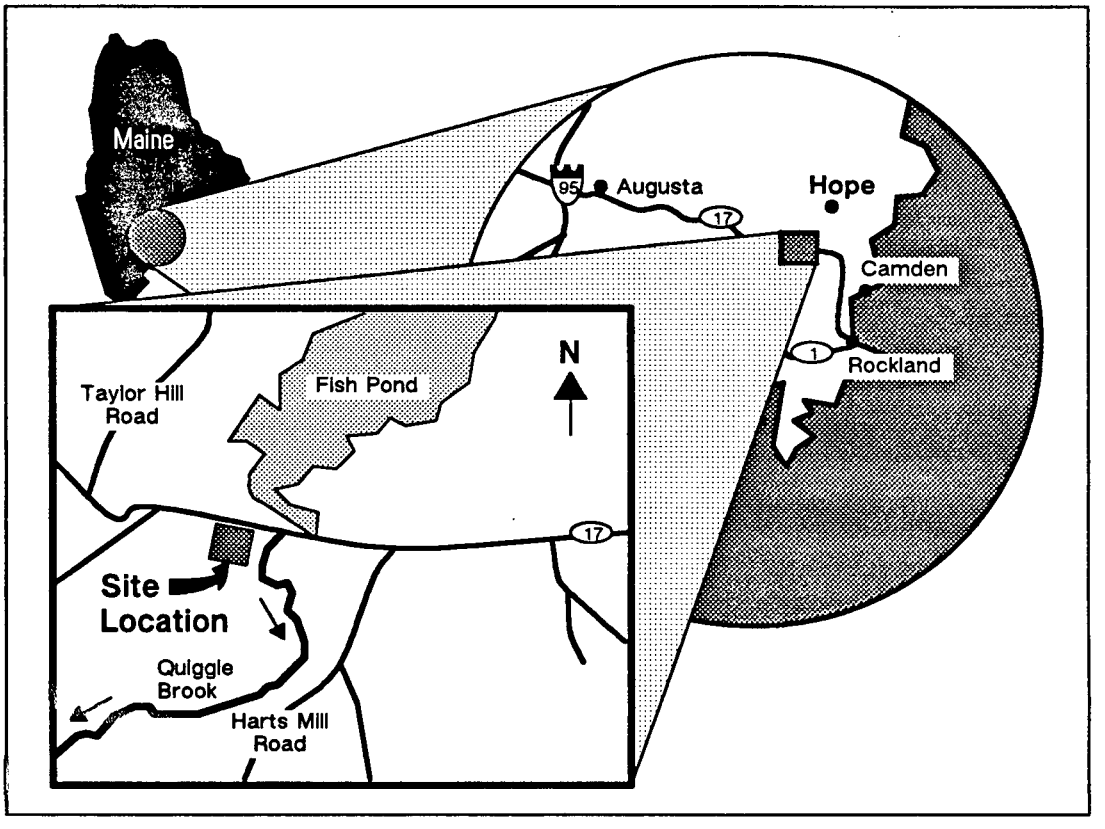
UNION CHEMICAL UPDATE

SEPTEMBER 1988



SOUTH HOPE SITE HISTORY

The Union Chemical Company, Inc. site is located in South Hope, Maine, on the south side of Route 17. The figure above shows the general location of the site. The *site* is comprised of approximately 2.5 acres of fenced-in land containing the former facility structures and incinerator, with the entire parcel encompassing 12.5 acres.

Dr. Raymond Esposito founded the Union Chemical Company in 1967 to manufacture a patented solvent for the removal of furniture finishes. Union Chemical installed a solvent recovery unit at the site in 1969, and later expanded capacity to provide reclaiming and recycling services for other companies. In September 1978, Union Chemical applied for an air emission license for a small incinerator at the site to be used to destroy residuals from the manufacturing and recycling processes.

On March 30, 1984, the Maine Department of Environmental Protection (MDEP) issued an administrative order designating the Union Chemical Company as an uncontrolled hazardous substance site. From July 1984 to November 1984, the MDEP and the United States Environmental Protection Agency

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SOUTH HOPE (continued)

(US EPA) conducted drum and soil removal operations.

In April 1985, the Union Chemical site was proposed for inclusion on the National Priorities List (NPL) which would make it eligible for federal funds in order to cleanup the site. Recently, on June 24, 1988, EPA reproposed the Union Chemical Site for inclusion onto the final NPL. The 60-day public comment period for this reproposal ended August 23, 1988.

The EPA and the Maine DEP (in November 1987 and January 1988) entered into two *Administrative Orders by Consent* with 288 potentially responsible parties for the Union Chemical site. In these orders, the settling parties agreed to reimburse the EPA and the State of Maine for the majority of past response costs incurred, and to finance the currently ongoing Remedial Investigation/Feasibility Study (RI/FS). The settling parties have established a $1.25 Million trust fund to pay for the RI/FS and EPA oversight of these activities. Additionally, a group of Trustees has been selected to manage the RI/FS trust fund and a Steering Committee has been formed to monitor the Trustees' interactions with the EPA and the State of Maine. The Trustees have also contracted Canonie Environmental Services Corp. of Porter, Indiana, to conduct the RI/FS.

PREVIOUS FIELD WORK COMPLETED (May 4 - June 30, 1988)

Field work at the site was initiated on May 4, 1988, with an aerial photographic analysis of the site being performed.

Canonie mobilized equipment and staff to the site on May 16, 1988. On May 19, 1988, representatives from the EPA, MDEP and Canonie toured the site and selected key air, soil, and building/incinerator sampling locations and sampling protocols.

Other activities completed by Canonie during May and June include:

- Conducting an electro-magnetic survey of the site on May 20, 1988 to locate potentially buried utilities or other metal objects/debris such as buried drums. No anomalies were identified.
- Water from Fish Pond (at the dam near Route 17), has been sampled several times to date, and has subsequently been used during drilling activities at the site.
- On May 20, 1988, the locations for soil borings and monitoring wells were surveyed onto a 60' x 60' grid of the site and adjacent areas by Maine Coast Surveying, a subcontractor for Canonie.
- Twenty-nine of the originally proposed 30 residential wells were sampled in May and June 1988. The approximate locations of these residential wells are shown in Figure 1. (Note that only the Gus Johnson well was unable to be sampled during this time period.)
- On May 21, 1988, several of the existing MDEP monitoring wells (B-6 through B-14) were surveyed using a camera lowered inside of the wells to verify their functional integrity during the RI. All MDEP wells were determined to be useable for groundwater sampling throughout the RI.
- Monitoring well installation began on May 26, 1988 by GZA, a subcontractor for Canonie. Soil sampling was initiated on June 1, 1988 by Canonie personnel.
- Various samples were also obtained in June 1988 from the interior of the buildings, the scrubber, quench tower, still building, and drum storage room located on site. Building samples included sumps, duct work, wood shavings, fiberglass, equipment residue, and floor sweepings.

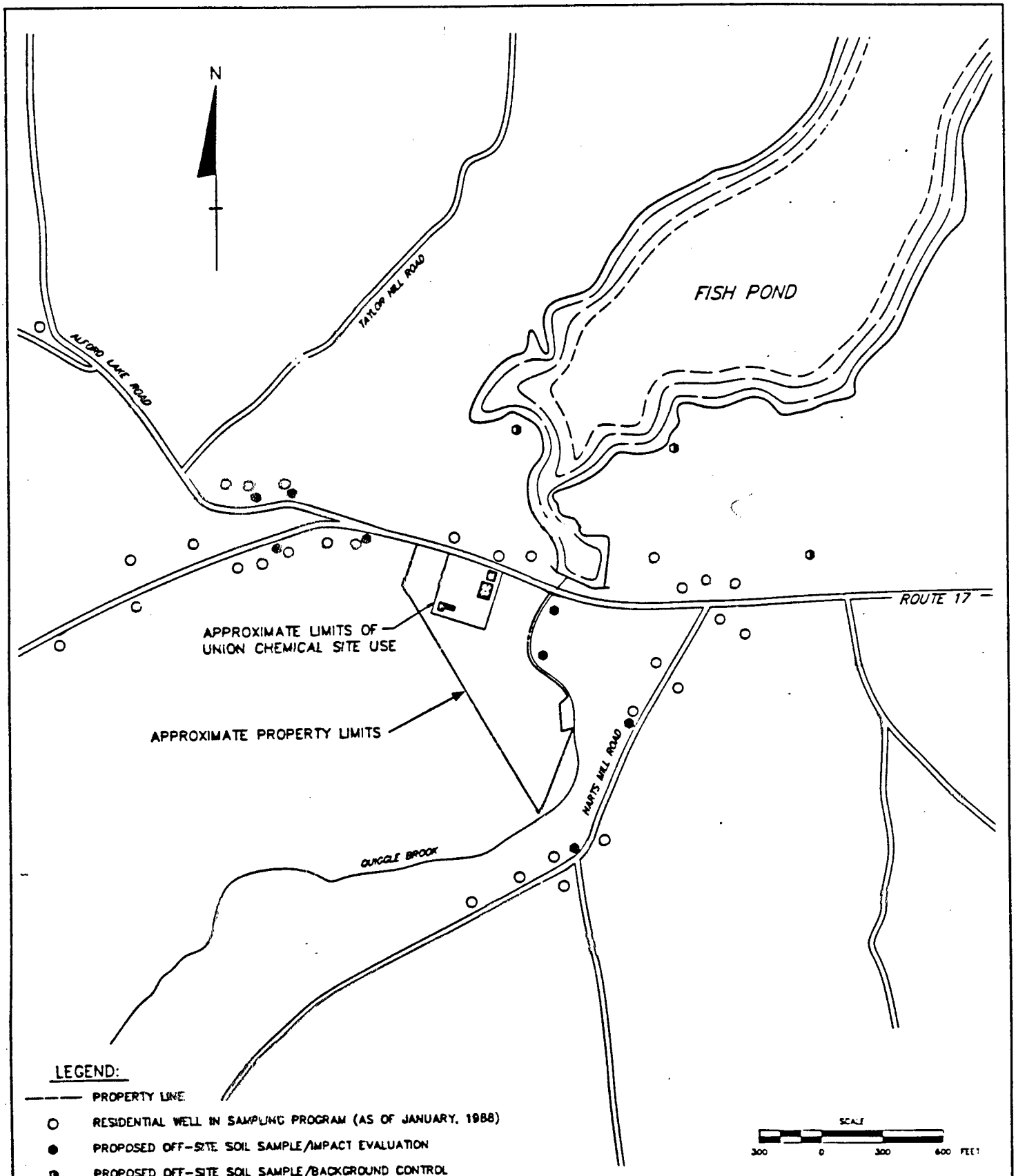

FIGURE 1
RESIDENTIAL WELL AND BACKGROUND SOIL SAMPLING
(Source: Canonie Environmental Work Plan, dated May 11, 1988)

ACTIVITIES THIS REPORTING PERIOD (July 1 – August 31, 1988)

At present, Canonie has essentially completed the Phase 1A field sampling program as is described within the RI/FS Work Plan located at the respository within the Hope Town Hall. The results of the laboratory analyses of soil and water samples collected by Canonie and those samples split with EPA's oversight contractor (Camp Dresser & McKee, Inc.) are expected to be received in September. Below is a summary of Canonie's Phase 1A on-site sampling and analytical activities completed during July and August.

Sampling Activities

A. Soil Borings

The soil boring program, which began in June, continued into July as 37 additional soil borings were drilled throughout the Union Chemical Site. Canonie's Work Plan originally provided for a total of 54 boring locations; however, a total of 65 soil borings were completed at the site through July. The 11 additional soil borings were drilled after discussions between the EPA, DEP, the Trustees and Canonie concluded that additional sampling in areas where increased concentrations of volatile organic chemicals were preliminarily detected was required. The locations of the 65 soil borings completed during the Phase 1A field sampling efforts are shown in Figure 2.

As each soil boring was drilled, Canonie collected the required soil samples at 2.5-foot intervals starting from the ground surface (0 feet) to a depth of 10 – 15 feet. These samples have all now been shipped to Canonie's Stockton, California laboratory and are presently being analyzed for the presence of volatile and semi-volatile organic compounds, priority pollutant metals, pesticides and other contaminants.

It should be noted that EPA's oversight contractor Camp Dresser & McKee, Inc. (CDM, Inc.) has continually split approximately 25 percent of the same soil samples obtained by Canonie during the Phase 1A soil boring program. These samples were shipped for identical analysis to those being done by Canonie including volatile and semi-volatile organics, priority pollutant metals, pesticides and other contaminants. These analyses are being done through the EPA's Contract Laboratory Program (CLP).

B. On-Site Concrete Core Sampling

Canonie completed seven of the eight originally proposed soil borings through the three concrete pads in the tank containment and incinerator areas. Samples of the concrete were also being analyzed for the presence of contaminants identified at the site. Soil borings were drilled to approximately 10 – 15 feet below the concrete surface and samples were collected for laboratory analysis as described in paragraph A above. The locations of the seven concrete core samples are shown in Figure 3.

C. Background and Emissions Impact Soils Sampling

Thirteen (13) background and emissions impact soil samples have been collected to date from the surface to within six inches below the surface in accordance with the RI/FS Work Plan. These samples were obtained from the (1) M. Johnston, B. Powers, W. Bryant, A. Hastings, H. Cushman, C. Lawson, and A. Crabtree residences; (2) north, southwest, and southeast of Fish Pond; and (3) near MDEP wells B-7 and B-11 located along the east side of Quiggle Brook. Figure 1 shows the locations of these samples.

Canonie has shipped their samples to their Stockton, California laboratory for analysis of full hazardous substance list (HSL) compounds including xylene and methyl ethyl ketone, and total priority pollutant metals. Four (30 percent) of these same samples were split with CDM, Inc. for Quality Assurance measures. Analysis of the CDM, Inc. samples is being performed through the EPA's CLP.

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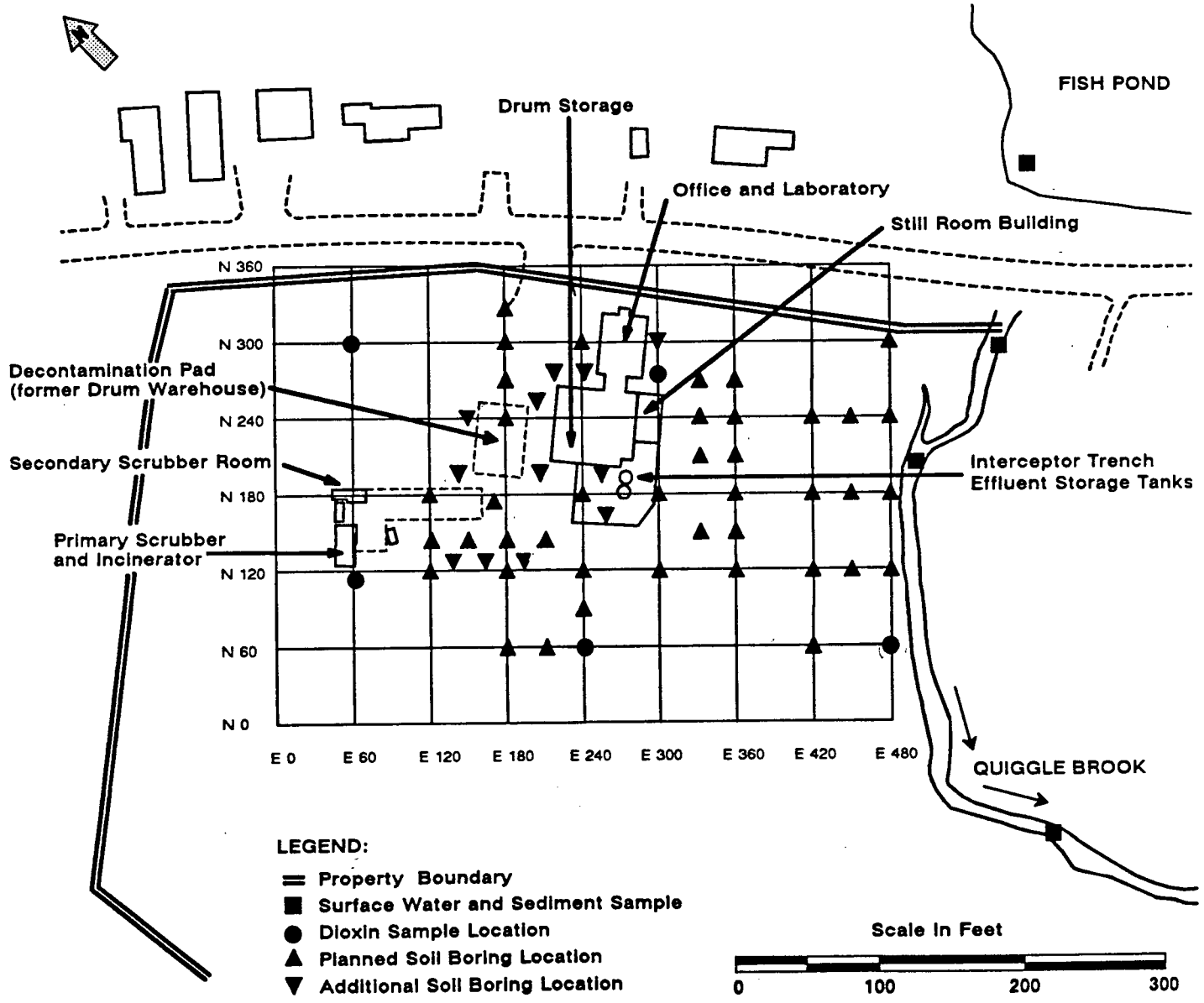

FIGURE 2
UNION CHEMICAL COMPANY
LOCATIONS OF SOIL, DIOXIN, AND SURFACE WATER AND SEDIMENT SAMPLES
(Source: Canonie Environmental Site Control Grid)

ACTIVITIES THIS REPORTING PERIOD (continued)

D. Monitoring Wells

Canonie installed all 12 proposed monitoring wells and the 6 proposed piezometers in July. With these wells completed, there are now approximately 50–60 monitoring wells and piezometers located on the Union Chemical site, including the Wright–Pierce and MDEP wells which have been inspected and determined to be competent (as noted earlier).

During the drilling and installation of several of these monitoring wells, soil sampling was conducted in a manner similar to that described in paragraph *A: Soil Borings* (i.e. samples collected at 5' intervals to a depth of 15 feet below ground surface). Analysis of samples by Canonie and split samples by CDM, Inc. are being done in a similar manner to that described in the Soil Boring program. The locations of all monitoring wells and piezometers presently at the Union Chemical Site are shown in Figure 4.

Additionally, Canonie has conducted groundwater elevation measurements throughout the months of July and August. In early and mid–August, Canonie also measured water surface elevations at Fish Pond and within Quiggle Brook.

E. Surface Water and Sediment Sampling

At present, the initial round of surface water and stream sediment samples have been obtained from the headwaters of Fish Pond, the wet area at the northwest corner of the site, the Crawford Pond Wetlands and at six locations along Quiggle Brook. The locations of the majority of these stream and stream sediment sampling points are shown in Figure 2.

Canonie has shipped samples to their laboratory in Stockton, California for analysis of the following contaminants:

- Full hazardous substance list (HSL) including xylene and methyl ethyl ketone.
- Total priority pollutant metals.
- Secondary drinking water standards.
- PCBs, pesticides, and herbicides.

CDM, Inc. split four surface water and five sediment samples from Fish Pond, Crawford Pond and Quiggle Brook for quality assurance purposes.

F. Air Monitoring

Canonie completed the proposed on–site air sampling and monitoring program in early July in accordance with the RI/FS Work Plan. This program consisted of four (4) eight–hour monitoring periods running from 9 to 5 P.M. during the week of July 11, 1988.

Additionally, a meteorological station was set up at the center of the site to monitor and record wind speed, direction and temperature throughout each day's sampling period. Air sampling stations were set up at three locations along the perimeter of the site, one location at the center of the site (consisting of two air monitors), and one location on the Gus Johnson property. Each of these air monitors was established to record ambient volatile organic emission concentrations resulting from the soil boring operations occurring during that same week.

Based upon the existing RI/FS Work Plan, eight compounds were sampled and analyzed. These included:

- Ethyl Benzene
- Methyl Ethyl Ketone
- Methylene Chloride
- Tetrachloroethylene
- 1,1,1–Trichloroethane
- Trichloroethylene
- Toluene
- Xylene

G. Dioxin Sampling

Since the history of operations at the Union Chemical Site included incineration of sludges and process residues, samples for dioxin analysis have been obtained from the incinerator area (at the base of the secondary scrubber leading to the stack). Additionally, dioxin surface soil sampling at five (5) soil boring locations has occurred as shown in Figure 2.

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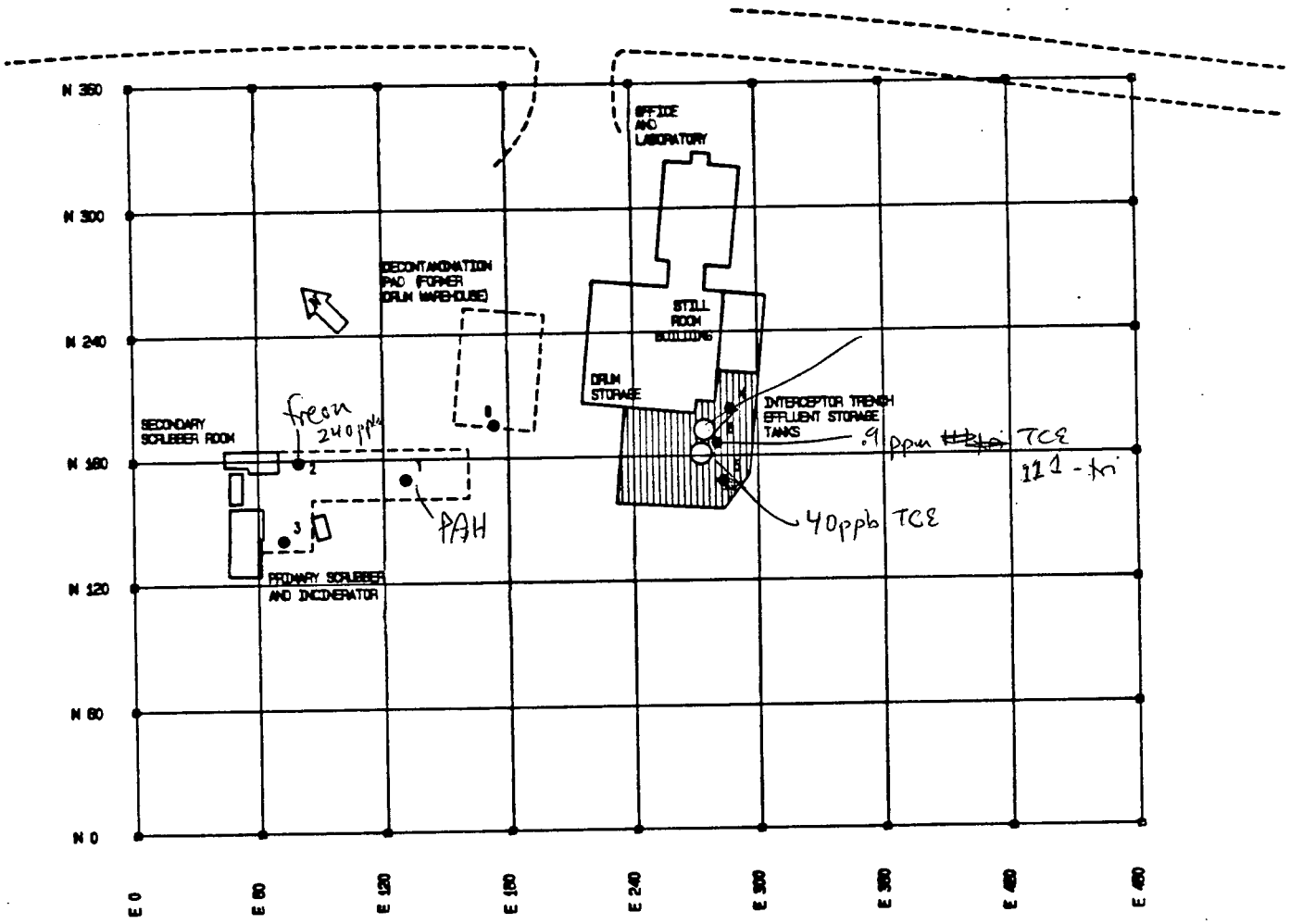

Legend

- Concrete Boring Locations
- Area of Elevated Contaminant Concentration

SCALE:

FIGURE 3
UNION CHEMICAL COMPANY
CONCRETE BORINGS AND AREA OF ELEVATED CONTAMINANT CONCENTRATION
(Source: Canonie Environmental Site Control Grid)

ACTIVITIES THIS REPORTING PERIOD (continued)

Laboratory analysis of Canonie's six dioxin samples and three performance evaluation samples (required for similar analysis by the EPA) were shipped by Canonie to Radian Corporation, a subcontractor laboratory to Canonie on this project.

CDM Inc., the EPA's oversight contractor, also split two of these same samples from the bottom of the secondary scrubber. These split samples, along with three EPA performance evaluation samples, were shipped to a CLP laboratory for similar dioxin analysis.

Analytical Results

Canonie has shipped all soil and groundwater samples collected by their on-site personnel during the Phase 1A sampling program to their laboratory in Stockton California. The samples are being analyzed for a variety of volatile and semi-volatile organic compounds, total priority pollutant metals, pesticides, herbicides and PCBs depending on the sample location. Canonie has also split approximately 25% of these same soil and groundwater samples with EPA's oversight contractor (CDM, Inc). CDM has shipped their soil and groundwater split samples for analysis through EPA's Contract Laboratory Program (CLP).

The following describes those results that are available to date, and which are noteworthy to all Hope area residents.

A. Soil Borings

On Friday, July 15, 1988, Organic Vapor Analyzer (OVA) readings in excess of 1,000 parts per million (ppm) in the ambient air were intermittently detected within a 4" diameter soil boring hole in the vicinity of the interceptor trench effluent storage tanks. (Note that an OVA is being used throughout the Phase 1A soil sampling program to monitor and warn, if necessary, workers and area residents from excessive, continuous organic vapor emission releases from the site.)

Maine DEP was on the site Monday, July 18, 1988 to obtain samples of the soils from this same soil boring location. The purpose of this immediate response by the Maine DEP was to obtain a quick turn around for analysis of this soil sample. Maine DEP's laboratory results indicated the presence of Trichloroethylene @ 50 ppm, Toluene @ 17 ppm, Ethyl Benzene @ 900 ppm, and Xylene @ 5,100 ppm. The location where these contaminant concentrations were detected are shown in Figure 3. (Note that this location is below a concrete pad.)

At present, all soil borings (including those obtained from below the concrete pads) have been sealed up following the aquisition of the required soil samples. In the case of the concrete cores, a cement mixture has been applied to the hole used for obtaining the concrete and soil samples.

B. Air Monitoring

Canonie completed the Phase 1A air monitoring program during the week of July 11 through July 15, 1988. As previously stated, air monitoring locations were:

- In the front yard of the Gus Johnson residence, about 30 feet north of the centerline of Route 17;
- Adjacent to the fence on the south side of the facility and due south of Maine DEP well Cluster B-9;
- Adjacent to the electric power meter near the entrance to the site from Route 17;
- Adjacent to the fence on the south side of the facility approximately 200 feet east of the southwest corner of the fence;
- Adjacent to the southwest corner of the former warehouse-current concrete decontamination pad;

Air samples were analyzed by Clayton Environmental Consultants, Inc. a subcontractor to Canonie for the following compounds:

- Ethyl Benzene
- Methyl Ethyl Ketone
- Methylene Chloride
- Tetrachloroethylene
- 1,1,1-Trichloroethane
- Trichloroethylene
- Toluene
- Xylene

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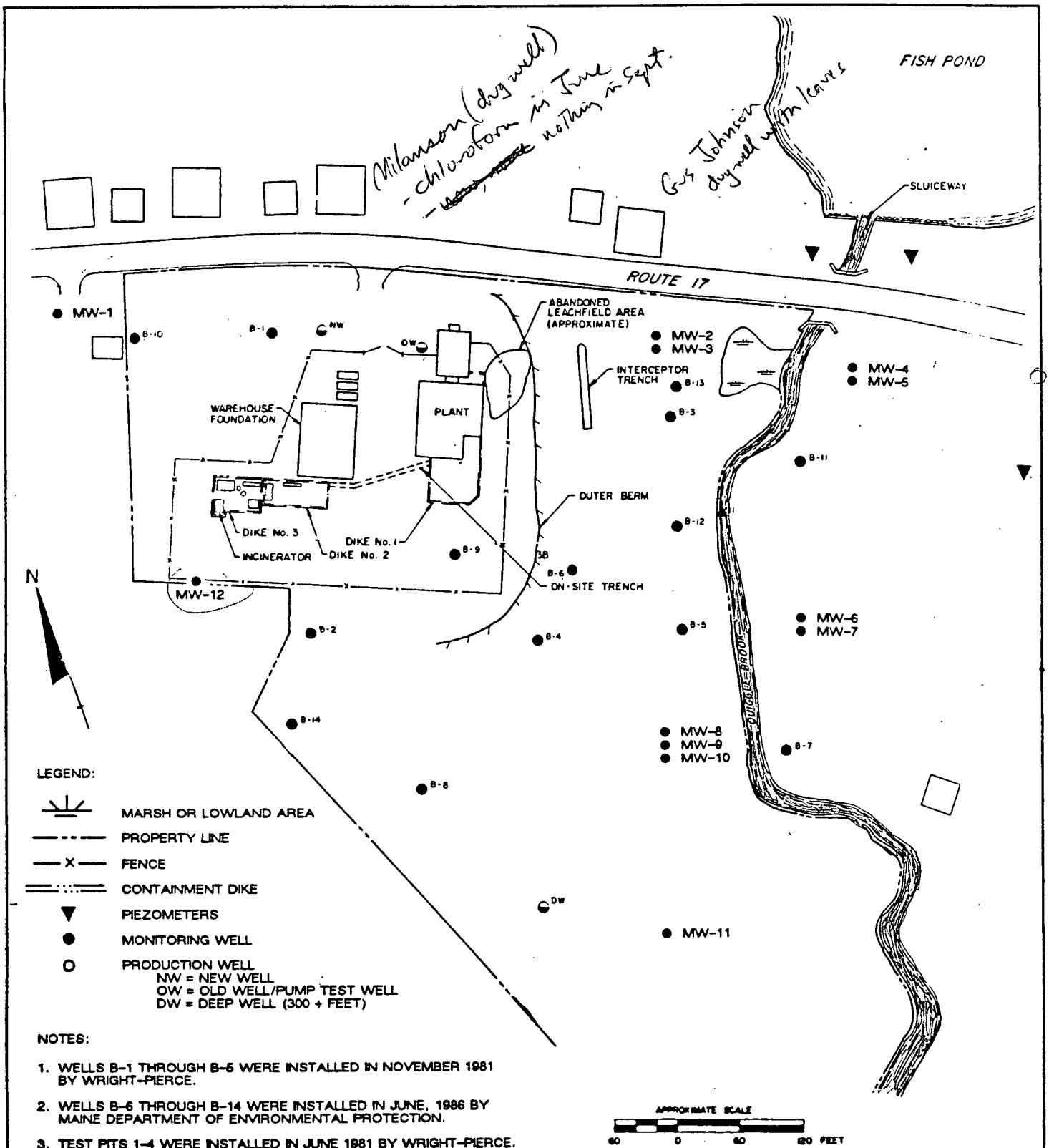

NOTES:

1. WELLS B-1 THROUGH B-5 WERE INSTALLED IN NOVEMBER 1981 BY WRIGHT-PIERCE.
2. WELLS B-6 THROUGH B-14 WERE INSTALLED IN JUNE, 1986 BY MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION.
3. TEST PITS 1-4 WERE INSTALLED IN JUNE 1981 BY WRIGHT-PIERCE.
4. EXTRACTION WELLS WERE INSTALLED IN 1981.
5. CANONIE MONITORING WELLS MW-1 THROUGH MW-12 WERE INSTALLED DURING PHASE 1A SAMPLING, SUMMER 1988.

FIGURE 4
WELL AND TEST PIT LOCATIONS - PREVIOUS INVESTIGATIONS
(Source: Canonie Environmental Work Plan, dated May 11, 1988)

ACTIVITIES THIS REPORTING PERIOD (continued)

No detectable concentrations of the above listed compounds were found in any of the samples analyzed. Detection limits for analysis of these compounds ranged from less than 0.002 to less than 0.007 parts per million (ppm) or 2 to 7 parts per billion (ppb).

C. Residential Wells

Laboratory results of the quarterly residential well sampling conducted by Canonie in late May and early June 1988 were given to EPA and MDEP at a progress meeting held on the July 7, 1988. These results were also verbally given to the Concerned Citizens of Hope spokespersons and Town of Hope Board of Selectman on that same day.

As mentioned previously, Gus Johnson's well was not sampled due to location uncertainties and Canonie's inability to obtain access to this property to locate the well and collect samples. Only one of the 29 residential wells sampled indicated the presence of a detected compound. Specifically, 1 part per billion (ppb) of chloroform was detected in the Mellanson well located northwest, across Rte. 17 from the Union Chemical site. This is a shallow dug well, and Mr. Mellanson reported to Canonie that he has on several recent occasions poured bleach into the well to clean the water since it hadn't been used for several years prior to his occupancy. Chloroform is often produced during the chlorination of drinking water and thus is a common drinking water component.

PLANNED ACTIVITIES (September 1 – November 30, 1988)

During the early part of this month (September), Canonie will conduct another round of sampling of the 50 – 60 groundwater monitoring wells located on-site, stream and stream sediment locations, and the 30 residential wells previously sampled in May and June 1988. Results from the July and August soil samples and surface water and stream sediment samples are expected to be received throughout September by EPA and MDEP from Canonie's laboratory.

Canonie is expected to begin evaluating the analytical results from the Phase 1A sampling program and, if after discussions with and reviews by the EPA and DEP, additional sampling and data is necessary or desirable, a new Work Plan for a *Phase 1B* sampling program will be developed and submitted to agencies for approval.

Additionally, Canonie will interpret the data obtained from the Phase 1A sampling activity and develop an Initial Site Characterization Report. This report is currently expected to be submitted to the EPA and MDEP in draft form for review in mid-October. (Note that the Administrative Orders by Consent require that this document be submitted to the agencies not later than November 22, 1988, i.e. 30 weeks from acceptance/approval of the RI/FS Work Plan of April 26, 1988.)

If a Phase 1B sampling program is necessary or desirable, Canonie will also submit their proposed Work Plan for this activity in mid- to late October, so that the additional sampling can be completed before the winter of 1988, if possible.

This newsletter has been prepared by the EPA to inform the citizens of South Hope, Maine, of the investigatory and remedial activities that are being performed at the site. The distribution of this update is scheduled to occur on a bi-monthly basis throughout the Remedial Investigation field work being performed at the Union Chemical Site. The next update is anticipated to be distributed in November.

INITIAL SITE CHARACTERIZATION DELIVERABLES

The purpose of the soon to be completed Phase 1A field sampling program (which was conducted over the past three to four months) was to collect sufficient data to preliminarily determine the nature and extent of contamination at the Union Chemical Site. The systematic soil boring, groundwater, surface water, stream sediment, buildings, and air sampling programs recently completed should provide the data needed to preliminarily identify the horizontal and vertical extent of contamination at the site as well as the locations of the highest detected contaminant concentrations and types.

Laboratory analysis of samples collected from adjacent streams and ponds, along with soils and groundwater data will be reviewed and utilized in the assessment of the current public health and environmental risks posed by the site. A Baseline Risk Assessment Report will be prepared which will consist of an evaluation of the public health and environmental impacts of exposure to contaminants recently identified at the Union Chemical Site. This evaluation will be conducted through analysis of various exposure pathways such as drinking private water supplies and direct contact or ingestion of site soils.

Once the degree and extent of contamination at the site and the hydrogeologic characteristics of the soil strata and groundwater aquifers underlying the site has been determined through Phase 1A, an Initial Screening of Remedial Alternatives will begin. It should be noted that the current RI/FS Work Plan includes provisions for additional field sampling work (*Phase 1B*) at the site if interpretation of the Phase 1A results identifies any data gaps or the need for further sample collection and analysis.

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INITIAL SITE CHARACTERIZATION DELIVERABLES (continued)

The flow chart in Figure 5 presents the sequence of activities and deliverables which constitute the RI/FS process. The shaded blocks indicate the activities completed and deliverables submitted by Canonie to this date. Canonie's schedule projects submittal of the Initial Site Characterization Report, Draft Initial Screening of Alternatives Report, Draft Baseline Risk Assessment and Phase 1B Work Plan for Agency review in mid- to late October 1988. The EPA and DEP are planning to discuss the findings presented in these documents at the next public meeting presently planned for November.

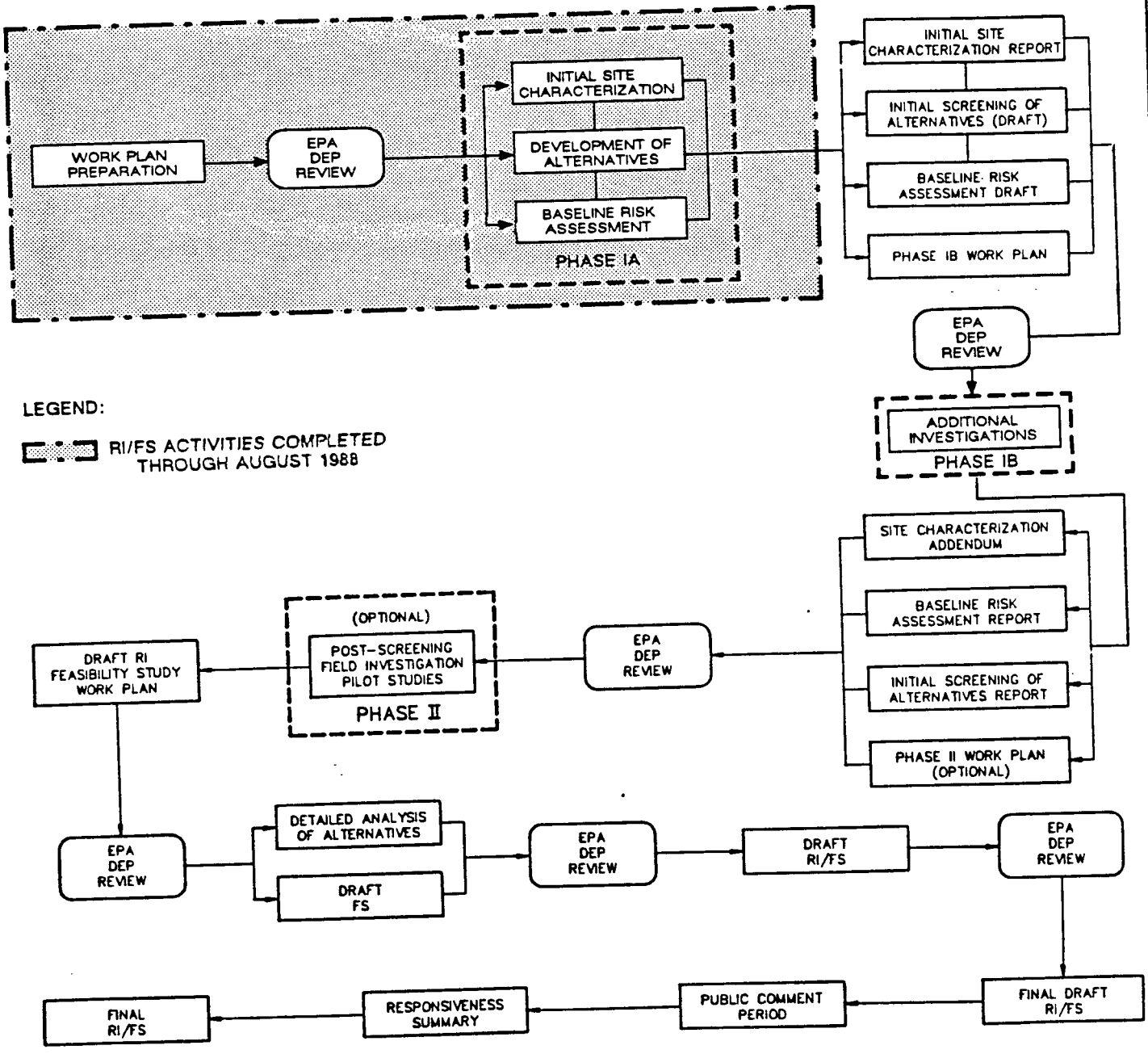

FIGURE 5
FLOW CHART FOR RI/FS ACTIVITY
UNION CHEMICAL SITE
(Source: Canonie Environmental Site Control Grid)

Mailing List Additions

If you or someone you know would like to be placed on the Union Chemical Co., Inc. Site mailing list, please fill out and mail this form to:

Michael Jasinski
Remedial Project Manager
U.S. Environmental Protective Agency, Region I
John F. Kennedy Federal Building, HPS-1
Boston, Massachusetts 02203-2211

Name: _____

Address: _____

Affilliation: _____ Phone: _____

United States
Environmental Protection
Agency

Region I
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Dave Webster
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Inside: Information about Union Chemical Co., Inc. Site