Final Work Plan
Remedial Investigation/Feasibility Study

Lawrence Aviation Industries
Port Jefferson Station, New York

NYSDEC Site #1-52-016
Work Assignment #D002925-20.1

Prepared for:
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Department Of Environmental Conservation
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Section 1
Introduction

The purpose of the this Remedial Investigation/Feasibility Study (RI/FS) process is to conduct an investigation to determine the nature and extent of surface and subsurface contamination at the Lawrence Aviation Industries Site (the site), identify other sources of groundwater contamination, and perform a feasibility study that will identify, evaluate and recommend a cost-effective, environmentally sound, long-term remedial action, if required.

The specific objectives of the Remedial Investigation (RI) will be to:

- Determine the nature and extent of contamination,
- Determine the potential for environmental and public health impacts, and
- Identify and develop an appropriate IRM, if warranted.

The findings of the RI will be used to develop and prepare the Feasibility Study (FS) in which potentially feasible remedial alternatives will be identified, screened and evaluated for their applicability and implementability at the site.

1.1 Site Description and History

The Lawrence Aviation Industries site is located in the Village of Port Jefferson Station in the Town of Brookhaven, Suffolk County, New York, shown in Figure 1-1, and is approximately 126 acres in size. The Long Island Railroad (LIRR) and Sheep Pasture Road form the northern border of the site, to the east and west are various residential single family houses and to the south is a wooded area beyond which is an apartment complex. The Port Jefferson Harbor, an outlet to the Long Island Sound lies approximately one mile to the north. The site is located on the Harbor Hill terminal moraine, a topographical high point within the study area, at an elevation between 200 and 220 feet above mean sea level. The local terrain is hilly and slopes towards the north in the direction of Long Island Sound.

Lawrence Aviation Industries is an industrial manufacturing facility. The company was originally located in Brooklyn, New York and conducted business as Leadkote Products. Products produced by Lead Kote Products included lead gutters and spouts for roof drains. When the company moved to Port Jefferson Station in 1951, all the existing material from the original manufacturing processes were transferred to the new location. In 1959, Leadkote Products changed names to Lawrence Aviation Industries, Inc.

Based on review of available drawings, the Lawrence Aviation manufacturing facility is comprised of ten major buildings which are located on approximately 34 acres of the 126 acre site, as shown in Figure 1-2. According to current SCDHS storage tank registration records, there are ten above ground and 21 below ground process tanks containing various acids, caustic compounds and rinse waters currently in service. There are also three active above ground and one underground storage tank containing No. 2 fuel oil. Between 1992 and 1995, Lawrence Aviation removed a total of 18 tanks from the site, including industrial waste, waste oil, gasoline, diesel and fuel oil storage tanks.

Figure 1-1
Location Map
Lawrence Aviation Industries
Port Jefferson Station, New York
Lawrence Aviation's main product currently is titanium sheet metal. These titanium sheets and other manufactured products are used in the aviation industry. The wastes generated from current and past operations include fluoride compounds, sludges, caustic acids, halogenated solvents and spent lubricating oils. Past site inspections also identified leaking transformer carcasses.

1.2 Areas of Environmental Concern

The following is a summary of significant issues and identification of areas of environmental concern based on a review of available Suffolk County Department of Health Services (SCDHS) and NYSDEC records:

Investigations of the site began in 1970 when a complaint from a residential property owner was received by the SCDHS. The owner indicated that his property was being affected by occasional Lawrence Aviation sump overflows. The overflow liquid did not freeze in the winter months, and was harming existing plant vegetation. SCDHS proceeded to sample the Lawrence Aviation sump and determined that the contents exceeded permissible discharge limits for pH, hexavalent chromium (Cr+6) and nitrates. A full inspection of site premises and processes was requested by the SCDHS at this time.

During the remainder of the 1970s, inspections performed by SCDHS and the Brookhaven Department of Environmental Protection (BDEP) of surrounding areas identified that adjacent residential wells were contaminated with fluoride, nitrates, trichloroethylene, 1,1-dichloroethylene, cis-1,2-dichloroethylene, tetrachloroethylene, and heavy metals.

On May 13, 1980, the SCDHS performed an investigation of the Lawrence Aviation site. The initial investigation was followed by aerial photography taken on May 22, 1980. Subsequent investigations were performed on June 25 and July 30, 1980, by SCDHS. SCDHS documented the results of these investigations in an official affidavit. The following areas of environmental concern were identified within the affidavit:

- Various areas of the site contained an accumulation of drums. The drums were improperly stored on the ground surface. Drums in general were uncovered and damaged with liquid contents leaking onto the ground surface. Stained ground surfaces and potential burial of drums were also identified in these areas. Drums reportedly contained acid sump sludges, salt waste, perchloroethylene (tetrachloroethylene), hydraulic oil, zyglo penetrant, solvents, whitish rectangular crystals, hydrofluoric acid, and trichloroethylene.

- Manual drum pump out operations were witnessed where drum contents were discharged directly to the ground surface.

- An evaporatory system was surrounded by a lake of liquid waste caused from an overflowing holding tank.

- Various process related effluents including quench water from titanium cutting operations, flush water from a smelter cooling system, and oily water from rolling mills, presses and fork lift maintenance areas, were discharged directly to the ground surface.
- Earthen lagoons were used to store liquid waste.

- A pile of old transformers was identified onsite. Oily liquid was visible leaking from some of the transformers.

- A leaking underground acid rinse waste tank was identified. Discarded tanks were noted to have bluish-green liquids leaking from them. Liquids had a measured pH of 1.

Related to the above environmental concerns, in the months of September, October and November 1980, SCDHS witnessed various “clean-up” activities at the site. Drums were roughly gathered with heavy machinery into piles positioned on a built up earthen area, causing liquid contents to leak onto the ground surface. Combined drum discharges caused spontaneous chemical reactions. Once piled, the drums were crushed and their liquid contents allowed to runoff the built up earthen area. The resulting drums and remaining sludges were disposed of in an out of state landfill. It was reported that 7,500 gallons of waste oils, 1,000 tons of sludges and some contaminated soil were removed from the site.

In conjunction with the SCDHS, the New York State Department of Environmental Conservation (NYSDEC), also investigated the site during the 1980s. Investigations included the preparation of a Phase I Environmental Assessment in January 1986. As documented from the SCDHS findings, the NYSDEC also identified numerous unpermitted discharges at the site, including carbon disulfide, phenols, fluoride, iron, 1,1,1 trichloroethane, toluene, and sludges. A work plan was developed as part of the Phase I investigations to collect additional field information and develop conceptual remedial design and cost estimates. Plans for field investigations included geophysical studies, monitoring well installation, and soil and aquifer sampling. However, this investigation apparently was never performed.

In March, 1987 NYSDEC requested that Federal Superfund emergency provisions be made to supply the residences with safe drinking water located north (downgradient) of the site, due to the presence of trichloroethylene, tetrachloroethylene, and cis-dichloroethylene within their private well water. The plan included temporary bottled water provisions and the extension of a nearby water main. The plan was granted and implemented.

Other SCDHS and NYSDEC documentation from 1986 to present identified additional potential environmental concerns including the identification of a battery storage pile and a construction and demolition debris landfill. Two former employees of Lawrence Aviation indicated that pits existed at the site for regular disposal of degreasing solvents, lube oils and heavy equipment insulating oils. The pits were 6 to 8 feet deep and were often covered with soil to hide the contents of the pits. It was also identified that approximately 100 drums were buried about 15 feet deep at the northeast section of the plant. Another dump apparently exists on the east side of the facility buildings.

Between July 1991 and March 1992, 14 test wells were installed downgradient of the site by the SCDHS. The wells and nearby stream were sampled and found to be contaminated with trichloroethylene and tetrachloroethylene. NYSDEC reclassified the site in 1991 as a significant threat to the public due to the contamination of downgradient wells, a pond, and associated tidal creek.

In 1992, Lawrence Aviation filed a delisting petition which was denied for the following reasons:

- Disposal of hazardous waste had been documented by the SCDHS.
- Private water supply wells downgradient had been contaminated. The USEPA was implementing the private well Emergency Removal Action at that time.
- A pond and stream downgradient had been contaminated as confirmed by sampling done by the SCDHS.
- Monitoring wells installed downgradient of the site and sampled by the SCDHS exhibited contamination.

Additional sampling performed by SCDHS confirmed the presence of chlorinated solvents and fluoride within a downgradient pond and stream. The highest level of trichloroethylene found in the pond and stream was 1,700 ppb with a guidance value of 11 ppb. The fluoride levels found in the pond and stream were not high enough to be violations, but they serve as a fingerprint for the source as no other industries in the area are known to use hydrofluoric acid.

In January 1993, a NYSDEC memorandum requested that a State funded Interim Remedial Measure (IRM) be performed to further assess the contamination within the pond, stream and harbor. Due to shellfish harvesting within the Harbor, and human exposure to the pond, public health is a concern in these areas. Hazardous signs have been posted adjacent to the pond, stating: “Warning: Contaminated Waters. Do Not Drink. Avoid Prolonged Contact with Skin.”

1.3 Regional Hydrogeology

The site is underlain by a thick wedge of unconsolidated sediments which, in ascending order, comprise the Raritan, the Magothy and the Upper Glacial formations. The combined thickness of these formations beneath the study area ranges from 800 to 1000 feet, as shown in Figure 1-3.

As previously discussed, the site is located on the Harbor Hill Terminal moraine at an elevation between 200 and 220 feet above MSL. The Upper Glacial formations within the site include till deposits of terminal moraine and ground moraine origin, glaciofluvial deposits laid down by melt water streams in outwash plains and spill ways during the advance, stagnation and recession of glacial ice; and discontinuous bodies of silt and clay laid down by glacial lakes (Lubke 1964).

Review of well logs obtained from Suffolk County Department of Health Service’s (SCDHSs) records, indicate glacial deposits within the site and surrounding areas, from ground surface to
Figure 1-3
Geologic Cross Section
Lawrence Aviation Industries
Port Jefferson Station, New York

CROSS SECTION EE

MATERIALS CROSS-SECTION EE

RON TRM MORAINE
RARHAN CLAY
REW MAGOTHY 60
UPPER GLACIAL 185
SMITHTOWN CLAY
HH GRD MORAINE
UPPER MAGOTHY 65

MIDDLE MAGOTHY 65
BASAL MAGOTHY 125
UPPER GLACIAL 250
REWORKED MAGOTHY
RARITAN CLAY NORTH
LLOYD AQUIEER

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Figure 1-4

Water Table Contours - Upper Glacial Aquifer (Simulated March 1994 Contours)
Lawrence Aviation industries
Port Jefferson Station, New York
approximately 200 feet below grade, consist of coarse sands and gravel. At approximately 200 feet below grade is a clay layer, approximately 50 feet thick, which is likely the glacial clay unit referred to as the Smithtown Clay. Review of Figure 1-3 indicates the Smithtown Clay is continuous throughout the site as well as being present north of the site, terminating somewhere within the area of Port Jefferson Harbor.

Where present, the Smithtown Clay acts as a confining unit between the upper and lower zones of the Upper Glacial Aquifer. Based on available boring logs, it appears that the upper surface of the clay unit intersects the water table, with the water table being below the clay surface in some areas and, in other areas, the water table will be above the unit by only several feet.

According to the available boring logs, below the Smithtown Clay lies a glacial formation described as brown to white sands of unknown thickness. This unit would comprise the lower zone of the Upper Glacial Aquifer.

Below the Upper Glacial aquifer lies the Magothy aquifer consisting of Cretaceous aged high to moderately permeable sands, silts, and gravels. The Magothy aquifer is approximately 500 feet thick within the site area and is the primary source of drinking water for Suffolk County residents. The Magothy aquifer has an estimated horizontal hydraulic conductivity of 350 gpd/ft² but individual sandy and gravelly beds may have values four to five times higher (Kimmel & Braids, USGS Prof. Pape 1085).

The Raritan Clay consisting of Cretaceous aged deltaic clay and silty clay beds underlie the Magothy aquifer and acts as an effective aquiclude or confining unit having a hydraulic conductivity of approximately 1.0 x 10⁻³ ft/day. Below the Raritan Clay is the Lloyd Sand member which lies unconformably on Pre-Cambrian aged bedrock and is of Cretaceous age. It is composed of highly variable sands, gravels, and clays of a deltaic origin and has a moderated hydraulic conductivity of 300 gpd/ft² (Kimmel & Braids, USGS Prof. Papr 1085).

According to the Upper Glacial aquifer groundwater contour map for the site area, shown as Figure 1-4, groundwater flows through the site and surrounding areas in a northerly direction, eventually discharging to Port Jefferson Harbor and/or Long Island Sound. However, the presence of the Smithtown Clay bisecting the water table within the site and surrounding areas may result in a more complicated flow system within the study area. Depth to water at the site likely ranges from 175 feet to 200 feet below grade.

1.4 Data Requirements and Remedial Investigation Approach

Due to the long history of environmental concerns associated with the site, the multiple areas of environmental concerns present and the relatively large size of the site (126 acres); a thorough phased investigation approach is proposed, in order to obtain sufficient data to characterize the nature and extent of site contamination and to identify appropriate Interim Remedial Measures (IRMs). Additionally, the RI data will be needed to develop and prepare an FS for the site.

As discussed in Section 1.2, review of NYSDEC and SCDHS records concerning the site indicates:
A potential for buried debris including chemical drums;
Numerous locations of outside drum storage;
Multiple documented cases of drummed wastes (including halogenated VOCs) being discharged to the ground;
Documented organic and inorganic contamination present within onsite leaching pools and lagoon;
Documented contamination of private wells by halogenated VOCs located less than one mile downgradient of the site; and
Documented surface water and groundwater contamination by halogenated VOCs up to one mile from the site.

Given the documented cases of halogenated VOCs discharges at the site, there exists a significant potential for a pure VOC release or dense non-aqueous phase liquid (DNAPL) slug migrating through the unsaturated soil and reaching the water table. Having a greater density than water, the DNAPL slug would continue moving vertically through the Upper Glacial aquifer until reaching the Snithtown Clay unit, discussed in Section 1.3, where it may remain as a DNAPL pool on top and within the clay unit. This DNAPL pool along with any residual VOCs within the unsaturated and saturated zones will continue to be a source of significant groundwater contamination.

In order to adequately characterize areas of environmental concern, soil, groundwater, surface water and leaching pool sludge samples will be collected and analyzed for contaminants of concern. Site hydrogeology will be assessed in order to assess the fate and transport of contaminants identified within soil, groundwater and surface water. Identified contaminant concentrations will be compared to applicable standards and guidelines and possible exposure pathways will be identified to assess potential health risks. Sensitive environments such as wetlands and significant species will be identified which may be impacted by identified contamination.

In order to prioritize areas of concern and to select appropriate sample locations which will provide the most valuable data, CDM has organized the RI subtasks into the following phases:

- Pre-Field Investigation Subtasks
- Field Investigation Subtasks
- Post-Investigation Subtasks

The Pre-Field Investigation Subtasks include a thorough literature review of documents in order to identify all known and suspected areas of contamination. A review of aerial photographs will be conducted to locate drum storage areas, areas of possible filling and other potential concerns. Additionally, a site map will be developed so that areas of concern and sample points can be accurately located within the site. A groundwater model will be developed in order to determine groundwater flow patterns throughout the 126 acre site and surrounding areas. Through particle tracking analysis, the model will be used to identify potential contaminant plume migration pathways within the site which will aid in the selection of appropriate sample locations. Upon completion of the Pre-investigation Subtasks, a “workshop” meeting will be held at the CDM Woodbury, New York office in order to discuss the findings of the literature search and modeling studies and to select soil and boring locations.
Based on the findings of the Pre-Field Investigation and discussions with NYSDEC, soil boring, push probe and monitoring well locations will be selected. The planned Field Investigation Subtasks and data objectives of each subtask are as follows:

- **Geophysical Investigation**: To locate buried objects that may be a source of soil and groundwater contamination.

- **Abandoned Discharge Lagoon Investigation**: To assess the nature of material used to fill site discharge lagoons and determine if soil contaminants are present.

- **Push Probe Investigation**: To identify soil contaminant “hot spots” within the site. Note that soil borings and monitoring well locations may be modified based on the results of the push probe investigation.

- **Soil Borings and Monitoring Well Installation**: To further assess soil contamination identified by the push probe investigation (at greater depths); to assess soil and groundwater quality downgradient of identified hot spots and other potential areas of concern; obtain information on site hydrogeology and; identify possible DNAPL pools within the Smithtown Clay Unit.

- **Groundwater and Surface Water Sampling**: Assess the extent of groundwater contamination within and downgradient of the site and the extent of surface water contamination within a potentially impacted tidal creek and pond located less than one mile downgradient of the site.

- **Dry Well Investigation**: Assess if onsite drywells, leaching pools and septic systems are sources of soil and groundwater contamination.

The Post-Field Investigation Subtasks include analysis of samples collected as part of Field Investigation and summarizing all data in an RI Report. CDM will perform a qualitative exposure assessment to determine the potential human health impacts of identified contamination. CDM will identify recommendations for appropriate IRMs and/or additional investigations.
Section 2
Scope of Work

2.1 Task A - Rebid Standby Contracts

As part of this work assignment, CDM will develop a Request For Proposal (RFP) for analytical laboratories, drilling contractors and data validation services. Qualified firms will be provided the RFPs for review and reply. CDM will evaluate each submitted bid and select a firm or firms for award of each service. CDM will negotiate a subcontract agreement with each selected firm. CDM will provide NYSDEC with submitted RFPs, bid evaluations and subcontract agreements.

2.2 Task 1 - Work Plan Development

The Work Plan Development task has been divided into the following phases:

- Phase A: Scoping/Draft Work Plan
- Phase B: Final RI Work Plan, and
- Phase C: Securing Subcontractor Agreements

Subtask 1.1 - Phase A: Scoping/Draft Work Plan

This phase will include a review of the following information:

- Provided NYSDEC files,
- Provided Suffolk County Department of Health Services (SCDHS) files, and
- Information provided by Lawrence Aviation Industries (LAI).

A site visit will be conducted with NYSDEC and SCDHS representatives in order to become familiar with current site conditions and operations as well as identify general locations of past waste discharges. Immediately after the site visit, CDM will attend a scoping session with NYSDEC in order to formulate the general scope of work for the RI and to estimate project costs.

Within four weeks of the scoping meeting, CDM will submit a Draft Work Plan to the NYSDEC for review and comment. The Draft Work Plan will include:

- A statement of the overall Scope of Work, including proposed Immediate Remedial Actions (IRM)S), if any;
- A brief summary of the known problems at the site and likely remedial alternative;
- A Preliminary Field Activities Plan that provides a general description of each field activity to be completed as part of the RI;
- Detailed Level of Effort (LOE) and budget for Task 1, Phase B: Preparation of the Final RI/FS Work Plan;
- Preliminary estimate of the LOE and budget for conducting the remaining tasks in this Work Assignment;
- Preliminary estimate of the Work Assignment progress schedule, including milestones and deliverables;
Project Staffing Plan, identifying key management and technical staff members to be assigned to the Work Assignment, with resumes and a listing of their areas of responsibilities; and,

Identification of work items to be subcontracted including a Minority/Women Owned Business Enterprise (MBE/WBE) Utilization Plan.

**Subtask 1.2 - Phase B - Final RI Work Plan**

Within three weeks of receiving NYSDEC comments on the draft Work Plan, CDM will submit the final RI/FS Work Plan.

The Final Work Plan will contain the following:

- Final detailed Field Activities Plan;
- Site Specific Health and Safety Plan;
- Site Specific Quality Assurance Project Plan (QAPP);
- Detailed Work Assignment Budget for all tasks;
- Final Progress Schedule for all tasks; and
- Citizen Participation Plan.

If necessary, a meeting between CDM and NYSDEC will be held in Albany to review comments and details of the Draft Work Plan.

Once the RI/FS Work Plan is approved by the NYSDEC, a notice to initiate field work will be issued to CDM for the completion of the RI/FS. It is assumed that NYSDEC will schedule a public information meeting to be held near the site. CDM will assist the NYSDEC and the NYSDOH with the preparation of handouts and the presentation of the work plan at the public meeting.

**Subtask 1.3 - Phase C - Securing Subcontract Agreements**

Upon approval of the Final Work Plan by NYSDEC, CDM will finalize subcontract agreements with all required contractors and subcontractors. Subcontract agreements will be limited to the following services:

- Surveyor,
- Test Pit Contractor,
- Geoprobe Contractor,
- Well Driller,
- Geophysical Consultant,
- Analytical Laboratory
- Data Validator,
- Printer, and
- RI Field Support

Assumptions:

- Up to a maximum of six copies of the Draft Work Plan will be required by the NYSDEC.
- Up to a maximum of six copies of the Final Work Plan, with attachments, will be required by the NYSDEC. The Final Work Plan with attachments will not exceed 600 pages.
• Up to three copies of each executed subcontract agreement will be provided to NYSDEC.

2.3 Task 2 - Remedial Investigation

The remedial Investigation is comprised of 16 subtasks which have been grouped into three phases. The RI subtasks include:

Pre-Field Investigation Subtasks:

2.1 Literature Search
2.2 Mapping and Surveying
2.3 Groundwater Model Studies
2.4 Fish and Wildlife Impact Analysis

Field Investigation Subtasks:

2.5 Field Mobilization
2.6 Geophysical Investigation
2.7 Abandoned Discharge Lagoon Investigation
2.8 Push Probe Investigation
2.9 Soil Boring and Monitoring Well Installation
2.10 Dry Well Investigation
2.11 Groundwater and Surface Water Sampling

Post-Field Investigation Subtasks:

2.12 Sample Analysis
2.13 Data Validation/Usability Report
2.14 ARARs/SCGs and Human Exposure Assessment
2.15 RI Report Preparation
2.16 Public Participation

Subtask 2.1 - Literature Search

CDM will obtain all environmentally related historical information concerning the site from the following government agencies:

- NYSDEC
- SCDHS
- Town of Brookhaven Building and Planning Departments
- United States Geological Survey
- Suffolk County Water Authority

Additionally, CDM will review historical information provided by LAI.

Note that an initial review of NYSDEC and SCDHS files will be completed as part of Task 1 - Phase A: Scoping/Draft Work Plan.
Information to be reviewed includes: notices of violations, inspection reports, sampling reports, photographs, and site plans. Additionally, information concerning site and regional hydrogeology, climatological data, soil types will be reviewed. As part of this subtask, CDM will identify all operating public supply wells within a two mile radius of the site.

CDM will interview available LAI employees in order to locate areas of concern (i.e. leaching pools, areas of illicit dumping, etc.)

As part of this subtask, CDM will review historical aerial photographs of the site and surrounding areas, in order to identify potential areas of concern associated with past site practices. Additionally, CDM will obtain up to three 24” x 30” historical aerial photo enlargements of the site.

Assumptions:

- 60 hours have been estimated for a junior engineering/scientist to review all records, documents and aerial photographs.
- Information obtained in this subtask will be incorporated into the RI Report, Task 2.14.
- $550 has been budgeted in this subtask for the purchase of aerial photographs.

**Subtask 2.2 - Mapping and Surveying**

CDM will develop a base map for the site using ground control data (field surveying) in conjunction with digitizing existing aerial photograph data. The site map will be approximately 80 acres of the 126 acre site. All sample points will be located on the base map. Top of casing elevations of all existing and newly installed monitoring wells will be surveyed to the nearest 0.01 foot, based on USGS datum. A notch will be placed at the point of survey on each well casing to be used as a reference for future water level measurements.

The initial basemap for the site will be developed prior to undertaking field activities. All sample points will be surveyed at the completion of field activities.

Assumptions:

- The basemap will be developed by the survey subcontractor from an existing aerial photograph and ground control data obtained from one day in the field (8 hours/day) for a two person survey crew.
- Surveying of all RI sample points has been estimated to take three days (8 hrs./day) for a two person survey crew.
- CDM has budgeted 24 labor hours for CDM staff under this Subtask.

**Subtask 2.3 - Groundwater Model Studies**

CDM will develop a groundwater model for the site and potential downgradient receptors, including: the unnamed tidal creek and pond located in Port Jefferson Village, Port Jefferson Harbor and nearby public supply wells. The model will be developed from the currently existing
Suffolk County Regional Groundwater Model. The developed groundwater model will provide groundwater flow direction (horizontal and vertical) within the Upper Glacial and Magothy aquifers. The developed model will assist CDM in identifying possible RI monitoring well and soil boring locations through particle tracking analysis.

Upon completion of Subtasks 2.1 and 2.2 and completing the particle tracking analysis under Subtask 2.3, CDM will have a “work shop” meeting at CDM’s Woodbury, New York office with NYSDEC to discuss our findings and to select boring and monitoring well locations.

As part of the RI, CDM will use the model to assess potential impacts (including past, present, and future), to public supply wells and sensitive environments. As part of the FS, CDM will use the model to evaluate possible IRMs.

Assumptions:

- CDM has budgeted 200 labor hours for a junior engineer and 32 labor hours for a senior engineer to complete this subtask.
- Findings of the Modeling Study will be included in the RI Report, Subtask 2.15.

**Subtask 2.4 - Fish and Wildlife Impact Analysis**

CDM will complete a “Step 1” Fish and Wildlife Impact Analysis in accordance with NYSDEC’s Division of Fish and Wildlife document entitled: “Fish and Wildlife Impact Analysis for Inactive Hazardous Waste Sites (FWIA)”, dated October, 1994. This subtask will include:

- Obtaining a USGS topographic map of the site and determining site drainage;
- Obtaining information on vegetative communities including wetlands, aquatic habitats, sensitive environments etc. within a half mile radius of the site;
- Provide a description of the fish and wildlife located within one half mile radius of the site based on each cover type. Aquatic habitat, endangered, threatened and rare species will also be noted;
- Notation of stressed vegetation or biota observed onsite;
- Description of Fish and Wildlife Resource Value; and
- Identification of Applicable Fish and Wildlife Regulatory Criteria.

Assumptions:

- CDM has budgeted 24 labor hours for a junior scientist to complete this task.
- All required information will be obtained from the NYSDEC Region 2, Stony Brook, New York office.
- Findings of the Fish and Wildlife Analysis will be included in the RI Report, Subtask 2.15.

**Subtask 2.5 - Field Mobilization**

This activity addresses initial mobilization and final demobilization at the site for the field work included under Task 2. An office/storage trailer will be set up at the site for the duration of major
field work. Electrical service to the trailer will be provided by LAI. Toilet facilities and water will be made available by LAI.

As part of this subtask, the drilling subcontractor will construct a decontamination area for drilling and test pit equipment located within the general area of the field trailer.

Assumptions:

- CDM has budgeted $400 for solid waste disposal.
- Toilet facilities, electric and water service can be provided by LAI.
- LAI will not require payment for the use of toilet, electric and water.
- One 50 foot x 12 foot office trailer rented for 2 months by CDM.
- Costs related to connecting the office trailer to electrical service will not exceed $1,000.
- CDM has budgeted $450 for a portable field phone to be used for up to 8 weeks in the field.
- CDM has budgeted 24 labor hours for this Subtask.

**Subtask 2.6 - Geophysical Investigation**

A geophysical survey will be performed by CDM in the drum storage area, the closed lagoons, the historic drum storage area and possibly other areas that the initial site visit and literature search Subtask 2.1 determines as appropriate. The objective of the investigation is to locate any buried drums or landfilled materials that may be a contributing source of soil and groundwater contamination.

The geophysical survey will be accomplished using a magnetometer survey. Each suspect area will be marked out using a ten foot grid spacing. Any geophysical abnormalities will be further investigated using Ground Penetrating Radar (GPR).

When completed, CDM will discuss the findings of the geophysical survey with NYSDEC so that test pit locations can be selected.

Based on the results of the geophysical survey, test pits maybe undertaken to clarify any major geophysical abnormalities. CDM will screen test pit soils for the presence of volatile organic compounds (VOCs) using a photo ionization detection (PID).

Assumptions:

- All test pit and geophysical work can be performed in Level D PPE.
- Magnetometer Survey will include up to 8 acres of site property and will take a maximum of five days (10 hrs./day) to complete;
- Clearing of woods and brush will not be required to perform the geophysical survey.
- CDM has budgeted up to 90 labor hours for a junior engineer/geologist to complete this subtask.
- Task includes up to six test pits.
- Test pits will be a maximum of 30 feet long, 10 feet wide and 8 feet deep.
- Upon completion, all test pits will be backfilled with excavated soil, no compaction will be required.
This task does not include the removal of contaminated soil, drums or other containers of potentially hazardous wastes from a test pit. If such a container is uncovered, its location will be marked and will be addressed under an IRM independent of this RI/FS contract.

- Up to 12 soil samples will be collected for TCL/TAL Analysis.
- Up to 2 shipments of samples will be made to the laboratory via overnight carrier.

**Subtask 2.7 - Abandoned Discharge Lagoon Investigation**

As discussed in Section 1.1, LAI maintained two lagoons which received process waste waters. The lagoons were reportedly closed by LAI in 1987 by backfilling. Up to four test pits will be completed within the abandoned lagoons to determine the nature of the backfill and to identify potential sources of soil and groundwater contamination. Soil samples will be collected from test pit bottoms and side walls.

**Assumptions:**

- Test pits can be completed in Level D PPE
- Task includes up to four test pits.
- Test pits will be a maximum of 30 feet long, 10 feet wide and 8 feet deep.
- CDM has budgeted 30 labor hours for a junior engineer/geologist to perform this subtask.
- Up to 8 soil samples will be collected for TCL/TAL analysis.
- Up to one shipment of samples will be made to the laboratory via overnight carrier.

**Subtask 2.8 - Push Probe Sampling**

Soil samples will be collected at up to 25 locations within the site using push probe soil sampling technology (push probes). The exact location of each sample point will be based on findings obtained through the Literature Search Subtask 2.1. Up to fifteen (15) probes will be 40 feet in depth and ten (10) will be 15 feet in depth. Soil samples will be collected continuously at four foot intervals using large diameter piston rod samplers and screened for the presence of VOCs using a photo ionization detector (PID). Upon completion, each push probe borehole will be abandoned through the use of a bentonite slurry poured into the open borehole. Any soil sample remaining after completion of each borehole will be spread on the ground.

Each soil sample collected will be further screened in the field for the presence of specific VOCs using a portable Gas Chromatograph (portable GC) operated by an experienced CDM technician/environmental engineer. The portable GC will be set up onsite within the CDM field trailer. The portable GC will screen each recovered soil sample for the following contaminants of concern:

- Tetrachloroethane
- Trichloroethane
- 1,1-Dichloroethene
- 1,2-Dichloroethene
- Vinyl Chloride
- 1,1,1-Trichloroethane
- 1,1-Dichloroethane
Minimum detection limits for soil and groundwater samples will be 50 ppb.

If selected, CDM may also collect soil gas samples at four foot intervals at a number of the 25 probe locations (in lieu of soil sample collection) for portable GC screening.

Up to 20 soil samples will be selected for TCL VOCs in order to verify the portable GC results. An additional 20 soil samples will be selected for full TCL/TAL parameters.

Assumptions:

- CDM has estimated that the push probe investigation subtask will take 8 working days to complete.
- CDM will have one field geologist and one portable GC operator onsite for each day, 10 hrs./day, a total of 160 labor hours.
- Up to 6 shipments of samples will be made to the laboratory via overnight carrier.
- All field work will be executed in Level D PPE.
- No drilling wastes will require drumming during this activity.

**Subtask 2.9 - Soil Borings and Monitoring Well Installation**

Soil boring locations will be based on the results of the Literature Search, Groundwater Modelling and Push Probe subtasks and will be used to assess the nature and extent of soil and groundwater contamination within the site. Up to 12 soil borings will be completed using hollow stem auger drilling method (HSA) up to a maximum of 195 feet deep. Soil samples will be collected at 5 foot intervals and will be screened for the presence of VOCs in the field using a PID and a portable GC. The portable GC will be set up in the CDM field trailer and operated by a CDM technician/environmental engineer experienced in the operation of the unit. VOCs to be screened using the portable GC are listed in the subtask 2.8 description. Upon reaching the water table, estimated at 190 feet below grade, one groundwater sample will be collected from each boring using the Hydropunch sample method. All 12 hydropunch samples will be screened for listed VOCs using the portable GC.

Up to 24 soil samples will be submitted to the contract laboratory for TCL volatiles. Twelve Hydropunch groundwater samples will be submitted for TCL volatiles and conventional parameters listed in Subtask 2.12.

Based on the results of the portable GC VOC results, seven of the 12 boring locations will be converted to groundwater monitoring wells. CDM will discuss the results of the VOC screening and other significant findings with NYSDEC in order to select which borings are converted to monitoring wells. Each well will be constructed of a 4-inch PVC riser connected to a ten foot length of PVC well screen. Maximum depth of each well will be 198 feet.

Subtask 2.9 will also include the completion of one deep boring, up to 300 feet in depth, in order to characterize site geology and obtain water quality data. The boring will be completed using direct mud rotary drilling method. Soil samples will be collected every ten feet for geologic characterization. Groundwater samples will be collected every 20 feet, starting at the top of the water table, using the Hydropunch sample method. Upon completion of the borehole, the borehole
will undergo downhole geophysical logging using Natural Gamma Log and SP Resistivity method. The boring will be converted to a deep monitoring well, approximately 250 feet deep. However, the actual depth of each well will be dependent on the VOC screening, other significant findings and discussions with NYSDEC personnel. Construction will be consistent with the shallow monitoring wells.

All newly installed monitoring wells will be developed by the drilling contractor using a submersible pump. It is anticipated that all drill cuttings and development water can be discharged to the ground. However, if contaminated groundwater is encountered during sampling and well development, it will be drummed and staged on site for future disposal by NYSDEC independent of this assignment.

Assumptions:

- Shallow well and boring depths are based on an estimated average depth to water of 190 feet.
- CDM has estimated that the 12 shallow soil borings will take 22 days to complete with one geologist and one portable GC technician present each day (10 hrs./day) for a total of 440 labor hours.
- CDM has estimated that installation of the 7 shallow monitoring wells will take 10 days to complete with one geologist present for each day (10 hrs./day) for a total of 100 labor hours.
- CDM has estimated that completion of the one deep boring and conversion to a well will take 5 days to complete with one geologist present for each day (10 hrs./day) for a total of 50 labor hours.
- All field work will be preformed in Level D PPE.
- Well development is estimated at 3 hours per well.
- Well development water will be discharged to the ground surface, except in those locations where contaminated water is evidenced through field screening or visual observations, in which case the water will be drummed.
- For contingency purposes, CDM has budgeted for up to 20, 55-gallon, DOT drums under this subtask for contaminated water.
- Drill cuttings and drilling mud will be disposed of onsite in the area adjacent to the well or boring.
- Drill cuttings, drilling mud, decontamination water, or well development water will not be characterized or transported offsite.
- Downhole equipment will be steam cleaned between boring/well locations. Water from decontamination procedures will be discharged to the ground.
- All well locations will be accessible by truck-mounted rigs.
- Split spoon samplers will be decontaminated by Liquinox wash and distilled/deionized water rinse after each use. Water generated from decontamination procedures will be discharged to the ground.
- Up to 8 shipments of samples will be made to the laboratory via overnight carrier.
Subtask 2.10 - Dry Well Investigation

Based on the information obtained from the Literature Search subtask, up to 20 site cesspools and/or leaching pools will be sampled. Samples will be collected using a hand operated Ponar Dredge Sampler. Up to 20 sludge samples will be analyzed for full TCL/TAL parameters.

Assumptions:

- CDM has estimated that sampling of 20 drywells will take 4 days to complete with two sampling technicians (10 hrs./day) for a total of 80 hours.
- All field work will be performed in Level D PPE.
- Up to 2 shipments of samples will be made to the laboratory via overnight carrier.

Subtask 2.11 - Groundwater and Surface Water Sampling

Up to two rounds of groundwater and surface water samples will be collected by CDM. Up to 10 existing and 8 “new” RI groundwater monitoring wells will be sampled during each round. Existing wells could include onsite supply wells in addition to monitoring wells previously installed by SCDHS. Water level measurements will be collected at each well during each sample round. Up to 8 surface water samples will be collected during each sample round. The first round groundwater and surface water samples will be analyzed for full TAL/TCL pollutant list and conventional parameters listed in Subtask 2.12. Analysis of the second round will be limited to TCL volatiles and conventional.

Sampling of each well will be initiated within a minimum of two weeks after the final well is installed and developed. Immediately prior to sampling, each well will be purged using a submersible pump and small generator. Purging of a well will consist of the evacuation of 3 to 5 well volumes or until the well goes dry. Depending on the turbidity of the samples, the wells may be sampled immediately for TCL organic analyses and allowed to stand overnight before collecting samples for TAL metals and conventional parameters. It is anticipated that purge water will be discharged directly to the ground surface. However if previous investigations have determined a well to be highly contaminated, the purge water will be drummed and staged on-site.

Surface water samples will be collected from the unnamed tidal creek and associated ponds running through Port Jefferson Village at up to eight different locations.

In order to avoid the potential influence of surface runoff, surface water samples will be collected during a period of dry weather, with no precipitation occurring within 48 hours prior to the collection event.

All surface water samples that may be tidally influenced will be collected during the period starting two hours before mean low tide and ending before mean low tide in order to collect samples when groundwater recharge would be expected to be greatest. Surface water samples will be collected by submerging the sample containers below the surface of the water and allowing water to slowly flow into the containers.
Assumptions:

- All work can be accomplished in Level D PPE.
- Disposable dedicated bailers will be used to collect groundwater samples.
- Wells can be purged with 2" submersible well pumps or via hand bailing.
- Purge water can be discharged to the ground surface unless it is highly contaminated, in which case it will be drummed.
- Three field staff will be required for 10 hrs./day for 4 days (includes sample preparation for shipment) for each round of sampling, a total of 240 labor hours.
- Up to 10 shipments of samples to the lab via overnight carrier will be made.

Subtask 2.12 - Sample Analysis

Laboratory analysis of selected soil, groundwater, surface water and sludge samples will be performed by H2M Analytical Laboratories, Melville, New York, under subcontract to CDM. Analysis will be in accordance with NYSDEC Analytical Services Protocol (ASP), 1995 with a Category B deliverable data package. Table 2-1 provides a summary of the number of samples to be analyzed, parameters to be tested for and the number of QA/QC samples to be collected.

In addition to the standard ASP TCL/TAL parameters, groundwater and surface water samples will be analyzed for the following "indicator" parameters:

- Nitrate
- Nitrite
- Fluoride
- Chloride
- Hardness
- Alkalinity
- TDS

Additionally the following field measurements will be taken:

- pH
- Conductivity
- Dissolved oxygen

All metals analysis, including soil and aqueous samples, will include titanium. Soil and groundwater samples collected within and downgradient of the abandoned discharge lagoons will also include hexavalent chromium given historical records indicated the presence of this element within samples collected from the lagoons.

CDM will provide NYSDEC with a Data Summary Report summarizing all "raw" analytical data and will include a comparison of applicable standards and clean up guidelines within one week of receiving the final lab data package. The data summary tables will be revised based on the data validation/usability analysis to be conducted as part of subtask 2.13 and will be incorporated into the RI Report under subtask 2.15.
## Table 2-1

Sample Analytical Summary
Lawrence Aviation Industries Site
Work Assignment No. D002925-20.1

<table>
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<tr>
<th>Parameter Group</th>
<th>No. of Samples</th>
<th>No. of QA/QC Samples</th>
<th>Blind Duplicates</th>
<th>MS/MSD</th>
<th>Field Blank</th>
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Table 2-1
Sample Analytical Summary
Lawrence Aviation Industries Site
Work Assignment No. D002925-20.1

<table>
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<tr>
<th>Parameter Group</th>
<th>No. of Samples</th>
<th>No. of QA/QC Samples</th>
<th>Total No. Samples</th>
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Notes:
(1) Includes Titanium
(2) Conventionals will Include:
  pH
  Total Dissolved Solids
    Alkalinity
    Chloride
    Nitrate
    Nitrite
    Hardness
    Fluoride
(3) Half of the samples will include Hexavalent Chromium
(a) Soil samples collected as part of the Geophysical and Abandoned Discharge Lagoon Investigations are considered one sample delivery group.
Assumptions:

- Turnaround for lab data packages will be four weeks from receipt of last sample by the lab.
- 40 hours have been budgeted for a junior engineer for the development of data summary tables.

**Subtask 2.13 - Data Validation/Usability Report**

All data collected from the first round sampling, including soil, groundwater, surface water and sludge samples will undergo third party data validation. Based on the results of the first round data validation, NYSDEC will make a determination on the level of data validation necessary for any second round sampling conducted under the RI. Based on the data validation report, CDM developed a Data Usability Summary Report which will be submitted to the NYSDEC for review. A Final Data Usability Summary Report which addresses any NYSDEC comments will be incorporated into the RI Report under Task 2.15.

Assumptions:

- A data validation report will be made available to CDM within two weeks of receiving the lab data package.
- CDM has budgeted 40 labor hours to complete the Data Usability Summary Report.
- Up to six copies of the draft Data Usability Summary Report will be provided to NYSDEC within two weeks of receiving the data validation report.

**Subtask 2.14 - Identification of ARARs/SCGs and Human Exposure Assessment**

Applicable or Relevant and Appropriate Requirements (ARARs) and Standards Criteria and Guidance (SCGs) for each contaminant detected will be selected and compared to identified contaminant concentrations.

CDM will prepare a qualitative exposure assessment that will evaluate current and potential future exposure pathways assuming no remediation. The exposure assessment will identify the types and amounts of up to 10 chemicals of concern for soil and groundwater and surface water samples and summarize their toxicological effects, and compare the observed contaminant concentrations to risk based ARARs.

Assumptions:

- The human exposure assessment will be incorporated into the RI Report and a separate deliverable will not be required.
- One person (66) hours will be required to identify ARARs/SCGs and perform the assessment.
- All comments from NYSDEC and NYSDOH will be composited into a single review document provided to CDM.
- Only one round of comments is anticipated from NYSDEC/NYSDOH.
- The final assessment report which addresses any comments will be incorporated into the RI Report under Subtask 2.15.
**Subtask 2.15 - RI Report Preparation**

Upon completion of all RI activities, CDM will summarize investigation findings in a Remedial Investigation Report (RI Report). The report will include the following:

- Discussion of RI field and laboratory sample analysis;
- Nature and extent of soil and groundwater contamination;
- Up to 2 water level contour maps will be prepared;
- Up to 2 geologic cross sections;
- Groundwater modeling study findings;
- Discussion of the Qualitative Exposure Assessment; and
- Conclusions and recommendations, including: summary of any completed IRMs; summary of recommendations for further IRMs, operable units and additional (Phase II RI) investigations.

The RI Report will also include information regarding present site conditions, site history and regional background data, and fish and wildlife data, obtained in the Literature Search subtask.

After the draft RI Report is reviewed by the NYSDEC, a meeting will be held at the NYSDEC headquarters in Albany to determine whether additional RI activities are required or the scope of work for the FS needs to be adjusted.

**Assumptions:**

- The RI Report will consist of no more than 750 pages, including appendices.
- Up to one round of comments from NYSDEC will be incorporated into the draft RI prior to distribution to the public.
- A total of seven draft copies and seven final copies of the RI Report will be submitted to NYSDEC by CDM. All modifications resulting from the incorporation of public comments will be handled as an addendum to the RI Report.

**Subtask 2.16 - Public Participation**

At the completion of the RI, a public information meeting will be scheduled by NYSDEC to be held near the site. CDM will assist the NYSDEC and the NYSDOH with the preparation and the presentation of the RI data at the meeting.

**Assumptions:**

- CDM has budgeted up to 24 hours for this subtask.
- CDM will provide up to three poster size figures for presentation purposes.

**2.4 Task 3 - Preparation of Feasibility Study**

The major objectives of the FS will be to support an informed risk management decision regarding which remedy appears to be the most appropriate, cost-effective and protective of public health and the environment. The FS will be conducted in accordance with the most recent versions of the
guidance documents specified in the NYSDEC Division of Hazardous Waste Remediation’s Technical and Administrative Guidance Memorandum (TAGM) #4025 entitled “Guidelines for Remedial Investigations/Feasibility Studies under CERCLA.”

The FS will include the following subtasks:

**Subtask 3.1 - Development of Remedial Alternatives**

Using information generated in Tasks 1 and 2, CDM will develop a list of potential remedial technologies and alternatives that may be used to remediate the site.

**Subtask 3.2 - Screening of Alternatives**

The alternatives will be screened based on effectiveness, implementability and cost. The initial list of alternatives and the screened list, along with discussion and justification, will be submitted in the form of a preliminary draft FS Report to the NYSDEC for review.

**Subtask 3.3 - Detailed Analysis of Alternatives**

Following authorization from the NYSDEC, CDM will perform a detailed analysis of up to four remedial alternatives including the no-action alternative. Each alternative will be evaluated against the following criteria:

- Overall protection of public health and the environment;
- Compliance with SCGs;
- Long-term effectiveness and permanence;
- Reduction of toxicity, mobility and volume of hazardous waste;
- Short-term effectiveness and potential impacts during remediation;
- Implementability and technical reliability;
- Community acceptance; and
- Cost.

**Subtask 3.4 - Report Preparation and Recommendations**

CDM will prepare a draft FS Report which will include findings from the above subtasks and recommend a remedial alternative that is protective of human health and the environment, attains SCGs, satisfies the preference for treatment that significantly and permanently reduces toxicity, mobility, or volume of hazardous waste as a principle element, and is cost effective.

Assumptions:

- The FS will include the detailed evaluation of up to four remedial alternatives including the no-action alternative
- CDM will provide up to six copies of the preliminary draft FS Report under Subtask 3.2 to NYSDEC. The preliminary draft FS will not exceed 50 pages in length.
- A total of seven draft and final FS Reports copies will be provided to NYSDEC. Each report will not exceed 350 pages including appendices.
- Up to one round of comments from NYSDEC will be incorporated into the draft FS Report prior to distribution to the public.
2.5 Task 4 - Interim Remedial Measures/Phase II RI

Based on the information collected during the RI, the need for implementation of IRMs will be evaluated. If IRMs are recommended, CDM will prepare a scoping document outlining the proposed remedies. Should the results of the RI indicate that additional data are required to fill data gaps, CDM will develop a scope of work to perform a Phase II investigation. A draft and final scoping document for any required Phase II RI/IRM will be completed by CDM within two weeks of authorization from NYSDEC and will not exceed 12 pages.

Assumptions:

- The current project budget does not include funds to perform any IRM or Phase II RI activities.
- Bid solicitations, evaluation, and selection of subcontractors are not included for scoping of the Phase II RI/IRM.
- No scoping meeting with NYSDEC in Albany is required.
- No cost estimates will be provided.
Section Three
Section 3
Schedule

Figure 3-1 presents tentative completion dates for conducting various tasks of the RI/FS. The tentative project schedule is based on the original NYSDEC schedule provided in the NYSDEC April 1997 scope of work for the Lawrence Aviation Industries site RI/FS.

It is anticipated that a Notice to Proceed with the RI will be issued by NYSDEC in early August 1997. A number of Pre-Field Investigation activities described in Subtask 2.1 through 2.4 will take approximately three weeks to complete. Upon completion of the Pre-Investigation Subtasks, a "work shop" meeting will be held at the CDM Woodbury, New York office in order to discuss the findings of the literature search and modeling studies and to select soil and boring locations. Field efforts, subtask 2.5 through 2.11, are estimated to require approximately two months to complete and will start in early September 1997. A second groundwater and surface water sampling round will be conducted in November of 1997.

The draft RI Report is scheduled for completion in February of 1998. Considering NYSDEC review periods, the Final RI report will be completed in May of 1998. The public information meeting for the RI would be scheduled several weeks after submission of the Final RI report, sometime in mid to late-April 1998.

Preparation of the Preliminary Draft FS Report (Subtask 3.2) will begin immediately following submission of the draft RI Report and is expected to be completed by May 1998, with completion of the draft Feasibility Study Report (Subtask 3.4) anticipated by August 1998. Considering NYSDEC review periods, the Final FS report will be completed by October of 1998.

Based on the results of the RI, it may be necessary to scope out a Phase II RI if additional data are needed to proceed with the development of potential remedial alternatives. Should additional field investigations be required, the tentative delivery dates of the FS Report and subsequent work elements will be revised.
## Figure 3-1

Tentative Project Schedule

**Lawrence Aviation Industries site RI/FS (Revised July 8, 1997)**

<table>
<thead>
<tr>
<th>Project Milestone</th>
<th>Date</th>
<th>Elapsed Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Issuance of Work Assignment to the NYSDEC Standby Consultant</td>
<td>March 20, 1997</td>
<td></td>
</tr>
<tr>
<td>Acknowledge Receipt of Work Assignment (WA)</td>
<td>March 30, 1997</td>
<td>10 days after issuing WA</td>
</tr>
<tr>
<td>Site Visit</td>
<td>May 14, 1997</td>
<td>62 days after WA</td>
</tr>
<tr>
<td>Scoping Session</td>
<td>May 14, 1997</td>
<td>Held immediately after site visit</td>
</tr>
<tr>
<td>*Submit Draft RI Work Plan</td>
<td>June 13, 1997</td>
<td>4 weeks after scoping session</td>
</tr>
<tr>
<td>Comments on Draft Work Plan</td>
<td>June 27, 1997</td>
<td>2 weeks after draft submittal</td>
</tr>
<tr>
<td>**Submit Final Work Plan</td>
<td>July 18, 1997</td>
<td>3 weeks after comments received on draft</td>
</tr>
<tr>
<td>*Public Information Meeting- RI Work Plan</td>
<td>August 1, 1997</td>
<td>2 weeks after submittal of Final WP</td>
</tr>
<tr>
<td>Final RI Work Plan Approval, Notice to Proceed (NTP)**</td>
<td>August 4, 1997</td>
<td>158 days after issue of WA</td>
</tr>
<tr>
<td>Complete Pre-Field Investigation RI Subtasks, 2.1 through 2.4</td>
<td>Sept. 4, 1997</td>
<td>4 weeks after NTP</td>
</tr>
<tr>
<td>Complete Field Investigation RI Subtasks, 2.5 through 2.11( Note 2nd Round Groundwater\Surface Water Sampling to be completed by Dec. 5, 1997)</td>
<td>Nov. 3, 1997</td>
<td>12 weeks after NTP</td>
</tr>
<tr>
<td>Complete Post-Field Investigation Subtasks, 2.12 through 2.14 (Data Validation\Usability and Risk Assessment Reports)</td>
<td>Feb. 13, 1998</td>
<td>25 weeks after NTP</td>
</tr>
<tr>
<td>IRM Identification (Task 4)</td>
<td>Feb. 13, 1998</td>
<td>25 weeks after NTP</td>
</tr>
<tr>
<td>Submit Draft RI Report (Subtask 2.15 Deliverable)</td>
<td>Feb. 27, 1998</td>
<td>27 weeks after NTP</td>
</tr>
<tr>
<td>Comments on RI Report</td>
<td>April 9, 1998</td>
<td>1 ½ months after draft RI Report received</td>
</tr>
<tr>
<td>**Submit Final RI Report and preliminary Draft FS (Subtask 3.2 Deliverable)</td>
<td>May 14, 1998</td>
<td>14 months after issuance of WA, 10 months after NTP</td>
</tr>
<tr>
<td>*Public Information Meeting- RI Results</td>
<td>June 19, 1998</td>
<td>11 months after NTP</td>
</tr>
<tr>
<td>***Comments on preliminary Draft FS and meeting at NYSDEC (HQ)</td>
<td>June 27, 1998</td>
<td>11 months after NTP</td>
</tr>
</tbody>
</table>
## Figure 3-1
### Tentative Project Schedule
Lawrence Aviation Industries site RI/FS (Revised July 8, 1997)

<table>
<thead>
<tr>
<th>Project Milestone</th>
<th>Date</th>
<th>Elapsed Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Submit Draft FS Report</td>
<td>August 20, 1998</td>
<td>13 months after NTP</td>
</tr>
<tr>
<td>Approve Final RI Report</td>
<td>Sept. 19, 1998</td>
<td>14 months after NTP</td>
</tr>
<tr>
<td>Comments on the Draft FS</td>
<td>Sept. 19, 1998</td>
<td>14 months after NTP</td>
</tr>
<tr>
<td><strong>Submit Final FS Report</strong></td>
<td>October 20, 1998</td>
<td>1 month after all FS comments received, 15 months after NTP</td>
</tr>
<tr>
<td>Approve Final FS Report</td>
<td>Nov. 20, 1998</td>
<td>16 months after NTP</td>
</tr>
</tbody>
</table>

**Notes:**

- WA Work Assignment
- NTP Notice to Proceed
- * Project Milestone
- ** Project Milestone requiring Performance Evaluation
- *** May Be Delayed by OCS
- **** Meeting at NYSDEC Option

File: LAI.WPD