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REMEDIAL INVESTIGATION AND FEASIBILITY STUDY WORK PLAN

PALL CORPORATION (SITE NO. 1-30-053B)

and

PHOTOCIRCUITS CORPORATION (SITE NO. 1-30-009)

GLEN COVE, NEW YORK

Prepared for:

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
ALBANY, NEW YORK

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Section 1

1.0 INTRODUCTION

As part of New York State's program to investigate and remediate hazardous waste sites, the New York State Department of Environmental Conservation (NYSDEC) issued a Work Assignment to Dvirka and Bartilucci Consulting Engineers (D&B) of Woodbury, New York, under its Superfund Standby Contract to conduct a Remedial Investigation/Feasibility Study (RI/FS) for the Pall Corporation and Photocircuits Corporation properties (the Site) located in Glen Cove, northern Nassau County, New York (Figure 1-1). The RI/FS for this site is being performed with funds allocated under the New York State Superfund Program.

1.1 Purpose

The goals of the RI/FS program are to:

- Determine the sources of contamination within each property;
- Determine if the nearby downgradient supply well, which is currently inactive, can potentially capture or control plumes emanating from the Site;
- Protect the groundwater supply of the area; and
- Determine what groundwater contamination is attributable to Photocircuits Corporation (Photocircuits) and to what degree the current interim remedial measure of hydraulic control is effective in containing contamination emanating from a drum storage area located on the site.

1.2 Report Preparation

This document has been prepared in accordance with NYSDEC Technical and Administrative Guidance Memoranda and contains site-specific information for conducting the RI/FS at the site.

This work plan presents the RI/FS scope of work and related information as follows:

- Section 2 - Summarizes existing information for the Site,

- Section 3 - Presents the scope of the RI/FS program,
- Section 4 - Presents the organization of the project,
- Section 5 - Describes the site-specific Quality Assurance/Quality Control (QA/QC) Plan,
- Section 6 - Describes the site-specific Health and Safety Plan,
- Section 7 - Presents a generic Citizens Participation Plan, and
- Section 8 - Presents the estimated project budget (Schedule 2.11 forms).

Section 2

2.0 SUMMARY OF EXISTING INFORMATION

2.1 Site Location, Description and Usage

The Pall Corporation (Pall) and Photocircuits Corporation (Photocircuits) Site is located within the Sea Cliff Avenue Industrial Area (SCIA) in Glen Cove, Nassau County, New York (see Figure 1-1). The two industrial sites are separated by Sea Cliff Avenue as depicted on Figure 2-1.

The Pall property is located to the north of Sea Cliff Avenue and is 4.6 acres in size. It is bound by the Glen Cove Arterial Highway to the east, Sea Cliff Avenue to the south, Glen Cove Creek to the west, and a day care center and Emergency Medical Service (EMS) garage to the north. Further to the north is the Carney Street Well Field. The Pall property is a Class 2 site on the Registry of Hazardous Waste Sites and is comprised of two industrial buildings. The northern building (30 Sea Cliff Avenue) is currently occupied by August Thomsen, a pastry bag manufacturer, and the southern building (36 Sea Cliff Avenue) is currently unoccupied. The remainder of the property is paved with asphalt.

The Photocircuits property is 10.8 acres in size and is bound by the Glen Cove Arterial Highway to the east, the Glen Head Country Club to the south, the Pass and Seymour property (Registry No. 1-30-053A) to the west and Sea Cliff Avenue to the north. The Photocircuits property is a Class 2 site on the Registry and the property is currently active. The facility is comprised of several buildings consisting of approximately 158,000 square feet of manufacturing and office space.

The following summary of historical site development and usage information was derived from a review of available files, including historical Sanborn fire insurance maps, topographic maps and aerial photographs. Detailed findings of these reviews are presented in Table 2-1 and the maps and photographs are provided in Appendix A.

Table 2-1

PALL AND PHOTOCIRCUITS CORPORATIONS RI/FS
GLEN COVE, NEW YORK
SUMMARY OF SITE DEVELOPMENT

Sanborn Fire Insurance Maps

1931	• One building on Pall property, operated by Knickerbocker Ice Co.
1947	• The operation of the building is by F.R. Hormann Co., noted as a manufacturer of metal tanks.
1972	• The Photocircuits facility main building is present. Current site buildings are present and include the Photocircuits and Slater Electric Manufacturing Co. buildings. The current August Thomsen building is labeled as Glen Components Corp (electronics manufacturer). East of the Pall building on the east side of the Glen Cove Arterial Highway is a building labeled Auto Wash, and Utensils Mfg. (The 1990 Contaminated Segment Investigation Report identified this building as Photocircuits).

Topographic Maps

1900	• No discernable buildings in site vicinity.
1918	• No discernable industrial-sized buildings in site vicinity. Possible small building near Pall property.
1947	• Small building on Pall property with residential neighborhood to the east.
1967	• Photocircuits, August Thomsen and Pall buildings present. Two small buildings to north of the Pall property. Water tower present north of Carney Street.
1976	• Similar to 1967 with the addition of two more small buildings just north of August Thomsen facility.

Table 2-1 (continued)

PALL AND PHOTOCIRCUITS CORPORATIONS RI/FS
GLEN COVE, NEW YORK
SUMMARY OF SITE DEVELOPMENT

Aerial Photographs

1953	• The building on the Pall site is present. The land to the east appears to be undergoing clearing for subsequent development. The Carney Street Well Field No. 21 well house may be present.
1966	• The Pall, August Thomsen, Photocircuits and Slater Electric buildings are present. The Glen Cove Arterial Highway is present.
1976	• The current EMS garage, the Glen Cove Water Control building and the southeastern Photocircuits buildings are now present.
1980	• No significant building changes on the Site since 1976. Southeastern Slater Electric building now present.
1994	• Day care center building is now present.

The Pall property was initially developed prior to 1931 with the construction a single building. This building was operated by the Knickerbocker Ice Company. The 1947 fire insurance map indicates that the building was operated by F.R Hormann Company, noted as a manufacturer of metal tanks. The current August Thomsen and Pall buildings were present at the Site, and the Carney Street Well Field building appears to have been constructed by 1947. The Photocircuits buildings were constructed by 1967. In 1972, the August Thomsen building was part of Pall Corporation and labeled on the fire insurance map as Glen Components Corporation.

2.2 Background

In 1977, the public supply wells of the Carney Street Well Field located approximately 200 feet north of the Site were removed from service due to the detected concentrations of chlorinated volatile organic compounds (VOCs). The well field had comprised three wells screened in the Upper Glacial aquifer, at deep depths of between 115 and 173 feet below grade. Only one of the three wells, Well No. 21, has not been permanently closed.

The chlorinated VOCs that caused the wells to be shut down were also subsequently detected in Well No. 21 from 1997 through 2000, the only period for which monitoring data was available from the Nassau County Department of Health. The detected VOCs primarily included tetrachloroethene (PCE), trichloroethene (TCE), 1,2-dichloroethene (DCE), 1,1-DCE, 1,1,1-trichloroethane (TCA) and 1,2-dichloroethane. The specific VOCs detected in Well No. 21 and their concentrations are presented in Table 2-2.

Since 1977, several regional investigations and evaluations have been conducted by governmental agencies and private industries with the SCIA to characterize the nature and extent of soil and groundwater contamination, and identify known or suspected sources. The findings of these studies have resulted in the design and implementation of several interim remedial measures. The investigations found that at least the upper approximate 150 feet of the Upper Glacial aquifer at the site has been contaminated by VOCs. Localized industrial pumping within the SCIA had caused contaminants to move vertically downward into deep industrial supply

Table 2-2

PALL AND PHOTOCIRCUITS CORPORATIONS RI/FS
GLEN COVE, NEW YORK
SUMMARY OF HISTORICAL RESULTS FOR WELL NO. 21

Date Collected	1,1,1-TRICHLORO-ETHANE	1,1-DICHLORO-ETHANE	1,1-DICHLORO-ETHENE	1,2-DICHLORO-ETHANE	1,2-DICHLORO-ETHENE	CHLORO-DIBRO-METHANE	CHLORO-FORM	CIS-1,2-DICHLORO-ETHENE	TETRACHLORO-ETHENE	TRANS-1,2-DICHLORO-ETHENE	TRICHLORO ETHENE	TRICHLORO-FLUORO-METHANE
06/02/83	18	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
12/08/83	18	ND	ND	ND	ND	ND	ND	ND	ND	ND	6	ND
03/08/84	17	ND	ND	ND	ND	ND	ND	ND	ND	ND	6	ND
12/17/84	12	ND	ND	ND	ND	ND	ND	ND	26	ND	380	ND
01/30/85	10	ND	ND	ND	ND	ND	2	ND	26	ND	550	ND
01/30/85	10	ND	ND	ND	ND	ND	2	ND	28	ND	690	ND
01/30/85	14	ND	ND	ND	ND	ND	ND	ND	35	ND	661	ND
03/25/86	ND	ND	1	ND	ND	ND	ND	ND	7	140	93	ND
09/25/86	2	15	ND	ND	ND	ND	ND	ND	14	ND	190	ND
12/04/86	11	6	ND	ND	ND	ND	ND	ND	20	ND	190	ND
03/10/87	2	ND	ND	ND	ND	ND	ND	ND	15	ND	310	ND
09/22/87	ND	ND	ND	ND	ND	ND	ND	ND	16	ND	ND	ND
12/08/87	3	5	ND	ND	ND	ND	ND	ND	18	ND	340	ND
12/08/87	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
03/01/88	ND	3	1	1	ND	ND	ND	ND	7	ND	220	2.00
04/22/88	3	4	ND	ND	ND	ND	ND	ND	13	ND	210	ND
06/07/88	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
09/21/88	3	4	3	ND	ND	ND	ND	ND	11	ND	220	ND
09/22/88	3	7	ND	ND	ND	ND	ND	ND	14	ND	320	ND
12/05/88	ND	ND	ND	ND	ND	ND	ND	ND	11	ND	ND	ND
03/21/89	2	3	2	ND	ND	ND	ND	150	26	ND	220	ND
10/02/90	ND	0.7	ND	ND	ND	ND	ND	19	2.5	ND	24	ND
01/20/00	ND	ND	ND	ND	ND	ND	ND	1.5	ND	ND	3	ND
01/24/00	ND	ND	ND	ND	ND	ND	ND	3.9	0.8	ND	7	ND
01/28/00	0.8	0.9	1	ND	ND	ND	ND	12	2.1	ND	23	ND
01/28/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
03/07/00	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

NOTES:

ND: Not Detected

Concentrations are micrograms per liter

Table 2-2

PALL AND PHOTOCIRCUITS CORPORATIONS RI/FS
GLEN COVE, NEW YORK
SUMMARY OF HISTORICAL RESULTS FOR WELL NO. 21

Date Collected	1,1,1-TRICHLORO-ETHANE	1,1-DICHLORO-ETHANE	1,1-DICHLORO-ETHENE	1,2-DICHLORO-ETHANE	1,2-DICHLORO-ETHENE	CHLORO-DIBRO-METHANE	CHLORO-FORM	CIS-1,2-DICHLORO-ETHENE	TETRA-CHLORO-ETHENE	TRANS-1,2-DICHLORO-ETHENE	TRICHLORO-ETHENE	TRICHLORO-FLUORO-METHANE
05/31/77	ND	ND	ND	ND	ND	ND	ND	ND	195	ND	104	ND
06/14/77	ND	ND	ND	ND	ND	ND	ND	ND	375	ND	55	ND
06/28/77	5	ND	ND	ND	ND	ND	ND	ND	19	ND	21	ND
06/28/77	ND	ND	ND	ND	ND	ND	ND	ND	33	ND	60	ND
07/12/77	ND	ND	ND	ND	ND	ND	ND	ND	8	ND	12	ND
07/26/77	ND	ND	ND	ND	ND	ND	ND	ND	160	ND	40	ND
09/09/77	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
09/19/77	ND	ND	ND	ND	ND	ND	ND	ND	8	ND	ND	ND
09/19/77	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
10/06/77	ND	ND	ND	ND	ND	ND	ND	ND	2	ND	ND	ND
10/12/77	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
10/12/77	ND	ND	ND	ND	ND	ND	ND	ND	2	ND	ND	ND
10/31/77	3	ND	ND	ND	ND	ND	ND	ND	86	ND	72	ND
11/10/77	3	ND	ND	ND	ND	ND	ND	ND	160	ND	170	ND
12/23/77	1	ND	ND	ND	7	ND	ND	ND	13	ND	10	ND
02/14/78	4	ND	ND	ND	ND	ND	4	ND	35	ND	90	ND
10/02/78	ND	ND	ND	ND	ND	ND	20	ND	ND	ND	ND	ND
10/19/78	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
10/30/78	ND	ND	ND	ND	ND	16	6	ND	ND	ND	ND	ND
11/01/78	ND	ND	ND	ND	ND	ND	1	ND	25	ND	98	ND
11/03/78	4	ND	ND	ND	ND	ND	ND	ND	27	ND	ND	ND
12/13/78	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
01/02/79	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
02/13/79	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
03/26/80	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
03/26/80	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
12/31/80	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
06/25/81	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
12/01/81	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
04/21/82	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
12/07/82	11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
03/22/83	12	ND	1	ND	ND	ND	ND	ND	ND	ND	ND	ND
03/22/83	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
06/02/83	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

wells, where they were intermittently reintroduced into the water table aquifer through diffusion wells screened at various depths. The flowing pathways resulting, along with contaminant advection, have caused the contamination to diffuse throughout the aquifer. The depth and nature of contamination at local areas of the site have not been completely delineated to date.

A detailed summary of the previous investigations and their findings was developed, based on available file reviews, and is presented in Appendix B. Areas of environmental concern and source areas derived from investigation reports are summarized on Figure 2-2. This information was used in the development of this work plan. It should be noted that files of the NYSDEC Region 1 and Nassau County Department of Health were not available for review prior to work plan preparation. If pertinent information is subsequently obtained from these sources that may impact the scope of this RI/FS work plan, it will be evaluated and discussed with the NYSDEC.

2.3 Review of Environmental Databases

A review of environmental databases was conducted for the site properties and also for the Pass and Seymour property (formerly Slater Electric), a hazardous waste site immediately west of the Photocircuits property. The database information was generated by Environmental Data Resources, Inc. (EDR). The local, state and federal records searched are identified in Appendix C.

The review of environmental database focused on the Pall, Photocircuits, and Pass and Seymour properties. The findings for the various records for the properties are provided in Appendix C and are summarized below.

The Pall property had one minor reported chemical spill in 1989 with a closed case. The property is characterized as significant threat to the public, with VOCs present in soil and groundwater. PCE and TCE are reported to have been stored on-site. The Photocircuits property had six reported chemical spills between 1987 and 2000. The significance of these spills varied from minor to significant threat to public health. The Photocircuits property has numerous

registered tanks on its property. PCE was reported in soil beneath a building at the Pass and Seymour property.

2.4 Site Geology and Hydrogeology

The site geology and hydrogeology presented below were derived from the numerous investigations conducted at the Site and in the vicinity of the SCIA.

2.4.1 Site Geology

The geologic units at the site, in descending order, are:

- Upper Glacial aquifer,
- Port Washington Confining Unit,
- Port Washington Aquifer,
- Lloyd aquifer, and
- Bedrock.

The Upper Glacial aquifer in the area of the Site is reported as approximately 200 feet thick and primarily comprised of stratified beds of fine to coarse sand and gravel with some interbedded lenses of silt and clay. The unit has also been described as predominantly comprised of silty till (silty, clayey, fine to medium sand with gravel, cobbles and occasional boulders).

The upper most unit of the Upper Glacial aquifer is glacial till with both sandy and silty zones. This upper half is predominantly fine to medium sand and extends 50 to 60 feet below grade with a thickness of up 80 feet in some areas. The lower portion of the Upper Glacial aquifer is interbedded fine to coarse sand, and sand and gravel and is approximately 110 feet thick.

The Site deposits have also been characterized within the Upper Glacial aquifer having more varied composition than described above and being comprised of three varying facies as follows:

- silty, clayey fine to medium grained sand with gravel to cobbles, occasional boulders;
- medium to coarse sand and gravel, with cobbles and occasional silt zones; and
- irregular alternating sequence of silt facies till with sandy till.

The geology under portions of the Pall property is described as the following:

- Western portion comprised of predominantly sand and silty sands with clayey sand lenses 5 to 15 feet thick at a depth of 30 feet;
- Southern portion with clay layers; and
- Northern portion comprised primarily by sand with silty layers at depth of 70 feet.

The geology at the Photocircuits property was not as well defined as at the Pall property but is described as being generally similar. At the Carney Street Well Field, no significant confining layers are reported to a depth of 173 feet, which is the deepest any of the supply wells penetrate.

The unit underlying the Upper Glacial aquifer, the Port Washington Confining Unit, is sandy clay and clay. Interbedded within the clay are some sand and gravel lenses. In the vicinity of the Site, the Port Washington Confining Unit is reported as thick as approximately 150 feet.

2.4.2 Site Hydrogeology

The depth to groundwater at the Site is relatively shallow ranging from near the surface to 10 feet below grade. The direction of groundwater flow has varied historically from northerly to northwesterly with localized variation. The shallow groundwater flow in the vicinity of the Glen Cove Creek is influenced by the creek. The gradient of the shallow groundwater increases

near the creek and ultimately discharges to it. Potentiometric surface elevation measurements of the lower portion of the Upper Glacial aquifer shows that groundwater flow in this zone is reported northwesterly.

The upper portion of the Upper Glacial aquifer is considered to have very low permeabilities and the lower unit to have moderate to high permeability. Average hydraulic conductivities for the Upper Glacial aquifer vary between 10 to 300 feet per day (ft/day). Permeabilities have been calculated to vary at the Site by a factor of three. A localized horizontal flow velocity of 1 foot per day (ft/day) has been reported but, based on the reported variable hydraulic conductivities would be expected to vary greatly in the various site geologic units.

In the area downgradient of the Pall property near the Carney Street Well Field (wells not pumping), reported vertical gradients were consistently downward with variation in magnitude presumably from localized industrial pumpage.

The wells of the Carney Street Well Field were reported with pumping capacities ranging from between 485 and 1,400 gallons per minute (gpm). The groundwater at the Site has historically been heavily used for industrial pumping. This usage had included pumping by industrial wells for cooling purposes and the subsequent reinjection back into the aquifer by diffusion wells. These activities have reportedly increased vertical gradients at wellheads, produced localized reversals of normal horizontal gradients during pumping cycles, and groundwater mounding at diffusion wells as presented in studies of the area.

Section 3

3.0 PROJECT SCOPE

3.1 Approach and Objectives

The approach to this investigation has been developed to further characterize groundwater quality, identify contaminant sources and characterize the flow regimes at the Site, and to characterize contaminant migration and flow regimes during pumping of Well No. 1.

3.2 Remedial Investigation

To accomplish the investigation objectives, the following tasks have been identified:

- Site visit to identify existing site features,
- Review of background information and reports,
- Review of agency files and environmental database search report,
- Inspection of existing monitoring wells,
- Screening of groundwater quality at localized areas,
- Installation and development of groundwater monitoring wells,
- Surveying and mapping of newly-installed monitoring wells,
- Collection of water level measurements,
- Sampling of new and existing groundwater monitoring wells,
- Pump test program for Well No. 21 at the Carney Street Well Field, and
- Data evaluation and reporting.

A detailed description of each of these tasks is provided in the following sections.

3.3 Site Visit, Database Search and File Reviews

A site visit was conducted by D&B personnel and the NYSDEC project manager on February 15, 2006. During the visit, site features including on-site and off-site monitoring well locations, reported source areas and the locations of interim remedial measures, were identified.

To develop an understanding of the site history and the areas of environmental concern, a review of existing files and databases were conducted and the acquired information was presented in Section 2.0.

The information collected from the file reviews was used in the site background in Section 2.0 and development of the project scope of work, and included the following sources:

- NYSDEC Central and Regional Office files;
- Nassau County Department of Health (NCDH) files;
- Glen Cove Building Department;
- Regulatory databases;
- Facility and regional reports including preliminary remedial investigations, site characterizations, interim remedial measures, pilot tests;
- Historical aerial photographs;
- Property use records including fire insurance maps, city directory searches and contaminant site and property-use registries; and
- Geological reports.

Due to long lead times to arrange review records, some of these files searches (NYSDEC Region 1 and the Nassau County Department of Health) are still ongoing. These files will be reviewed when they become available and any pertinent information will be incorporated into the final RI/FS report. Any identified information that would impact planned investigation activities will be discussed with the NYSDEC and incorporated in the work plan, as appropriate.

3.4 Monitoring Well Inspection

Because several existing monitoring wells have not been sampled in several years, this well inspection task will be conducted to determine the accessibility and integrity of wells identified for potential sampling. The groundwater monitoring wells on and in the vicinity of the site are identified in Table 3-1. The table also provides the date of installation, screen zone and diameter of the wells. The well survey will investigate the following:

- Security of well cover
- Condition of surface seal
- Existence of ponded water or fluids
- Diameter of well
- Depth of well
- Water level
- Other pertinent factors

The findings of the survey for each well will be documented on a Monitoring Well Inspection Checklist provided in Appendix D. The locations of existing wells are depicted on Figures 3-1 and 3-2, and include site monitoring wells as well as off-site wells installed for monitoring the Carney Street Well Field, respectively.

3.5 Monitoring Well Installation

A total of up to 29 groundwater monitoring wells will be installed at the site. These wells include four on the Carney Street Well Field property, four on the Pall property and a minimum of 18 on the Photocircuits property. The rationale for groundwater sampling points and wells installed as part of the remedial investigation are summarized in Table 3-2. The locations of these points are depicted on Figures 3-3 and 3-4. Depending on groundwater screening results

Table 3-1

PALL AND PHOTOCIRCUITS CORPORATIONS RI/FS
GLEN COVE, NEW YORK
MONITORING WELL CONSTRUCTION DETAILS

Site	Well Designation	Date Installed	Screen Zone (feet below grade)	Well Diameter (inches)
Carney Street Well Field	N-3466	NA	148-173	NA
	N-8326 (No. 21)	NA	120-165	NA
	N-8327	NA	115-165	NA
	MW-1GS	NA	TD=23.75	NA
	MW-1GI	NA	TD=113.5	NA
	MW-1GD	NA	TD=205	NA
City of Glen Cove	MW-1GS	1/17/2000	5-15	NA
	MW-1GI	1/18/2000	40-50	NA
	MW-1GD	1/18/2000	85-95	2
	MW-2GS	9/7/1999	5-15	NA
	MW-2GI	9/7/1999	40-50	2
	MW-2GD	9/7/1999	90-100	NA
August Thomsen	MW-1A	NA	1.5-11.5	NA
	MW-2A	NA	3.5-13.5	NA
	MW-2AI	3/23/1999	40-50	2
	MW-2AD	3/22/1999	80-90	2
	MW-12PS	8/23/1999	5-15	2
	MW-12-PI	8/23/1999	40-50	2
	MW-12PD	8/20/1999	85-95	2
Pall Corporation	MW-1P	1/21/1992	5-15	NA
	MW-1PI	3/10/1999	41-51	2
	MW-1PD	3/11/1999	90-100	2
	MW-2P	1/22/1992	4-14	NA
	MW-3P	1/21/1992	3-14	NA
	MW-4P	1/20/1992	13-23	NA
	MW-4PI	3/12/1999	45-55	2
	MW-4PD	3/16/1999	91-101	2
	MW-5P	1/20/1992	3-13	NA
	MW-5PI	3/17/1999	40-50	2
	MW-5PD	3/17/1999	90-100	2
	MW-6P	8/14/1992	50-60	4
	MW-6PD	3/9/1999	90-100	2
	MW-7P	11/18/1996	3-18	4
	MW-8PS	3/25/1999	5-15	2
	MW-8PI	3/25/1999	40-50	2
	MW-10PS	3/19/1999	5-15	2
	MW-10PI	3/19/1999	40-50	2
	MW-10PD	3/22/1999	90-100	2
	MW-11PS	8/17/1999	5-15	2
	MW-11PI	8/17/1999	40-50	2
	MW-11PD	8/16/1999	85-95	2

Table 3-1 (continued)

PALL AND PHOTOCIRCUITS CORPORATIONS RI/FS
GLEN COVE, NEW YORK
MONITORING WELL CONSTRUCTION DETAILS

Site	Well Designation	Date Installed	Screen Zone (feet below grade)	Well Diameter (inches)
Pall Corporation (continued)	MW-13-PS	9/19/1999	5-15	2
	MW-13PI	8/19/1999	40-50	2
	MW-13PD	8/18/1999	85-95	2
Sea Cliff Avenue	MW-14PCD	1/4/2000	85-95	2
	MW-15PCD	2/22/2000	90-100	2
	MW-16PCI	1/6/2000	40-50	2
	MW-16PCD	1/6/2000	85-95	2
MAN Products	MW-1M	NA	19-34	2
Photocircuits	MW-2	NA	10-25*	2
	MW-3	NA	5-20*	2
	MW-4	NA	10-25*	2
	MW-5	NA	85-100*	2
	MW-6	NA	5-15*	2
	MW-7	NA	8-23	4
	MW-8	NA	155-170	2
	MW-9	NA	10-25	2
	MW-10	NA	115-130	2
	MW-11	NA	155-170	2
	MW-12	NA	40-50	2
	MW-13	NA	40-50	4
	MW-14	NA	10-20	4
	NC-WELL	NA	NA	NA
Public Supply Well Field Monitoring Wells	GC-1S	NA	19-39	NA
	GC-1D	NA	175-195	NA
	GC-2S	NA	19-39	NA
	GC-2D	NA	188-208	NA
	GC-3S	NA	4-24	NA
	GC-3M	NA	94-114	NA
	GC-3D	NA	180-200	NA
	GC-4S	NA	34-54	NA
	GC-4D	NA	200-220	NA
	GC-5S	NA	85-105	NA
	GC-5D	NA	234-254	NA
	GC-6S	NA	130-150	NA
	GC-6D	NA	255-275	NA
	GC-7S	NA	80-100	NA
	GC-8S	NA	86-106	NA
	GC-8D	NA	169-189	NA
	GC-9S	NA	40-60	NA
	GC-10S	NA	20-40	NA
	GC-11S	NA	95-115	NA
	GC-11D	NA	210-230	NA
	GC-WP1	NA	5-10	NA
	G-4	NA	125-130	NA

Table 3-1 (continued)

PALL AND PHOTOCIRCUITS CORPORATIONS RI/FS
GLEN COVE, NEW YORK
MONITORING WELL CONSTRUCTION DETAILS

Site	Well Designation	Date Installed	Screen Zone (feet below grade)	Well Diameter (inches)
Pass & Seymour (Slater Electric)	MW-1S	1/27/1992	6-21	4
	MW-2S	1/27/1992	6-21	4
	MW-3S	1/27/1992	5-20	4

*Screen zone inferred based on reported total depths.
**Actual well number not known.

NA: Not available

Table 3-2

PALL AND PHOTOCIRCUITS CORPORATIONS RI/FS
GLEN COVE, NEW YORK
GROUNDWATER MONITORING WELL INSTALLATION RATIONALE

Well Designation	Location	Screen Interval (feet below grade)	Objective
CARNEY STREET WELL FIELD			
MW-2GD1 MW-2GD2 MW-2GD3 MW-2GD4	75 feet south of Carney Street Well Field Well No. 21	70-80 110-120 150-160 210-220	Provide monitoring of deeper zone near Carney Street Well Field Well No. 21 in vicinity of existing cluster MW-2GS/I/D
PALL CORPORATION			
MW-2AD2	Northeast corner of August Thomsen building	145-155	Provide monitoring capacity of deeper zone at existing cluster MW-2A/AI/AD
MW-4PD2	In center of lot north of former Pall building	145-155	Provide monitoring capacity of deeper zone at existing cluster MW-4P/P1/PD
MW-11D2	Along eastern boundary of Pall property near northeast corner	145-155	Provide monitoring capacity of deeper zone at existing cluster MW-11S/P/D
MW-12D2	Along eastern side of August Thomsen building	145-155	Provide monitoring capacity of deeper zone at existing cluster MW-12PS/P1/PD
PHOTOCIRCUITS CORPORATION			
MW-GW4S MW-GW4I MW-GW4I2 MW-GW4D2	Area of 31-GW-04B	60-70 80-90 120-130 150-160	Delineate impacts found at 31-GW-04B
MW-15S MW-15I MW-15D	Along Sea Cliff Avenue	70-80 90-100 110-120	Provide intermediate depth monitoring capacity between Photocircuits and Pall properties
MW-16S MW-16I MW-16D	Along Sea Cliff Avenue	70-80 90-100 110-120	Provide intermediate depth monitoring capacity between Photocircuits and Pall properties
MW-17S MW-17I MW-17D	Along Sea Cliff Avenue	70-80 90-100 110-120	Provide intermediate depth monitoring capacity between Photocircuits and Pall properties

Table 3-2 (continued)

PALL/PHOTOCIRCUITS CORPORATIONS RI/FS
GLEN COVE, NEW YORK
GROUNDWATER MONITORING WELL INSTALLATION RATIONALE

Well Designation	Location	Screen Interval (feet below grade)	Objective
MW-18S MW-18I MW-18D MW-18D1	Along Sea Cliff Avenue	60-70 80-90 120-130 150-160	Provide intermediate depth monitoring capacity between Photocircuits and Pall properties
MW-19S MW-19I	Along southern property boundary	50-60 90-100	Provide upgradient monitoring point
MW-20*	Vicinity downgradient of 31-GW-04B in former drum storage area	140-150	Delineate impacts found at 31-GW-04B
MW-21*	Vicinity downgradient of 31-GW-04B in former drum storage area	140-150	Delineate impacts found at 31-GW-04B
MW-22*	Vicinity downgradient of 31-GW-04B in former drum storage area	140-150	Delineate impacts found at 31-GW-04B

*Provisional well.

(described below), up to three additional wells may be installed at the northern drum storage area of the Photocircuits property.

The groundwater sampling program at the drum storage area on the Photocircuits property initially involves the collection of groundwater samples from Hydropunch borings for evaluation purposes to determine the need and location of the potential monitoring wells. This program is described in Section 3.6.1.

Prior to installing the wells, a geophysical survey will be conducted at each location to investigate the presence of buried utilities.

The new monitoring wells will be installed using 4¼-inch ID hollow stem augers. If difficulties with "running sands" are encountered which hinder drilling, potable water or drilling mud may be introduced to maintain a positive hydrostatic head.

Split-spoon samples will not be collected during construction of these wells. Soil cuttings generated from the boreholes will be logged and documented by a geologist. Notes will be kept in both bound field books and on boring logs. The Unified Soils Classification System will be used to describe the soil. Cuttings will also be screened for VOCs using an organic vapor analyzer equipped with a photoionization detector (PID).

The monitoring wells will be constructed of 2-inch Schedule 40, 0.010-inch slot PVC well screen and threaded, flush joint PVC casing. Each well screen will be 10 feet long. A typical well construction diagram is shown on Figure 3-5.

The well screen and riser pipe will be inserted into the hollow stem auger and set at the desired depth. A sand filter pack will be placed into the annular space around the screen to at least 2 feet above the top of the screen. A minimum 2-foot thick bentonite seal will then be placed above the filter pack. The remaining borehole will be filled to just below ground surface with a bentonite/cement grout. A flush-mounted well cover will be installed in a cement pad at ground surface.

Attempts will be made to install all of the wells using the hollow stem auger drilling method. However, since the screen zone for the deep well in the cluster to be installed at the Carney Street Well Field is 210 to 220 feet below grade, this well may need to be constructed using the mud rotary drilling method, depending on the drilling conditions encountered during construction of the other wells. If the mud rotary method is required, a minimum 6-inch diameter roller bit will be utilized to advance the borehole. This well will be constructed of 2-inch Schedule 40, 0.010-inch slot PVC well screen and threaded, flush joint PVC casing. The filter pack, bentonite seal, grout and well cover for this well will be installed in the same manner as previously described.

All drilling equipment will be decontaminated before the first use during this project, between boreholes and prior to demobilization using high-pressure steam. Decontamination will be conducted at a dedicated decontamination pad constructed for this project on the Pall property. Decontamination fluids will be contained for subsequent discharge to the City of Glen Cove sewer system.

Soil cuttings from all well borings will be containerized in lined and covered roll-off containers for subsequent off-site disposal. The roll-off containers will be staged at the Pall property.

3.5.1 Hydropunch Borings

The groundwater sampling program at the drum storage area on the Photocircuits property initially involves the collection of groundwater samples from Hydropunch borings for evaluation purposes to determine the need and location of the potential monitoring wells.

The Hydropunch borings will be advanced on the Photocircuits property at the former drum storage area east of the main building near existing well MW-7. Initially, one boring will be advanced near previous Geoprobe location 31-GW-04B, where chlorinated VOCs were detected in the groundwater. The boring will be advanced to a depth of 160 feet below grade with sampling at 5-foot intervals for VOC analysis. The information obtained from this boring

will be used to potentially adjust screen intervals to enable the well to be used as a treatment well. Additionally, based on the finding of this initial Hydropunch boring and with input by the NYSDEC, two additional Hydropunch borings may be installed to evaluate groundwater quality and the potential for three additional wells in this area. Groundwater samples from these borings will be collected at 20-foot intervals and analyzed for VOCs. The proposed groundwater sampling locations are depicted on Figure 3-4.

3.5.2 Monitoring Well Development

After construction, each new monitoring well will be developed to ensure a good connection to the aquifer. It is assumed that each well be developed for a maximum of two hours. The wells will be developed by pumping and surging using a submersible pump or similar technique. Well development will continue until the turbidity of the groundwater from the well is less than 50 Nephelometric Turbidity Units (NTUs). During well development, measurement of field parameters, including temperature, pH and specific conductivity, will be conducted. Water generated during well development will be containerized for subsequent discharge to the City of Glen Cove sewer system. All equipment used for the development of monitoring wells will be decontaminated prior to use, between wells and before removal from the Site, in accordance with the procedures described in the QA/QC Plan.

3.6 Collection of Water Level Measurements

Two sets of water level measurements will be collected from all of the wells of the monitoring network identified to be useful and viable during the well inspection survey (discussed in Section 3.4). The water levels will be collected prior to scheduled sampling of the wells and all measurements will be collected within 1 day. An electronic water level indicator will be used to collect the measurements to a precision of 0.01 foot.

3.7 Gamma Logging of Monitoring Wells

To characterize the lithology of the site deposits, including the deep zones of the new wells, gamma logging will be conducted in selected groundwater monitoring wells. Six wells will be gamma logged to encompass the following areas:

- Near the Carney Street Well Field at the new deep well cluster MW-2G.
- At the northwest corner of the Thomsen August property at well cluster MW-2A.
- In the center of the Pall property at well cluster MW-4P.
- Within Sea Cliff at well cluster MW-16.
- At northern drum storage area on Photocircuits property at well cluster MW-GW4.
- At the southern property boundary on Photocircuits property at well cluster MW-19.

The gamma logging will be conducted in the wells after they are installed. If any of the specific wells identified above are unable to be logged should the well no be plumb and the sensor probe unable to fit down the well, a nearby well will be logged.

3.8 Surveying and Base Map Development

A physical features map will be produced by a land surveyor licensed by the State of New York. The basis of bearings and elevations of the survey will be in accordance with the New York State Plane Coordinate System (North American Datum [NAD] 1983) and North American Vertical Datum (NAVD) of 1988. The map will be at the scale of 1" = 50'. The mapping will include, at a minimum, existing site features, structures, aboveground utilities, horizontal limits of Glen Cove Creek, limits of vegetation, ditches, sidewalks, curbs, catch basins, trials, streets, fences, gates, and other significant physical and environmental sensitive features. The map will include all existing and new monitoring wells.

3.9 Monitoring Well Sampling

Two rounds of groundwater samples will be collected from the 29 newly installed wells and the 51 selected existing wells on the Site and surrounding properties. The sampling rounds will be scheduled approximately three months apart. All groundwater samples will be analyzed for Target Compound List (TCL) VOCs. The wells to be sampled are identified in Table 3-3, which also provides the screen zone and well diameter for each well.

Prior to sampling, the depth to water in each well will be measured to calculate the volume of standing water in the well. Water level measurements will be collected using an electronic water level indicator. The pump will be lowered slowly into the screen zone of the well and positioned at least 2 feet from the bottom of the well. The pump will be operated at a flow rate of between 200 to 500 milliliters per minute (ml/min), ideally to stabilize the water level within the well with a maximum drawdown of 0.3 foot. Care will be taken to maintain pump suction.

During purging, pH, specific conductance, temperature, turbidity, dissolved oxygen and redox potential (Eh) will be monitored at approximate 5-minute intervals. The wells will be considered stabilized and ready for sample collection when indicator parameters have stabilized for three consecutive readings ±0.1 for pH, ±3% for specific conductance, ±10 millivolts for redox potential, and ±10% of DO and turbidity. A maximum of one casing volume will be removed from a well. All purge water will be discharged to the City of Glen Cove sewer system.

Groundwater samples will be collected using the lowest sustainable flow rate into the laboratory supplied 40 ml vials. All samples will be stored in an iced cooler and will be shipped under chain of custody procedures to the laboratory within 48 hours after collection.

Appropriate QA/QC procedures will be followed and samples will be collected as referenced in Appendix E. These will include matrix spike samples, matrix spike duplicate samples and trip blanks. Decontamination of the submersible pump used for purging will be performed in accordance with procedures described in the QA/QC Plan.

Table 3-3

PALL AND PHOTOCIRCUITS CORPORATIONS RI/FS
GLEN COVE, NEW YORK
MONITORING WELL SAMPLING PROGRAM

Site	Well Designation	Screen Zone (Feet below grade)	Well Diameter (Inches)
Carney St. Well Field	MW-GD1	70-80	2
	MW-GD2	110-120	2
	MW-GD3	150-160	NA
	MW-GD4	210-220	2
City of Glen Cove	MW-1GS	5-15	NA
	MW-1GI	40-50	NA
	MW-1GD	85-95	2
August Thomsen	MW-2A	3.5-13.5	NA
	MW-2AI	40-50	2
	MW-2AD	80-90	2
	MW-12PS	5-15	2
	MW-12-PI	40-50	2
	MW-12PD	85-95	2
Pall Corporation	MW-1P	5-15	NA
	MW-1PI	41-51	2
	MW-1PD	90-100	2
	MW-2AD2	145-155	2
	MW-4D2	145-155	2
	MW-4P	13-23	NA
	MW-4PI	45-55	2
	MW-4PD	91-101	2
	MW-5PS	3-13	NA
	MW-5PI	40-50	2
	MW-5PD	90-100	2
	MW-6P	50-60	4
	MW-6PD	90-100	2
	MW-7P	3-18	4
	MW-10PS	5-15	2
	MW-10PI	40-50	2
	MW-10PD	90-100	2
	MW-11D2	145-155	2
	MW-11PS	5-15	2
	MW-11PI	40-50	2
	MW-11PD	85-95	2
	MW-12PS	5-15	2
	MW-12PI	40-50	2
	MW-12PD	85-95	2
	MW-12D2	145-155	2
	MW-13-PS	5-15	2
	MW-13PI	40-50	2
	MW-13PD	85-95	2

Site	Well Designation	Screen Zone (Feet below grade)	Well Diameter (Inches)
Sea Cliff Avenue	MW-14PCD	85-95	2
	MW-15PCD	90-100	2
	MW-16PCI	40-50	2
	MW-16PCD	85-95	2
Photocircuits	MW-3	5-20*	2
	MW-7	8-23	4
	MW-8	155-170	2
	MW-9	10-25	2
	MW-10	115-130	2
	MW-11	155-170	2
	MW-12	40-50	2
	MW-15S	70-80	2
	MW-15I	90-100	2
	MW-16S	70-80	2
	MW-16I	90-100	2
	MW-16D	110-120	2
	MW-17S	60-70	2
	MW-17I	80-90	2
	MW-17D	120-130	2
	MW-17D1	150-160	2
	MW-18D	140-150	2
	MW-19S	50-60	2
	MW 19-I	90-100	2
	MW-20**	140-150	2
	MW-21**	140-150	2
	MW-22**	140-150	2
Public Supply Well Field Monitoring Wells	GC-1S	19-39	NA
	GC-1D	175-195	NA
	GC-2S	19-39	NA
	GC-2D	188-208	NA
	GC-3S	4-24	NA
	GC-3M	94-114	NA
	GC-3D	180-200	NA
	GC-4S	34-54	NA
	GC-4D	200-220	NA
	GC-5S	85-105	NA
	GC-5D	234-254	NA
	GC-10S	20-40	NA
	GC-11S	95-115	NA

*: screen zone inferred based on reported total depths
**: provisional well
NA: Not available

3.10 Pump Test on Well No. 21

A pump test will be conducted on Well No. 21 of the Carney Street Well Field. The objectives of this test are: 1) to determine the capture zone and hydraulic dynamics of Well No. 21, and 2) to determine the groundwater quality of the pumped groundwater. The results of the pump test will be evaluated to assess the viability of future operation of Well No. 21 for VOC plume capture, treatment and potential usage of the treated water for industrial purposes.

Well No. 21 was reported to have been pump tested in 2000 by the City of Glen Cove. The scope and findings of the test were not available to assess the relationship between the pumping impacts and groundwater quality.

The pumping of Well No. 21 and associated discharge will be coordinated with the City of Glen Cove. The pump test will be conducted for 24 hours and the well will be pumped at the maximum practical pumping rate at a constant rate. It was reported in historical files that the well had a capacity of 1,400 gallons per minute (gpm). Water level measurements will be collected from the production well and selected nearby monitoring wells. Background measurements will be collected for at least 1 day prior to the pump test. The water levels will be collected manually using an electronic water level indicator and electronically by transducers with data logging capacity. Water levels measurements during the pump test and recovery period will be collected from the selected monitoring wells with the frequencies summarized in Table 3-4. The recovery period will be considered when the water level have returned to 90% of pre-test levels.

The pumped water is assumed to be discharged to the Glen Cove sewer system as was reportedly done during previous investigations. Permission will be obtained from the City of Glen Cove and the pump test will be coordinated with the City.

Samples for analysis will be collected of pumped water from Well No. 21 in addition to the new wells of the cluster to be installed 75 feet to the south (MW-2GD1, MW-2D2 and MW-2GD3). The samples will be collected at the beginning, middle and end of the pump test and analyzed for TCL VOCs.

Table 3-4

PALL AND PHOTOCIRCUITS CORPORATION RI/FS
GLEN COVE, NEW YORK
WELL NO. 21 PUMP TEST MONITORING SCOPE

Well	Distance and Direction from Well No. 21	Well Screen Zone Depth (feet)	Frequency of Water Level Measurements	Rationale or Objective of Water Level Measurements	Samples to be Collected for VOC Analysis and Frequency
Well No. 21	0	120-165	Continuous	Specific capacity	Beginning, midpoint and end of test
MW-2GD1 MW-2GD2 MW-2GD3 MW-2GD4	75' South	70-80 110-120 150-160 210-220	Minimum Hourly	Zone of Influence	Beginning, midpoint and end of test
MW-2GS MW-G2I MW-2GD	75' South	5-15 40-50 90-100	Minimum Hourly	Zone of Influence	None
MW-4P MW-4PI MW-4PD MW-4PD1	500' Southeast	13-23 45-55 91-101 145-155	Hourly	Zone of Influence	None
GC-8S GC-8D	500' Northeast	86-106 169-189	Hourly	Zone of Influence	None
GC-2S GC-2D	900' Southeast	19-36 188-208	Hourly	Zone of Influence	None
MW-1P MW-1PI MW-1PD	100' South	5-15 41-51 90-100	Hourly	Zone of Influence	None

3.11 Data Validation

In accordance with the work assignment, all data for samples will be validated. Data validation will be conducted by a third-party individual meeting the NYSDEC requirements for a data validator.

3.12 Remedial Investigation Report

The information and sample results obtained during the Remedial Investigation program will be used to characterize the Site, including determination of the nature, extent and sources of contamination, and groundwater flow and quality during pumping of Well No. 21. This information, together with the documentation of all field procedures undertaken, including sampling, testing, and quality assurance/quality control, will be included in the Remedial Investigation Report. Analytical results will be presented in a spreadsheet format and compared to the New York State Class GA groundwater standards and guidance values.

The report will present figures and maps illustrating the locations of all sampling points, including monitoring wells, as well as pertinent analytical results. Cross sections will be prepared, if necessary, to depict the geologic and hydrogeologic characteristics of the site, as well as pertinent hydraulic and analytical information. Groundwater contour maps and flow diagrams will be prepared for hydrogeologic units, to depict groundwater flow characteristics with and without Well No. 21 pumping.

A draft Remedial Investigation Report will be prepared and submitted to the NYSDEC for review. Comments received on the draft report will be incorporated into the final Remedial Investigation Report. D&B will plan to a public meeting with the NYSDEC to present the findings of the investigation.

3.13 Feasibility Study

A feasibility study (FS) will be conducted to identify and evaluate remediation technologies, and recommend remedial action. The FS will be prepared after the Remedial Investigation Report has been finalized. As part of the FS, presumptive remedies will be evaluated including groundwater extraction and treatment, air sparging, no further action and long-term monitoring. If applicable, new emerging technologies not identified in the presumptive remedies for the Site will also be evaluated as part of the FS. The FS will include development, preliminary screening and detailed evaluation of remediation alternatives.

A draft Feasibility Study Report will be prepared and submitted to the NYSDEC for review. Comments received on the draft report will be incorporated into the final Feasibility Study Report. D&B will plan to a public meeting with the NYSDEC to provide support for presentation of the Proposed Remedial Action Plan.

Section 4

4.0 PROJECT MANAGEMENT

4.1 Project Schedule and Key Milestones/Reports

The schedule for the Pall and Photocircuits Corporations RI/FS is provided in Table 4-1. Key milestones are identified to monitor work progress. The following are milestones proposed for this project.

- Milestone 1: Submittal of the Draft RI/FS Work Plan
- Milestone 2: Submittal of the Draft Remedial Investigation Report
- Milestone 3: Submittal of Draft Feasibility Study Report

4.2 Project Management, Organization and Key Technical Personnel

Dvirka and Bartilucci Consulting Engineers (D&B) will be the prime consultant responsible for performance of the RI/FS. Subcontractors proposed to be used for this project include:

- Delta Well and Pump Company, Inc. (WBE) - Drilling, Hydropunch sampling and monitoring well installation;
- Mitkem Corporation (MBE) - Sample analysis;
- Nancy Potak (WBE) - Data validation;
- YEC, Inc. - Surveying; and
- Action Trucking, Inc. - Waste Disposal.

The project organization for the RI/FS, indicating management and project responsibilities for the project team and key personnel, is provided in Table 4-2.

Table 4-1

PALL AND PHOTOCIRCUITS CORPORATIONS RI/FS
GLEN COVE, NEW YORK
PROJECT SCHEDULE

Task 1 - Work Plan Preparation:

• Site Visit/Scoping Meeting	February 2006
• Draft RI/FS Work Plan	March 2006
• Final RI/FS Work Plan	April 2006

Task 2 - Field Investigation

• Field Investigation	
– Well Inspection Survey	May 2006
– Hydropunch Sampling	May 2006
– Monitoring Well Installation	May - June 2006
– Well Sampling	July and October 2006
– Collection of Water Level Measurements	July and October 2006
– Well Surveying and Base Map Development	July 2006
– Pump Test	July 2006
• Laboratory Analysis	July-August and September-October 2006
• Data Validation	August and November 2006

Task 3 - Remedial Investigation Report

• Draft Remedial Investigation Report	January 2007
• Final Remedial Investigation Report	February 2007
• Remedial Investigation Report Public Meeting	To be determined

Task 4 - Feasibility Study

• Draft Feasibility Study Report	March 2007
• Final Feasibility Study Report	April 2007
• Public Meeting (Proposed Remedial Action Plan)	To be determined

Table 4-2

PALL AND PHOTOCIRCUITS CORPORATIONS' RI/FS
PROJECT ORGANIZATION

NYSDEC Project Manager	Joseph Jones
D&B Project Director	Richard Walka
D&B Project Manager	Albert Jaroszewski
Health and Safety Officer	Stephen Tauss
Quality Assurance/Quality Control Officer	Robbin Petrella
Field Operations Manager	Keith Robins
Remedial Investigation Report	Albert Jaroszewski
Feasibility Study Report	Maria Wright
Drilling and Well Construction	Delta Well and Pump Company, Inc. (WBE)
Sample Analysis	Mitkem Corporation (MBE)
Data Validation	Nancy Potak (WBE)
Surveying Services	YEC, Inc. (MBE)
Waste Disposal	Action Trucking, Inc.

Section 5

Table 5-1

PALL AND PHOTOCIRCUITS CORPORATIONS RI/FS
GLEN COVE, NEW YORK
SUMMARY OF MONITORING PARAMETERS

ple Type	Sample Matrix	Sample Fraction	Container Type/Size/No.	Sample Preservation	Maximum Holding Time*	Analytical Method
	Groundwater	Volatile Organics	Glass, clear/40 ml/2 Ichem 300 or equivalent	Cool to 4°C	7 days for analysis	6/00 NYSDEC ASP Method EPA SOW OLM 04.2
	Groundwater	Volatile Organics	Glass, clear/40 ml/2 Ichem 300 or equivalent	Cool to 4°C	7 days for analysis	6/00 NYSDEC ASP Method EPA SOW OLM 04.2

ch method in Exhibit D of the 6/00 NYSDEC ASP and based upon VTSR (Verified Time of Sample Receipt).

Section 6

6.0 SITE-SPECIFIC HEALTH AND SAFETY PLAN

This section presents a summary of site-specific health and safety information. The complete Health and Safety Plan (HASP) for the site is Appendix F.

Project Name:	Pall and Photocircuits Corporations
	Remedial Investigation/Feasibility Study (RI/FS)
Address:	30-36 Sea Cliff Avenue (Pall) and 31 Sea Cliff Avenue (Photocircuits), Nassau County, New York
Telephone:	Not available (facility vacant)
Date of HASP Preparation	March 2006
Anticipated Dates of Field Investigation:	May 2006 through September 2006
Project Objectives:	Investigate and characterize groundwater quality

Project Organization:

	Name	Telephone
Project Director:	Richard Walka	(516) 364-9890
Project Manager:	Albert Jaroszewski	(516) 364-9890
Health and Safety Officer (HSO):	Stephen Tauss	(516) 364-9890
Field Operations Manager:	Keith Robins	(516) 364-9890
Field Subcontractors:	Delta Well and Pump Company, Inc.	(631) 981-2255
	YEC, Inc.	(845) 268-3203
	Action Trucking, Inc.	(516) 781-3000

Medical Assistance:

Physician:	Plainview Medical Group, P.C.
Address:	100 Manetto Hill Road, Suite 205
	Plainview, NY 11803
Telephone:	(516) 822-2541

Hospital: North Shore University Hospital/Glen Cove Hospital
101 Saint Andrews Lane, Glen Cove NY 11542

Telephone: 516-674-7300

Directions: Go east on Sea Cliff Avenue toward Hazel Street. Turn left onto Cedar Swamp Road. Cedar Swamp Road Glen Street. Turn right onto Pearsall Avenue. Follow the blue hospital signs, bearing left onto Walnut Road. The hospital is on the left-hand side. To reach the main entrance, turn left at the traffic light onto St. Andrews Lane.

(see Figure 6-1)

Emergency Contacts:

Agency/Facility	Telephone	Emergency Telephone
EMS - Ambulance		911
Glen Cove Police Department		911
Glen Cove Fire Department		911
Hospital	(516) 674-7300	
Poison Control Center	(516) 542-2323	

Additional site-related information (including special hazards, site control, waste storage and disposal, personal protective equipment, decontamination area location, special engineering controls, etc.):

Staging area for roll-offs drill cuttings, and decontamination, development and purge water to be determined. VOCs and dust will be monitored in the work zone. A Community Air Monitoring Plan will be implemented in accordance with the attached protocol.

APPENDIX 1A

New York State Department of Health
Generic Community Air Monitoring Plan

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for volatile organic compounds (VOCs) and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate NYSDEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

All 15-minute readings must be recorded and be available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

All readings must be recorded and be available for State (DEC and DOH) personnel to review.

Section 7

7.0 CITIZEN PARTICIPATION PLAN

As part of the RI/FS to be performed for the Site, a site-specific Citizen Participation Plan will be developed. The following sections identify the information that will be incorporated into the site-specific Citizen Participation Plan.

7.1 Identification of Elected Officials

This section of the Citizen Participation Plan will include the names, addresses and telephone numbers of elected officials who have expressed interest in the project/site, or are directly affected by the site or the proposed RI/FS program. A mailing list with all local and/or affected elected officials will be prepared. The mailing list will be used to inform those officials and involve those that express an interest in the project. A mechanism will also be provided in the plan to allow other interested officials to add their names to this mailing list.

7.2 Identification of Affected and/or Interested Public

This section of the Citizen Participation Plan will include the names, addresses and telephone numbers of organizations and individuals who have expressed interest in the project/site, or are directly affected by the site or the proposed RI/FS program. The names, addresses and telephone numbers of the individuals, groups and organizations identified in the following categories will be provided in the site-specific plan:

- Potentially responsible parties;
- Individuals and organizations expressing an interest in receiving newsletters, fact sheets, status reports, etc., with respect to the activities at the site;
- Residents located in close proximity and adjacent to the site; and
- Local media (newspapers, radio and TV stations).

The names and addresses of affected and/or the interested parties will be included on the mailing list. As discussed above, the list will be used to inform and involve the interested public.

Interest in the site, issues arising during various stages of investigation and development of the remediation plan, and other factors will determine if additional individuals and organizations are to be added. It should be noted that as the RI/FS proceeds, the list of interested citizens is likely to increase. While in some cases, as necessary, names may be dropped if the individual requests it due to reasons such as moving or lack of interest. Information will also be included in this section to identify the name and address of the contact person accessible to interested parties who would like their name and address included on the mailing list.

7.3 Identification of NYSDEC Contacts

This section of the Citizen Participation Plan will include the names, addresses and telephone numbers of contacts at the NYSDEC, including but not limited to the following positions:

- Project Director,
- Project Manager, and
- Regional Office Contacts.

7.4 Identification of Document Repositories

Documents relating to the RI/FS will be made available for public review at appropriate repositories. Typically, local document repositories are public buildings located near the site, such as a municipal building and/or public library. The location, including addresses, of repositories will be provided in the site-specific plan. Documents to be made available will include, but are not limited to:

- Site-specific RI/FS Work Plan;
- RI/FS Reports; and
- Fact sheets, newsletters, status reports, etc.

7.5 Description of Citizen Participation Activities

This section of the Citizen Participation Plan will describe the specific activities planned to be performed during each task of the RI/FS program to enhance public understanding of the project. The following activities will, at a minimum, be implemented, unless directed otherwise by NYSDEC. Based upon the progress of the RI/FS, local issues and level of interest, these activities may be modified.

- Development of a RI/FS Initial Fact Sheet - A "kick-off" fact sheet will be developed that would include a brief description of the site; planned work to be conducted as part of the RI/FS, including the project schedule; the date of initiation of the field program; and identification of appropriate contact person(s) to obtain additional information with regard to the project.

- Development of the Draft Work Plan, including the Field Operation and Investigation Plan; QA/QC Plan; and Health and Safety Plan - A public meeting or availability session, depending upon public interest, will be held to address any questions or comments on the recommended RI/FS program activities.

- Development of the Draft Remedial Investigation Report and possible Interim Remedial Measure - A fact sheet will be prepared, including a brief description of the site; objectives of the remedial investigation; a summary of the work completed; a summary of the findings; recommendations for an IRM and/or presumptive remedy, if required; location(s) where reports are available; a schedule for remainder of the work; and names and telephone numbers of contact person(s). If there is sufficient interest, a public meeting will be held to present the results of the remedial investigation.

- Development of the Draft Feasibility Study Report and Recommended Remedial Action - If an interim remedial measure is not installed and a presumptive remedy is not selected, a public meeting (or availability session) will be held to discuss the results of the Feasibility Study and the selection of the recommended remedial action for the site.

After submittal of a final RI/FS Report, which incorporates agency and public comments, a Record of Decision (ROD) will be prepared by NYSDEC. The ROD will document the decision process used to determine the remedial actions deemed appropriate for the site, as well as present the selected remedial action plan.

Section 8

8.0 PROJECT COST ESTIMATE

8.1 Assumptions

This section provides the estimated cost to complete the scope of work described in Section 3.0. The following assumptions have been made as part of the cost estimate.

- All field work can be completed with Level D personal protection;
- Site access for drilling locations will be secured by the NYSDEC;
- The NYSDEC will notify owners of private properties and municipalities in the vicinity of monitoring well construction and sampling activities;
- State-owned field equipment will be available for the duration of this project;
- The depth to groundwater in the site vicinity is approximately 5 to 30 feet bgs;
- Hollow stem auger drilling will be effective for the construction of planned monitoring wells;
- Drill cuttings from the monitoring wells will be placed into roll-offs and staged at a location to be determined at the beginning of the drilling program;
- Each of the newly installed monitoring wells will be developed for up to 2 hours each;
- Characterization sampling will not be required for disposal of decontamination, development and purge water;
- Decontamination, development and purge water will be discharged to the City of Glen Cove sewer system;
- Standard laboratory turnaround time of 4 weeks will be utilized;
- The operation of Well No. 21 will be conducted by the City of Glen Cove using existing equipment (no pump rental or operating equipment is included);
- Pump test water will be discharged to the City of Glen Cove sewer system;
- Two public meetings will be arranged (for the RI and PRAP) and facilitated by the NYSDEC, and the NYSDEC will distribute notification information for the meetings. The NYSDEC will prepare the PRAP material.

Schedule 2.11 (a)

Summary of Work Assignment Price
Pall and Photocircuits Corporations RI/FS

Work Assignment Number D003600-49

1.	Direct Salary Costs (Schedules 2.10 (a) and 2.11(b))	$96,029
2.	Indirect Costs (Schedule 2.10 (g))	$152,013
3.	Direct Non-Salary Costs (Schedules 2.11 (c)and (d))	$19,482

Subcontract Costs

Cost-Plus-Fixed-Fee Subcontracts (Schedules 2.11(e))

Name of Subcontractor	Services To Be Performed	Subcontract Price
YEC, Inc. (MBE)	Land Surveying	$29,612

4.	Total Cost-Plus-Fixed-Fee Subcontracts	$29,612

Unit Price Subcontracts (Schedules 2.11(f))

Name of Subcontractor	Services To Be Performed	Subcontract Price
Delta Well and Pump (WBE)	Drilling Services	$158,321
Mitkem Corporation (MBE)	Sample Analysis	$27,060
Nancy Potak (WBE)	Data Validation	$2,952
X-Ray Locating Services	Utility Survey	$7,000
Action Trucking, Inc.	Drill Cuttings Disposal	$8,775

5.	Total Unit Price Subcontracts	$204,108
6.	Subcontract Management Fee	$6,488
7.	Total Subcontract Costs (lines 4 + 5 + 6)	$240,208
8.	Fixed Fee (Schedule 2.10 (h))	$20,836
9.	Total Work Assignment Price (lines 1 + 2 + 3 + 7 +8)	$528,568

SCHEDULE 2.11 (b)
SUMMARY
Pall and Photocircuits Corporations RI/FS
Work Assignment No. D003600-49

Average NSPE Wage Rates	IX	VIII	VII	VI	V	IV	III	II	I	TOTAL HOURS
as of July 1, 2002	$63.70	$59.68	$51.87	$41.78	$35.11	$29.65	$26.91	$23.36	$18.63	
Task 1 - Work Plan Development	0	4	0	76	11	0	12	42	5	150
Task 2 - Remedial Investigation	0	24	0	152	8	208	1,110	28	314	1,844
Task 3 - RI Report	0	18	0	200	98	120	120	132	40	728
Task 4 - FS Report	0	12	0	80	148	16	12	56	8	332
Task 5 - Meetings	0	12	0	36	48	4	16	30	4	150
Total Hours	0	70	0	544	313	348	1,270	288	371	3,204
Total Direct Labor Cost	$0	$4,178	$0	$22,728	$10,989	$10,318	$34,176	$6,728	$6,912	$96,029

SCHEDULE 2.11 (b-1)
SUMMARY
Pall and Photocircuits Corporation RI/FS
Work Assignment No. D003600-49

Average NSPE Wage Rates	IX	VIII	VII	VI	V	IV	III	II	I	TOTAL HOURS
as of July 1, 2002	$63.70	$59.68	$51.87	$41.78	$35.11	$29.65	$26.91	$23.36	$18.63	
Task 1	0	0.5	0	4	0	0	0	4	0	8.5
Task 2	0	0.5	0	2	0	0	0	14	0	16.5
Task 3	0	0.5	0	2	0	0	0	12	0	14.5
Task 4	0	0.5	0	2	0	0	0	6	0	8.5
Task 5	0	0.5	0	2	0	0	0	4	0	6.5
Total Hours	0	2.5	0	12	0	0	0	40	0	54.5
Total Direct Labor Cost	$0	$149	$0	$501	$0	$0	$0	$934	$0	$1,585

Dvirka & Bartilucci Consulting Engineers
Pall and Photocircuits Corporation RI/FS
Work Assignment No. D003600-49

BREAKDOWN OF ADMINISTRATIVE LOE HOURS ON SCHEDULE 2.11(b-1)

ADMIN ACTIVITY	WORK PLAN DEVELOPMENT														REVIEW WORK ASSIGNMENT (WA) PROGRESS													
	Conflict of Interest Checks						Prepare 2.11 Schedules								Conduct Progress Reviews						Prepare Monthly Report & Update Schedules							
NSPE	IX	VIII	VII	VI	V	IV	VIII	VII	VI	V	IV	III	II	I	VIII	VII	VI	V	IV	III	VIII	VII	VI	V	IV	III	II	I
TASK 1		0.5							4																			
TASK 2																							2					
TASK 3																							2					
TASK 4																							2					
TASK 5																							2					
TOTAL	0	0.5	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0

ADMIN ACTIVITY	REVIEW WORK ASSIGNMENT (WA) PROGRESS														CAP PREPARATION											
	MBE/WBE Activities								Program Management						Prepare Monthly Cost Control Report & CAP								Oversee CAP			
NSPE	VIII	VII	VI	V	IV	III	II	I	IX	VIII	VII	VI	V	IV	VIII	VII	VI	V	IV	III	II	I	IX	VIII	VII	VI
TASK 1																					4					
TASK 2										0.5											14					
TASK 3										0.5											12					
TASK 4										0.5											6					
TASK 5										0.5											4					
TOTAL	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	40	0	0	0	0	0

ADMIN ACTIVITY	MISCELLANEOUS																									
	Update NSPE List								Equipment Use and Inventory				Word Proc. and Report Preparation				Total Adm. LOE (hrs)									
NSPE	VIII	VII	VI	V	IV	III	II	I	IV	III	II	I	IV	III	II	I	IX	VIII	VII	VI	V	IV	III	II	I
TASK 1																	0	0.5	0	4	0	0	0	4	0
TASK 2																	0	0.5	0	2	0	0	0	14	0
TASK 3																	0	0.5	0	2	0	0	0	12	0
TASK 4																	0	0.5	0	2	0	0	0	6	0
TASK 5																	0	0.5	0	2	0	0	0	4	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.5	0	12	0	0	0	40	0

SCHEDULE 2.11 (c)
DIRECT NON-SALARY COSTS
SUMMARY
Pall and Photocircuits Corporation RI/FS
Work Assignment No. D003600-49

ITEM	MAXIMUM REIMBURSEMENT RATE	UNIT	ESTIMATED NUMBER OF UNITS	TOTAL ESTIMATED COSTS
IN-HOUSE				
Outside Services*	$200.00	set	0	$0.00
Express Mail	$25.00	package	10	$250.00
Sample Shipping	$50.00	shipment	20	$1,000.00
Level D Safety Equipment	$14.00	$/person/day	116	$1,624.00
Level C Safety Equipment	$40.00	$/person/day	0	$0.00
Level B Safety Equipment	$50.00	$/person/day	0	$0.00
TRAVEL				
Transportation (Personal Car)	$0.445	mile	2,400	$1,068.00
Van Rental	$100.00	day	20	$2,000.00
Gas	$50.00	day	4	$200.00
TOTAL DIRECT NON-SALARY COSTS				$6,142.00

* Includes photo finishing, slides and any other costs not associated with in-house capabilities.