

*Revised
Plan
Based on my comment
of 10/14/07*

SECOND INVESTIGATION PLAN
for
Central Aviation & Marine Corporation
(CAMCO)
at
2125 Smithtown Avenue
Ronkonkoma, New York 11779
Suffolk County Site No. 152260

Prepared For: NYSDEC, Region I
Building 40
SUNY at Stony Brook
Stony Brook, New York 11790

Attention: Mr. John Sheehan
Engineering Geologist 1

On Behalf of: Town of Islip
Department of Aviation & Transportation
100 Arrival Ave
Ronkonkoma, New York 11779

Prepared by: N.D. Eryou, PhD, PE
2500 Airport Road S, Suite 210
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In Conjunction with:

Kost Environmental Services, Inc.
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Lindenhurst, New York 11757

Prepared On: September 26th, 2007
Revised On: October 25th, 2007

[Signature]
10.25.07

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1.0 INTRODUCTION

N.D. Eryou, PhD, PE was retained by the Town of Islip Department of Aviation and Transportation to perform environmental work at Long Island MacArthur Airport (ISP) in September 2006. One of the required tasks was to perform a preliminary subsurface evaluation report for a site on the west side (Central Aviation and Marine Company – CAMCO) that NYSDEC was in the process of putting on the list of inactive hazardous waste sites. Eryou utilized the services of Kost Environmental Services, Inc to prepare a report entitled “Preliminary Subsurface Investigation Report for CAMCO”. This report was submitted to NYSDEC on December 27th, 2006 and the report was discussed in detail with NYSDEC Region 1 staff on February 27th, 2007.

The field work associated with the original Investigation April 11, 2007 was accomplished by Fenley & Nicol on July 5th and 6th and a report entitled “Subsurface Evaluation Report #3 – CAMCO” dated July 2007 was submitted to NYSDEC for review.

NYSDEC’s review indicated that there were concerns with regard to the drywell soil testing being conducted to SCDHS drywell cleanup standards rather than NYSDEC Soil Remediation Guidelines. Eryou had Fenley conduct a direct comparison of the laboratory data to NYSDEC Soil Remediation guidelines and the corresponding Fenley letter of September 5th was submitted to NYSDEC for review at a meeting with John Sheehan of NYSDEC Region 1 on September 19, 2007.

2.0 WORKPLAN OBJECTIVES

The objective of this investigation is to sufficiently evaluate subsurface conditions to provide NYSDEC with sufficient information to determine the actions required to either list or remove the site (#HS1006) from the inventory of the Hazardous Waste Disposal Sites.

3.0 BACKGROUND INFORMATION

The following sections provide a description of relevant Site background information.

3.1 Site Setting

The site is located on the West Side of ISP, between Taxiway B and Smithtown Avenue. A location map, an airport west side map and a CAMCO site map are provided in Appendix A. The site occupies an area of 2.03 acres and is at an elevation of 100 feet above sea level. The street address for CAMCO is 2125 Smithtown Ave, although the property does not border Smithtown Ave.

3.2 Site History

A freedom of information request was filed with the Town of Islip (TOI) regarding pertinent files pertaining to the subject site. The information obtained from this request revealed the following:

- The site is identified as Tax Map: Section 106; Block 1; Lot 6.6;
- Central Aviation and Marine Corporation (CAMCO) has been operating since before World War II, but has been out of service for approximately ten years;
- Sanitary wastes are discharged to cesspools located east of the structure at the large parcel and west of the structure at the smaller parcel;
- The larger parcel site has been used for the repair and overhaul of aircraft parts and accessories; and
- LIPA supplies electric/natural gas to the sites. The SCWA supplies potable water.

3.3 Site Characterization

The 2.03 acre CAMCO site is characterized by a sprawling one story building and a small storage shed on the north side of the main building. The total area of the main building is approximately 43,000 square feet with the east, north and west sides of the lot (approximately 45,000 square feet) covered with asphalt pavement. The east side paved area is used for vehicular parking. The east side of the paved yard did not have any positive surface drainage and the asphalt pavement is in poor condition. The west side of the paved yard is in good condition and it is drained by several drywells. The main building is very close to the southern property line and a small grass area exists on the southwest corner of the lot. An access road to aircraft hangars abuts the southern border of the property.

A detailed description of the CAMCO facility is contained in a recently completed Phase 1 report. The overhaul processes which operated on site used several types of virgin organic solvents which generated hazardous waste.

According to the site records, discussed in the Phase 1 report, typical solvents used in this type of industry includes methylene chloride, 1,1,1 trichloroethane, xylene, toluene and trichlorethylene. The facility was registered with NYSDEC under #NYD002412963. According to Suffolk County Department of Health Services records, a total of 11,133 gallons of storage tank capacity and 5,280 gallons of drum storage were present on this site.

4.0 INVESTIGATION WORKPLAN

4.1 Introduction

The NYSDEC project manager will be given a minimum of one-week notice before fieldwork begins. The on-site NYSDEC representative(s) shall be offered split samples for all soil and groundwater samples obtained. The following sections provide the details of the scope of work.

4.2 Sampling Protocol

4.2.1 Sampling Equipment

All soil and groundwater samples will be collected in accordance with NYSDEC guidance document "Sampling Guidelines and Protocols: Technical Background and Quality Control / Quality Assurance for NYSDEC Spill Response Program".

Soil samples obtained from the dry wells/sanitary cesspools will be collected utilizing a stainless steel hand auger or direct push sampling devices. Soil samples will be field screened utilizing a Photoionization Detector (PID) to establish the depth at which an endpoint sample will be collected. Groundwater samples will be collected utilizing direct push equipment and polyethylene tubing with a check valve.

4.2.2 Sampling Equipment Decontamination Procedure

Soil samples will be collected utilizing a stainless steel hand auger or direct push sampling device. In order to ensure that cross-contamination between sampling locations does not occur, each piece of sampling equipment will be decontaminated prior to each use. The following procedure is utilized in the decontamination process:

- Wipe clean and wash with Alconox®
- Potable water rinse
- Methanol rinse
- Deionized water rinse
- Air dry

All decontamination procedures will be performed in a segregated area separate from any sampling areas.

4.2.3 Quality Assurance /Quality Control Sampling

To maintain quality control and verify that contamination is not being introduced to samples in the field by improper field sampling techniques, Quality Assurance/Quality Control (QA/QC) samples will be collected. The QA/QC sampling will consist of the following:

- Field Blanks, one (1) per day
- Trip Blanks, one (1) per day

4.3 Drywell Investigation

No further investigative action is required on the drywells.

4.4 Cooling Water Cesspool Investigation

Based upon the Ferley & Nicol letter of September 5th regarding exceedences of cadmium, copper and mercury levels to NYSDEC RSCO, Drywells #5 and #6 will be remediated to SCDHS UIC standards.

4.5 Drum Storage Area Investigation

In the previous round of field work, soil boring B14 was inadvertently placed in the Northwest corner of the building instead of the Southwest corner of the building and a new boring will be installed in the Southwest corner of the building as indicated in Figure 3 herein.

Soil samples will be taken from beneath the drum storage area using new boring B14. The samples will be obtained by utilizing a stainless steel hand auger and/or direct push sampling device. All sampling techniques and decontamination procedures will conform to those outlined in section 4.2 of this work plan.

4.6 Groundwater Investigation

Additional groundwater sampling is required at the subject property as the most recent field investigation on July 5th and 6th, 2007 groundwater well # B16 (direct push) indicated the presence of DNAPL contamination at 60', 70' and 80' below grade.

The previous round of upgradient and down gradient groundwater sampling at the site had been limited to the vadose zone and it is now necessary to confirm that the DNAPL plume does not originate upgradient of CAMCO and does not extend downgradient off the Airport property.

Therefore two new direct push upgradient borings (B 18 & B19 on Figure 2) will be installed to determine if some of or the entire DNAPL plume originates upgradient of CAMCO. In addition a direct push down gradient boring (B17 on Figure 2) will be installed at the down gradient intersection of the plume with the western property line of the Airport along Smithtown Ave. Ground water samples will be collected over 10 foot intervals starting at the water table (anticipated to be 50 feet) and continuing to a depth of 100 feet. All groundwater samples will be collected utilizing direct push technology. All work will conform to relevant NYSDEC groundwater sampling protocols.

Prior to the collection of each groundwater sample, the polyethylene tubing will be purged of three to five well volumes. Each groundwater sample will be containerized within laboratory-issued glassware, placed in a cooler filled with ice and taken directly to a New York State Department of Health (NYSDOH) accredited laboratory, under proper chain-of-custody procedures, for analysis.

Each soil sample will be characterized on-site. Following the characterization, the soil sample will be placed into a zip-lock bag and screened for total organic vapors utilizing a Photoionization Device (PID). Following the completion of each soil boring, the location of the soil boring will be surveyed and placed onto the Site Plan. Aliquots different from that utilized for the head space analysis will be transferred to laboratory-issued glassware and appropriately labeled.

A minimum of one (1) soil sample from each boring location exhibiting the highest concentration of VOCs based on the PID or at the groundwater interface will be containerized within laboratory-issued glassware, placed in a cooler filled with ice, and taken directly to a New York State Department of Health (NYSDOH) accredited laboratory, under proper chain-of-custody procedures, for analysis.

The soil and groundwater samples will be analyzed for STARS Memo No.1 in accordance with United States Environmental Protection Agency (USEPA) Method 8260 plus Mercury, Method 8270 and TAL metals.

4.7 Soil Gas Investigation

Soil gas monitoring will be performed at two indoor locations and one outdoor location, as indicated on Figure 3. (See SG1 through SG3 on Figure 3). The sampling depth will be five (5) feet below concrete slab for indoor locations and five (5) feet below grade for outdoor locations. Vapor sampling wells, sampling procedures and laboratory analytical work shall be conducted in accordance with the NYSDOH draft document entitled "Guidance for Evaluating Soil Vapor Intrusion in the State of New York, February 2005."

In addition an ambient outdoor air sample will be collected during the soil vapor sampling process, as per the NYSDOH draft document entitled "Guidance for Evaluating Soil Vapor Intrusion in the State of New York, February 2005."

The volume of the individual Summa canisters is six liters which corresponds to a minimum reporting limit of 1 microgram per cubic meter using an 8 hour sampling interval and EPA Method TO-15.

5.0 REPORT OF FINDINGS

An Investigation Summary Report will be prepared following the completion of the fieldwork and the laboratory analyses. This report will contain the findings and conclusions of the investigation related to the source of contamination, and will include appropriate maps, diagrams, and tabulations of all analytical data.

6.0 PROJECT SCHEDULE

The review and approval of this investigation plan is expected to take approximately two weeks by the NYSDEC. After approval of this Investigation Plan the field work and reporting is anticipated to require eight weeks.

7.0 SUMMARY

On behalf of The Town of Islip, N.D. Eryou, PhD, PE has prepared this Investigation Plan for the NYSDEC, to satisfy the requirements discussed at a meeting with John Sheehan of NYSDEC Region 1 on September 19th.

The Investigation Plan will be implemented according to the schedule described in Section 6.0, as modified by any additional requirements imposed by the NYSDEC. If additional work is required by the NYSDEC during the same time frame listed above, the schedule and implementation of the said work as well as the activities listed above will be completed on a revised schedule.

APPENDICES



FIGURE 1

N. D. Eryou, PhD, PE
Consulting Engineer
2500 Airport Road South #210
Naples, FL 34112

CAMCO LOCATOR MAP
MACARTHUR AIRPORT
RONKONKOMA, NY



SMITHTOWN AVENUE

ACCESS ROAD

INDUSTRIAL BUILDING

GW FLOW

WAREHOUSE

INDUSTRIAL BUILDING

FIELD INSPECTIONS PROVED THAT
THIS BURIED LINE DOES NOT EXIST

MAIN
BUILDING

OUTDOOR
DRUM
STORAGE
AREA

INDOOR DRUM STORAGE

SHED

MAC ARTHUR
AIRPORT

WATER JACKET

LEGEND

--- MAC ARTHUR AIRPORT STORM
WATER DRAINAGE SYSTEM

⊠ HOLDING TANK

⊙ STORM DRAIN

⊗ COOLING WATER CESSPOOL

⊖ UNDERGROUND STORM DRAIN

⊕ DW-1 TO DW-4 & C-1 TESTED ON
10/23/06

⊕ DW5 & DW-6 TESTED ON 07/06/07

⊗ B4 & B5 = TESTED 10/24/06

⊗ B14-18 = TESTED ON 07/06/07

⊗ B14 = TO BE RETESTED

⊗ SG1-3 = TO BE TESTED (SOIL GAS)

CENTRAL AVIATION & MARINE CORP., RONKONKOMA, N.Y.

(NOT TO SCALE)

REVISED 04/23/07

N. D. ERYOU, PhD, PE
Consulting Engineer

2500 AIRPORT ROAD S. # 210 NAPLES, FL 34112

SITE SAMPLING PLAN
MACARTHUR AIRPORT
RONKONKOMA, NY 11779

FIGURE 4



445 Brook Avenue, Deer Park, NY 11729

(631) 586-4900 • NYC (718) 204-4993

FAX (631) 586-4920

September 5, 2007

Mr. Dennis Eryou PhD., P.E.
Consulting Engineer
2500 Airport Road South
Suite 210
Naples, Florida 34112

**Re: CAMCO
2225 Smithtown Avenue
Ronkonkoma, New York 11779**

Dear Mr. Eryou,

Fenley & Nicol Environmental Inc. (F&N) has presented to you the laboratory data tables for all sampling results in comparison to the NYSDEC Guidance Values for the above referenced site. As such, here is a summary of the analyticals:

1.0 Aqueous Samples:

1.1 Metals Analysis

A review of the laboratory analytical data for the collected aqueous samples indicated that all retained samples, B-16 GW (60'), B-16 GW (70'), & B-16 GW (80'), contained no targeted metal compounds above the Recommended NYSDEC Groundwater Standards.

1.2 Semi-Volatile Organic Compounds Analysis

An evaluation of the laboratory analytical data for the collected aqueous samples indicated that for sample B-16 GW (60'), two (2) compounds (1,2-Dichlorobenzene @ 7µg/L & Naphthalene @ 52µg/L) were detected above the above the Recommended NYSDEC Groundwater Standards (5µg/L & 10µg/L, respectively). All remaining targeted compounds for that sample were below the Recommended NYSDEC Groundwater Standards.

A review of the laboratory analytical data for the collected aqueous samples indicated that for sample B-16 GW (70'), all targeted compounds for that sample were below the Recommended NYSDEC Groundwater Standards.

An evaluation of the laboratory analytical data for the collected aqueous samples indicated that for sample B-16 GW (80'), two (2) compounds (1,2-Dichlorobenzene @ 8.8µg/L & Naphthalene @ 27µg/L) were detected above the above the Recommended NYSDEC Groundwater Standards (5µg/L & 10µg/L, respectively). All remaining targeted compounds for that sample were below the Recommended NYSDEC Groundwater Standards.

1.3 Volatile Organic Compounds Analysis

A review of the laboratory analytical data for the collected aqueous samples indicated that for samples B-16 GW (60'), B-16 GW (70'), & B-16 GW (80'), several compounds were detected above the Recommended NYSDEC Groundwater Standards. Those compounds in exceedance are listed below:

<u>Sample</u>	<u>Compound</u>	<u>Analytical Result</u>	<u>NYSDEC GW</u>
• B-16 GW (60')	cis-1,2-Dichloroethene	19µg/L	5µg/L
	Ethylbenzene	15µg/L	5µg/L
	Isopropylbenzene	42µg/L	5µg/L
	P&M Xylene	75µg/L	10µg/L
	Methylene Chloride	16µg/L	5µg/L
	Naphthalene	98µg/L	10µg/L
	n-Butylbenzene	51µg/L	5µg/L
	n-Propylbenzene	110µg/L	5µg/L
	o-Xylene	41µg/L	5µg/L
	p-Ethyltoluene	42µg/L	5µg/L
	sec-butylbenzene	64µg/L	5µg/L
	1,2,4,5-Tetramethylbenzene	450µg/L	5µg/L
	1,2,4-Trimethylbenzene	850µg/L	5µg/L
	1,2-Dichlorobenzene	23µg/L	4.7µg/L
	1,3,5-Trimethylbenzene	400µg/L	5µg/L
	1,4-Dichlorobenzene	5.9µg/L	5µg/L
	4-Isopropyltoluene	180µg/L	5µg/L
	Chlorobenzene	27µg/L	5µg/L

Sample	Compound	Analytical Result	NYSDEC GW
• B-16 GW (70')	Isopropylbenzene	6µg/L	5µg/L
	Methylene Chloride	17µg/L	5µg/L
	Naphthalene	15µg/L	10µg/L
	n-Butylbenzene	9.5µg/L	5µg/L
	n-Propylbenzene	20µg/L	5µg/L
	o-Xylene	5.6µg/L	5µg/L
	p-Ethyltoluene	53µg/L	5µg/L
	sec-butylbenzene	14µg/L	5µg/L
	1,2,4,5-Tetramethylbenzene	38µg/L	5µg/L
	1,2,4-Trimethylbenzene	160µg/L	5µg/L
	1,3,5-Trimethylbenzene	76µg/L	5µg/L
	4-Isopropyltoluene	38µg/L	5µg/L

Sample	Compound	Analytical Result	NYSDEC GW
• B-16 GW (80')	Ethylbenzene	5.4µg/L	5µg/L
	Isopropylbenzene	17µg/L	5µg/L
	P&M Xylene	31µg/L	10µg/L
	Methylene Chloride	17µg/L	5µg/L
	Naphthalene	24µg/L	10µg/L
	n-Butylbenzene	23µg/L	5µg/L
	n-Propylbenzene	54µg/L	5µg/L
	o-Xylene	15µg/L	5µg/L
	p-Ethyltoluene	17µg/L	5µg/L
	sec-butylbenzene	34µg/L	5µg/L
	1,2,4,5-Tetramethylbenzene	200µg/L	5µg/L
	1,2,4-Trimethylbenzene	380µg/L	5µg/L
	1,2-Dichlorobenzene	7µg/L	4.7µg/L
	1,3,5-Trimethylbenzene	210µg/L	5µg/L
	4-Isopropyltoluene	92µg/L	5µg/L

All remaining targeted compounds for those samples, not listed in the tables above, were below the Recommended NYSDEC Groundwater Standards.

2.0 Drywell Soil Samples:

2.1 Metals Analysis

A review of the laboratory analytical data for the collected drywell soil samples indicated that for sample DW-5 (13') two (2) compounds (Cadmium @ 5.21mg/kg & Mercury @ 0.831mg/kg) were above their Recommended NYSDEC Soil Cleanup Objectives ([1 or (0.1-1)] and 0.1, respectively). All other remaining metals compounds for that sample were below the Recommended NYSDEC Soil Cleanup Objectives.

An evaluation of the laboratory analytical data for the collected drywell soil samples indicated that for sample DW-6 (20') three (3) compounds (Cadmium @ 13.8mg/kg, Copper @ 131mg/kg, & Mercury @ 3.34mg/kg) were above their Recommended

NYSDEC Soil Cleanup Objectives ([1 or (0.1-1)], [25 or(1-50)], and 0.1, respectively). All other remaining metals compounds for that sample were below the Recommended NYSDEC Soil Cleanup Objectives

A review of the laboratory analytical data for the collected drywell soil samples indicated that for sample DW-8 (16') one (1) compound (Cadmium @ 1.29mg/kg) was above its Recommended NYSDEC Soil Cleanup Objective ([1 or (0.1-1)]). All other remaining metals compounds for that sample were below the Recommended NYSDEC Soil Cleanup Objectives.

2.2 Semi-Volatile Organic Compounds Analysis

A review of the laboratory analytical data for the collected drywell soil samples indicated that all retained samples, DW-4 (23'), DW-5 (13'), DW-6 (20'), DW-7 (15'), & DW-8 (16'), contained no targeted semi-volatile organic compounds above the Recommended NYSDEC Soil Cleanup Objectives.

2.3 Volatile Organic Compounds Analysis

An evaluation review of the laboratory analytical data for the collected drywell soil samples indicated that all retained samples, DW-4 (23'), DW-5 (13'), DW-6 (20'), DW-7 (15'), & DW-8 (16'), contained no targeted volatile organic compounds above the Recommended NYSDEC Soil Cleanup Objectives.

3.0 Soil Samples:

3.1 Metals Analysis

A review of the laboratory analytical data for the collected soil samples indicated that for sample B-14 (5') one (1) compound (Cadmium @ 2.04mg/kg) was above its Recommended NYSDEC Soil Cleanup Objectives ([1 or (0.1-1)]). All other remaining metals compounds for that sample were below the Recommended NYSDEC Soil Cleanup Objectives.

An evaluation of the laboratory analytical data for the collected soil samples indicated that for sample B-15 (7') one (1) compound (Cadmium @ 2.91mg/kg) was above its Recommended NYSDEC Soil Cleanup Objectives ([1 or (0.1-1)]). All other remaining metals compounds for that sample were below the Recommended NYSDEC Soil Cleanup Objectives.

3.2 Semi-Volatile Organic Compounds Analysis

A review of the laboratory analytical data for the collected soil samples indicated that all retained samples, B-14 (5') & B-15 (7'), contained no targeted semi-volatile organic compounds above the Recommended NYSDEC Soil Cleanup Objectives.

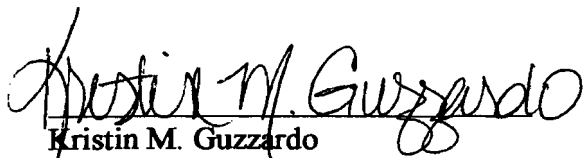
3.3 Volatile Organic Compounds Analysis

An evaluation of the laboratory analytical data for the collected soil samples indicated that for sample B-14 (5'), contained no targeted volatile organic compounds above the Recommended NYSDEC Soil Cleanup Objectives.

A review of the laboratory analytical data for the collected soil samples indicated that for sample B-15 (7'), two (2) targeted volatile organic compounds (1,2-Dichlorobenzene @ 41,000µg/mg & Methylene Chloride @ 2,400µg/mg) were above the Recommended NYSDEC Soil Cleanup Objectives (7,900µg/mg & 100µg/mg, respectively). All remaining targeted volatile organic compounds were below the Recommended NYSDEC Soil Cleanup Objectives for that sample.

Should you have any questions or comments about the laboratory analytical data, please feel free to contact me at your leisure at F&N (631) 586-4900 Ext. 153.

Sincerely,


Kristin M. Guzzardo
Project Geologist