be responsible for coordinating with the disposal facility and the USACE for the IDW disposal. An authorized designee of the USACE will sign applicable manifests. Discharges of liquid waste into surface streams or water bodies shall not be conducted unless specifically authorized by existing facility or site discharge permits.

4.5 Task 5 – Remedial Investigation Report (Town of Lewiston Property – Former LOOW WWTP)

4.5.1 Following completion of fieldwork and evaluation of analytical results, the A-E shall prepare a Phase IV RI Report, which will comply with pertinent sections of EPA, "Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA", October 1988. The report shall comprehensively present the data gathered during the activities outlined in this SOW. Data presented shall be sufficient to allow detailed evaluations of the assessments and proposed remedial actions during the feasibility study (FS) process. The RI Report shall include, but not be limited to, data analysis, contaminant mapping, and human health and ecological risk assessment.

4.5.2 The RI Report shall include a report from the OE construction oversight firm describing OE activities performed onsite, including disposition of any TNT found. This OE report may be included in the RI report as an appendix.

4.5.3 The A-E shall prepare and submit the Preliminary Draft RI report in the format and number of copies as specified in Section 7.2, Submittal Requirements Summary. The A-E shall respond, using DrChecks or other USACE-directed means, to all comments resulting from review of these documents by the USACE. Following a review of the Preliminary Draft RI Report by USACE, the A-E shall incorporate comments generated and prepare and submit the Draft RI Report in the format and number of copies as specified in Section 7.2, Submittal Requirements Summary.

4.5.4 Upon receipt of review comments (including regulators and other reviewers) on the Draft RI Report, the A-E shall respond, using DrChecks or other USACE-directed means, to all comments resulting from review of these documents by others. The comments will be submitted from the USACE. Upon resolution of review comments and responses, the A-E shall incorporate agreed-upon responses into the Final RI Report.

4.5.5 The A-E shall prepare and submit the Final RI Report in the format and number of copies as specified in Section 7.2, Submittal Requirements Summary.

4.6 Task 6 – Human Health and Ecological Risk Assessments

The A-E shall conduct baseline human health risk assessments and a Tier 1 screening level ecological risk assessments to identify the existing or potential risks posed by exposure to subsurface soil and groundwater at the sites. The determination of viable receptors will be performed during the risk assessment.

The risk assessments shall be conducted using applicable regulations and guidance provided by USEPA and USACE, including (but not necessarily limited to) the following:

- 40 CFR 300, National Oil and Hazardous Substance Pollution Contingency Plan; Final Rule, Federal Register, Vol. 55, No. 46, Thursday, March 8, 1990.
- Public Law No. 99-499, Superfund Amendments and Reauthorization Act (SARA) 42 USC 9601 et seq., enacted October 17, 1986.
- U.S. Army, February 1991, DA PAM 40-578, *Health Risk Assessment Guidance for the Installation Restoration Program and Formerly Used Defense Sites*.
- U.S. Army, February 1997, AR 200-1, *Environmental Protection and Enhancement*.
- USACE, 1995/1996, EM 200-1-4, *Risk Assessment Handbook, Volume 1 & II*.
- U.S. Army Edgewood Research, Development and Engineering Center, 1994, *Procedural Guidelines for Ecological Risk Assessments at U.S. Army Sites*, ERDEC-TR-221.
- USEPA, March 1989, *Risk Assessment Guidance for Superfund*, Volumes I & II, EPA 541/1-89/002.
- USEPA, July 2004, *Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final*, EPA/540/R/99/005
- USEPA Region 6 medium-specific screening levels (MMSL)

The A-E shall:

- Incorporate data from prior investigations (e.g., the Phase I, Phase II, and Phase III RIs) and previous risk assessments, where appropriate.
- Use the same receptors and exposure pathways for EU5, EU6, and EU8. This includes gardening and ingestion of deer meat.
- Use USEPA Region 6 screening values and the ProUCL 4.0 for calculation of the EPCs.
- Include assessment of risk for the surface soil and total soil in area around the WWTP and a second assessment of risk that will also include data from the underground lines

- Rescreen the data for the underground utilities within EU 7 with the Region 6 screening values.

- Assume additional meeting time within the risk assessment task specifically for the A-E risk assessor(s) to coordinate with the USACE risk assessor(s).

4.6.1 Subtask 6.1 –Risk Assessment Work Plan Addendum

The A-E shall prepare and submit draft and final versions of an addendum for the Risk Assessment Work Plan for LOOW (EA 2007) to include performing Human Health and Ecological Risk Assessments for the Town of Lewiston Property (Former LOOW WWTP). The draft documents will be reviewed by the USACE and other reviewers. The A-E shall respond, using USACE-directed means, to all comments resulting from review of the draft documents by the USACE and other reviewers.

The A-E shall prepare and submit the deliverables in the format and number of copies as specified in **Section 7.0, Submittal Requirements and Schedule**. The A-E shall respond, using USACE *DrChecks* software system or other USACE-directed means, to all comments resulting from review of these documents by the USACE. Following a review of draft deliverables the A-E shall incorporate comments generated and prepare and submit the final deliverables in the format and number of copies as specified.

4.6.2 Subtask 6.2 – Human Health and Risk Assessment Report (Town of Lewiston Property – Former LOOW WWTP)

The A-E shall prepare and submit the Preliminary Draft Human Health and Risk Assessment (HHRA) Report in the format and number of copies as specified in **Section 7.2, Submittal Requirements Summary**. The A-E shall respond, using *DrChecks* or other USACE-directed means, to all comments resulting from review of these documents by the USACE. Following a review of the Preliminary Draft HHRA Report by USACE, the A-E shall incorporate comments generated and prepare and submit the Draft HHRA Report in the format and number of copies as specified in Section 7.2, Submittal Requirements Summary.

Upon receipt of review comments (including regulators and other reviewers) on the Draft HHRA, the A-E shall respond, using DrChecks or other USACE-directed means, to all comments resulting from review of this document by others. The comments will be submitted from the USACE. Upon resolution of review comments and responses, the A-E shall incorporate agreed-upon responses into the Final HHRA Report.

The A-E shall prepare and submit the Final HHRA Report in the format and number of copies as specified in Section 7.2, Submittal Requirements Summary.

4.6.3 Subtask 6.3 – Screening-Level Ecological Risk Assessment Report (Town of Lewiston Property – Former LOOW WWTP)

The A-E shall prepare and submit the Preliminary Draft Screening-Level Ecological Risk Assessment (SLERA) Report in the format and number of copies as specified in **Section 7.2, Submittal Requirements Summary**. The A-E shall respond, using *DrChecks* or other USACE-directed means, to all comments resulting from review of these documents by the USACE. Following a review of the Preliminary Draft SLERA Report by USACE, the A-E shall incorporate comments generated and prepare and submit the Draft SLERA Report in the format and number of copies as specified in Section 7.2, Submittal Requirements Summary.

Upon receipt of review comments (including regulators and other reviewers) on the Draft SLERA, the A-E shall respond, using DrChecks or other USACE-directed means, to all comments resulting from review of these documents by others. The comments will be submitted from the USACE. Upon resolution of review comments and responses, the A-E shall incorporate agreed-upon responses into the Final SLERA Report.

The A-E shall prepare and submit the Final SLERA Report in the format and number of copies as specified in Section 7.2, Submittal Requirements Summary.

4.6.4 Subtask 6.4 –Summary of the Screening Level Ecological and Human Health Risk Assessments

The A-E shall revise and submit draft and final versions of the Summary of the Screening Level Ecological and Human Health Risk Assessments (EA 2006) to include all Risk Assessments performed for the LOOW site. The draft document will be reviewed by the USACE and other reviewers. The A-E shall respond, using USACE-directed means, to all comments resulting from review of the draft documents by the USACE and other reviewers.

The A-E shall prepare and submit the deliverables in the format and number of copies as specified in **Section 7.0, Submittal Requirements and Schedule**. The A-E shall respond, using USACE *DrChecks* software system or other USACE-directed means, to all comments resulting from review of these documents by the USACE. Following a review of draft deliverables the A-E shall incorporate comments generated and prepare and submit the final deliverables in the format and number of copies as specified.

4.7 Task 7 - Feasibility Studies (FS)

4.7.1 Subtask 7.1 - Future Land Use Checklists

The A-E shall prepare a Future Land Use Checklist for every LOOW Parcel Group that iswhich is specified in the LOOW Management Action Plan (EA 2008). Each checklist shall serve as the basis for the determination of the most reasonable future land use for each parcel group, which will drive the selection of cleanup goals for a hazardous, toxic, or radioactive waste (HTRW) project. USACE

has prepared draft versions of the checklists for the developed LOOW Parcel Groups and will provide electronic versions to the A-E. An example checklist has been provided as Attachment A.

The A-E shall prepare and submit the deliverables in the format and number of copies as specified in **Section 7.0, Submittal Requirements and Schedule**. The A-E shall respond, using USACE *DrChecks* software system or other USACE-directed means, to all comments resulting from review of these documents by the USACE. Following a review of draft deliverables the A-E shall incorporate comments generated and prepare and submit the final deliverables in the format and number of copies as specified.

4.7.2 Subtask 7.2 - Occidental Chemical Corporation Feasibility Study

The A-E shall conduct and report on a Feasibility Study (FS) for the Occidental Chemical Corporation property which will comply with pertinent sections of EPA, "Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA", October 1988. Health assessment risks have been identified within the property, specifically within Exposure Unit 8 (EU8), the presumed LOOW Storage Area and Ground Scar. The FS Report contents shall include, but not be limited to, the following:

4.7.2.1 Establish Remedial Action Objectives & General Response Actions

Based on existing information, the A-E shall develop site-specific remedial action objectives to protect human health and the environment and specify the contaminants, media of concern, exposure route(s), receptor(s), and an acceptable contaminant level or range of levels for each exposure route (i.e., preliminary remediation goals). Additionally, the A-E shall develop general response actions for each Operable Unit and define contaminants, treatment, excavation, pumping, or other actions, singly or in combination to satisfy remedial action objectives. Volumes or areas of media to which general response actions may apply shall be identified, taking into account requirements for protectiveness as identified in the remedial action objectives and the chemical and physical characteristics of the site.

4.7.2.2 Evaluation of ARARs

The A-E shall define Applicable or Relevant and Appropriate Requirements (ARARs) for use in selection of potential remedial alternatives. These ARARs will also be used as a starting point for discussions with the regulatory agencies for establishing cleanup goals. The A-E shall develop the cleanup goals for each of the COCs in each media they are present in. Cleanup goals should be developed for all future receptors evaluated in the baseline risk assessment. Guidance for addressing the relationship of ARARs and the baseline risk assessment shall be paragraph 6.2.3 of *Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA* and the NCP (40 CFR 300.430(d)(3) & (4)).

The A-E shall prepare an ARAR matrix identifying the citation, regulation, and a brief explanation of why the regulation is (or is not) applicable, relevant and appropriate, or "to be considered" (TBC). The A-E shall also use information from the baseline risk assessment and the RAOs to develop the list of constituents of concern (COCs), limiting the list to those contaminants that significantly contribute to unacceptable risk. The A-E shall also continue to refine previously developed remediation goals (RGs) based on results of the risk assessments and upon identified potential ARARs. Risk-based remediation goals shall be consistent with assumptions used in the baseline risk assessment, and shall be limited to those pathways significantly contributing to unacceptable risk.

The FS detailed analysis should summarize which requirements are applicable or relevant and appropriate to a remedial alternative. When an ARAR is not met, the basis for justifying one of the six waivers allowed under CERCLA should be evaluated to determine if any apply.

4.7.2.3 Remedial Alternatives Development and Screening

The A-E shall define the range of distinct alternatives developed to remediate or control contaminated media in each Operable Unit, based upon historical data and RI findings, to provide adequate protection of human health and the environment. The potential alternatives should encompass, as appropriate, the following:

- A range of alternatives (up to four (4)) in which treatment is used to reduce the toxicity, mobility, or volume of wastes, but vary in the degree to which long-term management of residuals or untreated waste is required. Alternatives must be evaluated using all nine CERCLA remedy evaluation criteria in the final rating.
- A range of alternatives involving removal off-site
- Limited action alternatives
- No-action alternative

4.7.2.4 Identify and Screen Technologies

Based on the developed general response actions, waste treatment technologies shall be identified and screened to ensure that only those technologies applicable to the contaminants present, their physical matrix, and other site characteristics will be considered. This screening shall be based primarily on a technology's ability to effectively address the contaminants at the site, but will also take into account a technology's implementability and cost. The A-E shall identify whether treatability studies and/or additional modeling are warranted for those technologies that are probable candidates for consideration during the detailed analysis.

4.7.2.5 Configure and Screen Alternatives

The potential technologies and process options shall be combined into media-specific or site-wide alternatives. The developed alternatives shall be defined with respect to:

- Size and configuration of the representative process options
- Time for remediation
- Rates of flow or treatment
- Spatial requirements
- Transportation options. Note: The A-E will be provided the Draft Niagara Falls Storage Site Transportation Assessment Report to assist in determining the most feasible transportation method of wastes for disposal.
- Distances for disposal
- Required permits and imposed limitations
- Legislative requirements

Other factors shall also be addressed, as necessary, to evaluate the alternatives. The developed alternatives should also be defined with respect to the media and operable units addressed. If many distinct, viable options are available and developed, a screening of alternatives shall be conducted to limit the number of alternatives undergoing the detailed analysis and to provide consideration of the most promising process options. The alternatives shall be screened on a general basis with respect to their effectiveness, implementability, and cost. Alternatives selected for detailed analysis shall have the prior approval of the USACE before implementation of the analysis.

4.7.2.7 Detailed Analysis of Selected Alternatives

The A-E shall conduct a detailed analysis of alternatives, consisting of an individual analysis of each alternative against the nine CERCLA evaluation criteria per the National Contingency Plan (40 CFR 300.430) and a comparative analysis of all USACE-approved options against the evaluation criteria with respect to one another. These nine CERCLA criteria are grouped by two threshold criteria (1-2 below), five balancing criteria (3-7 below), and 2 modifying criteria (8-9 below). In other words, alternatives that do not comply with criteria 1-2 below are eliminated from further consideration. Alternatives are then evaluated against criteria 3-7 below in a detailed analysis prior to a comparative analysis. Criteria 8-9 below are addressed in the Record of Decision

phase, based upon comments received during the comment period for the Proposed Plan. The proposed plan and Record of Decision is not included under this SOW.

The nine evaluation criteria, as specified in *Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA*, are as follows:

1. Overall Protection of Human Health and the Environment
2. Compliance with ARARs
3. Long-Term Effectiveness and Permanence
4. Reduction of Toxicity, Mobility, or Volume Through Treatment
5. Short-term Effectiveness
6. Implementability
7. Cost
8. State Acceptance (Support Agencies)
9. Community Acceptance

The CERCLA guidance should be consulted for details concerning these evaluation criteria. It is emphasized, here, that remedial alternatives are only eligible for selection as a remedy if they meet the first two of the above listed criteria.

The final two criteria (State and Community Acceptance) will be addressed in the ROD after comments on the Public Review Draft of the PP have been received. Therefore, the final two criteria will not be included in the Draft and Final versions of the FS Report.

The individual analysis shall include:

1. A technical description of each alternative that outlines the waste management strategy involved and identifies the ARARs associated with each alternative
2. A discussion profiling the performance of that alternative with respect to each of the evaluation criteria.

A table summarizing the results of this analysis shall be prepared and included in the FS Report. After the individual analysis is complete, alternatives will be compared and contrasted to one another with respect to each of the evaluation criteria. The A-E may propose a screening factor rating scheme to assist in the screening of alternatives and in the detailed analysis of alternatives. Such numerical rating schemes may be especially useful in explaining the selection of alternatives to the public.

4.7.2.8 Feasibility Study Report Preparation

4.7.2.8.1 The A-E shall prepare and submit the Preliminary Draft Feasibility Study (FS) Report in the format and number of copies as specified in **Section 7.2, Submittal Requirements Summary**. The A-E shall respond, using *DrChecks* or other USACE-directed means, to all comments resulting from review of these documents by the USACE. Following a review of the Preliminary Draft FS Report by USACE, the A-E shall incorporate comments generated and prepare and submit the Draft FS Report in the format and number of copies as specified in Section 7.2, Submittal Requirements Summary.

4.7.2.8.2 Upon receipt of review comments (including regulators and other reviewers) on the Draft FS Report, the A-E shall respond, using DrChecks or other USACE-directed means, to all comments resulting from review of these documents by others. The comments will be submitted from the USACE. Upon resolution of review comments and responses, the A-E shall incorporate agreed-upon responses into the Final FS Report.

4.7.2.8.3 The A-E shall prepare and submit the Final FS Report in the format and number of copies as specified in Section 7.2, Submittal Requirements Summary.

4.7.3 Subtask 7.3 - Chemical Waste Management Feasibility Study

The A-E shall conduct and report on a Feasibility Study (FS) for the Chemical Waste Management (CWM) Property which will comply with pertinent sections of EPA, "Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA", October 1988. Health assessment risks have been identified within the property, specifically within EU 1 (AFP-68 Areas 2, 4, 7, 8, 11, 20) and EU3 (Existing Nitration Houses). EU10 (Underground Utilities) shall be included for the CWM FS.

The FS for the CWM property shall be conducted as described in Section 4.7.2. As specified in Section 4.7.2.3, a range of alternatives (up to four (4)) in which treatment is used to reduce the toxicity, mobility, or volume of wastes, but vary in the degree to which long-term management of residuals or untreated waste is required for each EU. Additionally, each of the five (5) utility lines showing risk for EU 10 shall each have up to 4 alternatives each.

4.7.4 Subtask 7.4 - Engineer Evaluation/Cost Analyses (EE/CA) for Interim Removal Actions – Areas A, B, and C

USACE has previously determined that a removal action at the Areas designated A, B, and C located within the CWM property are the most appropriate and feasible remedial option to protect human health. The A-E shall complete the tasks already in progress by the USACE and current electronic and hard copies of the project files will be transferred to the A-E.

4.7.4.1 Engineer Evaluation/Cost Analyses (EE/CA)

The A-E shall update and combine the *Draft Engineer Evaluation/Cost Analyses for Interim Removal Actions Associated with the Area C Drum Trench and Trash Pit* (USACE 2000) and the *Engineer Evaluation/Cost Analyses for Removal Actions Associated Operable Units 1 and 2* (Acres 1995). The new document shall be titled *Engineer Evaluation/Cost Analyses for Interim Removal Actions Associated with the Areas A, B, and* C and will contain the updated evaluations and cost analyses performed by the A-E.

The A-E shall prepare and submit the EE/CA in the format and number of copies as specified in **Section 7.0, Submittal Requirements and Schedule**. The A-E shall respond, using USACE *DrChecks* software system or other USACE-directed means, to all comments resulting from review of these documents by the USACE. Following a review of preliminary draft deliverables the A-E shall incorporate comments generated and prepare and submit the draft deliverables in the format and number of copies as specified. Following a review of the draft deliverables the A-E shall incorporate comments generated, including public, and prepare and submit the final deliverables in the format and number of copies as specified.

4.7.4.2 EE/CA Community Relations

The A-E shall plan and execute EE/CA community relations tasks as described in CFR 40 300.415 (n) (3,4) which include:

- Publishing an advertisement of notice of availability and brief description of the EE/CA in the Buffalo News, Niagara Gazette, and the Lew Port Sentinel pursuant to CFR 40 300.820;

- Planning and executing a public meeting to release the EE/CA. The meeting shall be attended by the A-E project manager and technical task manager and the A-E's primary subcontractor project manager. The A-E shall prepare a PowerPoint Presentation, static displays, figures/plans, and handouts. For cost estimating purposes, assume the A-E will attend, present, one (1) three (3)-hour public meeting and provide a court reporter to record comments. Each meeting will be preceded by a one (1) day dry run meeting located at the Buffalo District Office. The A-E shall prepare and mail 150 color project fact sheets and invitations to all stakeholders.

- Providing a 30 calendar day time period for submission of written and oral comments after completion of the EE/CA pursuant to CFR 40 300.820(a). Upon timely request, the A-E and USACE will extend the public comment period by a minimum of 15 days.

- Preparing a written response to significant comments (Responsiveness Summary) pursuant to CFR 40300.820(a). The A-E shall prepare and submit the Draft

Responsiveness Summary in the format and number of copies as specified in **Section 7.0, Submittal Requirements and Schedule**. The A-E shall respond, using USACE *DrChecks* software system or other USACE-directed means, to all comments resulting from review of these documents by the USACE. Following a review of draft deliverables the A-E shall incorporate comments generated and prepare and submit the Final Responsiveness Summary in the format and number of copies as specified.

4.8 Task 8 – Data Management

The A-E shall update the relational ACCESS database which already contains all validated data from phases I and II, with data from phases III and IV. The objective is to create one comprehensive project database with all data from all phases of investigation, in order to support all tasks presented in this SOW, as well as any other future work on the project. In the "field sample" data table, the "task code" shall be used to distinguish data from each phase. Phase III and IV data should appear in the same format as data from phase I and II.

4.9 Task 9 – Town of Lewiston Property – Former LOOW WWTP FS

The A-E shall conduct and report on a Feasibility Study (FS) for the Town of Lewiston (Former WWTP) Property which will comply with pertinent sections of EPA, “Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA”, October 1988 if health assessment risks are identified within the property. EU10 (Underground Utilities) shall be included for the FS. The FS for the Town of Lewiston Property shall be conducted as described in Section 4.7.2.

4.10 Task 10 – Additional Sampling, Analytical, and Validation (OPTIONAL)

The A-E shall provide overall costs for this optional task to allow for additional sampling activities to support the Former LOOW WWTP RI or any of the Feasibility Studies (Occidental, CWM, and Former LOOW WWTP). The need for additional sampling requirements will be determined during the above mentioned TPP Sessions. The A-E shall comply with the guidance described in Section 4.4.3 while planning and performing sampling activities. Samples shall be analyzed according to the chemical requirements discussed in Section 4.4.4 and the data shall be validated as discussed in Section 4.4.5.

The additional sampling shall consist of twenty (20) soil borings. One surface and one subsurface soil sample shall be collected from each soil boring location using either direct push or hollow stem auger drill rigs. Samples shall be submitted for the full laboratory analytical suite including volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs) (including Polynuclear Aromatic Hydrocarbons (PAHs)), pesticides, Polychlorinated biphenyls (PCB), explosives, Target Analyte List (TAL) metals (plus boron and lithium) and radiological parameters as described in Section 4.4.4. The A-E shall assume that the borings will be installed to a depth of 20 ft below ground surface (bgs) A large enough diameter sampler (i.e., direct push macro corer or hollow stem auger with 2-inch (in) diameter split spoons) shall be required to collect enough sample aliquot for full suite laboratory analysis.

5.0 Period of Performance

The period of performance for this SOW is eight hundred sixty (860) calendar days, commencing on the date of the Notice to Proceed. The following table summarizes the schedule to be followed for this SOW. Additional information is provided in Section 7.2, Submittal Requirements Summary.

TASK #	TASK	* SCHEDULE Calendar days after NTP	NOTES
1.1	Draft Engineering & Design Quality Control Plan	15	
	Engineering & Design Quality Control Plan	30	
1.2	Independent Technical Review	See Note	Inherent throughout A-E delivery of products to USACE
1.3	Senior Technical Review	See Note	Inherent throughout A-E delivery of products to USACE
2.1	Available Data Review	See Note	As required throughout performance of delivery order.
2.2	Site Visit	30	
2.3	Project Meetings		
	- Kickoff Meeting	10	- Teleconference with USACE
	- Biweekly Coordination & Progress Meetings	30	- Initial Teleconference with USACE followed biweekly thereafter
	- Project Issue Meetings	As Needed	- Teleconferences to resolve specific issues beyond the scope of biweekly meetings
2.4	- USACE Internal Technical Project Planning Session	60	- Three (3) day session at Buffalo District
	- Draft Internal TPP Summary Document	70	
	- Internal TPP Summary Document	80	
	- Public Technical Project Planning Session	100	- Four (4) hour session at Location TBD including one (1) day dry run
	- Draft Public TPP Summary Document	110	
	- Public TPP Summary Document	120	
2.5	- Public Meeting Support – Phase IV RI	680	- Three (3) hour session at Lewiston Senior Center
	- Public Meeting Support – FS	860	- Three (3) hour session at Lewiston Senior Center

TASK #	TASK	* SCHEDULE Calendar days after NTP	NOTES
3	Project Planning Documents		
	- Submit Draft for USACE Review	160	
	- Submit Final Documents	220	
4.1	- Site Infrastructure Setup Complete	300	
	- Site Demobilization Plan	400	
	- Site Demobilization Complete	415	
4.2	- Site Clearing Complete	300	
4.3	- Sampling Complete	360	
4.4	- Analytical Complete	390	
4.5	- Data Validation Report Submitted	450	
4.6	- IDW Disposal Complete	415	
5	- RI Report		
	- Submit Preliminary Draft for USACE Review	500	
	- Submit Draft Final for USACE Approval	560	
	- Submit Final Documents	620	
6.1	- HHRA Work Plan Addendum		
	- Submit Preliminary Draft for USACE Review	120	
	- Submit Final Documents	150	
6.2	- HHRA Report		
	- Submit Preliminary Draft for USACE Review	500	
	- Submit Draft Final for USACE Approval	560	
	- Submit Final Documents	620	

TASK #	TASK	* SCHEDULE	NOTES
6.3	- SLERA Report		
	- Submit Preliminary Draft for USACE Review	500	
	- Submit Draft Final for USACE Approval	560	
	- Submit Final Documents	620	
6.4	- Summary of SLE & HHRA Report		
	- Submit Preliminary Draft for USACE Review	650	
	- Submit Final Documents	670	
7.1	- Submit Draft Future Land Use Checklists	120	
	- Submit Final Future Land Use Checklists	150	
7.2	Occidental FS Report		
	- Submit Preliminary Draft for USACE Review	210	
	- Submit Draft Final for USACE Approval	270	
	- Submit Final Documents	330	
7.3	CWM FS Report		
	- Submit Preliminary Draft for USACE Review	210	
	- Submit Draft Final for USACE Approval	270	
	- Submit Final Documents	330	
7.4.1	CWM EE/CA Report		
	- Submit Preliminary Draft for USACE Review	230	
	- Submit Draft Final for USACE Approval	290	
	- Submit Final Documents	350	

TASK #	TASK	* SCHEDULE	NOTES
7.4.2	- Publish EE/CA Ad	360	
	- EE/CA Public Meeting	390	- Three (3) hour session at Lewiston Senior Center
	EE/CA Public Comment Responsiveness Summary		
	- Submit Draft	450	
	- Submit Final	470	
8	LOOW Database	475	
9	WWTP FS Report		
	- Submit Preliminary Draft for USACE Review	680	
	- Submit Draft Final for USACE Approval	740	
	- Submit Final Documents	800	
10 (OPTIONAL)	Additional Sampling complete	360	
* Schedule = # Calendar Days After Notice To Proceed			

6.0 Government Support

6.1 Rights of Entry

The USACE shall obtain Rights of Entry (ROE), as necessary, to gain entry to properties included in this investigation. Temporary office space, equipment staging areas, or permits that are required to conduct work shall be obtained by the A-E. This may require coordination with current property owners; the USACE Project Manager shall be informed of such coordination.

6.2 Required Utilities

The A-E shall make his own investigation and determinations as to the availability and adequacy of utilities for use in conducting work. The A-E shall install and maintain necessary supply lines, connections, piping, and meters if required, but only at such locations and in such manner as approved by the USACE and property owner. Before final acceptance of work under this contract, temporary supply lines, connections and piping installed by the A-E shall be removed by the A-E in a manner satisfactory to the USACE.

It shall be the responsibility of the A-E to locate and confirm utility line locations and to provide utilities that will be required to conduct the work. The A-E shall be responsible for contacting utility companies and the property owner to confirm and identify utilities. Any damage caused by the A-E shall be repaired at no additional cost to the Government or property owner. No utility services shall be interrupted by the A-E for any purpose without approval of the USACE and the property owner.

Request for permission to shut down services shall be submitted to the USACE and the property owner not less than 3 weeks prior to date of proposed interruption. The request shall give the following information:

- Nature of utility (gas, electric, water, etc.)
- Size of line and location of shutoff
- Buildings and services affected
- Hours and date of shutoff
- Estimated length of time service will be interrupted

Services will not be shut off until receipt of approval of the proposed hours and date from the USACE and property owners. Shutoffs which will cause interruption of property owner work operations as determined by the USACE shall be accomplished during non-work hours or on non-work days.

6.3 Coordination With Other Entities

The A-E's primary point of contact will be the USACE Project Manager. Interaction of the A-E with USACE team members, other USACE contractors, property owners, and regulatory agency representatives shall be coordinated through the USACE Project Manager.

CWM requires a brief (1-hr) safety training for all personnel working on the CWM property. This training will be coordinated through the USACE Project Manager.

6.4 Public Affairs

The A-E shall not make available to news media or publicly disclose any data generated or reviewed under this SOW. When approached by the news media, public officials, etc., the A-E shall refer them to the USACE Project Manager. Reports and data generated under this SOW shall become the property of the Government and distribution to any other entity by the A-E is prohibited, unless authorized by the USACE Contracting Officer. The USACE shall prepare and publish all required legal notices.

6.5 Permits

The A-E shall be responsible for obtaining necessary permits, which may include sediment control, excavation, confined space, and discharge permits.

7.0 Submittal Requirements and Schedule

7.1 General Submittal Requirements

Project documents/records and plans shall be submitted in both hard copy and electronic formats acceptable to the USACE Project Manager (e.g., Microsoft Office, Adobe Acrobat PDF, etc.). Materials prepared for presentation at meetings required by this SOW shall be in MS Word and PowerPoint format. All environmental data generated under this A-E SOW shall be submitted to the USACE Project Manager in Microsoft Excel format. This includes, but may not be limited to, X, Y, Z coordinate data, sample media, analytical results, boring / well identification, and sample identification. Computer files shall be on CD-R/RW for use on an Windows XP operating system. All electronic submittals must comply with Section 508 of the Rehabilitation Act of 1973.

Drawing files shall be 100 percent compatible with Bentley Corporation three-dimensional Microstation version SE, without any translation by the Government. Global origin shall be defined. The file format (file name) shall be ".DGN". Master units to be in feet with subunits in 0.001 feet and 1 positional unit per subunit. Drawings shall be in vector format. The latest version of the CADD standards developed by the Tri-Service CADD/GIS Technology Center should be used.

The A-E shall submit design documentation and calculations/analyses on standard 8-1/2" x 11" paper and drawings shall be submitted in half-size (for inclusion into/attached to the design report) and full size. As part of the final product, the A-E shall furnish one set of reproducible design drawings in a set of sheets each 24x36 inches. Each sheet shall contain a simple legend indicating placement of each sheet within the set. The A-E shall provide all drawings in the standard USACE outline/title block. Drawing submissions for the draft report shall not require reproducibles.

All field logs, including but not limited to: environmental monitoring logs (including radiological monitoring), calibration logs, soil boring logs, test pit logs, photography logs, lithology logs, video camera logs and video camera recordings, geophysical survey logs, survey documents, waste manifests and/or characterization forms, and chains-of-custody shall be provided to the USACE Project Manager.

7.2 Submittal Requirements Summary

Packaging of completed work shall be accomplished such that the materials will be protected from handling damage. Each package shall contain a transmittal letter or shipping form, in duplicate, listing the materials being transmitted, being properly numbered, dated and signed. Shipping labels shall be marked as follows:

US Army Engineer District, Buffalo
Attn: CELRB-PM-F (Linda Houston, Project Manager)
1776 Niagara Street
Buffalo, NY 14207

Hand carried submissions shall be packaged and marked as above, and delivered to the same address.

SUBMITTAL REQUIREMENTS SUMMARY

NOTICES

1. Submittal Type Required: O = Original; E = Electronic Format
2. Failure to submit required submittals as delineated on this form may result in withholding of payment in accordance with provisions of the contract.
3. Only one (1) electronic copy per submittal should be assumed unless otherwise stated.

	Submittal	Scope of Work (SOW) Paragraph	ITR Required	Submittal Schedule (Calendar Days after NTP)	Submittal (No.) and Type
1	E&D Quality Control Plan - Draft	4.1.1	Yes	15	(5) O, E
2	E&D Quality Control Plan - Final	4.1.1	No	30	(5) O, (2) E
3	Internal TPP Summary Document - Draft	4.2.4.2	No	70	(5) O, E
4	Internal TPP Summary Document - Final	4.2.4.2	No	80	(5) O, (2) E
5	Public TPP Summary Document - Draft	4.2.4.4	No	110	(5) O, E
6	Public TPP Summary Document - Final	4.2.4.4	No	120	(5) O, (2) E
7	HHRA Work Plan Addendum - Draft	4.6.1	Yes	120	(5) O, E
8	Future Land Use Checklist – Draft	4.7.1	Yes	120	(5) O, E
9	HHRA Work Plan Addendum - Final	4.6.1	No	120	(5) O, (10) E
10	Future Land Use Checklist – Final	4.7.1	No	150	(5) O, (10) E
11	SAP Addendum – Draft	4.3.1	Yes	160	(5) O, E
12	HASP Addendum – Draft	4.3.2	Yes		(5) O, E
13	OE Plan Addendum – Draft	4.3.3	Yes		(5) O, E
14	Asbestos Removal Work Plan Addendum- Draft	4.3.4	Yes		(5) O, E
15	Radiation Safety Plan Addendum - Draft	4.3.5	Yes		(5) O, E
16	Occidental FS – Preliminary Draft	4.7.2	Yes	210	(5) O, E
17	CWM FS - Preliminary Draft	4.7.3	Yes	210	(5) O, E

Submittal		Scope of Work (SOW) Paragraph	ITR Required	Submittal Schedule (Calendar Days after NTP)	Submittal (No.) and Type
18	SAP Addendum –Final	4.3.1	No	220	(5) O, (10) E
19	HASP Addendum – Final	4.3.2	No		(5) O, (10) E
20	OE Plan Addendum – Final	4.3.3	No		(5) O, (10) E
21	Asbestos Removal Work Plan Addendum – Final	4.3.4	No		(5) O, (10) E
22	Radiation Safety Plan Addendum – Final	4.3.5	No		(5) O, (10) E
23	CWM EE/CA – Preliminary Draft	4.7.4.1	Yes	230	(5) O, E
24	Occidental FS –Draft Final	4.7.2	No	270	(2) O, E
24	CWM FS – Draft Final	4.7.3	No	270	(2) O, E
26	CWM EE/CA – Draft Final	4.7.4.1	No	290	(2) O, E
27	Occidental FS –Final	4.7.2	No	330	(5) O, (10) E
28	CWM FS – Final	4.7.3	No	330	(5) O, (10) E
29	CWM EE/CA – Final	4.7.4.1	No	350	(5) O, (10) E
30	EE/CA Newspaper Advertisement	4.7.4.2	No	360	O, E
31	Site Demobilization Plan	4.4.1.2	No	400	(2) O, E
32	Data Validation Report	4.4.5	No	450	(5) O, (5) E
33	EE/CA Responsiveness Summary - Draft	4.7.4.2	Yes	450	(5) O, E
34	EE/CA Responsiveness Summary - Final	4.7.4.2	No	470	(5) O, (10) E
35	LOOW Database	4.8	No	475	(10) E
32	RIR – Preliminary Draft	4.5	Yes	500	(5) O, E
33	HHRA – Preliminary Draft	4.6.2	Yes	500	(5) O, E
34	SLERA – Preliminary Draft	4.6.3	Yes	500	(5) O, E
35	RIR –Draft Final	4.5	No	560	(2) O, E
36	HHRA – Draft Final	4.6.2	No	560	(2) O, E

Submittal		Scope of Work (SOW) Paragraph	ITR Required	Submittal Schedule (Calendar Days after NTP)	Submittal (No.) and Type
37	SLERA – Draft Final	4.6.3	No	560	(2) O, E
38	RIR – Final	4.5	No	620	(5) O, (10) E
39	HHRA – Final	4.6.2	No	620	(5) O, (10) E
40	SLERA – Final	4.6.3	No	620	(5) O, (10) E
41	Summary of SLE & HHRA - Draft	4.6.4	Yes	650	(5) O, E
42	Summary of SLE & HHRA - Final	4.6.4	No	670	(5) O, (10) E
43	WWTP FS – Preliminary Draft	4.9	Yes	680	(5) O, E
44	WWTP FS –Draft Final	4.9	No	740	(2) O, E
45	WWTP FS –Final	4.9	No	800	(5) O, (10) E
46	Monthly Reports	8.1	No	Monthly, NLT 5th of following month	(1) O, E

Note: Timeline may be revised based on award of contract options.

8.0 Written Monthly Reports, Payment Requests, and Progress Reporting

8.1 Written Monthly Reports

The A-E shall submit, no later than the 5th of the following month, a monthly letter (progress report) on the status of the execution of the tasks under the Delivery Order Scope of Work. This report shall include information on tasks which have been completed since the last report, tasks in progress, and tasks still to be executed. Any safety infractions, accidents, violations of regulations, delays, problems, or expected cost overruns shall be identified including recommendations/solutions. Work which is outside of the SOW but which is critical to project completion shall be explained. The A-E shall include an updated schedule as described in the E&D QCP and records of correspondence/confirmation notices. The A-E shall make a record of each telephone conversation, written correspondence, and confirmation notice regarding information related to the performance of tasks under this SOW. A summary of these records shall be submitted monthly to the USACE Project Manager with the monthly progress report, copy of the monthly payment request for services performed, and an accrual through the end of the month in accordance with the Submittal Requirements Summary in Section 7.2.

8.2 Payment Requests

Payment requests or invoices shall contain the following information as a minimum: Project Title, Contract Number, Delivery Order Number, Invoice Number, date of invoice, dates covered for each invoice, total contract amount with all modifications and amounts listed individually, amounts retained, amount remaining in the contract to be completed, certification of the invoice by a responsible individual of the firm, and any other pertinent information that will assist in review and processing. Mail payments request promptly to:

U.S. Army Engineer District, Baltimore
ATTN: CENAB-HT (Liza Finley, DTL, HTRW Branch)
Contract No. W912DR- 06-D-0002
10 South Howard Street
Baltimore, MD 21201

Invoices will be audited and approved by the Contracting Officer's Representative (COR) prior to payment to ensure sufficient progress is made

8.3 Progress Reporting

In addition to the required written monthly report submittals, the A-E is required to initiate and conduct biweekly telephone conference calls with the USACE Project Manager, or his/her designee, to discuss Delivery Order work status and progress. A summary of these conversations shall be included in the monthly progress reports discussed in paragraph 8.1.

FIGURES

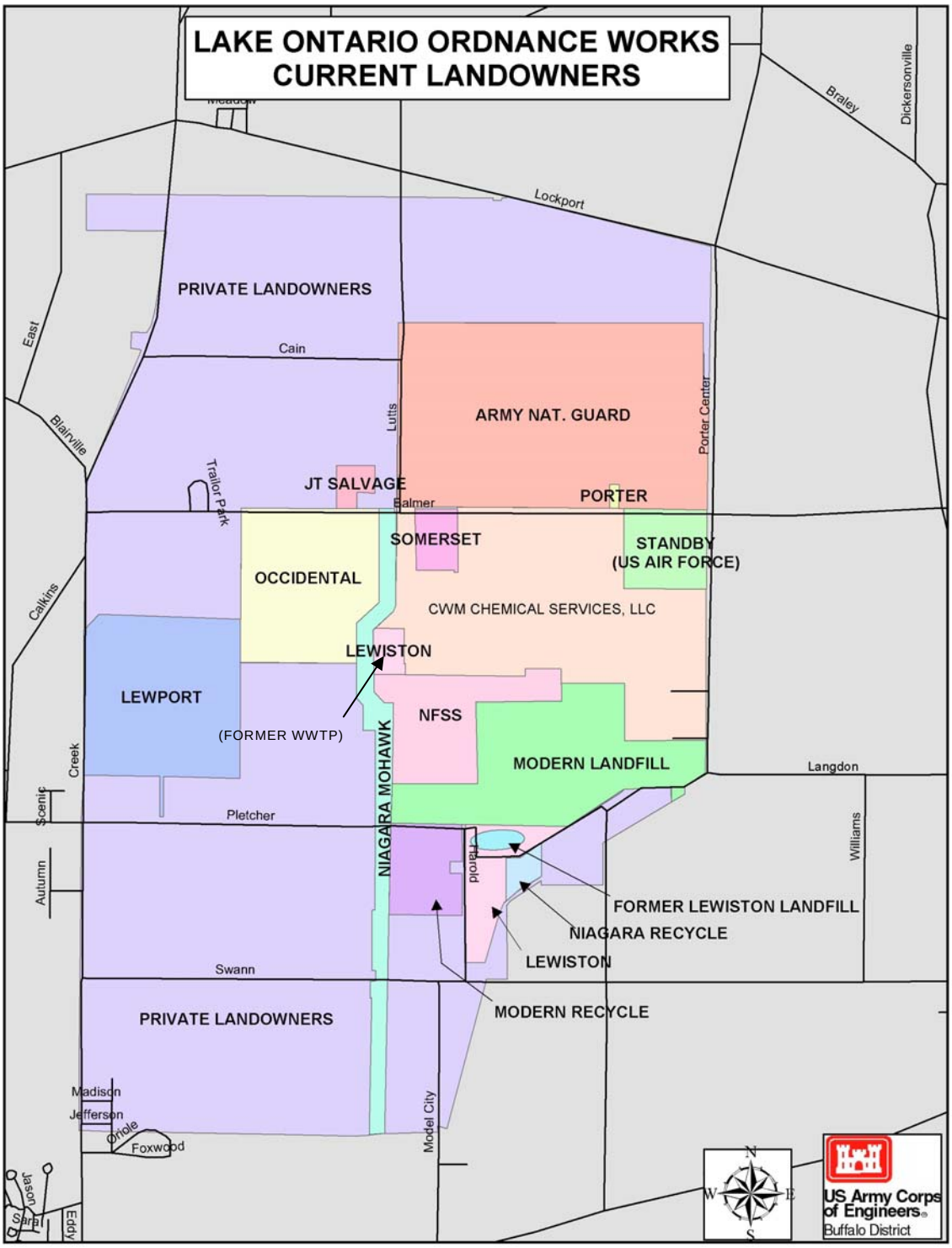

Figure 1 LOOW Property Boundaries

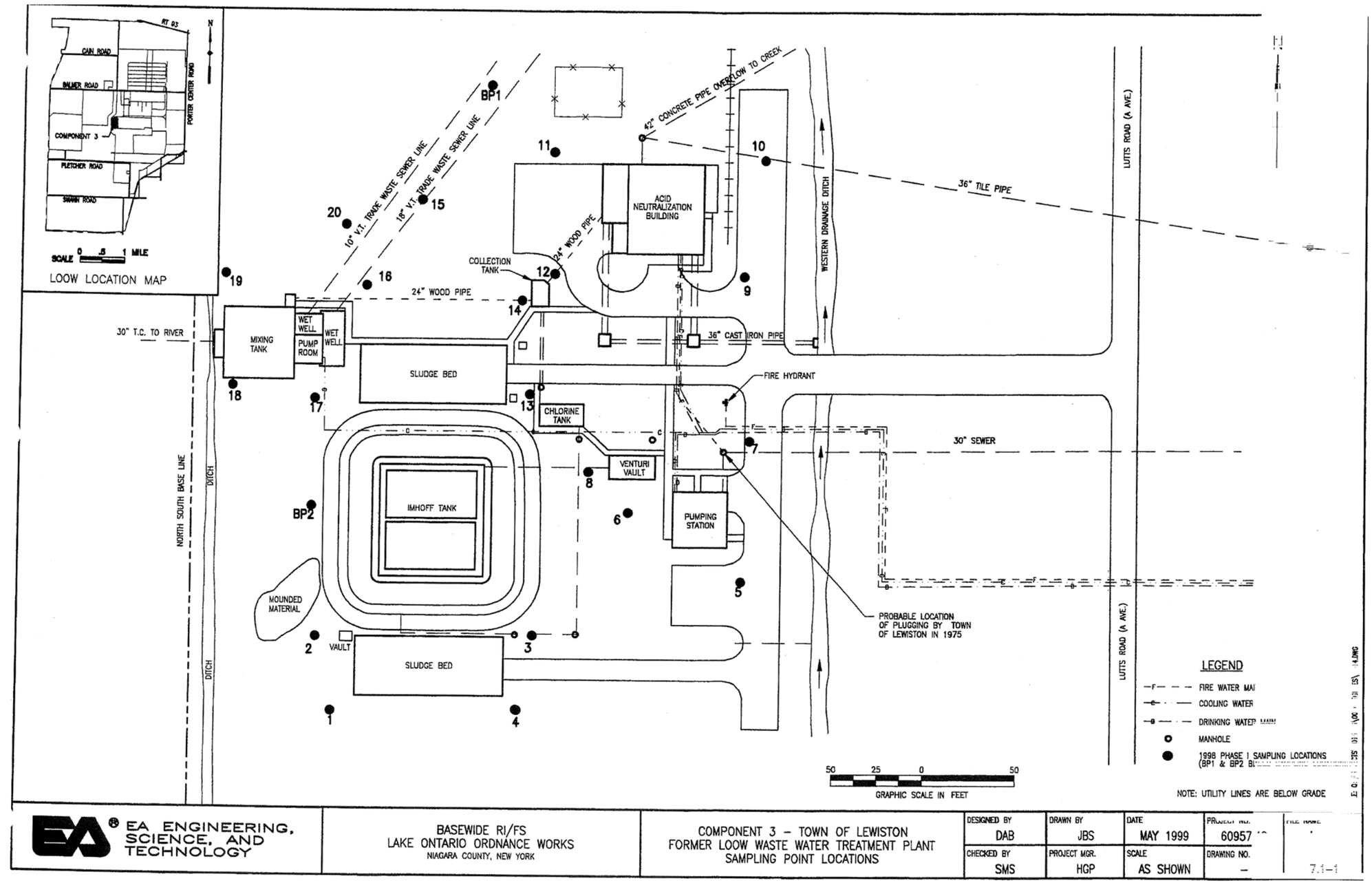

Figure 2 Former LOOW WWTP

ATTACHMENT A

Future Land Use Checklist

FUTURE LAND USE CHECKLIST FOR HTRW SITES

Purpose:

This checklist will serve as the basis for the determination of the most reasonable future land use for the site, which will drive selection of cleanup goals for a hazardous, toxic, or radioactive waste (HTRW) project under USACE auspices

Introduction:

This checklist may be filled out as early as commencing a preliminary assessment or site inspection for the HTRW project. Various disciplines of the HTRW project team, such as management, engineering, geologist, risk, regulatory, legal, and real estate should have input to this checklist. The information gathered in this checklist will support various decisions to be made as the site progresses through the CERCLA process, such as identification and evaluation of the soil, air, groundwater, and surface water pathways in a preliminary assessment; placement of biased sampling and appropriate choice of screening levels in a site inspection; appropriate choice of human and ecological receptors in a baseline risk assessment during the remedial investigation; and choice of reasonable future land use scenarios to derive cleanup goals evaluated in the feasibility study. If this checklist is filled out during an early stage in the CERCLA process, then it should be revisited and updated if necessary during development of the proposed plan, to support choice of the most reasonable future land use scenario.

FUTURE LAND USE CHECKLIST

Project Name: _____ **Date:** _____

Project Location: _____

Legal Description of the Real Estate where the Site is Located

_____

_____

_____

_____

_____

_____

_____

I. CURRENT PROPERTY USE

A. Check all that apply (If more than one use, include approximate percentage of each land use):

Residential		Industrial		Commercial	
Urban		Agricultural		Conservation	
Suburban		Recreational		Wildlife	
Rural		Undeveloped		other (list)	

B. Adjacent Property Use and Topographic Relationship (If more than one use, include approximate percentage of each land use, include map. Also, include physical constraints to land use, e.g., railroad or highway right-of-way, steep slope/topography, flooding potential, etc.):

1. Immediately Adjacent Property and Topographic Relationship to Site:

North	_____	higher	_____	lower	_____	same	_____
South	_____	higher	_____	lower	_____	same	_____
East	_____	higher	_____	lower	_____	same	_____
West	_____	higher	_____	lower	_____	same	_____

2. Within ½ Mile and Topographic Relationship to Site:

North _____ higher _____ lower _____ same _____

South _____ higher _____ lower _____ same _____

East _____ higher _____ lower _____ same _____

West _____ higher _____ lower _____ same _____

3. Within 1 Mile and Topographic Relationship to Site:

North _____ higher _____ lower _____ same _____

South _____ higher _____ lower _____ same _____

East _____ higher _____ lower _____ same _____

West _____ higher _____ lower _____ same _____

II. SITE OWNERSHIP AND OPERATIONS HISTORY AND USE:
This section should indicate the legal names of the entities, the dates owned, and be specific as possible regarding operations.

1. Current Owner/Operations _____
2. Previous Owner/Operations _____
3. Prior Land Use _____

III. CURRENT LAND USE CONTROLS (Include source of data in Section XVIII) :

Regulatory Use Limitations	_____	Federal Title	_____	Warning signs	_____
Restrictive Covenants	_____	Well Restrictions	_____	Other (list)	_____
Restrictive Easements	_____	Guard	_____		_____
Notice in Title Documents	_____	Zoning	_____		_____
Groundwater Restrictions	_____	Fencing	_____		_____

Explain Current Land Use Controls:

_____

_____

_____

_____

List Regulatory Agencies which have the authority to monitor and enforce restrictions or other jurisdictional authorities over the property or affected media:

_____ _____

_____ _____

IV. POTENTIAL LAND USE CONTROL HOLDERS/ENFORCERS

_____

_____

_____

V. CURRENT ZONING LAWS, REGULATIONS (INCLUDING LOCAL ORDNANCES) AND MAPS. Provide description of authority and enforceability, and include source of data in Section XX:

_____

_____

_____

VI. POPULATION GROWTH PATTERNS AND PROJECTIONS (Bureau of Census projections):

_____

_____

VII. COMMUNITY MASTER PLANS:

Agency Contacted: _____ Individual(s) Contacted: _____

Date Contacted: _____ Revision Number: _____

Description of Plan, with emphasis on project area:

_____

_____

_____

_____

VIII. HISTORICAL AND/OR RECENT DEVELOPMENT PATTERNS:

_____

_____

_____

_____

_____

IX. EXISTING INFRASTRUCTURE ACCESSIBILITY:

1. Major Highways _____
2. Railroads _____
3. Public Transportation _____
4. Public Utilities _____
5. Navigable Waterways _____

X. DRINKING WATER SOURCE:

A. On-site:

Groundwater _____ Municipal Water Supply _____

If groundwater, identify locations of wells and number of people they serve (include map):

_____

_____

_____

B. Adjacent Properties (within a 4-mile radius, include map):

Groundwater _____ Municipal Water Supply _____

Private Wells _____ _____

If groundwater, identify locations of wells and number of people they serve (include map):

_____

_____

_____

_____

C. Current State and Federal Groundwater Classification:

_____

_____

D. Natural/Exisiting Water Quality Condition:

_____

_____

_____

XI. LOCATED WITHIN STATE OR REGIONAL COMPREHENSIVE GROUND WATER PROTECTION AREA?

Yes _____ No _____

Location of Wellhead Protection Areas, recharge areas and other identified areas (include map):

_____

_____

_____

XII. INDUSTRIAL WATER SOURCE:

A. On-site:

Groundwater _____ Municipal Water Supply _____ Surface Water (Include name of water body) _____

_____

If groundwater, identify locations of wells and number of industries they serve (include map):

_____

_____

_____

B. Adjacent Properties (within a 4-mile radius, include map):

Groundwater _____ Municipal Water Supply _____ Surface Water (Include name of water body) _____

If groundwater, identify locations of wells and number of industries they serve (include map):

XIII. SURFACE WATER

A. Provide a general description of the surface water on site (size, location, movement, and natural quality).

B. Is the surface water a water of the United States? Yes _____ No _____

C. Is there a federally designated flood plain along the surface water body on site? Yes _____ No _____

D. On-site:

Are surface water intakes present? Yes _____ No _____

If intakes exist, give location of intakes and describe primary and secondary surface water users, such as community/municipal use, industrial use, or other (include map):

Are there any point source discharges to surface water? Yes _____ No _____

If so, describe the applicable permit, the permitted entity and the regulator, as well as the nature of the discharge limits in the permit.

E. Adjacent Properties (within 15 miles downstream):

Are surface water intakes present? Yes _____ No _____

If intakes exist, give location of intakes and describe primary and secondary surface water users, such as community/municipal use, industrial use, or other (include map):

_____

_____

_____

_____

XIV. FEDERAL/STATE LAND USE DESIGNATION:

A. On-site (check all that apply):

Government Facility	_____	National Park/Recreational Areas	_____
State Park/Recreational Area	_____	other (list)	_____
Not Applicable	_____		

B. Adjacent Properties (check all that apply, include map):

Government Facility	_____	National Park/Recreational Areas	_____
State Park/Recreational Area	_____	other (list)	_____
Not Applicable	_____		_____

XV. POTENTIALLY UNIQUE/SENSITIVE ENVIRONMENTAL CONDITIONS* (show on map):
*** Note, these determinations are not part of the ARAR analysis for the site.**

A. On-site:

	Present (Yes or No)?	**Remarks**
1. Critical habitat for Federal designated endangered or threatened species		
2. Marine Sanctuary		
3. National Park		
4. Designated Federal Wilderness Area		
5. Areas identified under the Coastal Zone Management Act		
6. Sensitive areas identified under the National Estuary Program or Near Coastal Waters Program		
7. Critical areas identified under the Clean Lakes Program		
8. National Monument		
9. National Seashore Recreational Area		
10. National Lakeshore Recreational Area		
11. Habitat known to be used by Federal designated or proposed endangered or threatened species		
12. National Preserve		
13. National or State Wildlife Refuge		
14. Unit of Coastal Barrier Resources System		

15. Coastal Barrier (undeveloped)
16. Federal land designated for protection of natural ecosystems
17. Administratively Proposed Federal Wilderness Area
18. Spawning areas critical for the maintenance of fish/shellfish species within river, lade, or coastal tidal waters
19. Migratory pathways and feeding areas critical for maintenance of anadromous fish species within river reaches or areas in lakes or coastal tidal waters in which the fish spend extended periods of time
20. Terrestrial areas utilized for breeding by large or dense aggregations of animals
21. National river reach designated as Recreational
22. Habitat known to be used by state designated endangered or threatened species
23. Habitat known to be used by species under review as to its Federal endangered or threatened status
24. Coastal Barrier (partially developed)
25. Federally-designated Scenic or Wild River
26. State land designated for wildlife or game management
27. State-designated Scenic or Wild River
28. State-designated Natural Areas
29. Particular areas, relatively small in size, important to maintenance of unique biotic communities
30. State-designated areas for protection or maintenance of aquatic life
31. Wetlands
32. Cultural Factors (e.g., historical sites, Native American religious sites)
35. Groundwater Contamination
36. Designated CERCLA/NPL Site(s)
37. Sites under RCRA Corrective Action Orders
38. Floodplain
39. Minority/Low Income Population
40. Sensitive Populations (e.g., hospitals, nursing homes, schools, day care centers, etc.)
41. Current/Former NRC Licensee
42. Any other environmental liscense or permit

B. Adjacent Properties:

	Present (Yes or No)?	Remarks
1. Critical habitat for Federal designated endangered or threatened species		
2. Marine Sanctuary		
3. National Park		
4. Designated Federal Wilderness Area		
5. Areas identified under the Coastal Zone Management Act		
6. Sensitive areas identified under the National Estuary Program or Near Coastal Waters Program		
7. Critical areas identified under the Clean Lakes Program		
8. National Monument		
9. National Seashore Recreational Area		
10. National Lakeshore Recreational Area		
11. Habitat known to be used by Federal designated or proposed endangered or threatened species		
12. National Preserve		
13. National or State Wildlife Refuge		
14. Unit of Coastal Barrier Resources System		
15. Coastal Barrier (undeveloped)		
16. Federal land designated for protection of natural ecosystems		
17. Administratively Proposed Federal Wilderness Area		
18. Spawning areas critical for the maintenance of fish/shellfish species within river, lade, or coastal tidal waters		
19. Migratory pathways and feeding areas critical for maintenance of anadromous fish species within river reaches or areas in lakes or coastal tidal waters in which the fish spend extended periods of time		
20. Terrestrial areas utilized for breeding by large or dense aggregations of animals		
21. National river reach designated as Recreational		
22. Habitat known to be used by state designated endangered or threatened species		
23. Habitat known to be used by species under review as to its Federal endangered or threatened status		
24. Coastal Barrier (partially developed)		
25. Federally-designated Scenic or Wild River		
26. State land designated for wildlife or game management		
27. State-designated Scenic or Wild River		
28. State-designated Natural Areas		
29. Particular areas, relatively small in size, important to maintenance of unique biotic communities		
30. State-designated areas for protection or maintenance of aquatic life		

31. Wetlands		
32. Cultural Factors (e.g., historical sites, Native American religious sites)		
33. Air Pollution		
34. Water Quality Concerns/Pollution		
35. Groundwater Contamination		
36. Designated CERCLA/NPL Site(s)		
37. Sites under RCRA Corrective Action Orders		
38. Floodplain		
39. Minority/Low Income Population		
40. Sensitive Populations (e.g., hospitals, nursing homes, schools, day care centers, etc.)		
41. Current/Former NRC Licensee		
42. Any other environmental liscense or permit		

XVI. SITE ISSUES NOT BEING ADDRESSED UNDER USACE HTRW PROJECT (Landfills, soil and groundwater contamination, leaking USTs, etc.):

If issues exist, explain site owner plans to address these issues, including the use of land use controls3:

XVII. POTENTIAL FOR GROUND WATER CONTAMINATION FROM SOIL CONTAMINANT MIGRATION:

A. USACE HTRW Constituents:

Yes _____ No _____

If yes, explain:

B. Other Constituents:

Yes _____ No _____

If yes, explain:

XVIII. GEOGRAPHIC AND GEOLOGICAL INFORMATION (Include hydrogeologic characteristics of site and surrounding area within 4 miles of site):

XIX. SOURCE OF SITE OWNERSHIP, SITE USE DATA AND REFERENCES CITED:

A. Title(s)/Type/Date:

XX. ADDITIONAL COMMENTS:

XXI. PREPARED BY:

Name: _____

Title: _____

Date: _____

Signature: _____

XXII. APPROVED BY:

Name: _____

Title: _____

Date: _____

Signature: _____

Name: _____

Title: _____

Date: _____

Signature: _____

Name: _____

Title: _____

Date: _____

Signature: